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A Study In Procedural Manipulation of Locus of Control

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Final Report, 13, April 1979

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A thesis submitted to North Carolina Central University in  
partial fulfillment of the requirements for the Degree of  
Master of Arts.

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Results revealed that locus of control scores in the experimental group shifted significantly ( $p < .05$ ) in the internal direction while those in the control condition moved toward an external orientation. Externals in the experimental group contributed significantly ( $p < .05$ ) to the overall change. Internals were found to move toward externality. The findings confirmed the contention that locus of control orientation can be influenced toward internality. Recommendations are offered for use of locus of control intervention techniques in academic settings.

*See table*

A STUDY IN PROCEDURAL MANIPULATION  
OF  
LOCUS OF CONTROL

by

Vernon Webster Hatley

A thesis submitted to the Faculty of the  
North Carolina Central University in par-  
tial fulfillment of the requirements for  
the degree of Master of Arts in the Depart-  
ment of Psychology.

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## ABSTRACT

VERNON WEBSTER HATLEY. A Study in Procedural Manipulation of Locus of Control. (Under the direction of DR. LES BRINSON.)

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techniques in academic settings.

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This thesis is dedicated to the late Jessie Smaw Hawkins, my typist and sister-in-law who succumbed following completion of the first two chapters.

## TABLE OF CONTENTS

	Page
LIST OF TABLES . . . . .	v
Chapter	
1. INTRODUCTION . . . . .	1
Review of Related Literature . . . . .	1
Statement of the Problem . . . . .	7
Definition of Terms . . . . .	12
Significance of the Study . . . . .	13
Limitations of the Study . . . . .	14
2. METHOD . . . . .	16
Research Design . . . . .	16
Subjects-Sampling Procedures . . . . .	16
Trainers . . . . .	17
Instrumentation . . . . .	17
Experimental Procedures . . . . .	18
Statistical Procedures . . . . .	22
3. RESULTS . . . . .	25
4. DISCUSSION AND SUMMARY . . . . .	33
BIBLIOGRAPHY . . . . .	37
APPENDIXES	
A. ROTTER'S INTERNAL-EXTERNAL SCALE . . . . .	40
B. Experimental Group Activities . . . . .	46
C. Control Group Exercises . . . . .	51

	Page
D. Information Regarding Laboratory Grade . . . . .	56
E. Student Absentee Form . . . . .	57
F. Schedule of Activities . . . . .	58
G. Table 4- T-Test--Pretest Versus Posttest . . . . .	61
H. Table 5 - Summary Table of Correlations . . . . .	62

## LIST OF TABLES

Table	Page
1. Analysis of Variance Summary of Difference in All Subjects. . . . .	30
2. Analysis of Variance Summary on Effects of Sex on Change. . . . .	31
3. Two-Way Analysis of Variance Sample Subgroup Means . . . . .	32
4. <u>T</u> -Test--Pretest Versus Posttest . . . . .	61
5. Summary Table of Correlations . . . . .	62

## Chapter 1

### INTRODUCTION

Many factors in some form or other have been attributed to improved student performance in academic endeavors. One such factor, locus of control, has been implicated as a powerful variable which appears to contribute to higher academic achievement (Crandall, Katkovsky, and Crandall, 1965; Chance, 1972).

Albeit the findings have been mixed, existing evidence seem to indicate that locus of control, in some circumstances, may be a useful predictor of academic success (Lefcourt, 1966; Rotter, 1966; Nord, Connelly, and Fagnault, 1974; and Allen, Gait, and Cherney, 1974).

Armed with the knowledge of a growing demand for improved scholastic achievement in colleges and universities, the researcher investigated the possibility of using change techniques to alter locus of control in students assigned to a general psychology course at North Carolina Central University.

#### Review of Related Literature

The internal-external locus of control concept was first introduced by Julian B. Rotter in 1954 through his book, Social Learning and Clinical Psychology. According to

Rotter, there were some variables which were to be considered in his theory. They were:

(1) the potential for behavior to occur; (2) the expectancy that these behaviors will lead to a given reinforcement in a given situation; and (3) the value of the reinforcement in that situation in which the behavior reinforcement sequence occurs (Rotter, 1962).

In Rotter's theory the potential for a behavior to occur in a given situation was based on a person's expectancy that the behavior would assure the attainment of some available reinforcement (Lefcourt, 1966). Rotter in 1966 hypothesized that these expectancies of reinforcement generalized from specific situations to more general situations, thus establishing generalized expectancies in the individual's mind. (Rotter, 1966).

Rotter additionally suggested that as an individual develops, reinforcements are received for certain actions thus adding strength to the expectancies. For example, if an individual has not learned to distinguish a causal relationship between behavior and reinforcement, little will be done to change expectancies. Conversely, if a person sees the contingency between his own behavior and a reinforcement, the reinforcement will strengthen or weaken the potential for that particular behavior to happen in the same or similar situation (Rotter, 1966).

An individual who believes that reinforcements are contingent upon his own behavior, capacities or attributes is referred to as having internal control. If an individual believes that reinforcements are not entirely contingent

upon his own behavior, but are the result of luck, chance, or under the control of some powerful others, then that individual is labeled as having external control (Rotter, 1966). The external does not believe he can control the reoccurrence of reinforcement, thus an occurring reinforcement provides little information about the appropriateness of his behavior. It follows then that externality reduces the amount of new learning that should occur due to new learning experiences (Rotter, 1966).

Unlike externals, internals have been described as having more realistic aspiration levels and more initiative as well as more control over their own impulses. Additionally, internals have generally described themselves as being more active, more powerful, and more independent than their external counterparts (Hersch and Scheibe, 1971).

It has been reported that the internal-external construct operates over a wide variety of situations. Rotter in the development of the Internal-External Locus of Control scale claimed to have produced an instrument which was broad enough to explore a large variety of possible theoretical and practical problems (Rotter, 1975).

In recent years, locus of control has been of particular interest, specifically in the area of achievement. Rotter hypothesized that internals, by virtue of their belief in personal control, would spend more time and effort in trying to achieve than externals who feel that they have little or no control over reinforcements (Rotter, 1975). This content-

ion has been supported by subsequent research (Chance, 1972). Brown and Strickland reported that not only did internals spend more time and show more interest in intellectual and academic matters but they scored higher on intelligence and achievement tests (Brown and Strickland, 1972). Recently there has been an appeal to the academic community to structure environments that will induce and maintain realistic internal perception of locus of control (Bar-Tol and Bar-Zohar, 1977).

