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THE RELATIONSHIP BETWEEN COLLEGE STUDENTS' VALUES
AND CLASSROOM ACTIVITIES IN
INTRODUCTORY PSYCHOLOGY

by

John N. Miller

A DISSERTATION
Submitted to the Graduate Council of
Wayne State University, Detroit, Michigan
in partial fulfillment of the
requirements for the degree of

DOCTOR OF PHILOSOPHY
1978

MAJOR: EDUCATION: EVALUATION AND RESEARCH

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ACKNOWLEDGMENTS

Like most doctoral candidates, I am indebted to a number of people for their help, sagacity and kindness.

Essential thanks go first of all to Dr. Claire Irwin, Committee chairperson, whose encouragement and guidance are largely responsible for the completion of this study.

Respectful thanks to Dr. William Reitz, educational mentor, who always asks good questions and demands the same in answers.

Thanks to Dr. Frederick Neff, philosopher, whose courses and thoughtful questions provoked a necessary integration of philosophical issues and psychological research in this study.

I am indebted to Dr. Christopher Johnson, translator and arbitrator, whose questions and clarifications as committee moderator amply displayed why one is needed.

Thanks to Dr. George Barahal and Dr. Juanita Collier for taking time from busy schedules, on short notice, to serve on my committee.

Finally, thanks to the many friendly, helpful people at the computer center. Their cooperative attitude will always remain essential to good evaluation and research.
CHAPTER I

INTRODUCTION

The main purpose of this chapter is to bring together some of the major philosophical and psychosocial theories and findings concerning values and the need for them, especially the more intrinsic, humanistic values addressing man's relationship to himself. These will then be developed into a broad research model which can be applied to classroom settings where affective domain components are of interest.

Many philosophers and social scientists believe that advances in the natural sciences have not been accompanied by parallel advances in a system of values cooperating with the natural sciences to direct the use of their power.\(^1\) R. S. Hartman\(^2\) has, with reasonable success, laid the groundwork for a science of values to meet this need. Values are defined as concepts of what ought to be and also of what is so far as what is approximates what ought to be. The "what is" and "ought to be" are operationalized respectively by extension and intension of concepts. The extension of a concept is that class of objects to which it applies by indicating features the objects have in common. As such,


qualities are facts as they are used to identify objects as members of a class. The intension of a concept is the set of qualities which the concept prescribes for any object belonging to the class covered by the concept. As such, qualities are values as they are used to prescribe what an object ought to be to meet class requirements. Extension is used to uncover existing values, and intension is used to combine qualities in different ways, thereby creating new values.

Value is seen by Hartman as the degree to which a thing fulfills its concept. There are three kinds of concepts, abstract, construct, and singular. These concepts correspond respectively to three kinds of value: (1) systemic value (fulfillment of the construct), (2) extrinsic value (fulfillment of the abstract), and (3) intrinsic value (fulfillment of the singular concept). Hartman gives intrinsic values central importance in terms of human beings as is indicated by his following statements noted in an article by Ellis:

'It is infinitely more valuable, in the strictly defined sense of infinity, to be a morally good person than to be a good member of society, say a good conductor, baker, or professor. To be sincere, honest, or authentic in whatever one does is infinitely more important that what one does'.

If man does not accept the intrinsic value of a human being as more important than his extrinsic value to others, if he does not learn that 'intrinsic value has nothing to do with what a person does, but only with what he is,' he will not see the injustices that he does to himself and others, will lose out on life and love, and will create a world of death and desolation.

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I have moral value in the degree that I fulfill my own definition of myself. This definition is: "I am I." Thus, in the degree that I am I, I am a morally good person. Moral goodness is the depth of man's own being himself. That is the greatest goodness in the world'. . . .

'. . . The more, therefore, I am conscious of myself, the more, and the more clearly, I define myself—the more I am a good person.' All one has to do, then, to be good, is to be conscious of himself. . . .

'This is the important thing, you cannot fully be systemic or extrinsic unless you are fully intrinsic, fully yourself. In other words, the moral man will also be a better accountant, pilot, or surgeon. The value dimensions are within each other. The systematic, the social, and the human envelop each other. The human contains the social, and the social the systematic. The lower value is within the higher. The systemic is within the extrinsic, and the extrinsic within the intrinsic. The more fully you are yourself, the better you will be at your job and in your social role, and in your thinking. Out of your intrinsic being you summon the resources to be anything you want to be. Thus, the intrinsic, the development of your inner self, is not a luxury. It is a necessity for your own being yourself in all three dimensions'. . . .

Reiser notes: "Values are byproducts of psychosocial evolution and are modified as knowledge increases. Facts and values can be the same, values can become facts, and facts can disappear." Both extension and intension have no doubt operated during the psychosocial evolution but have not been rigorously subjected much to scientific methodology. However, it should be noted that methodologies related to criterion analysis, reliability, validity, factor analysis and even operational definitions appear applicable to extension and intension of value concepts as the humanities and social sciences move toward developing a science of values.

This developing science of values appears to have been directed toward the psychosocial area. Reiser\(^5\) believes more inclusive value systems must be found in order to eliminate belief conflicts. He points to the fact that although social values change, they change relative to something. He believes this something is the greater fulfillment of present people and of future generations; he refers to it as a "cosmic humanism" or "world civilization." This, for Reiser, is an inclusive value. Reiser is not alone in this direction. Hartman\(^6\) calls for the need of intrinsic self values especially being honest, authentic and truly one's self. The development and value of self is seen as the antithesis to our excessive suggestibility to and dependency on external environment events, controls and influences. Hartman and Ellis see one's intrinsic value or what one is as more important than one's extrinsic value or his external worth to others; one must have value to himself before he can fully develop his extrinsic worth. Extrinsic must grow from intrinsic; for example, as relevent goals grow from one's true interests and involvements. Thus, as Ellis quotes the following from Hartman: "the intrinsic, the awareness, knowledge and development of self is a necessity not a luxury."\(^7\)

\(^5\)Ibid., pp. 88-89.


Koestler \(^8\) especially feels that getting in touch with one's self would reduce one's tendency to follow symbols, slogans, authority commands, socially prescribed goals and battle cries. In short, man's inhumanity to man may begin with man's inhumanity to himself because he is alienated from himself, feelings, needs and values.

Maslow \(^9\) has stated repeatedly that we need a value system stemming from man's own nature rather than from outside authority. He concludes, from his research, that man's nature is to develop into a fuller person not shaped by the environment but permitted by it to reach his own potentials. He \(^10\) believes that man's best impulses spring more from intrinsic than extrinsic sources. One's real self or self-identity is seen as more important than the external or extrinsic means to an end quest for rewards. Maslow \(^11\) believes that life style stemming from intrinsic values takes on the character of an end in itself rather than a means to an end. Life becomes fuller and more relevant when lived this way. "By studying the values healthy human beings, ants or oak trees trend for, rather than inventing them,"


Maslow states, "we can uncover the important intrinsic human values." ¹²

Indeed, the humanistic movement in psychology (identified with A. Maslow, C. Rogers, R. May, V. Frankel, E. Fromm and others) appears to have centered on one major intrinsic value area, commonly referred to as self-awareness, self-insight or self-understanding. The popular humanistic view seems to be that self-awareness and understanding (available to us through psychological research following philosophic guidelines) will lead to self-adjustment, self-respect, and self-control which will in turn lead to more understanding and respect for others as individuals, and, in general, better adjustment to the outside world. The existential moral philosophy behind this humanistic perspective appears to be care and responsibility for one's self and others. In short, "self-connectedness" leads to "world connectedness" and concern for others, not because one is told to but because one wants to; "I should do this" and "I want to do this" become synonymous. Moral responsibility, then, will exist to the extent that one places value on human existence, including one's own existence. Like Hartman and other philosophers, they also believe that knowledge of the external world has far exceeded knowledge of the self and that this has been accompanied by much more importance placed on external impersonal events and much less importance placed on the values dealing with aspects of the self. Buhler ¹³ points to present youth asking for


closer relationships with others, more self-expression, and more self-
identity as indicative of intrinsic value importance.

In summary, it appears desirable to develop and promote a
science of values, especially intrinsic humanistic values to guide
man as he continues to shape himself and his world.

The philosophical assumptions leading to this goal are: first,
that care and responsibility for one's self and others as modes of
conduct are desirable values; second, that these values are fostered
by experiences involving intrinsic self-related values such as self-
insight, self-expression, self-awareness, self-control and self-
respect; and third, that since care and responsibility are essentially
moral codes of conduct, morality in terms of others begins with the
moral nature of one's relationship with one's self especially as this
relationship involves knowing and being one's self.

Intrinsic humanistic values including respect for one's self
and others may be examined by the humanities and social sciences;
experimental methodology appears to be a useful tool for the study of
intrinsic values, provided that the values are amenable to operational
definitions and an organized analytical framework from which testable
hypotheses may be developed. The nature, development and change of
attitudes, beliefs and values should be incorporated in a research
model. Given that there appears to be increasing concern with values,
a central question concerning education emerges: "What effects do
classroom experiences, especially in the humanities and social sciences,
have in terms of creating, promoting or changing students' values,
especially intrinsic values"? The following literature review is
directed toward the development of a research model which may be applied to the above question.

**Background for the Study**

The above philosophical, psychosocial concern with values appears to make its main connections with education in the humanities, the social sciences and in other academic areas concerned with behavioral objectives in the affective domain. Recently there has been a call for value-centered evaluation. There has been an increase in value clarification programs. However, the cognitive domain (performance on examinations) has still received much more empirical attention than the affective domain (values, attitudes, interest and course evaluations) despite the references instructional models make to various nurturant goals such as "spirit of creativity," "self-direction" and "greater awareness." Joyce and Weil point to the necessity of assessing "the living effects" which may stem from different instructional models. But as Hunkins notes, "Research on value clarification and value analysis yielded little material out of which to generalize except that both can influence student self-concept positively. Before designing entire programs around these procedures, we need to know what is effective and what is not."

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However, the bulk of empirical studies from the social sciences dealing with attitudes, beliefs, values, with origins, means to identify and to change them suggests that the science of values initiated by Hartman is well underway and that much more is known about them than is often realized. The literature survey located various theories and research findings which can be integrated into a comprehensive nomological framework that can be applied in educational settings, especially those in the humanities and social sciences. These are the areas which seem to most emphasize the intrinsic humanistic (and perhaps inclusive) kinds of values noted earlier by Hartman, Reiser, Koestler and others. Indeed, MacLeod commenting on the teaching of psychology states, "any psychology worth teaching is a psychology centered on problems that have persisted since the beginning of recorded history, problems connected with man's concept of himself and of his relation to the world about him. Ultimately these are problems of philosophy, but psychology's contribution has been to bring them within the range of empirical inquiry. The current catchword is relevance; students clamor for courses that are relevant."

In summary, we have a science of values, academic areas which address values and presumably influence students' existing values,

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especially intrinsic humanistic ones, and a legitimate sanction to examine course effects on values under the heading of affective domain components. In addition to measuring performance objectives within the cognitive domain, it seems equally important to ask questions such as:

1) What kinds of class experiences increase students' continued interest in and use of a given area of study?

2) What effects, if any, do these experiences have on students' values, especially those values related to materials covered in the given course?

3) Are there any relationships between performance objectives, such as grades, and affective domain components such as value changes, increased interest in an academic area and long-term continued use of what one has learned as a way of life?

4) Are there any relationships among liking for a course, liking for instructor, seeing the course as worthwhile, and having a tendency to make use of what one has learned?

These and more such questions could and should be asked if one is to properly justify the offering of any course on the basis of its relevance and usefulness. Performance objectives alone are often inadequate tools for providing answers to questions such as these.
Attitudes, values, and related behavioral changes are more important concerns regarding these kinds of questions. Those classroom variables which influence feelings, attitudes, and values should be identified and examined. Here the goal is not only to promote good grades and competency, but also to promote positive course-related attitudes and values, continued pursuit of the given academic area, and the tendency to make active use of what one has learned.

Given that measurement and observation of these affective domain components appear potentially relevant and useful, it remains to develop a broad comprehensive working model concerning the science of values and other affective domain components which may be applied in classroom settings in addition to measuring performance objectives.

Need for the Study

Various affective domain components noted in the preceding section, especially long-term classroom influences upon intrinsic values concerning one's self, have not enjoyed the attention these concepts merit. Studies of student values, although useful, are often too narrow in scope because these studies emphasize one particular theoretical position and ignore others. Most theories of attitudes and values, though fairly well developed, generally address themselves to certain specific areas (e.g., balance, instrumentality, social persuasion and personality). Using any one of these positions to examine the many kinds of relationships among student values and classroom experiences is rather like the proverbial three blind men examining the elephant. The common results are 1) overlooked sources of influence, 2) measures which explicate only a small number of values,
and 3) conclusions which are not well related to the broad, complex network of theoretical positions concerning attitudes and values. In addition, all too often changes in relationship among values are not examined. And finally, possible behavioral decisions related to values and value changes are rarely considered.

A survey of studies dealing with attitude, value, and behavior change suggests four potentially useful theoretical positions which may be applied to a classroom setting.

1) **Balance theories** or those positions which place emphasis on the structural and relational properties of attitudes, beliefs and values.

2) **Personality Dynamics** or those positions which emphasize the motivating aspects of self-perception, personality variables and self-concept as these are related to attitudes, beliefs and values.

3) **Instrumentality Theories** or those displaying a purely motivational aspects of attitudes, beliefs and values; one's behavior is determined by his beliefs that certain behavior will lead to certain outcomes and also by his evaluation of these outcomes.

4) **Social Communication-Persuasion** techniques or those studies centering primarily on aspects of group pressure, obedience, role-playing and other social environmental effects on attitudes, beliefs and values.
All four positions have at least one element in common, a challenge of some sort, social, cognitive or motivational. These kinds of challenges are common occurrences in many, if not most, classroom experiences; therefore, a model developed from all these positions seems necessary for examining the multivariate relationships among student values and classroom experiences. This seems especially true for introductory psychology students who are exposed to, and often challenged by, materials dealing with the kinds of values, motives, emotions and self-relations noted by Maslow, Buhler, Hartman and others. One who teaches social sciences would be especially concerned about the influences these kinds of human behavior courses have on students' value systems. Conditions from theoretical positions one, two and three are emphasized in this study. Ethical considerations would make it difficult to directly apply the fourth position (group pressure and persuasion) to an introductory psychology class.

**Purpose of the Study**

Studies dealing with the theoretical positions indicate that activities and experiences involving or challenging one's values, motives and self-perceptions are influential variables. The main purpose of this study is to examine and compare introductory psychology students' values, course evaluations and involvement with course-related material outside class. This was done under four sets of classroom conditions; briefly, they are as follows: 1) Lecture and discussion; 2) Lecture, discussion and a unit dealing with value inconsistencies and clarification, especially intrinsic self-related values; 3) Lecture, discussion and student activities and projects
dealing with motives, self-improvement and control, self-insight and understanding and self-expression; and 4) all of the above conditions combined. These classroom conditions were developed from the first three theoretical positions, namely, balance theories, personality dynamics and instrumentality theories. Relationships among values, course evaluations, grades and behavioral involvement such as volunteering for extra projects, courses and information in psychology were examined. Effects of classroom conditions were compared.

Although a number value measures were employed, those related to psychology, especially intrinsic values dealing with self-insight and understanding, were especially emphasized.

A three-year follow-up study was used to assess long-term effects.

Finally, it is emphasized here that the main purpose of this study is to demonstrate desirable behavioral and value changes as a result of "positive" educational experience. No attempt was made to manipulate students by giving them "surrogate" research plans. All classroom conditions may be seen as valid educational experiences in psychology. All measures and observations may be seen as forms of course evaluation and assessment.

Statement of the Problem

In this study, the fundamental areas under investigation are as follows:

1) The relationship between different classroom conditions in introductory psychology and students' attitudes and values in a number of areas, especially
intrinsic humanistic values.

2) The relationship between different classroom conditions in introductory psychology and students' evaluations of the course and instructor.

3) The relationship between different classroom conditions in introductory psychology and students' willingness to volunteer for additional courses, activities and information.

4) The relationship between different classroom experiences in introductory psychology and students' earned grades and work ratings (attendance, completed projects and short reviews on outside readings).

5) The relationship among the different values, evaluations, willingness to volunteer and earned grades.

6) The effects of a three-year time period on student values and course evaluations.

Limitations of the Study

This study is limited to five groups of students who were enrolled at Monroe County Community College for the fall semester of 1974. One group is a random sample of students who had not been exposed to introductory psychology nor were enrolled in it for the fall semester. The remaining groups consist of four introductory psychology sections, all were enrolled for the fall semester and all were taught by the same instructor.
In analyzing the data, no attempt was made to examine influences beyond classroom condition. Conclusions are limited to the particular introductory sections in this study.
CHAPTER II

REVIEW OF THE LITERATURE

Introduction

The main thrust of this review is twofold. The first section brings together and contrasts a number of theoretical positions, research areas and empirical findings dealing primarily with the nature of attitudes, beliefs, values and related behavior. An attempt is made to clarify and economize terminology by examining systematically and integrating the concepts, components, structure and functions of attitudes, beliefs, and values. These elements are developed into summary framework which serves as a research model.

The second section deals with the manipulation of attitudes, beliefs, values and related behavior. Special attention is given to those studies dealing with the relationships between overt behavior and attitudes, beliefs, and values, especially in the area of intrinsic values and value change. Promising lines of research and effective sources of influence are identified and incorporated within this study. A number of moderator variables are also noted. In this context, behavior may be seen as a function of existing value structure and of present-situation environmental contingencies. In general, instrumentality theories tend to emphasize the latter, and balance theories emphasize the former. A position is developed which
argues for the inclusion of value structure, motivational functions of values and the relationship of values to environmentally based instrumental behavior in any study dealing with values. These relationships are assumed to be complex structurally, multifaceted functionally and often reciprocal regarding the source and nature of causes and effects.