Since a substantial amount of literature has supported the idea that internality may be a basis for higher striving or achievement, some researchers have devised techniques for directing one's locus of control toward internality. Reimanis and Schaefer successfully developed certain counseling techniques which shifted individuals' locus of control toward greater internality. Those techniques included:

A. Challenging or confronting "external statements" ("they want me to be ...") with "internal questions" ("What do you want to be?"). With each confrontation the counselor or therapist attempts to replace an external control statement or thought made by the subject with an internal one.

B. Rewarding internal statements ("I will seek tutoring.").

C. Getting the subject to recognize and focus upon the contingencies of his behavior.

If he does such and such, then a result will occur.

1. Questioning what he could have done differently to change the outcome of the past problem.

2. Questioning what he might do to manipulate the outcome of a present problem.

3. Questioning what he would do in the future to cope with specific problems (Reimanis and Schaefer, 1970).

The emphasis of these techniques was to make the

individual see himself as having source power to effect change (MacDonald, 1972). If the individual realized that he possessed that power, then a change toward internality was observed.

Dua found that behaviorally oriented action programs designed to create new behaviors for dealing with problem situations were more effective than reeducation programs which attempted to effect changes in locus of control. Dua's action programs allowed each individual to develop and practice new specific behaviors which were aimed at improving relationships with others (Dua, 1970).

Later Reimanis applied behavior modification techniques in early graders and special counseling efforts to strengthen verbalization of internality in college students. It was concluded that procedures oriented toward strengthening the perception of behavior-effect contingencies produce significant increases in internal control as measured by Rotter's Internal-External scale (Reimanis, 1974). It appeared at this point that the practice of effecting change in locus of control was appropriate in an academic environment.

Albeit a certain degree of success has been noted in utilizing behavior modification techniques to effect change in locus of control, some researchers have raised the question of whether ethnicity of subjects has contributed to some of the results. That question had been addressed with consistent findings until recently.

As early as 1963, Battle and Rotter reported that blacks

and lower class individuals have higher external scores than whites and middle-class individuals (Battle and Rotter, 1963). Lefcourt reported similar findings in his group studies (Lefcourt, 1966). Recently the contention has not been that blacks are more external than whites (MacDonald, 1975). An explanation for some of the earlier findings may have been rooted in the reinforcement history of the ethnic group. Blacks because they have been manipulated by society over the years have had fewer opportunities to develop the internal orientation that whites have (Williams and Stack, 1972).

Some questions on the Rotter scale were specifically directed at how one perceived his control over world affairs and politics. Blacks by virtue of their history have known the reality of the situation and therefore have responded accordingly. Such responses have contributed to higher external scores.

Conceptually it appears to be a worthwhile venture to attempt a change toward internality since the literature supports the contention that internality fosters industrious, independent, and achieving behaviors. Further evidence suggests that in academic settings, it is desirable to change locus of control orientations of students, especially minority students, toward increased internality (Mink, 1977).

As a result of the preceding review of the literature, this researcher finds unresolved the question of the appropriateness of internal-external locus of control in an academic setting. It shall thus be the general purpose of this study

to provide suitable stratagems which may be applied in academia to effect change in locus of control.

#### Statement of The Problem

Historically, students at North Carolina Central University have had some difficulty in successfully negotiating the general psychology course. Efforts to rectify this situation through reconstruction of the course curriculum, changing of textbooks, and the addition of a laboratory period have been to no avail.

The researcher has identified and examined locus of control for its possible contribution to the learning experience. Internal-external locus of control was investigated as an expectancy variable in this study.

The purposes of this study were as follows:

1. To develop, examine, and test specific locus of control change techniques.
2. To determine by means of Rotter's Internal-External Locus of Control Scale if students in a general psychology class at North Carolina Central University during the spring semester of 1979 who were matched on external locus of control scores would become internal as a result of exposure to internal-external locus of control intervention techniques during laboratory periods.
3. To determine by means of Rotter's Internal-External Locus Control Scale if students in a general psychology class at North Carolina Central University during the spring semester of 1979 who were matched on internal locus of control scores

would become more internal as a result of exposure to internal-external locus of control intervention techniques during laboratory periods.

4. To determine the effects of the treatment procedures, that is, if there were any significant difference in the locus of control scores of those students who were exposed to change techniques and those not exposed to change techniques.

5. To determine if there were a significant difference in the change toward internality of internals who were exposed to locus of control intervention techniques and externals who were not exposed to intervention techniques.

6. To determine if there were a significant difference in the change toward internality of externals who were exposed to locus of control intervention techniques and internals who were not exposed to intervention techniques.

7. To determine if there were any significant difference in the amount of change between sexes of those students who were exposed to change techniques and those not exposed to change techniques.

8. To determine if there were a significant correlation between the pretest and posttest internal-external locus of control scores of students who were exposed to change techniques.

9. To determine if there were a significant correlation between the pretest and posttest internal-external locus of control scores of students who were not exposed to change techniques.

10. To determine if there were a significant correlation between the pretest locus of control scores of students who were exposed to change techniques and posttest locus of control scores of students who were not exposed to change techniques.

11. To determine if there were a significant correlation between the pretest locus of control scores of students who were not exposed to change techniques and posttest locus of control scores of students who were exposed to change techniques.

12. To determine if there were any significant difference in the pretest internal-external locus of control scores of students lost via attrition and those who completed the course.

The following hypotheses were presented and tested at the .05 level of significance:

a. There is no difference in the locus of control scores of external students who were exposed to change techniques and those not exposed to change techniques.

b. There is no difference in the locus of control scores of internal students who were exposed to change techniques and those not exposed to change techniques.

c. There is no difference in the locus of control scores of students who were exposed to change techniques and those not exposed to change techniques.

d. There is no difference in the change toward internality of internals who were exposed to locus of control intervention techniques and externals who were not exposed

to intervention techniques.

e. There is no difference in the change toward internality of externals who were exposed to locus of control intervention techniques and internals who were not exposed to intervention techniques.

f. There is no difference in the amount of change between sexes of those students who were exposed to change techniques and those who were not exposed to change techniques.

g. There is no significant correlation between the pretest and posttest internal-external locus of control scores of students who were exposed to change techniques.

h. There is no significant correlation between the pretest and posttest internal-external locus of control scores of students who were not exposed to change techniques.

i. There is no significant correlation between the pretest locus of control scores of students who were exposed to change techniques and posttest locus of control scores of students who were not exposed to change techniques.

j. There is no significant correlation between the pretest locus of control scores of students who were not exposed to change techniques and posttest scores of students who were exposed to change techniques.

k. There is no difference in the pretest internal-external locus of control scores of students lost through attrition and those who completed the course.

Some research hypotheses were offered to guide and focus the researcher's efforts. It was hypothesized (at the .05 level of significance) that:

(1) The locus of control scores of external students who were exposed to change techniques would shift more toward the internal end of Rotter's Internal-External Control scale than those external students who were not exposed to change techniques.

(2) The locus of control scores of internal students who were exposed to change techniques would be lower than the scores of those internals who were not exposed to change techniques.

(3) Locus of control scores of students who were exposed to change techniques would move more in the internal direction than the scores of those who were not exposed to the change techniques.

(4) Internals who were exposed to locus of control intervention techniques would experience a greater change toward internality than externals who were not exposed to intervention techniques.

(5) Externals who were exposed to locus of control intervention techniques would experience a greater change toward internality than internals who were not exposed to intervention techniques.

(6) Male students who were exposed to change techniques would produce locus of control scores with a greater shift in the internal direction than males who were not exposed

and females. (Both females who were exposed and females who were not exposed were compared against males who were exposed.)

(7) There is a positive correlation between the pretest and posttest internal-external locus of control scores of students who were exposed to change techniques.

(8) There is a positive correlation between the pretest and posttest internal-external locus of control scores of students who were not exposed to change techniques.

(9) There is a positive correlation between the pretest locus of control scores of students who were exposed to change techniques and posttest locus of control scores of students who were not exposed to change techniques.

(10) There is a positive correlation between the pretest locus of control scores of students who were not exposed to change techniques and posttest scores of students who were exposed to change techniques.

(11) Students who were lost through attrition during the semester had scores (at pretest) higher in the external direction than those students who completed the course.

#### Definition of Terms

Internal Control - -	refers to individuals who perceive reinforcements as being contingent upon their own behavior, capacities, or attributes.
External Control - -	refers to individuals who perceive reinforcements as being under the control of luck, change, fate, or some powerful others.

Change techniques - - specific procedures designed to  
(Intervention techniques) challenge and/or confront students  
requiring them to provide suitable  
rationales to support their posi-  
tions on issues. These procedures  
are also designed to help students  
recognize and focus upon the  
contingencies of their behavior.  
Special emphasis is placed on re-  
warding internal statements and  
behavior.

### Significance of The Study

This study will expand on previous research which has indicated that locus of control is a viable variable in producing higher scholastic achievement. Investigating the concept of internal-external locus of control as a change vehicle in classroom instruction may prove to be of great significance in academia.

For college and university professors, this study will provide precise methodology for changing the locus of control of students in academic settings. As a result, higher achieving students are expected to emerge following exposure to locus of control intervention techniques.

To psychologists, the study will provide a well-defined strategy for changing locus of control in groups of individuals simultaneously. It will also provide a basis for additional research in locus of control change outside the usual counseling or therapeutic setting.

Most importantly this research will fit into North Carolina Central University's ongoing research program which seeks to identify methods of curtailing attrition. Even

though this is the first of a series of studies in this area, it will provide a basis for more critical evaluation. It is anticipated that this study will provide a tool which can be integrated into the university's curriculum and possibly become a required course for all entering students. If implementation is successful, the attrition rate will likely be minimized.

To the researcher, who is pursuing a military career, this study will provide methodology which possibly can be integrated into military training programs. As a result training time could be maximized with less time and emphasis being needed for disciplinary action.

#### Limitations of The Study

This study was conducted on an intact general psychology class at North Carolina Central University. Most students were required to take a course in general psychology, therefore, the sample was representative of the population.

In the university population, there was a significant difference in the male/female sexual distribution (62% female). It was anticipated that significantly more female than male students would be enrolled in the general psychology class.

The racial composition of the population was predominantly black. Therefore the applicability to other populations remains uncertain.

Subjects in the study were matched only on the variable of locus of control scores. It was assumed that locus of

control was more powerful than any other variable which may have intervened during treatment.

The effect of change in grades as a result of exposure to locus of control intervention techniques was not reported in this research. The applicability of grades to internal-external locus of control change was investigated and reported by a researcher colleague.

In this study, there was no control for the effect of the instructor's personality or race on the outcome. This issue was addressed in a study which was conducted simultaneously by a colleague on the same population.

## Chapter 2

### METHOD

#### Research Design

The design utilized for this study was a two by four matched group design. Each of the two groups were divided into four sections.

The dependent variables for this study were the presumed change of scores on Rotter's Internal-External Locus of Control Scale and locus of control scores of students lost through attrition during the semester.

The independent variable was a set of organized systematic activities and actions designed as change techniques. These techniques are explained in the procedures sections of this document.

#### Subjects - Sampling Procedures

The subjects were one hundred-fifty (150) general psychology students at North Carolina Central University during the spring semester of 1979. Since general psychology was a general education program course required by the university, the sample was representative of the population.

All subjects completed personal data sheets and were administered the Rotter's Internal-External Control scale at the first class meeting to obtain pretest measures of internality and externality. After the total number of internals

and externals were determined, subjects were matched into an experimental and a control group which contained four sections each (one hundred twenty eight (128) subjects, completed the study).

### Trainers

Instruction for the course was conducted by the psychology department faculty along with some graduate assistants. Assignment of trainers to experimental and control conditions was made according to experience level. Two experienced professors were assigned to the experimental condition while two were assigned to the control condition. Likewise, two graduate assistants were assigned to the experimental condition and two were assigned to the control condition.

### Instrumentation

The instrument for use in this study was Rotter's Internal-External Locus of Control scale. This instrument was designed to measure the degree to which one believed that his rewards or punishments (reinforcements) were contingent upon his own behavior or were the result of luck, chance, fate, or some powerful others.

The scale was a twenty-nine item, forced-choice test including six filler items intended to make the purpose of the test appear ambiguous. Each test item consisted of a pair of alternatives which the respondent was required to select the one that he/she believed to be true according to his/her personal belief. The score received equaled the

total number of external choices chosen (See Appendix A for Rotter's Scale). Low scores indicated internality (0-11) while higher scores represented externality (12-23).

Validity and reliability of the instrument was reported extensively by Rotter in his original monograph (Rotter, 1966). Other research since the original monograph has supported Rotter's contention (Joe, 1971; Hersch and Scheibe, 1967).