A recent ERIC search (1978) of related literature located recent educational studies dealing with value and behavioral change as related to classroom experiences. The majority of studies addressing these topics were actually found outside educational research.

More is known about attitudes, beliefs, values and relationships to overt behavior than is often realized. Lack of information pooling from different research orientations seem to be the main cause for this. This lack of pooling does not seem to be due to lack of agreement regarding the existence and general nature of attitudes, beliefs, values, and behavior. It seems to be partly caused by different interests in them depending on the area of research, educational, industrial, social or theoretical. Lack of pooling also seems to be caused by disagreement regarding measurement techniques and which aspects of attitudes, beliefs and values are most important.
The Significance of Influence, Attitudes, Beliefs and Values

The current use of the word influence suggests the use of power in an effort to control behavior. Persuasion (a type of influence) is defined as the act of influencing the mind by arguments and reasons. Regardless of whether one takes a behavioral or a phenomenological stance, it must be conceded that man does live in a social environment of continuous influence. Socialization itself is a process of influence. One constantly encounters information regarding what is the wrong, good and real from birth to death. Shibutani has perhaps been the most concise commentator regarding this process. His central theme is that socially conditioned beliefs govern expectations, which, in turn, to a great extent, govern behavior. Even the attention one gives to what he calls reality is largely determined by this process. Social influence and its concomitant rewards and punishments not only shape one's beliefs, attitudes, values and behavioral patterns, but also shape the essence of what one calls himself and his world. This continuous influence may be systematic, unsystematic, strong, weak, good or bad; however, it is a fact of existence in any culture. Existing attitudes, beliefs and values conditioned from past experience as well as present sources of


19 Ibid., p. 629.

influence both exert potent effects on one's behavior.

Man's interest in influence has a history as long as that of social existence. One who controls sources of influence does in fact control to a considerable degree. It seems a reasonable assumption that classroom experiences are often potent sources of influence, but not much extensive work has been done to test this assumption in detail. Opinions, facts, beliefs, attitudes, values, faiths, judgments, doctrines and ideologies are words indicating the pervasiveness of social influence. Each of these words has a more or less defined set of descriptions. Each has enjoyed considerable attention from numerous academic disciples. Literature in the social sciences has more than its share of studies and theories dealing with the above terms. The implicit assumption in most studies is that the above terms are important determinants of human behavior. The concept of intelligence, operationally related by various measures to success in learning, job performance and other behavioral areas deemed important, enjoys its prominence because of these perceived connections. Attitudes, beliefs and values are studied because they are seen as important determinants of behavior. Any source of influence insofar as it shapes and alters attitudes, beliefs and values also becomes important.

Noteworthy here is the observation that most studies dealing with the effects of some influence on attitudes address themselves to attitude change operationally defined as a pencil and paper measures; rarely do they look for an actual behavioral change. Yet it is actually the overt behavior which gives influences, attitudes, beliefs,
and values their prominence. Obtaining an attitude change on an attitude scale without observing some concomitant change in overt behavior is not unlike changing one's shoe laces from brown to black. We do not know if the attitude has any relationship to some behavioral areas of importance, and even less about whether its change has an effect on that behavior.

In addition to spending much time studying attitudes, beliefs and values with little regard to actual behavioral connections, the social sciences have also spent much time examining the content and structure of these concepts via postulated dimensions such as central-peripheral, simplex-multiplex, dissonance-consonance, degree of connectedness, and others: In short, a large body of literature has been developed dealing with the content and structure of something that cannot be seen and has at best demonstrated rather weak connections with actual overt behavior. In spite of this there are some notable exceptions: advertising, brainwashing and some studies within the social sciences.

The studies within the social sciences dealing with behavioral attitude, belief or value change seem to identify (for the most part) with two main theoretical positions. These two positions are balance theories and instrumentality theories. However, some splintering of research orientation occurs; therefore, this paper identifies four somewhat different research orientations. It will be seen that useful information is added to the concepts of attitude, belief and value by the instrumentality theorists as much of their work is couched in firm motivational and learning models. In many cases through social
influence, induced cognitive dissonance and value change are actually synonymous with more basic terms, namely S-R learning theories and behavior modification. Advertising and brainwashing as influences on needs and values are examples of this. Both are motivationally oriented.

The Conceptual Network of Attitudes, Beliefs and Values

Various Research Orientations

Despite the abstract nature of attitudes, beliefs and values there exists a fair degree of consensus regarding their essential qualities. Differing positions appear to rest more in the areas of measurement and application rather than in theoretical foundations. Before gathering together the agreed-upon qualities of attitudes, beliefs and values, it would be useful to note the different research orientations.

Breer and Locke in a recent survey of attitude studies conclude that three categories of research thrust exist: balance theories, instrumental theories and social communication-persuasion theories. This study was developed in basic agreement with Breer and Locke, especially regarding the first two categories. The third category is couched more in terms of the type of variables used to

induce attitude change rather than in terms of a theoretical framework. The literature survey includes research from the four categories noted below as all of them appear related to classroom settings:

1) Balance theories or those positions which place emphasis on the structural properties of attitudes, beliefs and values. Osgood, Kerlinger, Brehm and Cohen and Rokeach are well identified with this category.

2) Personality Dynamics or those positions which emphasize the motivating aspects of self-perception, personality variables and self-concept as they are related to attitudes, beliefs and values. Here, representative work may be found in research by Katz, Rosenberg, Bem, Sarnoff and Janis.

3) Instrumentality Theories or those displaying the purely motivational aspects of attitudes, beliefs and values especially as regards the pursuit of pleasure and the avoidance of pain. Interesting research has been done in this area mainly because of the researcher's interest in overt behavior. Noted here to be examined later are studies by Galbraith and Cummings, Graen, Breer and Locke, Peak, Vroom, and more recently, Mitchell and Biglan have integrated and tested some of the main findings in this area.
4) **Social Communication-Persuasion** techniques or those studies centering primarily on aspects of group pressure, obedience, role-playing and other social environmental effects on attitudes, beliefs and values. Hoveland, Gordon, Sherif, Liften, Siegel, Kelman and recently, Zimbardo are good representatives of this point of view.

A glance at these four positions certainly suggests that they are not newcomers but, in fact, have been operating in "real life" society for quite sometime and most likely in educational settings as well. The above four categories overlap in numerous ways, and it could be argued that the grouping offered here is superfluous. However, it can also be argued that the researchers within these categories do represent similar orientations toward the study of attitudes, beliefs and values. These orientations will emerge as representative studies are examined. It should also be noted that many disagreements aside from those concerning measurement and approach seem to center around which aspects of attitude, beliefs and values are most important. In many cases, there is more agreement among researchers from different camps regarding what is most important than there is agreement among researchers within a given orientation. Thus one finds many researchers agreeing on the basic structural components of attitudes and on proper measurement techniques but disagreeing on which component is most important and which sources of influence on that component are most potent. As a result, one finds a wide array of proposed
measurement techniques, independent variables and theories concerning the proper approach to the study of attitudes, beliefs and values. Despite these and other differences, there exist large areas of agreement which when juxtaposed tend to provide coherence, meaning and useful operational frameworks for the study of attitudes, beliefs and values. As noted earlier, the first purpose of this review is to tie these areas of research into a functioning nomological framework of attitudes, beliefs, values, their structural and functional components, and other related variables.

Some of the preceding comments would tend to indicate that all research on attitudes, beliefs and values is in harmonious agreement. This is certainly not the case. Earlier, two theoretical positions were noted, balance theories and instrumentality theories. For the most part, the first position is phenomenological, and the second is behavioral. A recent review of instrumentality theories by Mitchell and Biglan indicates that they are rapidly gaining on balance theories in their ability to predict behavioral outcomes. A major criticism of balance theories comes from Rokeach, who is fairly well identified for the most part as a balance and structural theorist. Rokeach notes, "Congruity theory attempts at improving predictive cognitive interaction solely from a knowledge of measurable properties of the components judged in isolation. It is this deficiency that the present formulations are designed to overcome.

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We think it is fair to say that despite the various attempts by Osgood and his co-workers to improve the congruity model's predictive efficiency, their own data do not provide support for the congruity principle."^23 Specific areas of instrumental research are verbal conditioning, attitudes and industrial psychology. Most of these theories involve the hypothesis that one's behavior is determined by his expectations that certain behavior will lead to certain outcomes and by his evaluation of these outcomes. The balance theorists, on the other hand, are more concerned with the motivating effects of induced internal inconsistencies among attitudes, beliefs and values. Bem^24 develops an excellent case for the inclusion of dissonance and social persuasion studies within existing instrumentality theories. Most balance theories and social communication-persuasion theories involve exposure of subjects to new information. This may be seen as a learning experience, vicarious or concrete. As such, it can be handled by a behavioral position. The contrast between these positions will be shaped and integrated more fully later in this paper. An integrated network of attitudes, beliefs and values will be presented following a review of the research suggesting such a framework.

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The Nature of Attitudes

Rokeach's treatment of attitudes, beliefs and values has been especially useful in providing a unifying framework. His definition of attitudes is a hybrid stemming from numerous others, especially from Allport's examination of attitudes in the *History of Social Psychology*. Rokeach defines an attitude as "A relatively enduring organization of beliefs around an object or situation predisposing one to respond in some preferential manner." Newcomb's definition, though less concise, is more specific and pointed than is Rokeach's.

Newcomb defines an attitude as:

> The individual's organization of psychological processes, as inferred from his behaviour, with respect to some aspect of the world which he distinguished from other aspects. It represents the residue of his previous experience with which he approaches any subsequent situation including that aspect and together with the contemporary influences in such a situation, determines his behaviour in it. Attitudes are enduring in the sense that such residues are acquired through experience in new situations.\(^7\)

Newcomb, like Helson, sees attitude as residual experience, attitude object as focal stimulus and present situation as background stimulus.

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\(^{26}\) Rokeach, *Beliefs, Attitudes and Values*, p. 112.


Indeed, Newcomb, Turner and Converse state, "The attitude concept seems to reflect quite faithfully the primary form in which past experience is summed, stored and organized in the individual as he approaches any new situation." Here again, one sees reference made to approach or expectancy in a given situation. In addition to basic agreement on attitude definition, Krech, Crutchfield, and Ballache
cite note that most agree on three basic components of attitude: thinking or cognitive, feeling or emotional and action tendency or behavioral. Rokeach likens an attitude to a personal minute theory working as a frame of reference from organized knowledge. Breer and Locke have demonstrated vertical generalization of attitudes (concrete situations to abstract values) and horizontal generalization of attitudes (to increasingly different situations). They also studied relationship between attitude and three modes of activity. These modes were instrumental, affective and expressive. In addition to studying modes of activity across vertical and horizontal generalizations, Breer and Locke posit three attitude components somewhat different from thinking, feeling and behavioral tendency. They offer a cathetic component (a like-dislike preference), a cognitive component (an object's instrumental nature in terms of its relativity to one's goals) and an 

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31 Breer and Locke, *Tasp Experience As a Source of Attitudes*, pp. 190-213.
evaluative component (standards of values). The first two roughly correspond to the previously identified components of affective (feeling) and cognitive (thinking) respectively. The third certainly does not correspond to action tendency, which is the common third component of an attitude. If one accepts this new formulation, then it is necessary to subscribe to the idea that an attitude has the three components noted by Breer and Locke which then gives rise to a fourth, namely, behavioral tendencies. Since it is usually behavior that is being predicted, the above seems to be a useful formulation. Rokeach's previous definition would also encompass this formulation. Some of Breer and Locke's attitude components and modes of activity appear to roughly correspond to Katz's formulations of attitudes: adjustment, knowledge and value expression. Katz believes that particular functions are served by particular attitudes for particular people. Katz's scheme is shown on page 31. Peak and other instrumentality theorists believe that the adjustment function is paramount. Rokeach believes that the value expressive function may be above all the rest. This again illustrates the point that many of these researchers agree on the basic framework of attitudes, beliefs and values but may disagree as to which aspect is most important.


34 Rokeach, Beliefs, Attitudes and Values, p. 132.
Katz's formulation is described below for clarification because it is used as a frame of reference by many researchers cited in this paper. Rokeach points out, "that while the conceptual isolation of Katz's functions is a step forward, methodology is not yet sufficiently advanced to determine what functions a particular attitude serves for a particular person and to what degree." However, certain research by McClintock and others dealing with variables in orientation category number two have isolated a number of Katz's functions. Some of these will be noted later in this paper. Sarnoff's research on social attitudes and the resolution of motivational conflict also support Katz's formulation. As may be seen on the following page, attitudes may have different origins, be aroused by different cues depending on their origins, and require different conditions for change.

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35 Ibid., p. 132.


<table>
<thead>
<tr>
<th>Function</th>
<th>Origin and Dynamics</th>
<th>Arousal Conditions</th>
<th>Change Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adjustment</td>
<td>Utility of attitudinal object in need satisfaction. Maximizing external rewards and minimizing punishments.</td>
<td>1. Activation of needs</td>
<td>1. Need deprivation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Salience of cues associated with need satisfaction</td>
<td>2. Creation of new needs and new levels</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3. Shifting rewards and punishments</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>4. Emphasis on new and better paths for need satisfaction</td>
</tr>
<tr>
<td>Ego defense</td>
<td>Protecting against internal conflicts and external dangers</td>
<td>1. Posing of threats</td>
<td>1. Removal of threats</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Appeals to hatred and repressed impulses</td>
<td>2. Catharsis</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Appeals to individual to reassert self-image</td>
<td>2. Greater appropriateness of new attitude for the self</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Ambiguities which threaten self-concept</td>
<td>3. Control of all environmental supports to undermine old values</td>
</tr>
<tr>
<td>Knowledge</td>
<td>Need for understanding, for meaningful cognitive organization, for consistency and clarity</td>
<td>1. Reinstatement of cues associated with old problem or of problem itself</td>
<td>1. Ambiguity created by new information or change in environment</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2. More meaningful information about problems</td>
</tr>
</tbody>
</table>
Katz lists the following dimensions which are relevant to attitude change:

a) Attitude intensity or strength of its affective components.

b) The number of cognitions or beliefs contained in an attitude and the specificity or generality of the attitude.

c) The number and strength of the attitude's linkages to a related value system, and the relation of the value system to one's personality.

d) The centrality of an attitude in its role as part of a value system, or how close it is to the individual's self-concept.

e) The attitude's relation to overt behavior.

Katz believes that one's need state will show the goal toward which one is heading; but since the means for reaching a given goal vary, it is necessary to know the attitude showing his evaluation of the various means. Katz defines value systems as relatively enduring, affect-laden codes. The affect derives from association with need gratification or deprivation, and with emotional arousal. This theory views basic needs as the motivating force and the value system as the channel for expression of these needs. Needs can be aroused through activation of the value system so that identical values may serve many different motivational processes. Here, one finds connections being made between structure and function and between balance and instrumentality theories.
Peak integrates and clarifies the motivational approach by defining attitudes in the following manner: "Attitudes are dependent on motivation for the most characteristic property of an attitude, its affective loading, which is a function of the instrumental effectiveness of the object of the attitude in helping us gain our ends." She views the affective loading of any act or concept as a major factor in determining the probability of its arousal. The differences in feelings about a present state and an imagined state or the disparity caused by attitudes and differences between attitudes are assumed to account for the strength of much motivated behavior. Attitudes toward acts will influence one's behavioral choice and thus determine the direction of an action. Changes in motivation (direction and level) cause changes in attitude and vice versa. This theory, in some ways, is not unlike Osgood's theory of cognitive dynamics; it also appears similar to Brehm and Cohen's interpretation of cognitive dissonance. Disparity, dissonance, or incongruity are all seen as motivating; in a more extreme form they are considered as frustrating and even stressing. However, the manipulation of dissonance is handled differently by different camps of research. Osgood and other balance theorists emphasize the existing attitude structure whereas Peak, Breer and Locke and other instrumentality theorists emphasize environmental contingencies and motivational variables. The word

38 Peak, "The Effect of Aroused Motivation on Attitudes," 463-68.

value occurs in Peak's and Katz's formulation despite the fact that they are instrumentality theorists. Before moving on to values and beliefs, however, the attitude framework must be completed.

Rokeach's definition makes reference to an object within a situation. Most attitude researchers agree that both are important in the study of attitudes. However, Rokeach notes that most studies rarely look at both. This contribution properly belongs under a heading of measurement and methodology, but it needs to be entered here as part of the conceptual framework of attitudes as well. Behavior is seen as a function of two types of attitudes--one activated by the object including one's self, and the other activated by the situation.

Rokeach also points to a host of variables related to the organization of attitudes. Many of these are so-called cognitive style variables. The organization of attitudes has been examined via the following dimensions: differentiation, integration, centrality, breadth, specificity, dissonance, complexity, time perspective and also by a number of personality style variables such as field dependent versus field independent, sensitizor versus repressor, leveler versus sharpener and numerous others. Many of these come from the literature in orientation category number two. Asch's work has done much to clarify the cognitive structural aspects of attitudes and to demonstrate that they do produce preconceptions or "sets" toward objects.

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40 Rokeach, Beliefs, Attitudes and Values, p. 119.

and situations. Rokeach\textsuperscript{42} points to the fact that we need both the cognitive and affective components of attitudes to predict preferential responses. One may cognitively positively evaluate a trip to the dentist as necessary but emotionally feel quite negative about it. Like-dislike and good-bad need not always go together. Osgood's\textsuperscript{43} work has been useful in this respect. Although still controversial, his dimensions of evaluative, potency and activity are useful, especially within the above context. It helps to emphasize the fact that an attitude is a set of interrelated predispositions which do not all necessarily become activated by an attitude, object or situation. This helps to explain the often-noted lack of correspondence between attitudes and overt behavior. Osgood and other balance theorists in studying relationships among attitudes and the nature of meanings of attitude objects have done much toward identifying important relationships among various attitude components, especially within the area of dissonance produced by cognitive inconsistency. This is an important mechanism for attitude change and behavioral change.