#### Experimental Procedures

The general psychology class met three times each week. Two days of each week were devoted exclusively to lectures to the entire class in mass. One day of each week consisted of a laboratory session in which students were sub-divided into eight sections. Each section was assigned a trainer who provided classroom instruction.

Treatment was provided to the experimental group only during laboratory sessions. The treatment extended over an eight (8) week period with subjects in the experimental and control conditions attending a fifty (50) minute laboratory session each week.

At the end of the eight (8) week period, Rotter's Internal-External Locus of Control scale was administered to obtain posttest measures of internal-external control. Following posttesting, laboratory instruction continued for the remainder of the semester utilizing the two diverse methods.

The trainers for the experimental sections were trained

prior to the treatment period in Internal-External Locus of Control change technique strategy. This training included demonstration of the use of the socratic method of instruction, that is, eliciting student participation in classroom discussion and requiring students to provide a suitable rationale for their answers to questions. For example, students may have been asked to cite studies or research to support the contention that high school students are more influenced by authority than adults. This instruction method also emphasized provisions for providing reinforcement (verbal, smiling, nodding approval, etc.) for internal behavior. Additionally, the trainers for the experimental sections were provided experiential learning activities which attempted to change locus of control.

Trainers for the control sections were also trained prior to the treatment period to insure uniformity in the traditional method of instruction. In this case, the traditional method of instruction included explaining the lecture and textbook materials more fully, correcting and monitoring student workbook activities, and insuring that student participation in classroom discussion was not excessively elicited. Some neutral activities were presented which served as control group experiential activities.

The purpose of the experimental condition was to help students realize that they were in control of their destiny and to elicit internal attitudes and behaviors. The major emphasis in this procedure was on challenging or confronting

students each time external behaviors were noted. Trainers may have asked such questions as "What have you read that supports your conclusion?" and "What would you have done had you been the researcher?".

The first ten minutes of each laboratory session in the experimental group was devoted to activities aimed at eliciting internal behavior (See Appendix B). One such activity may have been that a specific situation was explained to the participants. Then each class member may have been asked what he/she would have done to solve the problem which was presented. Each participant was required to demonstrate his/her ability to solve that problem.

For the remaining forty minutes of each session, the trainers lead discussions of content material by asking questions which generated student participation. Following each response, students were required to provide documentation or acceptable rationales supporting that response. Students were also encouraged to critically analyze the assigned readings and to challenge the textbook author on points which may have appeared questionable.

Subjects in the experimental group were reinforced verbally or through actions when internal behavior was noted. Verbal reinforcement included responses as "good", or "you're right" when internal behaviors were exhibited while nods and smiles represented some non-verbal reinforcement. Therefore the reinforcement of subjects was entirely contingent upon specific internal behaviors.

The control group was designed to simultaneously cover identical content material as the experimental group except for the method of instruction which followed the traditional style. The primary concern of this group was the assigned content material of the course.

For the first ten minutes of each laboratory session, the control group participated in exercises. These exercises were neutral in nature and served to occupy an equivalent amount of time as did the exercises in the experimental group (See Appendix C). During the remaining forty minutes of each class session, the trainers directed class utilizing the usual lecture method.

Three (3) examinations were administered during the semester which covered content material from the lecture sessions. Of those three exams, the lowest score was dropped with the remaining two scores each counting one-fourth of the total course grade. At the end of the semester, a final exam was administered which counted one-fourth of the total grade. Finally, the laboratory grade represented one-fourth of the total grade.

In both the experimental and control conditions, two laboratory exams were administered to assess retention of content material. The exams were unannounced in anticipation that absences would be minimized. If an exam was missed, no make-up exam was administered. At the first laboratory session each trainer informed students of the requirements for a laboratory grade (See Appendix D).

Each laboratory exam consisted of twenty multiple choice questions designed to measure the following learning outcomes: knowledge, comprehension, application, and synthesis. On each laboratory exam there were five questions covering each of the four areas. Each correctly answered question counted two (2) points. Total points possible on each laboratory exam was forty (40) with ten (10) points being added to each exam for class attendance. Therefore total points allowed for the laboratory grade was one-hundred (100). The laboratory grade represented twenty-five (25) percent of the total course grade.

At the beginning of each session, roll was taken by each trainer. If a student arrived after the roll had been completed, an absence was recorded. Tardy students were allowed to remain in class but were classified as absent. Following each session, trainers completed student absentee forms (Appendix E) which were provided by the researcher. For each recorded absence, two (2) points were deducted from the student's attendance portion of the laboratory grade.

#### Statistical Procedures

A. A t-test of difference between means was used as the statistical procedure for determining if there were a difference in the locus of control scores of external students who were exposed to change techniques and those not exposed to change techniques. The t-test was used under the assumption that the sample was selected from a population having a Gaussian

distribution and the variances of the experimental and control groups were equal (level of significance was .05).

B. A t-test of difference between means was used as the statistical procedure to determine if there were a difference in the locus of control scores of internal students who were exposed to change techniques and those not exposed to change techniques (level of significance was .05).

C. An F-test was used to assess the difference in the locus of control scores of all students who were exposed to change techniques and those not exposed to change techniques (level of significance was .05).

D. A t-test of difference between means was used to determine if there were a difference in the change toward internality of internals who were exposed to locus of control intervention techniques and externals who were not exposed to intervention techniques (level of significance was .05).

E. A t-test of difference between means was used to determine if there were a difference in the change toward internality of externals who were exposed to locus of control intervention techniques and internals who were not exposed to intervention techniques.

F. In determining if there were a difference in the amount of change between sexes of those students who were exposed to change techniques and those not exposed to the techniques, a two-way analysis of variance was used.

G. Pearson  $r$  was used to determine the correlation between the pretest and posttest internal-external locus of control

scores of students who were exposed to change techniques.

H. In determining the correlation between the pretest and posttest locus of control scores of students who were not exposed to change techniques, Pearson  $r$  was used.

I. Pearson  $r$  was used to determine the correlation between the pretest locus of control scores of students who were exposed to change techniques and posttest locus of control scores of students who were not exposed to change techniques.

J. Pearson  $r$  was used to determine the correlation between the pretest locus of control scores of students who were not exposed to change techniques and posttest scores of students who were exposed to change techniques.

K. A  $t$ -test of difference between means was used to determine the difference in pretest internal-external locus of control scores of students lost through attrition and those who completed the course.

## CHAPTER 3

### RESULTS

Hypothesis 1: There is no significant difference in locus of control scores of externals who were and were not exposed to change techniques.