Finally, Kerlinger\textsuperscript{44} has demonstrated that many attitude objects act as referents. Referents are category names for classes of phenomena which can be physical objects, events, behaviors and

\textsuperscript{42} Rokeach, Beliefs, Attitudes and Values, p. 122.


even constructs. An attitude referent is a construct which stands for a set of elements in a category. A criterial referent of an attitude is a construct that is the focus of an attitude that is highly significant and relevant for the individual. What is criterial for one individual may not be for another. He has demonstrated that most criterial referents (e.g., liberal versus conservative) are not bipolar but dualistic unless they are used by individuals taking an extreme stance. He also demonstrated that most attitude systems generally have only two orthogonal components of criterial referents. He suggests that in our society most evaluations boil down to two choices. This appears to be somewhat akin to a sort of Hegelian "strife of opposites." Nevertheless, Kerlinger has added a component to the structural framework of attitudes: criterial versus non-criterial.

Rokeach's expanded definition of an attitude is offered here as a summary of this section:

An attitude is a relatively enduring organization of interrelated beliefs that describe, evaluate, and advocate action with respect to an object or situation, with each belief having cognitive, affective and behavioral components. Each of these beliefs is a predisposition that, when suitably activated, results in some preferential response toward the attitude object or situation, or toward others who take a position with respect to the attitude object or situation, or toward the maintenance or preservation of the attitude itself. Since an attitude object must always be encountered within some situation about which we also have an attitude, a minimum condition for social behavior is the activation of at least two interacting attitudes, one concerning the attitude object and the other concerning the situation.

45 Rokeach, Beliefs, Attitudes and Values, p. 132.
The Nature of Beliefs

Beliefs are usually seen as micro-attitudes. Rokeach feels that we have tens of thousands of beliefs, thousands of attitudes and dozens of values. Much of what is said about attitudes holds for beliefs. Here again one finds those interested in structure emphasizing centrality. Those interested in motivational functions tend to emphasize intensity. Those interested in personality tend to emphasize the relationship between belief and self-concept or ego involvement.

In regard to a construct of the nature of beliefs, Rokeach is again helpful. He feels that there are seven relevant questions to ask about the nature of beliefs: "First, what structural properties do all belief systems have in common? Second, in what structural ways do belief systems differ from one another? Third, how are they developed and learned? Fourth, what motivational functions do belief systems serve? Fifth, what is the relation between belief and emotion or, in other terms, between cognition and affection? Sixth, how do belief systems guide perceiving, thinking, remembering, learning, and acting? And, finally, what conditions facilitate or hinder the modification of belief systems?" He believes that as beliefs range from central to peripheral they decrease in importance and are also more easily changed. He defines a central

46 Ibid., p. 2.
belief as one having the most connectedness or existential beliefs about one's self as opposed to beliefs about others, shared and unshared beliefs, underived or directly learned beliefs versus derived beliefs, and beliefs concerning and not concerning matters of taste. Rokeach \(^{47}\) then goes on to describe five types of beliefs using the framework just established. These five types of beliefs are listed below in order of their centrality.

1) **Primitive beliefs** that are learned by direct encounter usually having total social consensus.

2) **Primitive type beliefs** that are not due to the consensus of shared social norms but are learned by direct encounter. They are usually personal and need no reference group for support.

3) **Authority beliefs** usually based on a child's socialization experiences interacting with later experiences as he learns differences of opinion. These are resistant to change but not as much as the first two categories.

4) **Derived beliefs** usually coming from some authoritative source and are usually formed from various everyday learning experiences.

5) **Inconsequential or beliefs concerning matters of taste.**

Rokeach offers a number of empirical findings to substantiate his conceptual framework.

The Nature of Values

While beliefs and attitudes seem to address themselves to what is true about the nature of something (epistemology) values seem to address themselves to what is good about what is true (axiology). Morris points to two types of values: Those dealing with desirable conduct and moral codes and those dealing with desired taste, enjoyment and end goals. Rokeach also identifies two types of values, terminal and instrumental. The first corresponds to the aesthetic value noted above and the second corresponds to the ethics value. In general, this seems to be the case; there are desired ends and desirable ways of reaching those ends.

Rokeach describes a value as a type of central belief proscribing how one should behave or the worth of some end state. He believes that terminal values are fewer in number and more central than instrumental values. It is interesting to note that Rokeach, basically a balance theorist dealing mainly with structure, is now addressing the instrumental or functional aspects of value in much


49 Rokeach, Beliefs, Attitudes and Values, p. 159.
the same way as do Peak, Katz, and Breer. He defines value in the following way: "A conscious or unconscious standard for guiding actions, for the development and maintenance of attitudes toward relevant objects and situations, for justifying one's and other's actions and attitudes, and for judging oneself and others." This definition brings to mind Kerlinger's previous treatment of criterial referents, Katz's functions of attitudes, various aspects of self-concept and self-esteem, and much of the research done by people in category number four on social influence. In short, this definition seems to rest at the center of most work done in all four research orientations. It also appears similar to Hartman's definition of value. Clarity and parsimony both suggest that it is preferable to examine dozens of values rather than thousands of beliefs and attitudes. The study of instrumental and terminal values would encompass research positions concerning structure, function, personality and cognitive styles, and social pressures or influences. Rokeach places the value concept ahead of the attitude concept for the following reasons:

1) Values have motivational as well as cognitive, affective and behavioral components.

2) Value is a determinant of attitude as well as of behavior.

3) Values are more economical to deal with than attitudes because they are fewer in number.

\[50\text{Ibid., p. 160.}\]
He distinguishes attitude from value by pointing out that attitudes are packages of beliefs concerning what is true or false and desirable or undesirable about an object or situation. A person's value system, on the other hand, is a learned organization of rules for making choices regarding modes of behavior and end-state of existence. Once internalized, a value becomes a guiding standard for attitude and behavior. This appears to clarify ideas concerning intrinsic and extrinsic values previously noted.

In addition, Rokeach offers Table 1 shown below which illustrates components of cognitive organization and possible inconsistent relations among them. The items marked and footnoted by Rokeach indicate research by the people listed below the table. He suggests that the most magnitude and enduringness of change should come from D&D inconsistencies but combinations of D with all others would run a close second. He then notes the three main methods for inducing inconsistency between any two of the elements shown.

1) A person may be induced to engage in behavior that is inconsistent with his attitudes or values.

2) A person may be exposed to new information from a significant other than is inconsistent with present attitudes-value systems.

3) A person may be exposed to information about states of inconsistency already existing with his own attitude-value system.

Rokeach believes that item three has not been tried so far. He offers a number of reasons why inconsistencies would exist. Among
them are ego-defense, conformity, and uncritical internalization of contradictory attitudes of his reference group. As attitudes and behavioral change are examined in this study, one of Rokeach's studies dealing with item three will be examined.

### TABLE 1

**MATRIX OF INCONSISTENT RELATIONS POSSIBLE WITHIN THE VALUE-ATTITUDE SYSTEM**

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Attitude</td>
<td>$X^1$</td>
<td>$X$</td>
<td>$X$</td>
<td>$X$</td>
<td>$X$</td>
<td>$X$</td>
</tr>
<tr>
<td>B</td>
<td>Attitude system</td>
<td>$X^5$</td>
<td>$X$</td>
<td>$X$</td>
<td>$X$</td>
<td>$X$</td>
<td>$X$</td>
</tr>
<tr>
<td>C</td>
<td>Instrumental value system</td>
<td>$X$</td>
<td>$X$</td>
<td>$X$</td>
<td>$X$</td>
<td>$X$</td>
<td>$X$</td>
</tr>
<tr>
<td>D</td>
<td>Terminal value system</td>
<td>$X$</td>
<td>$X$</td>
<td>$X$</td>
<td>$X$</td>
<td>$X$</td>
<td>$X$</td>
</tr>
<tr>
<td>E</td>
<td>Cognitions about own behavior</td>
<td>$X$</td>
<td>$X$</td>
<td>$X$</td>
<td>$X$</td>
<td>$X$</td>
<td>$X$</td>
</tr>
<tr>
<td>F</td>
<td>Cognitions about significant others' attitudes, values, motives, or behavior</td>
<td>$X$</td>
<td>$X$</td>
<td>$X$</td>
<td>$X$</td>
<td>$X$</td>
<td>$X$</td>
</tr>
<tr>
<td>G</td>
<td>Cognitions about behavior of nonsocial objects</td>
<td>$X$</td>
<td>$X$</td>
<td>$X$</td>
<td>$X$</td>
<td>$X$</td>
<td>$X$</td>
</tr>
</tbody>
</table>

1McGuire (1960).

2Abelson and Rosenberg (1958).

3Festinger (1957) and Brehm and Cohen (1962).


5Osgood and Tannenbaum (1955).

6Heider (1958) and Newcomb (1961).
Fromm, Maslow, Skinner and other psychologists identified with humanism, despite different orientations, are all very much concerned with these aspects of values. Most would agree that they are learned in the context of primary socialization; that conditioning phenomena can explain much of this process and that they have motivating properties. Moreover, Maslow, Fromm, May and others are also identified with a sort of transcendent function of values. Briefly, the core of this seems to be that a certain level of needs and values gives rise to behaviors which often give rise to experience which in turn develop capacities for higher level needs and values and self-development. The need to survive, once satisfied, can, through survival experience, create the capacity for the need to help others survive. The need to help others survive is best described as a value. It is also possible to say that value is just another name for learned needs. This problem can be resolved by making an important distinction between needs and values.

Cofer and Appley\textsuperscript{51} describe a motive as having energizing and directing properties. This description stems from a motivational sequence posited by the equilibrium theory of motivation: Stimulus-attention, perception and cognition--need and drive states--need choice--goal choice--behavior choice--outcome. The sequence suggests that needs are stimulus--specific and are activated. Values, on the other hand, are standards or guiding references. They may give rise

to needs; they may be brought to one's attention by environmental stimulation; however, they should not be equated with specific needs. Values should be seen as the learned capacities for need experience but not as the needs themselves. Values may also give rise to the choice of certain goals, but a value is not necessarily a goal either.

Another interesting connection between value and motivation has been indicated by Morris some time ago. In a work titled "Paths of Life," he notes three basic motivational components of personality which give rise to three value orientations: "'Dionysian' (tendency to indulge one's self), 'Promethean' (tendency to manipulate and control) and 'Buddhistic' (tendency to regulate the self by holding desires in check)." A more recent study by Osgood, Ware and Morris investigates the preceding values by phrasing them into a number of different ways of living. Subjects (Ss) noted thirteen ways of living on a seven-point, like-dislike scale. The ways of living were also appraised by the same Ss using a number of semantic differential scales. Two separate analyses were performed, one to get at connotative meanings of the ways to live, and the second to get at semantic scale relations. The connotative analysis yielded four factors which correspond closely to the original three values postulated by Morris. The first factor involved an active versus passive (dynamism) approach to life. The

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second identified an other-oriented versus ego-centricity (socialization) dimension. The third factor was a self-sufficiency and control versus abandonment (control) dimension. And the fourth got at venturesome versus cautious dimension. It was the least clear of all four factors. The "semantic space" analysis identified three factors, successfulness, predictability, and kindness. These factors fairly well correspond to the preceding first three factors. It is interesting to note that the often-noted dimensions of evaluation, potency, and activity all collapsed into the "successfulness" factor in this study. It accounted for more than half the total variance as did the "dynamism" factor in the first analysis. Katz's function of adjustment and knowledge seem to be operating here. The values examined in the above study appear to be mixtures of instrumental and terminal values. The study does indicate, at least to some extent, which ones seem to be most potent.

Rokeach's treatment of values is a step toward restating an often-noted criticism of balance, namely, that while they have much to say about the structure of attitudes, they have little to say about how they are formed. Rokeach seems to be moving toward Katz and the more functional orientations of the instrumentality theorists.

Bem\textsuperscript{54} unites balance theory and behavioral approaches of instrumentality theorists under one roof embodying a thoroughgoing functional approach to self-perception as an interpretation of

cognitive dissonance. Some of his ideas are strikingly similar to Rokeach's. In examining the cognitive, emotional, social and behavioral foundations of attitudes, beliefs and values, Bem appears to reach much the same formulations as are summarized in this paper regarding the framework of attitudes, beliefs and values. Bem makes one additional contribution by presenting evidence that attitudes, beliefs and values act on behavior and are acted on by behavior. This sort of mutual interdependence is too often overlooked by hard and fast balance and instrumentality theorists. A sequence should be proposed which displays a casual chain made up of behavior causing attitude change and this attitude change causing further behavior change and so on. Research is not sufficiently advanced to examine this sort of on-going complex sequence. A behavioral-attitudinal change over time would have to be thoroughly examined in terms of the network of variables just summarized. For the time being, research must content itself with small segments of this sequence. A summary of the studies examined in this section dealing with structure and function is listed under the heading: The Structural and Functional Network of Attitudes, Beliefs and Values.
THE STRUCTURAL AND FUNCTIONAL NETWORK OF ATTITUDES, BELIEFS AND VALUES

I. Attitudes
   A. Components
      1. Cathetic (feeling or affective) expressing a preference such as like or dislike regarding noxious or gratifying objects.
      2. Cognitive (thinking or axioms and propositions) expressing a belief about the nature of an object especially its instrumental use in reaching one's goal.
      3. Evaluative (specific moral standards) expressing judgments or rightness on ethical grounds.
      4. Behavioral tendency (action set) emphasizing the way one tends to act toward a given object in a given situation.

   B. Structure
      1. Horizontal generalization across different situations.
      2. Vertical generalization from specific situations to abstract values.
      3. Object (figure) related.
      4. Situation (ground) related.
      5. Criterial or noncriterial.
      6. Central of peripheral.

   C. Modes of Expression
      1. Instrumental (goal seeking behavior).
      2. Affective (displaying feelings).
      3. Expressive (expressing values).

   D. Dimensions of Expression
      1. Evaluative
      2. Potency
      3. Activity
      4. Intensity
      5. Certainty
      6. Involvement

   D. Motivational Functions
      1. Adjustment or need satisfaction.
      2. Ego-defense or protection.
      3. Value expression or maintaining self-identity.
      4. Knowledge or the need for understanding and maintaining a consistent, meaningful cognitive organization.

   F. Other Specific Dimensions
      1. Connectedness
      2. Importance
      3. Cognitive style variables
      4. Balance
II. Beliefs
A. Components--similar to attitudes
B. Structure--similar to attitudes
C. Functions--similar to attitudes
D. Systems--making up attitudes

E. Types
1. A--primitive beliefs due to social consensus
2. B--primitive beliefs not due to social consensus
3. C--authority beliefs
4. D--derived beliefs
5. E--inconsequential beliefs

III. Values
A. Components
1. Attitude systems
2. Belief supporting systems
3. Possibly needs

B. Structure
1. Hierarchical
2. Criterial (used as standards)
3. Dynamic (because of relationship to motivation)

C. Function
1. Guide behavioral choices
2. Guide end-state choices

D. Types
1. Terminal
2. Instrumental

E. Possible Behavioral Orientations
1. Controlling and active
2. Impulsive and pleasure seeking
3. Stoic, accepting and passive
The Manipulation of Attitudes, Beliefs and Values

Just as the four orientation categories emphasize different structural and functional aspects of attitudes, beliefs and values in their relationship to behavior, so do they emphasize different independent variables as important for changing them. This section examines the major demonstrated sources of influence. Almost all involve some exposure to new information or experiences of some sort. Instrumentality positions such as these by Vroom, Breer and Locke, and Peak generally incorporate some sort of task or behavioral experience variables. Balance theorists generally expose subjects to new information designed to create cognitive inconsistencies. Social communication-persuasion theorists use group pressure, authoritarian sources and emotional appeals to influence attitudes, beliefs and values. Personality-motivational theorists such as Katz, Sarnoff and McClintock examine attitude change as a function of particular personality-related needs and particular appeals made to these needs.

More specifically, balance and social communication-persuasion studies have yielded variables dealing with the motives of the communicator, the communication, the audience, group membership, group identification, compliance, environmental control, emotional conflict, role playing, group opinion and the effects of group feedback. The instrumentality theorists have dealt more with variables embedded in settings where the subjects engage in various activities having different outcomes, especially contingent rewards and punishments. Relationships between these experiences and attitude change are
examined especially regarding changes in expressed preferences and evaluative decisions as a function of overt behavioral experience. The former group of research has more of the classical conditioning trappings. The Ss tend to assume a passive role as they are exposed to information. The latter research is more akin to instrumental conditioning. The Ss are usually actively engaged in some sort of goal-related behavior. This is not a hard and fast distinction but it does hold for most studies. Extreme environmental control is usually exercised in the instrumentality studies though not always. Their emphasis on overt behavior as a cause for and as a measure of attitude change makes these studies valuable in the prediction of human behavior.

A number of the social persuasion-communication studies exercise strong environmental control and instrumental as well. Hovland, Janis and Kelley, after surveying a number of these studies, conclude that active participation, rewarding group feedback, group pressure, milieu control, emotional conflict and role playing show up as potent variables. In short, behavior and its consequences seem to have strong effects on attitudes regardless of the research orientation.

A study by Rokeach, however, shows that balance theorists still have something to offer. Rokeach measured a number of terminal


values, then showed the subjects an inconsistency in their rankings of these values. The inconsistency was that two similar values were given very different ranks. The Ss not only changed their rankings, but also behavior related to these values. More will be said about this study later as it has important implications for the present study. The following is a brief review of some representative studies dealing with attitude change.

Attitude Change as a Function of Task or Behavioral Experience

Even though this section does not deal directly with the motivational functions of attitude offered by Katz, various studies within it provide considerable support for them. A second purpose is to examine tasks and behavioral conditions which have been successful in achieving attitude change because these areas touch on conditions similar to some classroom experiences.

Peak demonstrates the effect of aroused motivation on attitudes by measuring attitudes on different academic situations before and after a quiz. Significant changes were found for both positive and negative initial attitudes when compared to a control group (no quiz condition). The conclusion was that the attitude toward a policy or object is a function of the judged consequences of the policy.

57 Peak, "The Effect of Aroused Motivation on Attitudes," 463-68.
Lantz\textsuperscript{58} conducted one of the earliest experiments in this area. The task involved securing a ball from a box three times in three different ways. Subjects (ages 6-9) who experienced success on this task significantly raised their scores beyond the expected test-retest improvement on the revised Stanford-Binet. The opposite occurred for Ss who failed. The items showing the most changes were those involving thought processes as opposed to rote memory or visual perception. Ratings of success Ss' comments showed a significant increase in willingness, self and social confidence, boldness, alertness, cooperation, and effort. The failure Ss' comments were rated as significantly decreasing in the above areas. They also became more antagonistic, anxious, and impulsive. Their comments on level of aspiration, ego preservation, and departure to unreality significantly increased. They also showed exaggerated physical expression of tension.

Using terms from an aptitude test, Gebhard\textsuperscript{59} examined the effects of success and failure upon the attractiveness of activities as a function of experience, expectation, and need. Changes in attitude were significantly varied by experience and expectation under low but not high need to achieve. Ratings of personal interest and favorability of general comments were dependent on experience and expectation. Both were negative under failure conditions and positive under success conditions.


Locke presents a series of studies showing a positive linear relationship between task success and task liking and satisfaction factor of task success. Subjects who failed (e.g., difficult task) gave many comments regarding task attitudes (e.g., tiring, fatiguing, arm hurting, and boring). Subjects who succeeded (e.g., easy task) made some comments regarding themselves (e.g., own abilities, their improvement, novelty, and enjoyed the challenge). The tasks involved assembling words of varying difficulty (4, 7, or 15 letters). Subjects were paid for the number they completed. This study illustrates the direct relationship between attitudes and task outcome.

In another task study, Breer and Locke varied numerous attitudes toward achievement positively and negatively by placing Ss in hard conditions (i.e., success for effort) and easy conditions (much success for little effort). The tasks were taken from tests of creativity and appear to be quite stimulating. They hypothesized that the medium Ss would see effort as more positively related to success than the easy and hard Ss. Using a number of Likert type items covering numerous concepts of achievement, they obtained significant attitude changes on items dealing with effort versus luck, man versus nature, and control versus acceptance. This experiment is


61 Breer and Locke, Task Experience as a Source of Attitudes.
important because it displays clearly the phenomenon found earlier by Carlson, generalized attitude changes.

In another well-planned study involving attitudes toward individualistic versus collectivistic approaches to tasks, Breer and Locke obtained significant attitude changes on almost all items. The items included vertical generalization from the immediate situation (i.e., working, doing, and being, in order of generalization) in four areas (family, school, neighborhood, and factory) and in three modes of activity (instrumental, expressive, affective, and general) for each of the four areas of horizontal generalization. Their items also included an equal number of evaluative, cathetic, and cognitive components. The tasks were chosen so that one approach was definitely better than the other in terms of output and resulting rewards. The Ss were allowed to use either of the two approaches but could only change approaches by a majority vote. The Ss exposed only to those tasks favoring an individualistic approach significantly changed their attitudes toward individualism as covered by the areas noted above. The opposite occurred for the Ss in the collectivistic condition. These effects persisted for at least two weeks as measured by a post-post test. The division of attitude change areas and attitude components in the above study presents a very comprehensive picture of attitude change in terms of structure.


This division also gave people ample opportunity to display their areas of attitude change. A behavioral change was also noted. Subjects changed regarding their choices of individualist versus collectivistic activities.

Cohen has shown that high effort (as opposed to low effort) on a task produces significantly greater attitude change under high discrepancy (task outcome) as opposed to small discrepancy. In view of this, it seems mandatory that Ss be confronted with a task situation that is definitely ego-involving to enhance the changes that they will exert high effort. This has not been the case with many task studies.

A number of past studies indicate that ego involvement and effort are both relevant moderators of attitude change in task situations. Vroom cites a number of studies illustrating the importance of how one perceives the task, his abilities as related to the task, and the importance of the task (Kaufmann, 1962; French, 1955; and Aronson and Carlsmith, 1962). In short, it appears that ego-involvement requires that the task as an attitude object must be seen as important and be seen as relevant to abilities which the individual values and sees himself as having. It should also be noted that most experimental studies do not involve very high stakes regarding reward

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and punishment. Their motivating effects may be questioned on this point.

The attitude changes in most of these studies were quite definite and enduring. In many instances the task studies also display the behavioral component of attitudes. This was especially pronounced when the experiments stimulated a "real life" situation in satisfying the conditions demanded by the situational variables just considered. A good example of this is an educational study by Mullins and Perkins\(^6\) which demonstrated significant increases in self-actualization (measured by the Personal Orientation Inventory) for students enrolled in an innovative biological science course who were not science majors. The increases were greatest for inner directedness and acceptance of aggression. Both are certainly self values of an intrinsic nature. The program stressed applications of biology to social problems and emphasized emotional as well as intellectual growth. Discussions, field trips, community projects and encounter-type process groups made up much of the program. Ego involvements, relevance, intrinsic values dealing with self and others are all evident in this study. The hypothesis was that participation in an intensive academic program, which attempted to meet personal needs would result in changes in attitudes, values and behavior in the direction of self-actualization. The above study, in many ways, is close to the present study except for measures and academic area.

Attitude and Behavioral Change as a Function of Personality Characteristics and Specific Needs

The four motivational variables offered by Katz are related to a number of personality characteristics examined in studies dealing with attitude change as a function of needs and personality characteristics. The following studies demonstrate that experimental manipulations related to Ss' needs and self-concept are potentially useful as regards changing attitudes. They also suggest that negative, anxiety-provoking experiences are counterproductive to task performance. They also demonstrate that individuals with different personality characteristics respond differently to identical informational material and communication sources regardless of the Ss initial similarity on the attitude being examined. This is due to the variation in type and strength of motive behind a given attitude. It is also due to variation in the attitude dimensions defined earlier by Katz. Typically, these studies confront Ss with information or situations which produce some dissonance either among attitude components or in value systems.

Divesta and Merwin were able to obtain attitude change by manipulating the perceived instrumental effectiveness of teaching. They held the affective components in two communications constant, but one communication displayed teaching as highly satisfying need for achievement. They found attitude changes in affective components.

of attitude toward teaching; there were similar instrumental component changes in perceived fulfillment of need for dominance, affiliation, exhibition, and achievement as measured by pre-post attitude scales. Achievement need of subjects correlated .26 (Alpha = .05) with attitude change. The needs involved in this study are not directly equated to the motives described by Katz. However, they appear to be instrumentally related to them. Dominance, exhibition, and achievement appear largely to serve the motives of ego defense and value expression and to a lesser extent, adjustment.

McClintock examined the effects of different treatments on different personality characteristics in obtaining positive and negative attitude change. He classified people as ego defenders (i.e., conflict between own impulses and external society) and other-directed (i.e., acts on the expectancies of others). Biased information produced more change in high ego defenders when attempting to increase the direction of one's initial stand. Authoritarian sources caused more change among other-directed Ss when attempting to influence S in a direction opposite his initial stand. Information designed to give insight on prejudice as a defense mechanism resulted in a change for medium ego defenders (but not for low or high) in lessening one's stand. It was reasoned that this information was irrelevant to low ego defenders and too threatening to the rigid high ego defenders. The authoritarian information source produced no difference across ego defenders. The insight information produced no differences across ego defenders.

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other-directed Ss. This study has a direct correspondence to the motive of ego defense. It should also be noted that the other-directed Ss responded to the arousal and change conditions listed for the motives of value expression and adjustment.

A study by Greenbaum\textsuperscript{69} showed that in the absence of situational demands or social pressure, low self-esteem, high need-approval Ss showed less attitude change than high self-esteem, low need-approval Ss when all were forced to defend a stand opposite their own.

Hunt and Schroder\textsuperscript{70} used a sentence completion method to examine the tendency to assimilate negative information. It was found that Ss high in anxiety had significantly low assimilation tendencies had more aggressive responses than Ss low in anxiety. They also found that Ss showing nonavoidant behavior had more objective self-correction responses than Ss showing failure avoidance behavior. This study demonstrates the effects of threat as an arousal condition for the motive of ego defense. It appears that the high anxiety Ss are actually ego defensive as they avoided the threat of negative information.

In short, the above studies show a definite trend for people who are high in anxiety and ego defensiveness, low in self-esteem, and high in need for social approval to respond to distinct arousal conditions. These people appear to be motivated mainly by Katz's


identified function of ego defense, to a lesser extent by the motivational functions of value expression and adjustment, and least by the functions of knowledge. It appears that any classroom conditions arousing such motives are undesirable regarding performance objectives, self-insight and open academic inquiry.

The dependent variable thus far has been attitude change (verbal or written) examined in terms of the affective and cognitive components. While the following studies do not examine attitude change, they do provide insight concerning the behavioral component of attitudes as a function of personality characteristics. Many of the tasks are designed to frustrate the Ss; this brings forth action tendencies which may otherwise remain unseen. Maier provides a link from goal blockage to Peak's concept of disparity and to the motives listed by Katz when he states: "A problem or obstacle in the path may either motivate an organism to show problem-solving behavior or frustrate him to show destructive, rigid or immature behavior. The outlook in one instance is 'what-to-do', in the other it is blaming, hostility, or self-pity."

Eysenck reviewed a number of task studies and concluded that motivating instructions produce a decrease in performance for high anxiety Ss.

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72 Ibid., pp. 119-26.
Wiener\textsuperscript{73} found that high anxiety Ss had more errors and longer reaction time on difficult motor and perceptual tasks than did low anxiety Ss. No differences were found for each task conditions. Ego involving instructions had the same effect as did the difficult tasks. He also found that the high anxiety Ss gave more disturbed responses on a word association test than did the low anxiety Ss. Wiener concludes that high anxiety Ss impair their own performance by reacting to ego involving and/or difficult tasks and tests with achievement-related anxiety-reducing responses which are incompatible with effective performance.

Weiner\textsuperscript{74} showed that Ss high in resultant achievement motivation (HRAM) performed better than Ss low in LRAM under failure conditions (contrived norms) in an easy task but did more poorly than LRAM Ss under success conditions in a difficult task. The implication is that the LRAM Ss are more influenced by success or failure possibilities than by task characteristics themselves. The opposite appears for the HRAM Ss. This seems feasible since these Ss had a much higher fear of failure than the HRAM Ss.


Solley and Stagner\textsuperscript{75} found that Ss who made self-oriented remarks (e.g., comments involving self-blame and personal characteristics) performed more poorly and displayed significantly more palmar sweating than did Ss who made task-oriented remarks (e.g., evaluating the characteristics of the anagram task). This did not occur under the "easy" task conditions. This finding parallels the results from a study by Hokanson,\textsuperscript{76} who compared low and high hostility groups in terms of physiological states of anxiety before and after tasks involving threat and frustration. They were the same in the resting state. However, when frustration and threat were induced respectively, the high hostility group showed a greater change toward a high level of anxiety, physiologically, in response to each condition than did the low hostility group.

Even though the treatments, classification indices, and pre-post attitude measures varied greatly, some general conclusions may be reached. Individuals high in anxiety, fear of failure, ego defense, need for social approval, and low in self-esteem appear to have less tolerance for dissonance or disparity than do Ss who are medium or low in these areas. They appear to respond more to protection of self-esteem and less to task or information characteristics than do the Ss who are medium on the above characteristics.


It also appears that dissonance is often perceived as threat by the "low tolerance" Ss, especially if the dissonance is at all related to self-esteem. It again seems that classroom conditions which arouse motives of ego-defense in students are undesirable. Performance decreases and defensiveness is certainly not conducive to self-insight, openness and understanding. Given the results of Mullins' and Perkins' study of self-actualization noted earlier on page 56, it does seem that value and behavioral changes in the classroom need not be threatening but can result from positive educational experiences. Change, then, does not always have to be stressful or forced.

Wylie\textsuperscript{77} in reviewing fifteen studies dealing with self-concept suggests that changes in self-evaluation as a result of task experience and/or outcome are related to one's personality characteristics. She feels that level of self-regard, one's test anxiety, the characteristics devalued, and the value of the information source are the salient variables in most of these studies. These studies suggest that the instructor's characteristics play an important part in determining classroom experiences in addition to the instructional model used and the nature of the course material. A study by Coats, Swierenga and Wickert\textsuperscript{78} examining student perceptions of teachers demonstrated three factors. The first, accounting for 61.5 percent of the variance in


the questionnaire, was identified as a kind of teacher popularity or charisma. It was heavily loaded with items such as attitude toward students, stimulates interest and encourages students.

Stern,\(^7^9\) in reviewing the research on pupils' ratings of instructors, concludes: "Strikingly similar factors have emerged, involving empathy (friendly, democratic behavior) and competence (systematic, organized behavior)." He notes that these correspond closely to descriptions of best- and least-liked instructors given by thousands of high school seniors and college students. Student evaluations of course and instructor should be taken into account when examining results of classroom experiences. A review of the research on college teaching by McKeachie\(^8^0\) points to a number of variables already noted as important regarding positive attitudes. They appear to center around active involvement such as discussion, recitation, interesting applications of subject material, motivating students through knowledge of their needs, active interaction between instructor and students for feedback, stimulation and guidance and courses that are well organized so students know where they are going and what is expected of them. Generally, examination grades are not significantly influenced by these variables; however, attitudes, course-related skills and satisfaction with the course are usually influenced and often over a considerable time span following the course.


It is difficult to escape the fact that an environmental setting offering any degree of reward and/or punishment following one's behavior is bound to affect that behavior. The experiences individuals have in such a situation must inevitably influence attitudes, beliefs and values which are related to the experiences. Finally, it appears that studies of attitude, belief, value and behavioral changes must make use of two sources of information: One, the structural and functional aspects of existing values. Two, the specific effects which environmental variables have on these, especially in motivating situations which involve intrinsic values.

Value Change and Behavioral Change

Unfortunately there are all too few studies falling under this heading even though it is often behavior change that researchers are attempting to predict. Earlier, it was noted that Rokeach proposes behavioral change as a function of attitude toward object and/or attitude toward situation. He also notes that the two could interact; either one or the other or neither may be changed following a given treatment. It may also be possible to get a behavioral change in the absence of any attitude change. Forced compliance situations are an example of this. Orne's\textsuperscript{81} work of the demand characteristics of an experiment may well be another illustration. Rokeach suggests that value and attitude changes toward an object should be tested

\textsuperscript{81}Milton T. Orne, "On the Social Psychology of the Psychological Experiment: With Particular Reference to Demand Characteristics and Their Implications," \textit{American Psychologist}, 1962, 17, 776-83.
across situations and vice versa. He also notes that few studies test and retest over long time spans. Behavioral change which endures over time would increase one's confidence that true underlying value attitude changes have taken place.

A study by Kemp 82 showing differential value change on the Allport-Vernon-Lindzey Study of Values over six years as a function of low, medium and high dogmatism is one exception to the above.

A study by Rokeach 83 in which subjects were shown inconsistencies within their value systems did demonstrate value and behavioral changes which persisted through the final post test seventeen months after treatment. He also found much the same sort of duality in examining the values of freedom and equality that Kerlinger found in examining liberalism and conservatism. Specifically, the subjects were exposed to information regarding positions of values which they had previously ranked in order of importance. Typically the subjects ranked freedom very high and equality three to eleven steps lower. Subjects shown this discrepancy were told that it might indicate interest in personal freedom but not in freedom for others. Data offered by Rokeach indicate that this treatment worked. Subjects increased their rankings of equality, equal rights for Blacks, equal rights for others and decreased their rankings of


83 Rokeach, Beliefs, Attitudes and Values, p. 37.
"a comfortable life" and "true friendship." In addition to this, an overt behavior indicator was used, solicitation by the NAACP to join their organization. Large significant differences were found between experimental and control groups which increased over time, both in value change and in frequency of joining NAACP. In fact, the first post test (three weeks after treatment) showed no difference between experimental and control groups.

Work by Bem indicates that the above findings may have much to do with the individual's perceptions of himself. In a sense, the person asks himself "what must my attitude be if I'm willing to act this way in this situation?" Given the motive of values, it seems reasonable to assume that one's perception of the kind of person he is (self-concept) is indeed part and parcel of his values. Much work by Breer and Locke, Vroom, Peak, and Katz has already indicated that ego involvement with treatment objects and situations is a potent variable for attitude and behavior change. Many of the cognitive dissonance studies give high and low payoffs to Ss who are encouraged to advocate attitude positions different from their own. The low payoff condition usually produces more attitude and behavior changes than the high payoff condition. Bem interprets these findings via a self-perception model. In brief, the low payoff subject asks himself "why else would I have taken this position unless my attitudes really are such?" He designed a clever experiment to test his

self-perception theory. Subjects were instructed to answer questions falsely when a light was green and to answer truthfully when a light was amber. After this training session, the Ss were requested to state attitudes which they disagreed with. These had been determined before the experiment. During this operation, the lights were again used, sometimes green, sometimes amber. Each time the subject made a statement, he was then asked to indicate his true attitude on the attitude scale. As the self-perception hypothesis predicted, the Ss changed their attitudes significantly more when they made their statement in the presence of the "truth" light than when they made their statement in the presence of the "lie" light. Here the "truth" light acted like small payoffs, and the "lie" light acted like big payoffs.

A study by Simonson dealing with attitude change and achievement in education demonstrated attitude change as a result of students observing a video tape showing them each delivering a "contrived" prepared speech in which they committed themselves strongly to an educational program. Changing one's behavior or getting one to try new behavior followed by the person reflecting back on it appears to produce attitude change. This is an interesting form of learning by doing, especially if one is involved in the behavior and the experience is rewarding.