A t-test<sup>1</sup> was performed to determine the difference in group means of locus of control scores of externals who were and were not exposed to change techniques. A significant difference was found, t (56) = -2.40, p < .05).

Hypothesis 2: There is no significant difference in locus of control scores of internals who were and were not exposed to change techniques.

A t-test indicated there was no significant difference in locus of control scores of internals who were and were not exposed to change techniques, t (72) = -1.16, p > .05.

Hypothesis 3: There is no significant difference in locus of control scores of all students who were and were not exposed to change techniques.

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<sup>1</sup>The statistical package for the social sciences sub-programs, T-Test and ANOVA, version H, July 11, 1977 were used for all statistical analyses.

An  $F$ -test<sup>2</sup> revealed, as depicted in Table 1, a significant difference in locus of control scores of all students who were and were not exposed to change techniques,  $F(1,126) = 5.12$ ,  $p < .05$ .

Hypothesis 4: There is no significant difference in change toward internality of internals who were exposed to locus of control intervention techniques and externals who were not exposed to intervention techniques.

A  $t$ -test was used to determine the difference in change toward internality of internals who were exposed to locus of control intervention techniques and externals who were not exposed to intervention techniques. No significant difference was found,  $t(62) = 1.17$ ,  $p > .05$ .

Hypothesis 5: There is no significant difference in change toward internality of externals who were exposed to locus of control intervention techniques and internals who were not exposed to intervention techniques.

A computed  $t$ -test indicated a significant difference in change toward internality of externals who were exposed to

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<sup>2</sup>Ibid.

locus of control intervention techniques and internals who were not exposed to intervention techniques,  $t(66) = -3.63, p < .05$ .

Hypothesis 6: There is no significant difference in the amount of change according to sex of students exposed and not exposed to change techniques.

An  $F$ -test revealed, as shown in Table 2, a significant amount of change associated with sex of students exposed and not exposed to change techniques,  $F(1,1) = 5.04, p < .05$ . Interaction was not significant. Table 3 displays the two-way analysis of variance sample subgroup means.

Hypothesis 7: There is no significant correlation between pretest and posttest internal-external locus of control scores of students exposed to change techniques.

Pearson  $r$  indicated a significant correlation between pretest and posttest locus of control scores of students exposed to change techniques,  $r = .61, p < .05$  (see Table 5, Appendix H).

Hypothesis 8: There is no significant correlation between pretest and posttest locus of control scores of students not exposed to change techniques.

Pearson  $r$  revealed a significant correlation between pretest and posttest locus of control scores of students not

exposed to change techniques,  $r = .65$ ,  $p < .05$ .

Hypothesis 9: There is no significant correlation between pretest locus of control scores of students exposed to change techniques and posttest locus of control scores of students not exposed to change techniques.

A computed Pearson  $r$  indicated a significant correlation between pretest locus of control scores of students exposed to change techniques and posttest locus of control scores of students not exposed to change techniques,  $r = .60$ ,  $p < .05$ .

Hypothesis 10: There is no significant correlation between pretest locus of control scores of students not exposed to change techniques and posttest scores of students exposed to change techniques.

Pearson  $r$  revealed a significant correlation between pretest locus of control scores of students not exposed to change techniques and posttest scores of students exposed to change techniques,  $r = .53$ ,  $p < .05$ .

Hypothesis 11: There is no significant difference in the pretest locus of control scores of students who dropped the course and those completing it.

A t-test indicated a significant difference in the pretest locus of control scores of students who dropped the course and those completing it, t (148) = -3.13, p < .05.

Table 1  
Analysis of Variance Summary of Difference In All Students

Source	<u>SS</u>	<u>df</u>	<u>MS</u>	F
Between Groups	59.11	1	59.11	5.12
Within Groups	1456.06	126	1456.06	

$p < .05$

Table 2  
 Analysis of Variance Summary On Effects of Sex On Change

Source	<u>SS</u>	<u>df</u>	<u>MS</u>	<u>F</u>
Main Effects				
Sex	65.12	2	32.56	2.79
Treatment	58.85	1	58.85	5.04*
Interaction	4.58	1	4.58	0.39
	3.17	1	3.17	0.27

\*p < .05

Table 3  
Two-Way Analysis of Variance Sample Subgroup Means

Sex	Groups	
	Experimental	Control
Male	$\bar{X}_b^1 = 10.60$ $\bar{X}_a^2 = 10.30$	$\bar{X}_b = 9.56$ $\bar{X}_a = 11.00$
Female	$\bar{X}_b = 11.68$ $\bar{X}_a = 11.10$	$\bar{X}_b = 10.88$ $\bar{X}_a = 11.62$

<sup>1</sup> $\bar{X}_b$  = Mean scores at pretest

<sup>2</sup> $\bar{X}_a$  = Mean scores at posttest

## CHAPTER 4

### DISCUSSION AND SUMMARY

The results of this study confirm that, given prescribed conditions or treatment, subjects' locus of control scores can be influenced toward internality. Locus of control scores of subjects in the experimental group changed significantly ( $p < .05$ ) more than scores of subjects in the control group. This fact was further supported by a t-test between pretest and posttest scores of each group, as shown in Table 4, Appendix G. The greatest change was found in externals in the experimental group. Internals in both the experimental and control groups shifted slightly toward the external end of the continuum, but internals in the control group experienced a greater shift toward externality. Therefore internals did not contribute significantly ( $p > .05$ ) to change.

The results did not support research hypothesis two (2) which stated locus of control scores of internal students exposed to change techniques would be significantly lower than locus of control scores of internal students not exposed to change techniques. Implications are that internals will not become more internal following exposure to change techniques but will maintain a relatively stable internal orientation. The findings, therefore, suggest that locus of control intervention techniques are not only essential to effect shifts in orientation toward internality but are also necessary to impede movement of internals

in the external direction. According to this study, externals comprise the optimum population for effecting change toward internality.

Significant correlations ( $p < .05$ ) were noted in pretest-posttest comparisons as reported by the Pearson product-moment correlation (See Table 5, Appendix H.). The highest correlation was observed in pretest-posttest correlations of the control group. These results were expected as a change in the control group was not anticipated.

When sex of subjects was considered, it was found that sex contributed significantly ( $p < .05$ ) to change. No significant interaction was observed but there were indications of loading with respect to sexual composition of each group. Male students exposed to change techniques did not shift significantly ( $p > .05$ ) as hypothesized.