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Generally, it appears that an attitude toward anything is a function of the way that thing is perceived from the standpoint of its effect on one's motives, one's self, and one's values. Motive involves not only the needs which may be operating but also the stimuli which caused them and the goals one picks to satisfy the needs. To change an attitude, existing values, needs and goals may be altered, or the beliefs and feelings about the attitude object may be changed by altering some properties of the object. The change in either case may be positive or negative depending upon the nature of the new information provided. It should also be noted than an attitude object may be anything including oneself. In fact, many of these studies have shown that the self is quite involved. In short, people take their values and experiences related to them quite seriously. Intrinsic values dealing with self, self-identity and self-understanding are probably very central whether they involve modes of conduct or desired end states. People appear to identify with their values; as such, changing values is no easy task and it is unlikely to be accomplished in a short time.

With the exception of Rokeach's and Bem's studies and a few others, it appears that the following statement from Breer and Locke provides insight:

Our theory of attitude formation and change emerges directly from reinforcement and generalization which are ordinarily invoked to explain the shaping of behavior can be extended to account for the formation of beliefs, values, and preferences. The only people who have demonstrated a continuing, theoretical interest in the origins of ideas are
those sociologists, social philosophers, and historians who work in the area traditionally known as the sociology of knowledge. The problem here, however, is the almost total lack of any systematic theory or body of principles which might be used to generate specific, testable propositions. It is unlikely, however, that this state of affairs will last forever. In addition to theories of their own making, sociologists have much to gain from the borrowing of principles employed in other branches of the behavioral sciences. Certain elements in learning theory duly elaborated to fit the social setting, may provide an appropriate foothold in some cases.86

Attitude, belief, value and behavioral changes probably occur most frequently when a person engages in some "new" behavior for an extended period of time. However, certain variables such as involvement, reward and self-perception should be considered along with the person's existing attitudes, beliefs and values as he enters a "new" situation or engages in some "new" behavior. Again, existing structure and new experiences must both be considered when examining resulting attitude and behavioral changes.

Some Moderators and Measurement Formulas

A recent study by Bass and Rosen87 points to some interesting concepts in measuring attitudes and attitude change. A major problem with attitudes is the weak relationship between them and behavior.

86 Breer and Locke, Task Experience as a Source of Attitudes, p. 45.

Some of the studies noted above and experiments related to them suggest that motive arousal must be considered along with attitudinal state, i.e., what motive is operating when the attitude is being measured, and is it still operating during some observed behavior which is supposed to be related to the attitude? Bass and Rosen suggest that a number of other variables also influence the relationship between attitude and behavior; namely, motivational involvement, apathy, certainty, and complexity-controversial. These variables are all independent of the major component of an attitude: feeling or affect. Since these variables are not actual components of an attitude, the authors view them as moderators (moderating the relationship between attitudes and behavior). The authors developed a forty-item list which used statements related to subjects considerations of an attitude object using the four hypothesized moderators mentioned above. Each statement was responded to on a six-point scale anchored by strongly agree and strongly disagree. At the end of the study, the forty statements scaled scores were intercorrelated and factor analyzed using principal components and varimax rotation. This factor method would maximize the possibility of finding clusters of items identifying the possible moderators. Indeed, the first factor (called certainty because of the types of items loading on it) accounted for 16.5 percent of the variance. The second factor (called motivational involvement) accounted for 14 percent of the variance; apathy accounted for 11 percent of the variance; and controversy accounted for 6 percent of the variance. A number of semantic differential items were also used and intercorrelated with the forty
items just mentioned. They did not load on the above factors, but instead displayed separate clusters which represented the evaluative, potency, and activity dimensions so common to the semantic components of attitude. It does seem as if these authors have found important attitude moderators and not just variations of some other attitude components. They were able to replicate their factors in another study using issues completely different from the first. In fact, by varying the attitude issues systematically, they were able to predict which moderator would differentiate the issues most effectively for any group of students responding to the statements.

Sherif points to some of the same moderators noted by Bass and Rosen. He describes attitudes as ego-involved because they are derived from the value systems of one's reference group. He believes that while two people may score the same on a given attitude scale, their degree of certainty, ranges of acceptance, and degree of ego involvement can differ. These are seen as important moderators in attitude and behavioral change. He also feels that extreme positions and how the attitude is anchored to other attitudes and to self-concept are also important moderators. In fact, Sherif believes that what is called ego or self-concept is actually the center of a constellation of attitudes. He defines values as central or ego-defining attitudes. Another moderator suggested by Sherif is the person's

organization and composition of evaluative categories. He feels that noncommitment leads to easier attitude change. This seems feasible given the above views. High commitment implies high ego involvement. He also believes one's stand on a single issue is not discrete and unrelated to the rest of his life space. The study of these links to the real world has been neglected in most attitude studies.

Finally, Sherif feels that the basic problem of attitude change is the problem of the degree of discrepancy from "new" persuasion and the felt necessity of coping with the discrepancy. Here again is the common theme--attitude structure and motivational dynamics are both needed. He believes that the preceding treatment holds even stronger for ego-attitudes or values; values being high in the individual scheme of personal priorities creates an additional problem: personal priorities are seldom altered by temporary exposure to an attitude change study even when they produce high activation and arousal. Long-term influence combined with a knowledge of the person's value structure and reference groups is necessary here.

A final contribution by Cook and Selltiz\footnote{Stuart W. Cook and Claire A. Selltiz, "A Multiple Indicator Approach to Attitude Measurement," \textit{Psychological Bulletin}, American Psychological Association, 1964, Vol. 62, Chapter 1, pp. 36-55.} should be noted as it concisely summarizes what has been covered. They view attitudes, beliefs and values in much the same way as Rokeach. In seeing attitude as an underlying disposition which enters, along with other influences, into determining a variety of behaviors, they recommend a multiple
measurement approach. This approach should include measures of specific object and situation dispositions, measures of dispositions toward other objects in the situation, measures of the values engaged by the situation, motivational state, expressive style and other characteristics of the situation such as its prescriptions as to appropriate behavior, the expectations of others and the probable outcomes following the person's behavior. The above fairly well agrees with the evidence cited regarding what should be considered in any study dealing with the change of attitudes, beliefs, values, and behavior. This orientation leads to the use of different measurements in an attempt to cover most of the effects involved in these changes.

Measuring Attitudes, Beliefs and Values

Balance theorists use two common ways of combining attitude scores to predict final attitude scores: one is called the summation model, commonly used by Fishbein and Hunter, and the other is called the averaging model, commonly used by Osgood. Briefly, the summation model states that each bit of positive information about an attitude object will increase one's total positive affect toward the object. The averaging model states that if a bit worth three


positive points is combined with a bit worth one positive point, the net value will be worth two positive points (the average of the two). The summation model will see it as worth four positive points. Some evidence exists for both these models. Anderson has developed a weighted averaging model which seems to resolve the discrepancies between the two other models. His data show that people form an overall impression by averaging all information bits but then give more weight to those highly negative or highly positive.

More recently Wyer and Goldberg offer evidence which suggests the values assigned to objects must be combined differently when the objects are within the same category. The averaging model was found effective when the objects are from different categories. These writers, on the basis of their evidence, suggest that the final value given to an attitude object is a weighted-average function of the ranked value of each attitude applied to the object.

When examining relationships between attitudes and behavior, some sort of probability model is often used which generally takes a number of variables into account. Common among these are intentions, beliefs about one's behavioral consequences, desirability of different outcomes, motivation and the person's expectations about what he should do in the situation. Fishbein, Vroom, Rosenberg, Dulany and Graen

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offer behavior prediction equations which take the above and variations of the above into account. Many of these equations provide for the addition of new components if there is reason to believe that they affect behavior and behavioral intentions. Mitchell and Biglan offer an excellent treatment of the above formulations. Their examination points to the fact that these models have at best weak empirical support. Most of their support derives from attitude and verbal conditioning studies, and least support comes from organizational industrial studies. Two formulations appear to have enjoyed the most experimental support. Both are displayed below. The first comes from Rosenberg, and the second comes from Fishbein.

Symbolically, Rosenberg's hypothesis may be stated:

\[ A = \sum_{i}^{n} I_i V_i, \]

where

\( A = \) attitude;
\( I = \) the rated instrumentality of the attitude object for attaining or blocking each of a set of values;

and

\( V = \) the rated importance of the value;
\( n = \) number of values.

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The formula for Fishbein's attitude theory is expressed as follows:

\[ A_o = \sum B_i a_i, \]

where

- \( A = \) the attitude toward the object \( o; \)
- \( B = \) the strength of belief \( i \) about \( o; \) that is, the "probability" or "improbability" that \( o \) is associated with some other concept \( x; \)
- \( a = \) evaluative aspect of \( B; \) that is, the evaluation of the related concept \( x; \)
- \( n = \) the number of beliefs about \( o; \) that is, the number of responses in the individual's habit-family hierarchy.

Vroom's formula is similar to Rosenberg's except that "A" is replaced by "F" (the force to behave in a certain way). This is reflecting the behavioral component of attitude. Rosenberg's and Vroom's formulations are closest to the theoretical positions emphasized in this study.

Summary Statements and Implications

1) "Real life" experiences over time are probably the most potent influencers of attitude, value and behavioral changes. This is especially true of new experiences which involve one's needs, self-concept, self-perceptions and related intrinsic values, terminal end state or modes of conduct.

\[^{97}\text{Vroom, Work and Motivation, p. 18.}\]
2) In order to specify the essential nature and effects of these experiences, a large number of affective domain components must be included. The structural and functional framework proposed earlier is indicative of this requirement. Changes in behavior and values should be studied using measures developed and organized in terms of the structural model; conditions for change should be developed in terms of the functional model. Value and behavioral change should be examined in terms of three main areas: a) existing structure of attitudes, beliefs and values; b) motivational function of attitudes, beliefs and values and c) the environmental situation or treatments designed to produce the change.

3) Once specified, the classroom conditions should be examined in all possible relationships to the models noted above.

4) Measures of attitude, belief and value and behavioral changes must be multiple and multifaceted given the complex relationships of attitude, beliefs and values, to each other, to overt behavior, and to other moderator variables.

5) Given the pervasiveness of these relationships, the measures should include areas beyond the specific attitudes, values, behaviors and situations of immediate interest. Also, assuming most interest lies in permanent changes, these measures should be repeated over time.

6) In regard to the classroom, especially the humanities and social sciences, it appears that influences from all four theoretical positions are operating: a) questions and dissonance concerning
values; b) self-evaluations and perceptions; c) motivating experiences in knowledge and adjustment; and d) some social persuasion. Intrinsic values should be examined in terms of the effects these four areas may have on them.

7) The first three positions appear most desirable for a classroom setting. The first would involve questioning and clarifying values, the third would involve actual "learning by doing" activities, and the second, especially in psychology classes, would involve examining one's self.

8) Finally, it appears that situations which involve threat, frustration and other negative experiences are undesirable in the classroom setting as they apparently impair performance and often produce defense reactions not conducive to open academic inquiry.

9) Since the present study is concerned mainly with instrumentality, balance, values and associated behavior, Rosenberg's formulation appears most applicable. Restated in terms of this study, his formulation reads as follows: Whatever values a student rates as important, the extent to which that student judges introductory psychology as useful in relationship to those values is the extent to which that student will display positive attitudes toward psychology. Since attitudes have a behavioral component, there should be a relationship between "pencil and paper" attitudes (e.g., course evaluations) and actual overt behavioral involvement with psychology (e.g., volunteering for extra work, courses, seminars and information). Since psychology emphasizes and deals with intrinsic "self" values, the higher a student holds these
particular values, the higher the attitudes and behavioral commitment toward psychology should be. A final point should be made regarding Rosenberg's formulation. Regardless of initial values (at the beginning of the semester), experiences in introductory psychology may change students' values, course-related attitudes and behavioral involvement. Change, nature of change, classroom condition, and final results are all of interest in the present study.

Prior to drawing the preceding summary into a research scheme, a few comments are necessary. First, the limitations of time, facilities, and complete background studies dealing with the structural and functional framework proposed earlier make it impossible to include the entire framework within any one study. Also, parts of this framework is still more conceptual than factual and remain to be empirically grounded.

Second, here the focus is on the components within the framework which in fact have empirical support. Briefly, these are Katz's four functions, Breer and Locke's behavioral-instrumental orientation, Rokeach's work on value inconsistency, Bem's work on self-perception, moderators identified by Bass and Rosen, Sherif's demand that "ego" and "total life space" not be ignored, and Rokeach's and Osgood's work on attitude, belief, and value structure.

Third, emphasis here is placed on growth-oriented behavioral and value changes as a result of positive educational experiences. No attempt was made to manipulate students by giving them "surrogate" research plans. All classroom conditions may be seen as valid
educational experiences in psychology. All measures may be seen as forms of course evaluation and assessment. Also, no attempts were made to utilize the arousal conditions for ego-defense noted by Katz. Behavioral and value changes need not depend on negative learning experience. New behavioral experiences, new information, and insight into one's values may all consist of positive, rewarding experiences.
CHAPTER III

METHODOLOGY

In general, methodology involved two steps: One, factor analysis of all measures (pre-semester and post-semester) to reduce data and especially to facilitate an examination of intrinsic value structure and its relationship to other measures. Two, analysis of variance to test hypotheses addressing predicted group differences on the measures due to the influences of different classroom conditions described in the following paragraph.

The main purpose of this study was to examine introductory psychology students' values, grades, course evaluations and behavioral involvement with course-related material under different classroom conditions. Intrinsic values related to self-knowledge, other intrinsic values and other aspects of psychology were of particular interest. These conditions were developed from three of the four theoretical positions noted earlier, balance theories, personality dynamics and instrumentality theories. Given the nature of psychology, personality dynamics are actually a major source of subject matter; therefore, it was combined with balance theories and with instrumentality theories. This yielded two sets of conditions: 1) value analysis dissonance and clarification especially concerning intrinsic values dealing with insight, self-acceptance and other aspects of personality and 2) instrumental activities involving the application of psychological knowledge to one's self for purposes of improving.
one's adjustment. A third classroom condition exposed a section of students to both of the above. A fourth classroom condition involved only lecture and discussion; both conditions one and two above were withheld from this group. Finally, the last condition was a randomly selected control group exposed to no psychological material at all. The block diagram below illustrates the arrangements of conditions for the five groups of students.

<table>
<thead>
<tr>
<th>I</th>
<th>II</th>
<th>III</th>
<th>IV</th>
<th>V</th>
</tr>
</thead>
<tbody>
<tr>
<td>Random Group</td>
<td>Introductory Psychology 151--Lecture and discussion</td>
<td>Introductory Psychology 151--Lecture and discussion plus value analysis and clarification</td>
<td>Introductory Psychology 151--Lecture and discussion plus instrumental class activities</td>
<td>Introductory Psychology 151--Lecture and discussion plus conditions III and IV</td>
</tr>
</tbody>
</table>

No Psychology

Details on subjects, conditions, measures and statistical analysis follow the hypotheses advanced below regarding the five groups of students participating under the five conditions just described.

H<sub>R1</sub> There will be differences in psychological intrinsic values among the five groups of students at the end of the semester.

H<sub>R2</sub> There will be differences in willingness to volunteer for extra work, information and short seminars in psychology among the five groups of students at the end of the semester.

H<sub>R3</sub> There will be differences in instructor and course evaluation among the four groups of introductory psychology students at the end of the semester.
There will be differences in attitudes toward psychology in a number of areas among the five groups of students at the end of the semester.

There will be differences in intrinsic value changes among the five groups of students when pre-semester and post-semester scores are compared.

There will be differences in terms of increasing group means beginning with group one and increasing through group five for each area addressed by the preceding hypotheses.

The sixth hypothesis applies to each of the preceding five hypotheses by placing an additional condition on them. This hypothesis is concerned with systematic differences among the five groups of students. A brief explanation should clarify the sixth hypothesis. Hypotheses one through four are all tested by fixed effects, one-way analyses of variance. The fifth hypothesis is first addressed using t-tests for correlated observations to first determine if significant changes (in the positive direction) in values occur. If these tests are significant for the four psychology classes, then hypothesis five is also tested with analysis of variance in the same manner as the first four hypotheses, except that change scores rather than post-semester scores are tested. In short, the psychology classes must first show significant changes in the positive direction before differences among group changes may be tested.

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99Ibid., pp. 39-43.
Following the above analyses, each of the first five hypotheses is given an additional condition, hypothesis six. This hypothesis is addressed by using orthogonal planned comparisons to test for systematic differences between certain combinations of group means. These t-tests are run only if the preceding analyses of variance show significant differences. These comparisons of group means are shown below in Table 2.

<table>
<thead>
<tr>
<th>Comparison</th>
<th>GROUP</th>
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<tbody>
<tr>
<td></td>
<td>I</td>
</tr>
<tr>
<td>1)</td>
<td>-4</td>
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<tr>
<td>2)</td>
<td>0</td>
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<tr>
<td>3)</td>
<td>0</td>
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<tr>
<td>4)</td>
<td>0</td>
</tr>
</tbody>
</table>

The comparisons above allow for four independent t-tests regarding the five groups. The group means are weighted as shown; for example, group one is compared to a combination of the other four groups in comparison one. Each comparison not only systematically tests for differences between group means but is weighted so that each group mean must be larger than the preceding group mean, beginning with group one and ending with group five. In general, all measures

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except grades and work ratings are predicted to increase as a monotonic linear function of classroom conditions beginning with condition one (the lowest) and ending the condition five (the highest) as a result, primarily, of positive educational growth experiences in psychology. Statistical tests for all hypotheses are directional with significance level set at Alpha = .05.

In addition to the preceding six hypotheses, it is predicted that post-semester factor loadings will demonstrate a positive relationship between classroom conditions and 1) intrinsic psychological values, 2) willingness to volunteer for extra work, and 3) course and instructor evaluations. It is also predicted that measures of attitudes will display generalization from "psychology applied to one's self" to "psychology applied to practical problems" and finally to "psychology applied to others." Group means from the four psychology classes on these measures will show a decrease across these three areas from the closest or most central area (psychology applied to self) and to the more distant area (psychology applied to others). Hypothesis seven addresses this prediction.

\[ H_{R7} \] There will be systematic differences among the three attitude areas for the four psychology classes. Two orthogonal comparisons are used to test hypothesis seven.

Finally, it is predicted that grades and work ratings will not be related to classroom conditions. As noted in the literature survey, evidence from most studies dealing with different instructional models indicates that grades are usually not influenced.
Subjects

The research hypotheses require five groups of subjects, four sections of introductory psychology students and one outside control group. The control group was composed of eighteen randomly chosen students at Monroe County Community College who had not been exposed to a course in introductory psychology. The four remaining groups (approximately twenty students in each group) were four general psychology sections. Specific conditions and combinations of conditions were assigned to these sections on a random basis. Approximately four-fifths of these students were around eighteen years old. The remaining one-fifth were students ranging in age from about twenty to thirty-five. Most were from Monroe County or adjacent counties. Almost all were full-time students. The sex ratio was about equal. No systematic differences in grades, age or student-instructor evaluations have been noted between the students enrolled in morning sections as opposed to afternoon sections.

At the beginning of the semester, each group consisted of thirty students. Unfortunately, attrition reduced the total number to one hundred students.

In addition to the above groups, two more sections of psychology students enrolled in an advanced psychology course (Psychology of Personality and Adjustment) participated. At the end of the fall semester, fifty of these students were administered one of the value measures for purposes of comparison.
Classroom Conditions

The three classroom conditions examined in this study were 1) an introductory psychology course, 2) exposure to information and activities concerning value analysis and clarification, and 3) exposure to a series of psychological task-activity experiences. Previous work indicated that these experiences are seen as instrumentally positive by students who have participated in them. The psychological tasks and a number of the values both deal with areas such as self-insight and self-understanding, perceiving and understanding others, and using information concerning these in everyday life. Following is a description of each condition:

Condition One: Introductory Psychology. Briefly, the course consisted of ten modular units: 1) general introduction and scientific methodology, 2) learning, 3) emotion and body physiology, 4) motivation and emotion, 5) perception, 6) cognition, 7) measurement, 8) personality and adjustment, 9) disorder and therapy, and 10) social behavior. Each unit has a list of specific behavioral objectives. Grading policies and unit goals are covered by handouts and discussions. Lectures, demonstrations and discussions are the main instructional methods. The general course goals are listed below.

a. To acquaint students with psychology as an academic and professional discipline.

b. To prepare students, who wish, for further study in this field.
c. To provide students with applicable information designed to increase self-understanding, self-awareness, and adjustment to one's self and others.

The course behavioral objectives for each unit may be seen in Appendix A.

Condition Two: Value Clarification Exercise. Briefly, this condition involved examining and discussing a number of values. Students were encouraged to look for inconsistencies among their own values as they examined the values listed on the following page. As an assignment, they were then asked to rank the values in order of preference. The intrinsic psychological values on this list which are of particular interest because they are related to course material in all four psychology sections are underlined. The model used for value clarification exercises may be seen in Appendix B.

Most of these values were drawn from the study by Rokeach on value inconsistency and from humanistic psychology material dealing with self-understanding and growth. Finally, a number of values similar to those used by Osgood, Ware, and Morris were included. The emphasis is on terminal value inconsistency (DD in Rokeach's matrix). It should be noted here that while these values were ranked by all groups as a measure, they served as a classroom condition for value clarification only for groups three and five.
Values

VA 1 ___ A comfortable life (a prosperous life)
VA 2 ___ Accomplishment (achievement)
VA 3 ___ Self-control (effectively controlling one's needs, emotions and behavior)
VA 4 ___ Understanding others (empathetic relating to others' needs and feelings)
VA 5 ___ An exciting life (a stimulating life)
VA 6 ___ Self-insight and understanding (knowing oneself)
VA 7 ___ Pleasure (an enjoyable, leisurely life)
VA 8 ___ Self-respect (self-esteem)
VA 9 ___ Happiness (contentedness)
VA 10 ___ Respect for others (as people and their rights)
VA 11 ___ Inner harmony (freedom from inner conflict)
VA 12 ___ A meaningful life (no description)
VA 13 ___ Freedom (independence)
VA 14 ___ Expressing my needs and feelings (acknowledgment and expression)
VA 15 ___ Service to others (no description)
VA 16 ___ Self-acceptance (accepting one's strengths and weaknesses)
VA 17 ___ Social recognition (respect and admiration)
VA 18 ___ True friendship (close companionship)
VA 19 ___ Self-honesty (not fooling oneself)
VA 20 ___ Wisdom (a mature understanding of life)
VA 21 ___ Mature love (sexual and spiritual intimacy)
VA 22 ___ Interesting work (career wise)
VA 23 ___ Personal maturity (responsible)
VA 24 ___ An education (no description)
VA 25 ___ Special abilities (being really good at somethings or thing)
VA 26 ___ Time to relax and think (no description)
This condition was added to unit four in the psychology course only for groups three and five; however, all the psychology students were exposed to the underlined values to some extent in regular course work. These underlined values are listed below along with brief descriptions of how they are related to regular course material for all sections. They are listed in order in terms of how much time and emphasis each area was given.

1) **Self-insight and understanding.** This area was somewhat central to the entire course. It was related to topics which emphasized application of psychological knowledge to one's self in order to improve self-understanding and adjustment. Interests, abilities, motives, emotion, personality and adjustment are typical examples of this knowledge.

2) **Self-acceptance, self-respect and inner harmony.** These were actually a part of the area noted above as they are seen as often developing from self-insight and understanding. Again, the humanistic theme in psychology: "Self-insight and understanding lead to self-acceptance and respect which in turn lead to better connectedness and adjustment to one's self and the world one lives in." This was described to students in Maslow's sense of "finding your own thing and then doing it."

3) **Self-control.** This was advanced in class mainly as a behavioral engineering sort of control. Upon examining one's thoughts, feelings, and behavior, one finds that certain environmental settings have strong influences on them; presumably one could control these influences to some extent. This could be done by
changing a part of the environment or by avoiding a part of the environment in favor of another. For example, if one wishes not to smoke, one could spend much time in water, keep the mouth busy at other activities and avoid situations which increase the tendency to light up. In short, control the environment that influences your behavior and you are controlling your own behavior.

4) **Expressing needs and feelings.** Basically, this means first recognizing and admitting needs and feelings to one's self and then finding ways to acceptably express and adjust to them rather than suppress them.

5) **Understanding others.** For the most part, this is an application of the four preceding areas to other people.

**Condition Three: Applied Instrumental Psychology Activities.**

a. A one-hour exercise in progressive relaxation. (Specific instructions may be found in Appendix C.)

Time: one hour.

b. A unit dealing with application of variables causing errors when forming first impressions, perceiving and judging others.

Time: one hour.

c. Work in self-insight and evaluation involving a self-administered personality and motivational test.

Discussion topics cover interests, fantasies, dream, emotional and need analysis, and self-expression.

Time: two hours.
d. A unit covering the main findings on human learning and recall as they apply to improving students' grades and learning efficiency. Typical items are how to handle essay exams, improving recall and study time schedules.

Time: one hour.

General course goal three is further emphasized in these activities which were introduced in appropriate course units in addition to regular course work. Major sources for activities b and c may be seen in Appendix D.

The basic idea advanced to students was that objective self-awareness and knowledge leads to self-understanding which in turn leads to self-adjustment and adjustment to others. Objective self-awareness involves the use of psychological information applied in a systematic manner. This was the manner in which the usefulness or instrumentality of different areas of psychology was revealed to the students. Basically an advertising model was used in the course and in the task experiences. Examples of lack of self-insight and knowledge were used as stimuli to create the need for self-insight which in turn prompts the push toward psychological goals. This operation should arouse Katz's functions of knowledge, adjustment, and value of expression.

The specific topics are regarded as objects for attitudes. The overall classroom setting is regarded as a situation for attitudes. Since many topics deal with personal areas such as self-concept, emotional control and expression, self-understanding, and self-adjustment, ego-involvement (as noted by Sherif) should be operating.
Students should be examining themselves and their behavior in ways suggested by Bem's work on self-perception. In addition to regular classwork, the task-activities should be an added source of rewarding instrumental experiences as per Breer and Locke. In short, these classroom conditions should provide some information regarding the following statements: One, self-related behavioral experiences influence values, attitudes, and future behavior. Two, value analysis and clarification influences behavior and attitudes.

Regarding the groups of students in classroom conditions one through five, group one (no psychology) should be least influenced, and group five should be most influenced as this group is exposed to all the conditions dealing with values and psychological activities. Also group four (the instrumental activities condition) should be more influenced than group three (the values clarification condition) because of the greater behavioral involvement in these activities. Group two (psychology class only) should only be influenced more than group one. The basic idea here is that as students were exposed to more and more positive experiences in psychology involving themselves and their values, they should be more and more influenced in a positive direction in terms of attitudes toward psychology, intrinsic values and behavioral involvement.

**Measures**

All variables and measures entering analyses are listed below along with their abbreviations and scoring codes. All scoring is in the positive direction to simplify data analysis. All measures are numbered so that students were not required to place their names on any of them; and the students were promised anonymity.
1. **Classroom conditions or group (GP)** (Coding: control group = 1, psychology class alone = 2, psychology class plus value clarification = 3, psychology class plus instrumental activities = 4, psychology class plus value clarification plus instrumental activities = 5).

2. **Sex** (Coding: Female = 1, Male = 2).

3. **Grades (GDS)** (Coding: D = 1, C = 2, C+ = 3, B = 4, B+ = 5, A = 6, A+ = 7).

4. **Work record (WK)** Attendance, completed projects and papers make up work records. (Coding: poor = 1, fair = 2, good = 3, excellent = 4).

5. **Values** (VA 1 through VA 26) This is the ranking scale of values shown on page 88 and described under classroom condition two. (Coding: one to twenty-six from the lowest to the highest ranked value.) This measure yields twenty-six separate value scores for analysis.

6. **The Allport-Vernon-Lindzey Study of Values** (AVL 1 through AVL 6). This measures six value areas, theoretical, social, economic, political, religious and aesthetic. It is used largely for exploratory purposes. (Coding: none; total scores from each of the six values are used.)

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7. **Critical values.** Students are asked to rank any ten or less values they would use to evaluate the following attitude objects:
   a. A course
   b. A job
   c. Life in general
   d. People in general
   e. Yourself
   f. Special people in your life
This measure attempts to identify the most common values students use when evaluating different attitude objects. This is similar to Kerlinger's work on critical attitudes noted earlier.
(Coding: none; values listed on this measure are simply tallied, and totals are given for the number of times each is listed under each of the above areas.)

8. **Course and instructor evaluations (CE 1 through CE 3).**
An instructor and course evaluation form is completed at the end of the course. Previous factor studies over a two-year period indicate the following main areas of evaluation:
   a. Effectiveness of instructor's teaching regarding course organization, workload, stimulating interest, and clarity of presentations. (CE 3)
   b. Instructor desirability as a person regarding interpersonal communication and receptiveness to student's ideas. (CE 2)
   c. Student's judgment concerning worthwhileness of the course, adequacy of answers to specific questions, and how much the instructor had to offer in terms of useful knowledge. (CE 1)
A copy of this form along with its coding is included as Appendix E. The factors identified above correspond to quite an extent to Breer and Locke's attitude components (cognitive, cathetic, and evaluative). They also seem to be related to Katz's functions of adjustment and knowledge. (Coding: Each of the three areas of evaluation receives a score of one to five in the positive direction depending on student responses to the items on the evaluation form in Appendix E. Item scores related to each of the three evaluative areas are combined to give an overall score (one to five) for each area. Items combined for each of the three areas (CE 1, CE 2, CE 3) are labeled as such on the evaluation form in Appendix E). Three scores are then produced from this measure.

9. **Overt behavioral choices** (BC 1 through BC 7). All behavioral decisions are made on three-point scales anchored with "yes," "maybe," and "no" regarding the choices listed below:
   a. The choice to sign up for a five-hour free seminar on self-awareness.
   b. The choice to sign up for the next level psychology course on personality and adjustment.
   c. The choice to sign up for volunteer work at a local mental health center.
   d. The choice to subscribe to the magazine *Psychology Today*.
   e. The choice to take a number of personality and interest tests at the counseling center.
   f. The choice to request information on professions in psychology.
g. The choice to buy three books dealing with awareness, adjustment, and therapy.

The questionnaire sheet used here has been used before to identify possible areas of student interest which may be developed into seminars and projects for a six-week interim session which follows the second semester. This is the rationale given to the students for responding to these items. (Coding: For each item, No = 0, maybe = 2, yes = 5.) This measure yields seven variables. An eighth variable (BCSUM) is formed by adding scores from the seven items.

10. Semantic differential scales (SE 1 through SE 17, PR 1 through PR 17, OT 1 through OT 17). These consisted of seventeen bipolar adjectives (shown on the following page) applied to the three following attitude areas:

a. Using psychological knowledge to gain insight about my thoughts, feelings, and needs is: (SE 1 through SE 17).

b. Using psychological knowledge to gain insight about practical problems of everyday living is: (PR 1 through PR 17).

c. Using psychological knowledge to gain insight about others' thoughts, feelings, and needs is: (OT 1 through OT 17).

These areas, which emphasize instrumental aspects of psychology, are in keeping with Breer and Locke's orientation and with Katz's function of adjustment, knowledge, and value expression. These areas were chosen so as to approximate Breer and Locke's findings on attitude generalization. (Coding: One to seven in the positive direction for each bipolar pair of adjectives.) This measure
yields a total of fifty-one variables (seventeen adjectives applied to three attitude areas). Two additional scales accompany each pair of adjectives. Both come from the Bass and Rosen study on moderator variables. The first is a five-point "importance" scale; the second is a five-point "certainty" scale. In addition to placing a mark on one of the seven intervals between the adjectives, students were asked to check the importance and certainty scales for each pair of adjectives according to how important they believed that item was for evaluating the given attitude area and also how certain they were of the mark they placed on the seven-point scale. (Coding: One through five in the positive direction.)
Concept to be Rated

<table>
<thead>
<tr>
<th>Concept to be Rated</th>
<th>Check One Interval According to Your Feeling</th>
<th>How Important is This Item?</th>
<th>How Certain is Your Opinion?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. monotonous</td>
<td>___ ___ ___ ___ ___ challenging</td>
<td>5 4 3 2 1</td>
<td>5 4 3 2 1</td>
</tr>
<tr>
<td>2. worthwhile</td>
<td>___ ___ ___ ___ ___ worthless</td>
<td>5 4 3 2 1</td>
<td>5 4 3 2 1</td>
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<tr>
<td>3. unpleasant</td>
<td>___ ___ ___ ___ ___ pleasant</td>
<td>5 4 3 2 1</td>
<td>5 4 3 2 1</td>
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<tr>
<td>4. passive</td>
<td>___ ___ ___ ___ ___ active</td>
<td>5 4 3 2 1</td>
<td>5 4 3 2 1</td>
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<tr>
<td>5. wise</td>
<td>___ ___ ___ ___ ___ foolish</td>
<td>5 4 3 2 1</td>
<td>5 4 3 2 1</td>
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<tr>
<td>6. successful</td>
<td>___ ___ ___ ___ ___ unsuccessful</td>
<td>5 4 3 2 1</td>
<td>5 4 3 2 1</td>
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<tr>
<td>7. strong</td>
<td>___ ___ ___ ___ ___ weak</td>
<td>5 4 3 2 1</td>
<td>5 4 3 2 1</td>
</tr>
<tr>
<td>8. meaningless</td>
<td>___ ___ ___ ___ ___ meaningful</td>
<td>5 4 3 2 1</td>
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<tr>
<td>9. good</td>
<td>___ ___ ___ ___ ___ bad</td>
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<td>5 4 3 2 1</td>
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<tr>
<td>10. precise</td>
<td>___ ___ ___ ___ ___ vague</td>
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<tr>
<td>11. productive</td>
<td>___ ___ ___ ___ ___ destructive</td>
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<tr>
<td>12. real</td>
<td>___ ___ ___ ___ ___ unreal</td>
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<td>5 4 3 2 1</td>
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<tr>
<td>13. important</td>
<td>___ ___ ___ ___ ___ unimportant</td>
<td>5 4 3 2 1</td>
<td>5 4 3 2 1</td>
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<tr>
<td>14. interesting</td>
<td>___ ___ ___ ___ ___ uninteresting</td>
<td>5 4 3 2 1</td>
<td>5 4 3 2 1</td>
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<tr>
<td>15. effective</td>
<td>___ ___ ___ ___ ___ ineffective</td>
<td>5 4 3 2 1</td>
<td>5 4 3 2 1</td>
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<tr>
<td>16. powerless</td>
<td>___ ___ ___ ___ ___ powerful</td>
<td>5 4 3 2 1</td>
<td>5 4 3 2 1</td>
</tr>
<tr>
<td>17. boring</td>
<td>___ ___ ___ ___ ___ exciting</td>
<td>5 4 3 2 1</td>
<td>5 4 3 2 1</td>
</tr>
</tbody>
</table>
11. A three-year follow-up study on the five groups of students consisted of the following measures:

a. The twenty-six values ranking measure.

b. The semantic differential applied only to one area, "Psychology is:"

c. Rated usefulness of psychology on a five-point scale anchored at one end by "Quite useful" and at the other end by "Not very useful."

Fewer measures were used on the follow-up study because of student complaints at the end of the semester concerning the number of measures to be completed. Unfortunately, many of these students could not be contacted. In fact, only two students from the control group responded; therefore, data analyzed in this section concerns groups two, three, four and five. The number of students responding from these groups are four, six, six and nine respectively. All questionnaires included a stamped envelope with a typed return address on it. Of the eighty-seven questionnaires mailed out, thirty were returned completed, five of these were discarded because of errors and missing data, thirty-four came back stamped "address unknown" and the remaining questionnaires were never returned. It is assumed that these reached the students and were ignored, lost or forgotten.

Given the small number of students, nonparametric statistics are used to examine group differences.
The Kruskal-Wallis statistic is called $H$ and reads as follows:

$$H = \frac{12}{N(N + 1)} \left( \sum \frac{(\sum R)^2}{n_j} \right) - 3(N + 1)$$

where $R$ is rank value of a given score and $n_j$ is the number of scores in a particular group, $j$.