The fact that locus of control scores were successfully manipulated support the literature on locus of control change (Reimanis and Schaefer, 1970; MacDonald, 1972; Dua, 1970; and Lefcourt, 1976). The results of this research suggest that academic administrators should integrate instructional methodology into college and university curricula which would allow application of detailed locus of control intervention techniques in the classroom. Such techniques would serve to shift locus of control toward internality, the orientation which has been deemed to foster high achievement behaviors (Brown and Strickland, 1972; Chance 1972, and Crandall,

Katkovsky, and Crandall, 1965; Rotter, 1975).

In regard to attrition, the findings revealed a significant difference ( $p < .05$ ) in pretest locus of control scores of students who dropped the course and those completing it. Implications are that students with high external scores are more prone to drop out of classes. Additional research is recommended to investigate the interaction of personality types with externality for possible trends which may allow early identification of potential drop-outs at the first class meeting.

This research did not address the relationship among locus of control change, grades, and trainees variables. These issues were addressed by colleague researchers utilizing the same population (Evans, 1979; Smith, 1979). Follow-up research should be conducted on this population to ascertain the level of persistence of locus of control over time.

A detailed systematic method of instruction for use in academic settings has been presented in the present research. Major differences between this method and change techniques described in the literature lie principally in the setting and change agent-to-subject ratio. In this study, the classroom served as the experimental setting. Subjects were treated in groups, thus reinforcements received by each student were shared with other class members. This implied that reinforcements given to others in the class added strength to each student's expectancies.

If individuals encounter experiences (reinforcements) that

meaningfully alter the contingencies between their acts and perceived outcomes, more energy will be expended in attempts to attain additional reinforcements. It should then be the goal of the academic community to change locus of control orientations toward internality such that students will become more striving, industrious, and independent.

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## APPENDIX A

### ROTTER'S INTERNAL-EXTERNAL LOCUS OF CONTROL SCALE

DIRECTIONS: This is a questionnaire to find out the way in which certain important events in our society affect different people. Each item consists of a pair of alternatives lettered a or b. Please select the one statement of each pair (and only one) which you more strongly believe to be the case as far as you are concerned. be sure to select the one you actually believe to be more true rather than the one you think you should choose or the one you would like to be true. This is a measure of personal belief: obviously there are no right or wrong answers.

Circle the letter corresponding to the statement that you have selected as the one which best fits your belief. Please answer these items carefully but do not spend too much time on any one item. Be sure to find an answer for every choice.

In some instances you may discover that you believe both statements or neither one. In such cases, be sure to select the one you more strongly believe to be the case as far as you are concerned. Also try to respond to each item independently when making your choice; do not be influenced by your previous choices.

1. a. Children get into trouble because of their parents punish them too much.

- b. The trouble with most children nowadays is that their parents are too easy with them.
- 2. a. Many of the unhappy things in people's lives are partly due to bad luck.
    - b. People's misfortunes result from the mistakes they make.
- 3. a. One of the major reasons why we have wars is because people don't take enough interest in politics.
    - b. There will always be wars, no matter how hard people try to prevent them.
- 4. a. In the long run people get the respect they deserve in this world.
    - b. Unfortunately, an individual's worth often passes unrecognized no matter how hard he tries.
- 5. a. The idea that teachers are unfair to students is nonsense.
    - b. Most students don't realize the extent to which their grades are influenced by accidental happenings.
- 6. a. Without the right breaks one cannot be an effective leader.
    - b. Capable people who fail to become leaders have not taken advantage of their opportunities.
- 7. a. No matter how hard you try some people just don't like you.
    - b. People who can't get others to like them don't understand how to get along with others.

8. a. Heredity plays the major role in determining one's personality.  
b. It is one's experiences in life which determine what they're like.
9. a. I have often found that what is going to happen will happen.  
b. Trusting to fate has never turned out as well for me as making a decision to take a definite course of action.
10. a. In the case of the well prepared student there is rarely if ever such a thing as an unfair test.  
b. Many times exam questions tend to be so unrelated to course work that studying is really useless.
11. a. Becoming a success is a matter of hard work, luck has little or nothing to do with it.  
b. Getting a good job depends mainly on being in the right place at the right time.
12. a. The average citizen can have an influence in government decisions.  
b. This world is run by the few people in power, and there is not much the little guy can do about it.
13. a. When I make plans, I am almost certain that I can make them work.  
b. It is not always wise to plan too far ahead because many things turn out to be a matter of good or bad fortune anyhow.
14. a. There are certain people who are just no good.

- b. There is some good in everybody.
15. a. In my case getting what I want has little or nothing to do with luck.
- b. Many times we might just as well decide what to do by flipping a coin.
16. a. Who gets to be the boss often depends on who was lucky enough to be in the right place first.
- b. Getting people to do the right thing depends upon ability, luck has little or nothing to do with it.
17. a. As far as world affairs are concerned, most of us are the victims of forces we can neither understand, nor control.
- b. By taking an active part in political and social affairs the people can control world events.
18. a. Most people don't realize the extent to which their lives are controlled by accidental happenings.
- b. There really is no such thing as "luck."
19. a. One should always be willing to admit mistakes.
- b. It is usually best to cover up one's mistakes.
20. a. It is hard to know whether or not a person really likes you.
- b. How many friends you have depend upon how nice a person you are.
21. a. In the long run bad things that happen to us are balanced by the good ones.
- b. Most misfortunes are the result of lack of ability,

ignorance, laziness, or all three.

22.
  - a. With enough effort we can wipe out political corruption.
  - b. It is difficult for people to have much control over the things politicians do in office.
23.
  - a. Sometimes I can't understand how teachers arrive at the grades they give.
  - b. There is a direct connection between how hard I study the grades I get.
24.
  - a. A good leader expects people to decide for themselves what they should do.
  - b. A good leader makes it clear to everybody what their jobs are.
25.
  - a. Many times I feel that I have little influence over the things that happen to me.
  - b. It is impossible for me to believe that chance or luck plays an important role in my life.
26.
  - a. People are lonely because they don't try to be friendly.
  - b. There's not much use in trying too hard to please people, if they like you, they like you.
27.
  - a. There is too much emphasis on athletics in high school.
  - b. Team sports are an excellent way to build character.
28.
  - a. What happens to me is my own doing.
  - b. Sometimes I feel that I don't have enough control over the direction my life is taking.
29.
  - a. Most of the time I can't understand why politicians behave the way they do.

- b. In the long run the people are responsible for bad government on a national level as well as on a local level.

APPENDIX B

EXPERIMENTAL GROUP ACTIVITIES

E1 Date: January 26, 1979-

Instructions to students

1. Who decides what grade you will get in this course?
2. What actions determine what grade you will get in this course? Who controls what happens?