12. As noted earlier, two advanced psychology classes completed one of the measures at the end of the semester. These students ranked the twenty-six values in terms of how effective they believed psychology was in helping to reach these values; they did not rank the values in terms of how much they preferred them. These students by the end of the semester were quite knowledgeable in psychology having been exposed to many different personality theories, therapies and areas of application. Their ratings of the intrinsic psychological values were compared to the instructor's ratings. This provided a reference to observe how others with some expertise in psychology view the usefulness of psychology in attaining these values.

All measures except performance records were administered during the last week of the semester. The semantic differential and all value measures were also administered during the second week of the semester. The value ranking measure, the semantic differential and the Allport-Vernon-Lindzey Study of Values all have shown retest reliabilities around .80 in past studies already cited in the literature review.
For computer analysis, most measures were broken down to the single items or questions composing them except for the Allport-Vernon-Lindzey Study of Values and the course evaluation form. These two measures are excluded from the item breakdown because their internal structures are more familiar than those of the other measures due to previous research. The value ranking measure, particularly, has not been examined for structure. And, much controversy still exists over the proposed evaluative, potency and activity dimensions on the semantic differential. Pre-semester and post-semester data were also analyzed separately. Pre-semester measures were handled the same as the post-semester measures except that the coding prefix "POST" is replaced with "PRE." The post-semester measures for computer analysis totaled ninety-eight separate items or variables. The pre-semester measures totaled eleven variables less due to the exclusion of the seven behavioral choices, their sum and the three course evaluation items.

Statistical Analysis

A comprehensive matrix of all measures and classroom conditions were subjected to basic statistics, intercorrelated and factor analyzed to 1) afford a reduction of data, 2) examine factor structure and possible changes in factor structure over time, 3) generate factor scores from raw scores for later analysis, 4) determine which measures are most useful, and 5) determine if classroom conditions are related to attitudes, values and associated overt behavior. Analyses, for the most part, were executed through SPSS at the Wayne State University Computer Center. These analyses were used to examine the hypotheses and relationships listed earlier.
Measures and scores clarified and combined by the above analyses were then tested using ANOVA and orthogonal comparisons to determine if significant differences exist among the five groups of students under different classroom conditions. Statistical analysis takes the following steps:

1. Basic statistics.

2. Pearson Product Moment Correlation of all variables including the five classroom conditions. Two separate matrices, pre-semester and post-semester, were generated.

3. Factor analyses of the correlation matrices (Principal components with iterations, N FACTORS = 10, followed by orthogonal varimax rotation and factor scores output.) Essentially, factor scores are the raw scores on each item weighted relative to the extent the item loads or correlates with a given factor.

4. Fixed effects, one-way ANOVA and orthogonal comparisons of the factor scores to test for differences among the five groups. Only factor scores from those factors on which GP loads (shows a relationship) are used. Any factor which shows no relationship to classroom conditions is, of course, indicating that there are no systematic linear relationships (or systematic differences) among the classroom conditions for the measures loading on that factor.

5. Fixed effects, one-way ANOVA and orthogonal comparisons of selected combinations of raw scores showing common factor loadings. Of special interest are the semantic differentials, the seven intrinsic psychological values and the sum of behavioral choices assuming factor structure justifies these separate analyses.
6. ANOVA and orthogonal comparisons of attitude and value change scores among the five groups with the condition that t-tests for correlated measures indicate that the psychology groups did indeed display significant changes.

7. Step-wise multiple regression analysis applied to post-semester data to indicate which variables are the best predictors of behavioral involvement (high scores on the sum of behavioral choices indicating many "yes" answers). Rosenberg's formulation is examined using the results of this analysis.

8. An examination of factor structures on the pre-semester and post-semester data regarding intrinsic and extrinsic values and changes in their factor loadings over time.

9. Examination of the criterial values forms (pre-semester and post-semester) to see what values students commonly use to evaluate different areas and to see if any of these change.

10. Examination of raw scores on the semantic differential applied to the three areas (self, practical and other) for degree of generalization from psychology applied to self to psychology applied to more distant areas.

11. Separate analyses of "importance" and "certainty" scores on the semantic differential scales to see which bipolar adjectives were deemed most important by students for evaluating psychology and to see on which adjectives the students were most certain of their responses.
12. A comparison of the seven intrinsic psychological values rankings from the five groups of students, the instructor and the two advanced psychology classes.

13. Separate analyses of the three-year follow-up data primarily to examine permanency of value change, current student evaluations of the usefulness of psychology and any differences among the four groups of psychology students.

Essentially, the preceding analyses involve two central stages: the first, factor analysis, was developed to examine the relationship among classroom conditions, attitudes, including behavioral commitment, towards psychology, and values, especially intrinsic humanistic values concerning relationships with one's self and others. The second, analysis of variance and other test statistics, was developed to address the first six research hypotheses concerning predictions of group differences. In essence, these hypotheses, though associated with different measures, are all predicting similar outcomes: that, in terms of positive attitudes and behavioral commitment towards psychology, and in terms of intrinsic value scores, group five will be highest, followed in order by groups four, three, two and one.
CHAPTER IV

FINDINGS

This section is divided into five units. The first unit consists of the results from the factor analysis and comparison of these results to the values students listed on the criterial values form. The second unit deals with ANOVA and planned orthogonal comparisons of factor scores from the groups of students under the five classroom conditions. The third unit is similar to the second except that it deals with raw scores and pre-semester to post-semester change scores from selected measures for the five groups of students. The fourth unit is concerned with stepwise regression analysis of post-semester measures; willingness to volunteer for extra work in psychology is the dependent variable. The fifth unit covers the analyses of the three-year follow-up data.

The above units center on three main findings. One, classroom conditions, rankings of intrinsic values, student evaluations of course and instructor, and students' willingness to volunteer for additional work in psychology all show substantial positive loadings on a major factor. Two, significant systematic differences exist among the different classroom conditions (from group one through group five) in terms of the factor scores, selected measures and changes in intrinsic values. Three, these group differences persist over a three-year time span.
Factor Analysis

This study is mainly concerned with the influences of classroom conditions on students' values, attitudes, course evaluations and behavioral involvement. Since classroom conditions are of major concern, data analyses are confined, for the most part, to those measures which show a relationship to classroom conditions. Any factors on which classroom conditions (GP) show loadings are examined to see which measures also load on them; the major portion of the entire data analyses addresses these factors and measures.

Attention is called to the fact that GP should not load on any pre-semester factors unless, of course, systematic group differences existed at the beginning of the semester. In general, the case for random groups appears to hold fairly well. None of the pre-semester factors shows any GP loading except for a very minor eighth factor, which only accounts for five percent of the total variance. By contrast, GP loads on the first two post-semester factors which together account for fifty-seven percent of the total variance of post-semester variables. These two factors will be described in some detail as they establish the major basis for most of the data analyses to follow. Copies of these factors, their item loadings and eigenvalues may be seen in Appendix F. Also included in Appendix F is a complete list of all post-semester variables and their abbreviations.

The first of the two post-semester factors is dominated by the seventeen semantic differential adjectives measuring the three attitude areas, "psychology applied to one's self," "psychology applied to practical problems of everyday life" and "psychology applied to
others. The second factor displays low (.30) medium (.40) to high (.80) loadings from the seven intrinsic psychological values, the highest being "self-insight and understanding" (VA POST 6). The sum of behavioral choices (BCSUM) or volunteering for extra work in psychology loads very high (.92) on this factor. Both factors display loadings from the course and instructor evaluations CEPOST 1 through CEPOST 3 although the second factor's loadings (.49, .40, .83 respectively) are much higher than the first factor's loadings (.41, .30, .13 respectively). Classroom conditions (GP) load much higher on the second factor (.49) than on the first (.17).

Given that all the semantic differential items load much the same on Factor I, along with some loadings from course evaluations, this factor can be described as "Overall Attitude Toward Psychology In General." Factor II appears more complex as a number of different measures show appreciable loadings. Given the intrinsic value loadings, course evaluation loadings, and behavioral involvement with psychology loadings, this factor may best be described as "Intrinsic Psychological Values and Related Behaviors." Again, these are the only two factors on which GP loads. Therefore, only the measures loading on these factors are retained for further analyses as the influences of classroom conditions are of central importance. The measures retained are the semantic differential, the ranked twenty-six values, the course evaluations and the volunteer sign-up form for extra work in psychology. The remaining items show little relationship to anything of importance regarding the purposes of this study.
The remaining post-semester factors are small and display few loadings of any importance. These remaining post-semester factors and all pre-semester factors will be referred to only in relation to the first two post-semester factors showing classroom condition (GP) loadings. All loadings used to describe these two post-semester factors are positive unless otherwise indicated. Loadings much below .30 should not be taken very seriously unless they are part of a clear pattern of item loadings. Loadings of .30 and less stem mainly from item intercorrelations usually not significant (around .30) given the small sample size of 100 and the large number of items in the original correlation matrix. Also, t-tests regarding the significance of large numbers of correlations are almost meaningless due to lack of independence among the items; and, of course, the large number of correlations greatly increases the probability of obtaining significant correlations by choice alone. There are approximately five thousand correlation coefficients in the post-semester matrix; roughly two-thirds of these are below .30. As a result of this large number of low correlation coefficients, any factors extracted after the first three are relatively unimportant. This also holds true for the pre-semester factors. A second factor analysis was performed with N-factors set at five. The first three factors extracted were quite similar to those extracted in the first analysis with N-factors set at ten for both post-semester and pre-semester data.

The first three factors in each set of data (pre-semester and post-semester) account for about seventy percent of the total variance. Most information relevant to this study appears to be well contained
within these first factors.

Before continuing the data analyses, a few comments are needed concerning the pre-semester factors, especially as regards changes in factor structure. The first three pre-semester factors (accounting for thirty-six, thirteen and nine percent of the total variance respectively) are dominated by semantic differential items. However, the three attitude areas do not all load equally together as they tend to on the first post-semester factor. The first pre-semester factor carries items from "psychology applied to practical problems of everyday life" and "psychology applied to others" for the most part and, to a lesser degree, "psychology to one's self." The second pre-semester factor carries mostly items from "psychology applied to one's self." The third factor picks up items largely from "psychology applied to others" and some from "psychology applied to practical problems." It appears that somewhat different meaning systems were operating at the beginning of the semester for these different areas. While at the end of the semester, all these areas load on Factor I, indicating that a common meaning system was operating at the end of the semester to a greater extent. However, "psychology applied to others" and "psychology applied to practical problems" do show up again on the fourth post-semester factor indicating that these areas are still partially seen from a different reference than "psychology applied to one's self." This fourth factor only accounts for six percent of the total variance though, while the first post-semester factor accounts for forty-one percent of the total variance. Other than this small shift in semantic differential areas, no other pattern of semantic differential item
loadings can be detected. The commonly noted evaluative activity and potency dimensions do not appear as separate structures here. Analysis of the moderator scales, importance and certainty, does indicate that the evaluative adjectives are seen by students as more important in judging these psychology areas, and they are also more certain of their opinions on the evaluative adjectives. A summary of this moderator analysis may be seen in Appendix G.

A second and more interesting change in factor structure concerns the value ranking measure. Two pre-semester factors (four and seven) indicate the presence of two operating value systems. Extrinsic values such as "accomplishment," "an exciting life" and "pleasure" loaded on factor four. Factor seven, however, carries most of the seven intrinsic psychological values. This pre-semester dichotomy, intrinsic-extrinsic is interesting even though it only shows on relatively small factors. However, the factor shift of intrinsic values is quite marked considering that the small pre-semester "intrinsic value" factor seven (six percent of the total variance) showing no GP loading moved to the strong post-semester Factor II (seventeen percent of the total variance) on which GP, course evaluations, intrinsic values and behavioral involvement all show high loadings.

The shift of the extrinsic values is also interesting; they show up on post-semester Factor II as negative loadings. This factor structure change ending in a negative relationship between intrinsic and extrinsic values coupled with the GP loading all on post-semester Factor II builds a reasonable case for classroom conditions as sources of influence regarding these values. In summary, factor structure
appears to change from pre-semester to post-semester. Analysis of the pre-semester and post-semester criterial values list reveals a somewhat similar shift in values. Table 3 shows the values students listed as important to each area evaluated and frequency counts and percentages for each of these values on pre-semester and post-semester measures.

In examining the last four columns of this table, three points are of interest: One, students had more to say about the different areas at the end of the semester, 1976 comments compared to 1492 from pre-semester data. Two, comments regarding item seven, intrinsic values, increased from thirteen percent to twenty percent. And, three, comments regarding extrinsic values, item six, decreased from nine percent to four percent. The changes in items five and twelve appear to be along dimension somewhat similar to items six and seven.
<table>
<thead>
<tr>
<th>VALUES LISTED</th>
<th>A Course Pre-Semester</th>
<th>A Course Post-Semester</th>
<th>A Job Pre-Semester</th>
<th>A Job Post-Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Interesting</td>
<td>47</td>
<td>35</td>
<td>46</td>
<td>52</td>
</tr>
<tr>
<td>2. Useful and worthwhile</td>
<td>41</td>
<td>74</td>
<td>34</td>
<td>48</td>
</tr>
<tr>
<td>3. Meaningful and relevant</td>
<td>32</td>
<td>67</td>
<td>37</td>
<td>46</td>
</tr>
<tr>
<td>4. Accomplishment</td>
<td>12</td>
<td>20</td>
<td>31</td>
<td>61</td>
</tr>
<tr>
<td>5. Pleasant, happy, fun and enjoyable</td>
<td>30</td>
<td>10</td>
<td>50</td>
<td>29</td>
</tr>
<tr>
<td>6. Security (for item 'Job,' security is pay, promotion, good hours, social</td>
<td>10</td>
<td>3</td>
<td>50</td>
<td>32</td>
</tr>
<tr>
<td>7. Self understanding, self-control, self-acceptance, inner harmony and</td>
<td>15</td>
<td>70</td>
<td>20</td>
<td>45</td>
</tr>
<tr>
<td>8. Love, friendship and care</td>
<td>16</td>
<td>20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Understanding and respect for others</td>
<td>8</td>
<td>15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Honesty</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Mature and responsible</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. Open and real, not fake</td>
<td>5</td>
<td>7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. Freedom</td>
<td>187</td>
<td>297</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Pre-Semester</td>
<td>13</td>
<td>20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Post-Semester</td>
<td>269</td>
<td>358</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: The table lists the frequencies of values for all five groups of students, with pre-semester and post-semester comparisons.
<table>
<thead>
<tr>
<th></th>
<th>1976</th>
<th>16</th>
<th>19</th>
<th>15</th>
<th>17</th>
<th>18</th>
<th>19</th>
<th>217</th>
<th>263</th>
<th>267</th>
<th>15</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
<td>0</td>
<td>18</td>
<td>3</td>
<td>3</td>
<td>5</td>
<td>5</td>
<td>3</td>
<td>3</td>
<td>25</td>
<td>15</td>
</tr>
<tr>
<td>7</td>
<td>3</td>
<td>18</td>
<td>138</td>
<td>30</td>
<td>40</td>
<td>15</td>
<td>40</td>
<td>6</td>
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<td>31</td>
<td>14</td>
</tr>
<tr>
<td>4</td>
<td>7</td>
<td>60</td>
<td>100</td>
<td>30</td>
<td>31</td>
<td>30</td>
<td>30</td>
<td>20</td>
<td>20</td>
<td>31</td>
<td>10</td>
</tr>
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<td>7</td>
<td>6</td>
<td>0</td>
<td>100</td>
<td>39</td>
<td>39</td>
<td>32</td>
<td>40</td>
<td>5</td>
<td>31</td>
<td>31</td>
<td>10</td>
</tr>
<tr>
<td>6</td>
<td>11</td>
<td>10</td>
<td>125</td>
<td>7</td>
<td>7</td>
<td>15</td>
<td>10</td>
<td>22</td>
<td>10</td>
<td>22</td>
<td>10</td>
</tr>
<tr>
<td>8</td>
<td>17</td>
<td>101</td>
<td>150</td>
<td>4</td>
<td>6</td>
<td>5</td>
<td>9</td>
<td>20</td>
<td>5</td>
<td>10</td>
<td>20</td>
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<tr>
<td>6</td>
<td>7</td>
<td>111</td>
<td>87</td>
<td>3</td>
<td>3</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>22</td>
<td>22</td>
<td>5</td>
</tr>
<tr>
<td>6</td>
<td>11</td>
<td>132</td>
<td>128</td>
<td>7</td>
<td>3</td>
<td>8</td>
<td>22</td>
<td>22</td>
<td>22</td>
<td>22</td>
<td>5</td>
</tr>
</tbody>
</table>

**TABLE 3--Continued**
Predictions regarding a positive relationship between classroom conditions and other measures appear to hold in light of the structure of the first two post-semester factors. Also, as predicted, grades and work ratings are not related to classroom conditions. The next section deals with the factor scores from the two post-semester factors on which GP loads.

Analysis of Factor Scores

Factor scores from both post-semester factors are transformed by adding a constant to eliminate negative numbers. ANOVA is then applied to the factor scores from each of the five groups of students. The first factor dealt with is post-semester Factor I (Attitude Toward Psychology In General), which is dominated by the semantic differential areas. Table 4 shows the means and standard deviations of these factor scores for each of the five groups. Table 5 follows showing the ANOVA.