Discussion/Internal behavior reinforcement

E2 Date: February 2, 1979

Instructions to students

Take out one sheet of paper. Answer the following question true or false:

If a person is going to be successful in this world, he (she) has to have some luck going for him (her).

Discussion/Internal behavior reinforcement

E3 Date: February 9, 1979

Instructions to students

Take out one sheet of paper. Answer the following question true or false:

People in today's world have very little control of their destiny.

Discussion/Internal behavior reinforcement

E4 Date: February 16, 1979

Instructions to students

Take out one sheet of paper. Answer the following questions:

1. List the personal physical activities that you have control over.
2. List the social entities that you have control over.
3. List the psychological entities that you have control over.

E5 Date: February 23, 1979

#### Stimulation to Challenge Textbook Materials

Note: The following exercise is intended to stimulate and increase students' willingness to challenge (disagree based upon sound, contrary rationale) material in the textbook, assuming that the textbook represents "academic authority". This is to counter the belief of "externals" that their fate is simply in the hands of "powerful others".

#### Instructions to students

In a moment, I will read one or more statements that you should imagine might have appeared in one of your psychology textbooks. Think about these statements and answer these two questions:

1. What kinds of thinking processes would you employ, in your mind, to begin to challenge this statement?
2. If your above thinking caused you to disagree strongly, then what actions might you take to prove your case with a stubborn professor who disagrees with you.

## THREE STATEMENTS

1. "Intelligence tests are now recognized by everyone as being highly reliable and scientific, and results of these tests have generated strong scientific proof that minority persons, in general, are significantly less intelligent than majority persons."
2. "The belief that minority persons are generally economically 'disadvantaged' is clearly disproved by the fact that many black persons wear fine clothes, drive big cars, and own color TV's."
3. "It is now generally accepted by the scientific community that psychology is almost as scientifically precise and rigorous a discipline as physics or chemistry."

E6 Date: March 2, 1979

## Instructions to students

Take out a sheet of paper. Write down the name of the course in which you have done most poorly since you have been in college.

## Questions for discussion:

1. What did YOU do to contribute to that grade?
2. What are you going to do in the future to rectify this problem (some response other than to avoid taking another class under that particular instructor)?

E7 Date: March 9, 1979

## Instructions to students

Ask the class to be absolutely silent (maintain silence for

five (5) minutes).

Questions for discussion:

1. Since you were in control of your thoughts during the silent period, what did you think about?
2. What did you do to cope with the anxiety-producing situation?

E8 Date: March 16, 1979

Instructions to students

Instructions: In life you are faced with many antagonistic situations. How do you deal with these situations? Listed are several such situations. After reading each situation, Take two minutes and tell what you would do about it.

Situation I

Professor Dull gave me a "D" in Psychology 2100. Based on my calculations, I feel I deserve an "A".

So, what you gonna do about it?

Situation II

Professor Mule gave us ten journal articles to read and critique. When I went to NCCU's library to read these articles, I found that five of the journals which contained these articles were not in the library. The other five articles had been torn out of the journal they were in.

So, what you gonna do about it?

Situation III

Personally, I do not care for the attitudes of those people in the registrar's office. They are snobbish,

unconcerned, irritable, and downright hateful and nasty.

So, what you gonna do about it?

#### Situation IV

I am a transfer student. On the day of registration I had not been officially admitted because the office of admissions misplaced my transcript. However, they told me to pay my fees and register. Three weeks after classes have been in session, I am called in and told I must drop out because another copy of my transcript has been received and I do not qualify for admission.

So, what you gonna do about it?

#### Situation V

I cashed a check for \$180.00 at CCB's drive-in window at 1:00 p.m. today. Since it was Friday and sleeting and there was a long line of cars behind me, I did not count my money until I got home this afternoon at 5:30 p.m. After counting my money I realized that the bank teller only gave me \$18.00 instead of the \$180.00.

So, what you gonna do about it?

## APPENDIX C

### CONTROL GROUP EXERCISES

E1 Date: January 24, and January 26, 1979

Activity: To help participants learn the first names of the others.

Have one person begin by telling his first name and naming something he likes that begins with the first letter of his name. e.g., my name is Lisa and I like lollipops. The next person must name all proceeding names and tell what each liked. Then he gives his name and what he likes. e.g., "Lisa likes lollipops, my name is Marsha and I like money." The game continues until each participants has had a turn.

E2 Date: January 31, 1979 and February 2, 1979

Activity: To create a comfortable environment in which people can begin communicating with others.

Ask participants to select a person (partner) with whom they have not had an opportunity to talk with. Partners are then instructed to tell each other as much as possible about themselves in two minutes. Then partners introduce each other by telling the total group as many things as possible about their partner.

E3 Date: February 7, and February 9, 1979

Activity: To help individuals become aware of one type of verbal communication used frequently.

Ask the participants to pair off. Explain to the group that people very often talk to each other in cliches. This means they talk to each other in meaningless little phrases. For example: If I say: "How are you?", you automatically answer "Fine, thank you." Even if you feel awful, you know the person is not interested in how you feel and would be quite surprised if you told exactly how you feel.

Other examples:

What's happening?

How's your family?

Glad to meet you.

What do you think?

Take it easy.

How's work?

Ask the partners to talk to each other in cliches for two minutes. They are not to talk with involvement or meaning, only in cliches. Instructor will then ask for volunteers to role play a particular social situation in which cliches are responded to literally (e.g. cocktail party, class reunion).

E4 Date: February 14, and February 16, 1979

Activity: To help individuals observe the actions of others.

Ask each participant to select a partner. The person should be a person he does not know well. Partners are to stand facing each other. One partner acts out a familiar tasks, e.g., putting on make-up, shaving, brushing teeth, etc. The other partner acts as a mirror reflecting all actions and movements. After a short period of time (2 minutes), partners reverse roles.

When that is complete, have partners share with the class how well their actions were observed by others.

E5 Date: February 21, and February 23, 1979

Activity: To help individuals look at the world around them.

Ask participants to group themselves in groups of four participants each. Then participants are to quietly observe as many things as possible in the room. After two minutes have expired, each group member is to list the items he has seen:

1. Ask members of each group to compare lists of items observed to see who has observed most items.
2. Ask a spokesperson from each group to list items that members of that particular group has observed (this gives an indication of the most observant group in the class).

E6 Date: February 28, or March 2, 1979

Activity: To help people share experiences

Participants are to divide themselves into groups of four people each (selecting individuals they do not know very well). Explain to the group that each individual will share things with the small group. Each person is allowed one minute to share each item.

Suggested questions for sharing are:

1. Share with the group the happiest moment in your adult life.
2. Share with the group a possession that you treasure.

3. Find a success symbol in your purse or bill fold and share with the group.
4. Share with the group your greatest physical feat before the age of sixteen.

Allow one minute for each participant to share so that no one person uses the total time. Do not move to the next question until each group member has shared with the small group.

After all questions are shared, participants are to quietly think about each member of their group for approximately one minute. Participants are to write on a sheet of paper one word that describes each person. Each member shares the descriptions with the other group members.

E7 Date: March 7, and March 9, 1979

Activity: Help participants become aware of feeling related statements.

Some remarks are camouflaged for real feelings. Listed below are a sample of statements that are often made by individuals in a group setting. Ask participants to discuss the possible feelings behind each of the following statements

STATEMENTS:

1. I don't know what you want.
2. I don't like to do this.
3. I love the way you do that.

Ask participants to discuss possible responses to such statements.

E8 Date: March 14, and March 16, 1979

Activity: To help build an awareness of total group feedback.

Ask for a volunteer to tell a simple short, story about some interesting event which has happened in his/her life. (This person must leave the room while instructions are given to other members of the class.) Instruct the class to role play an audience exhibiting many different kinds of listening behaviors, e.g., yawning, attentiveness, squirming, staring out the window, etc. Now ask the volunteer to return to the class and tell the class the story (2-3 minutes).

1. After the story is complete ask the volunteer to explain the behaviors that he/she observed from the class members.
2. Ask the class members to explain the volunteer's reactions to the different listening behaviors.
3. If time permits, use another volunteer to share another story.

## APPENDIX D

### REQUIREMENTS FOR LABORATORY GRADE

Good morning (evening)

I am \_\_\_\_\_ . I will be your instructor for this lab session. As you might have gathered, we are trying certain innovative learning techniques in 2100 psychology this semester. We expect that these techniques will assist us in providing more comprehensive instruction to you. From now on the lab will meet in this room.

There will be two lab exams this semester. They will count for twenty-five (25) percent of your grade. They will be unannounced. Class roll will be taken in this lab every session on the hour. Those students who are not here when the roll is called will be marked absent. Also, points will be taken from your total lab grade each time you are absent. There will be no lab make-up exams. It is important that you attend every lab.

APPENDIX E

STUDENT ABSENTEE FORM

For Psychology 2100

DATE \_\_\_\_\_

The following students were absent on the above date.

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.
- 9.
- 10.

\_\_\_\_\_  
Instructor's Signature

## APPENDIX F

### SCHEDULE OF ACTIVITIES FOR PSYCHOLOGY 2100, SECTIONS 201A-204B

Lab	Jan. 12	Introduction of instructor, specify textbook & workbook
Lec	Jan. 17	Administration of internal- external scale, Pass out syllabi (Hatley)
Lab	Jan. 19	All students assemble in auditorium. First 15 mins devoted to Ms. Batts.  Remainder of time devoted to reassignments (Lab instructors explain about style of instruction). (Hatley)
Lec	Jan. 22	SQRRR administration of sample 2100 Psych exam (Brinson) (test-taking skills)
Lec	Jan. 24	Chapter 1 (Scagnelli)
Lab	Jan. 26	Review sample 2100 Psych exam, Chapter 1
Lec	Jan. 29	Chapter 1 (Scagnelli)
Lec	Jan. 31	Chapter 8 (Belfon)
Lab	Feb. 2	1. Complete Chapter 1

		2. Introduce Chapter 8
Lec	Feb. 5	Chapter 8 (Belfon)
Lec	Feb. 7	Chapter 8 (Belfon)
Lab	Feb. 9	Chapter 8
Lec	Feb. 12	Exam #1 on Chaps 1 & 8 (All students report to lab sections)
Lec	Feb. 14	Chapter 4 (Mizelle)
Lab	Feb. 16	1. Review exam #1-10 mins. 2. Chapter 4
Lec	Feb. 19	Chapter 4 (Mizelle)
Lec	Feb. 21	Chapter 4 (Mizelle)
Lab	Feb. 23	Chapter 4
Lec	Feb. 26	Chapter 6 (Mizelle)
Lec	Feb. 28	Chapter 6 (Mizelle)
Lab	Mar. 2	Chapter 7 (Hatley/R. Smith)
Lec	Mar. 7	Chapter 7 (Hatley/R. Smith)
Lab	Mar. 9	Chapter 7
Lec	Mar. 12	Exam #2 on Chaps 4,6 & 7 (All students report to lab sections)
Lec	Mar. 14	Chapter 3 (Brinson)
Lab	Mar. 16	1. Review exam #2-10 mins. 2. Chapter 3
Lec	Mar. 26	Chapter 3 ( Brinson)

Lec	Mar. 28	Post test - I/E scale
Lab	Mar. 30	Lab exam #1
Lec	April 2	Chapter 10 (Scagnelli)
Lec	April 4	Chapter 10 (Scagnelli)
Lab	April 6	Chapter 10
Lec	April 9	Chapter 11 (Brinson)
Lec	April 11	Chapter 11 (Brinson)
Easter Monday	April 16	
Lec	April 18	Exam #3 on Chaps, 3, 10, 11
Lab	April 20	Go over Exam #3
		Chapter 12
Lec	April 23	Chapter 12 (Evans/P. Smith)
Lec	April 25	Chapter 12 (Evans/P. Smith)
Lab	April 27	Lab Exam #2
		Chapter 12
Lec	April 30	Chapter 13 (Belfon)
Lec	May 2	Chapter 13 and Debrief (Belfon/Hatley)

Final Exam - Chapters 12 and 13

APPENDIX G  
Table 4

T-Test Pretest Versus Posttest

Group	Condition	Number of Cases	$\bar{X}$	df	t
Experimental	Pretest	61	10.80	120	0.53
	Posttest	61	10.44		
Control	Pretest	67	10.42	132	0.17
	Posttest	67	10.40		

$p > .05$

APPENDIX H  
Table 5

Summary Table of Correlations

	Pretest Experimental	Posttest Experimental	Pretest Control	Posttest Control
Pretest Experimental	—	.61	—	—
Posttest Experimental	—	—	.53	—
Pretest Control	—	—	—	.65
Posttest Control	.60	—	—	—

$\underline{p} < .05$