TABLE 4

GROUP MEANS, STANDARD DEVIATIONS AND N'S FOR FACTOR SCORES FROM POST-SEMESTER FACTOR I

<table>
<thead>
<tr>
<th>GROUP</th>
<th>I</th>
<th>II</th>
<th>III</th>
<th>IV</th>
<th>V</th>
</tr>
</thead>
<tbody>
<tr>
<td>Descriptive</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Statistic</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>2.25</td>
<td>3.49</td>
<td>3.03</td>
<td>3.09</td>
<td>3.06</td>
</tr>
<tr>
<td>Standard</td>
<td>1.11</td>
<td>1.07</td>
<td>1.10</td>
<td>.80</td>
<td>1.23</td>
</tr>
<tr>
<td>Deviation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>18</td>
<td>15</td>
<td>20</td>
<td>20</td>
<td>27</td>
</tr>
</tbody>
</table>
Groups three, four and five are no different. However, all psychology groups are considerably above the control group. Only the first orthogonal comparison is performed on the group means; the rest are not as it is obvious that there is no increasing trend in group means going from group one through group five. The only marked difference is comparison one which contrasts group one with the other four groups combined: -4 (2.25) +1 (3.49) +1 (3.03) +1 (3.09) +1 (3.06). The t-test for this comparison is significant (alpha = .05). The remaining three comparisons would obviously not be significant as groups two through five should show an increase in group means. Instead, group two is highest and the three remaining groups are the same. This is not surprising as GP only loads lightly (.17) on this factor.

Hypothesis $H_{R_4}$ (there will be differences in attitudes toward psychology among the five groups) is substantiated because of the significant F, beyond the .05 level, from the analysis of variance. Hypothesis $H_{R_6}$ (testing for an increase in group means from group one
through group five) is largely unsupported except for the difference
between the control group and the four psychology groups combined.

One final point should be made concerning this factor before
turning to the second and final factor. Since Factor I is almost all
semantic differential loadings, an examination was made of the
pre-semester and post-semester raw scores from this measure in an
attempt to find out why the GP loading is so low. This examination
revealed rather strong "ceiling effects." The students from all
groups scored fives, sixes and sevens on the bipolar adjectives on the
pre-semester and post-semester measures. This measure simply failed
to discriminate among groups because all students displayed high
positive attitudes toward psychology. These items show low variance,
and the higher the mean for each item, the lower is its variance.
This effect is so marked that the correlation between item means and
standard deviations on pre-semester and post-semester measures is
quite high (r = -.77, N = 100). The average score for the bipolar
adjectives is 5.50 for pre-semester and post-semester measures. Given
that most people avoid using the lowest and highest intervals (one and
seven) the students in this study all scored about as high as they
could on the pre-semester and on the post-semester scales. The
attenuation of variance due to this ceiling effect makes it just
about impossible for this measure to detect group differences. In
addition to this, the correlations among the three attitude areas
measured by the semantic differential are high (average r = .85,
N = 100) indicating no discrimination among these three areas. The
scores on the semantic differential reflect a generalized positive
student attitude toward psychology, which is probably typical of most college students whether they are exposed to psychology or not.

Tables 6 and 7 show the same analyses for the factor scores from post-semester Factor II (Intrinsic Psychological Values and Related Behavior). This is the factor showing high loadings for GP or classroom conditions, intrinsic values, course evaluations and behavioral choices.

**TABLE 6**

**GROUP MEANS AND STANDARD DEVIATIONS FOR FACTOR SCORES FROM POST-SEMESTER FACTOR II**

<table>
<thead>
<tr>
<th>Descriptive Statistic</th>
<th>GROUP</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>I</td>
</tr>
<tr>
<td>Mean</td>
<td>4.29</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>1.90</td>
</tr>
</tbody>
</table>

**TABLE 7**

**ANOVA OF FACTOR SCORES FROM POST-SEMESTER FACTOR II FOR ALL GROUPS**

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>33.83</td>
<td>4</td>
<td>8.46</td>
<td>2.49*</td>
</tr>
<tr>
<td>Within Groups</td>
<td>323.42</td>
<td>95</td>
<td>3.40</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>357.25</td>
<td>99</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* $F_{.95 (4,95)} = 2.47$
Since the F-test is significant, beyond the .05 level, and the group means in Table 6 do show an increasing trend from group one through group five, orthogonal, planned comparisons are applied to these means.

Table 8 displays these comparisons. The numerator of each t-test is the combination of group means shown for each comparison. The denominator is the within groups' error weighted by the df from each group entering the comparison.

**TABLE 8**

PLANNED COMPARISONS OF GROUP MEANS FROM FACTOR SCORES ON FACTOR II

<table>
<thead>
<tr>
<th>Comparison</th>
<th>GROUP</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>I</td>
<td>II</td>
</tr>
<tr>
<td>1.</td>
<td>-4 (4.29)</td>
<td>1 (4.70)</td>
</tr>
<tr>
<td>2.</td>
<td>0</td>
<td>-3 (4.70)</td>
</tr>
<tr>
<td>3.</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>4.</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

* *t* .95 (95) = 1.66

Comparison two, though not significant, shows a strong trend. Comparison three failed to reach significance largely because of group four failing to follow the trend of increasing means going from group one through group five.

The above analyses of factor scores from post-semester Factor II (intrinsic values, course evaluations, volunteering for extra work) supports hypothesis $H_{R1}$, $H_{R2}$ and $H_{R3}$ addressing group differences in
intrinsic values, volunteering for extra work and course evaluations respectively. Hypothesis H_{R6} (increasing group means) is largely supported for the mean of group four which was predicted to be higher than the mean of group three.

**Analyses of Selected Raw Scores**

Raw scores from items loading on the same factor are added to give total scores for each student from each of the following measures: 1) a total score from the rankings of the seven intrinsic values, 2) total scores from each of the three semantic differential areas, and 3) the total of the seven scores (BCSUM) from the volunteer sign-up sheet dealing with activities in psychology beyond the actual course.

There are three reasons for this operation. One, common factor loadings justify combining items to form a more easily handled and more reliable single total score. Two, these areas are of particular interest in this study. And, three, the factor scores have a weakness as they are derived from all loadings on a particular factor, high, medium and low. Given the large number of variables in this study, each factor is defined by about one hundred loadings. Given this large number of variables, there is a high probability of many low chance loadings. As such, each factor is fraught with an inordinately large number of these low loadings (.20 and less) which really should be called error variance. Unfortunately, these low loadings also make up the factor scores. A large number of these low loadings can seriously obliterate the true meaning or systematic variance associated with the factor scores. Since a major purpose of
the factor analysis is to reduce the data matrix, selection and combination of medium to high loading items seem reasonable.

Analyses of these selected measures follows the same steps as analyses of the factor scores and apply to the same set of hypotheses. Table 9 displays the means and standard deviations for each group from the volunteer sign-up sheets (BCSUM). This measure is of special interest because it indicates actual behavioral involvement with psychology in areas related to the intrinsic humanistic values. Table 10 shows the results of ANOVA.

**TABLE 9**

MEANS AND STANDARD DEVIATIONS OF THE SEVEN BEHAVIORAL CHOICES SUMMED (BCSUM)

<table>
<thead>
<tr>
<th>Descriptive Statistic</th>
<th>GROUP</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>I</td>
</tr>
<tr>
<td>Mean</td>
<td>13.39</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>7.30</td>
</tr>
</tbody>
</table>
TABLE 10
ANOVA OF BCSUM FOR ALL GROUPS

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>1303.02</td>
<td>4</td>
<td>325.56</td>
<td>5.76*</td>
</tr>
<tr>
<td>Within Groups</td>
<td>5378.14</td>
<td>95</td>
<td>56.61</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>6681.16</td>
<td>99</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* F .95 (4,95) = 2.47

Since the F-test is significant well beyond the .05 level, and group means show an increase from group one through group five, comparisons are run on this data. Table 11 displays these comparisons.

TABLE 11
PLANNED COMPARISONS OF GROUP MEANS FROM RAW SCORES ON BCSUM

<table>
<thead>
<tr>
<th>GROUP</th>
<th>Comparison</th>
<th>I</th>
<th>II</th>
<th>III</th>
<th>IV</th>
<th>V</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>-4 (13.39)</td>
<td>1 (14.53)</td>
<td>1 (19.35)</td>
<td>1 (17.60)</td>
<td>1 (23.11)</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>0</td>
<td>-3 (14.53)</td>
<td>1 (19.35)</td>
<td>1 (17.60)</td>
<td>1 (23.11)</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>-2 (19.35)</td>
<td>1 (17.60)</td>
<td>1 (23.11)</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>-1 (17.60)</td>
<td>1 (23.11)</td>
</tr>
</tbody>
</table>

* t .95 (95) = 1.66

Hypothesis Ho2 (there will be differences in willingness to volunteer for extra work in psychology) is supported as the F-test is significant. Hypothesis Hr6 is also supported, except for comparison
three; group four's mean should be about twenty-one; instead it dropped below group three. Other than this, a fairly strong trend of increasing group means appears on Table 9. The other comparisons confirm this; their t-tests reach significance. Group four also broke the trend of increasing means in the factor score analysis on Factor II.

The last two selected sets of raw scores, intrinsic values and semantic differential areas, are handled in the same manner as the preceding one except for one difference. Since these measures were administered at the beginning and end of the semester, t-tests for correlated measures are used to test each group for significant attitude and value changes in the positive direction. ANOVA and orthogonal comparisons then are used to test for significant differences in attitude and value change among the groups only if groups two, three, four and five show significant changes on the t-tests for correlated measures.

Table 12 shows the means, standard deviations and t-tests of the change scores from a composite of the seven intrinsic values for each group. This composite score is found for each student in the following manner: First, the ranked scores for the seven values are summed and divided by seven; this yields an "average" intrinsic value score for each student. This is done for the pre-semester and post-semester measures. These two distributions then provide the statistics on Table 12. A student who displays a change score of two is seen as showing an overall intrinsic value shift of two whether this shift of two comes from one of the seven values shifting by fourteen or from each of the seven values shifting by two. This composite seems justified because all seven intrinsic values load on the same factor.
### TABLE 12
MEANS, STANDARD DEVIATIONS AND t-TESTS OF INTRINSIC VALUE CHANGE SCORES FOR ALL GROUPS

<table>
<thead>
<tr>
<th>Descriptive Statistic</th>
<th>GROUP</th>
<th>I</th>
<th>II</th>
<th>III</th>
<th>IV</th>
<th>V</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mean</strong></td>
<td></td>
<td>-.08</td>
<td>.84</td>
<td>.96</td>
<td>1.23</td>
<td>3.06</td>
</tr>
<tr>
<td><strong>Standard Deviation</strong></td>
<td></td>
<td>1.87</td>
<td>2.11</td>
<td>2.32</td>
<td>2.61</td>
<td>1.99</td>
</tr>
<tr>
<td><strong>t</strong></td>
<td>N.S.</td>
<td>2.55*</td>
<td>3.43*</td>
<td>3.51*</td>
<td>18.43*</td>
<td></td>
</tr>
</tbody>
</table>

* Sig (alpha = .01)  
$r_{pre, post} = .71, N = 100$

The t-test for repeated measures is shown below.

\[
t = \frac{\overline{d} - (\overline{u_a} - \overline{u_b})}{S_d^2/N}
\]

where \( S_d^2/N = \frac{S_a^2}{N} + \frac{S_b^2}{N} - \frac{2r_{ab} S_a S_b}{N} \)

All psychology class groups display significant changes; therefore, the second part of the analyses is performed. Table 13 displays the ANOVA for the same set of change scores.
TABLE 13
ANOVA OF INTRINSIC VALUE CHANGE SCORES
FOR ALL GROUPS

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>122.92</td>
<td>4</td>
<td>30.73</td>
<td>6.40*</td>
</tr>
<tr>
<td>Within Groups</td>
<td>456.37</td>
<td>95</td>
<td>4.80</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>579.29</td>
<td>99</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* $F_{.95 (4,95)} = 2.47$

Since the mean change scores show an increasing trend on Table 12, and since the F-test on Table 13 is significant, well beyond the .05 level, orthogonal comparisons are performed on the group means. Table 14 shows these comparisons. A constant (.08) was added to each group mean to simplify calculations.

TABLE 14
PLANNED COMPARISONS OF GROUP MEANS
FROM INTRINSIC VALUE CHANGE SCORES

<table>
<thead>
<tr>
<th>GROUP</th>
<th>Comparison</th>
<th>I</th>
<th>II</th>
<th>III</th>
<th>IV</th>
<th>V</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1.</td>
<td>-4 (0)</td>
<td>1 (.92)</td>
<td>1 (1.04)</td>
<td>1 (1.31)</td>
<td>1 (3.14)</td>
<td>2.80*</td>
</tr>
<tr>
<td></td>
<td>2.</td>
<td>0</td>
<td>-3 (.92)</td>
<td>1 (1.04)</td>
<td>1 (1.31)</td>
<td>1 (3.14)</td>
<td>2.82*</td>
</tr>
<tr>
<td></td>
<td>3.</td>
<td>0</td>
<td>0</td>
<td>-2 (1.04)</td>
<td>1 (1.31)</td>
<td>1 (3.14)</td>
<td>1.45</td>
</tr>
<tr>
<td></td>
<td>4.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>-1 (1.31)</td>
<td>1 (3.14)</td>
<td>2.01*</td>
</tr>
</tbody>
</table>

* $t_{.95 (95)} = 1.66$
All comparisons except comparison number three are significant; comparison number three definitely shows a strong trend.

Hypothesis $H_{R5}$ (there will be differences in intrinsic value changes among the five groups of students) is supported. Hypothesis $H_{R6}$ (addressing systematic differences in these changes) is also supported. Table 12 displays a clear increase in mean changes from group one through group five.

Table 15 displays the rankings and sum of rankings of the seven intrinsic values from the five groups of students, the instructor and the two advanced psychology classes. These rankings have been reversed and transformed from the original data; a ranking of one on this table indicates that that particular value received the highest ranking of all. A ranking of ten for a particular value indicates that its mean ranking for that group was tenth down from the top ranking value. The lower the sum of the seven rankings for any group, the higher are that group's actual mean rankings of each of the seven intrinsic values.
TABLE 15
RANKINGS OF INTRINSIC VALUES FROM INSTRUCTOR, ADVANCED CLASSES AND THE FIVE GROUPS OF STUDENTS

<table>
<thead>
<tr>
<th>Value</th>
<th>Instructor</th>
<th>Classes</th>
<th>I</th>
<th>II</th>
<th>III</th>
<th>IV</th>
<th>V</th>
</tr>
</thead>
<tbody>
<tr>
<td>VA  3. Self-control</td>
<td>6</td>
<td>6</td>
<td>18</td>
<td>10</td>
<td>8</td>
<td>9</td>
<td>5</td>
</tr>
<tr>
<td>VA  4. Understanding others</td>
<td>7</td>
<td>8</td>
<td>5</td>
<td>15</td>
<td>11</td>
<td>6</td>
<td>9</td>
</tr>
<tr>
<td>VA  6. Self-insight and understanding</td>
<td>1</td>
<td>1</td>
<td>16</td>
<td>8</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>VA  8. Self-respect</td>
<td>4</td>
<td>4</td>
<td>8</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td>VA 11. Inner harmony</td>
<td>3</td>
<td>3</td>
<td>14</td>
<td>12</td>
<td>3</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>VA 14. Expressing my needs and feelings</td>
<td>5</td>
<td>5</td>
<td>23</td>
<td>22</td>
<td>20</td>
<td>17</td>
<td>10</td>
</tr>
<tr>
<td>VA 16. Self-acceptance</td>
<td>2</td>
<td>2</td>
<td>9</td>
<td>13</td>
<td>5</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Total</td>
<td>28</td>
<td>29</td>
<td>93</td>
<td>81</td>
<td>50</td>
<td>42</td>
<td>38</td>
</tr>
</tbody>
</table>

It is apparent that the advanced classes and the instructor see the values similarly; the sums of their rankings are almost identical. Value four (understanding others) is the only difference and is actually a very small difference. The five groups agree with the instructor in order; group five is the highest and group one is the lowest. This finding is much in accordance with most of the results of the planned comparisons examined so far. The control group
(group one) obviously gave much lower rankings to the intrinsic values; in fact, the central intrinsic value (VA 6) only received a ranking of sixteen from this group. Group two (psychology class only) does not do much better, but at least VA 6 and VA 8 show up fairly well. Group three, four and five show a considerable break with groups one and two in terms of total sums; for the most part, these groups do agree with the instructor and the advanced psychology students in their rankings of most intrinsic values.

Despite the "ceiling effects" noted earlier, the semantic differential does show significant changes from pre-semester measuring to post-semester measures for all but one psychology section. In this analysis, scores from the seventeen items are added for each of the three attitude areas. These three totals for each student are then added and divided by three to give an overall score for the three attitude areas combined. The three areas are combined because of the high correlation among them (the average correlation among the three areas is $r = .85, N = 100$). Table 16 displays the means, standard deviations and t-tests of the change scores for the five groups.
TABLE 16
MEANS, STANDARD DEVIATIONS AND t-TESTS FOR SEMANTIC DIFFERENTIAL CHANGE SCORES FOR ALL GROUPS

<table>
<thead>
<tr>
<th>Descriptive Statistic</th>
<th>GROUP</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>I</td>
</tr>
<tr>
<td>Mean</td>
<td>-3.01</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>9.42</td>
</tr>
<tr>
<td>t</td>
<td>N.S.</td>
</tr>
</tbody>
</table>

* Sig. (alpha = .05)  \( r \) pre, post = .75, N = 100

Since group three does not show a significant change, analysis of variance and planned comparisons are not applied to this measure. The ANOVA would yield a significant F-test because there are large differences among the groups in terms of attitude change; however, group three changes in the wrong direction. Hypothesis \( H_{R5} \) (differences among the groups change scores) really cannot be legitimately tested. Also, obviously there is no increasing change in means from group one through group five so hypothesis \( H_{R6} \) is not supported. In summary, three of the four psychology groups do show significant attitude changes, but there is no systematic relationship between these changes and classroom conditions.

Regarding the spread of attitudes across the three semantic differential attitude areas (from "psychology applied to self" to "psychology applied to everyday practical problems" to the more distant "psychology applied to others") there is some indication that
generalization takes place. Table 17 shows the means and standard deviations for each of the three attitude areas for all psychology classes combined.

### TABLE 17

MEANS AND STANDARD DEVIATIONS OF THREE SEMANTIC DIFFERENTIAL ATTITUDE AREAS FOR FOUR PSYCHOLOGY CLASSES

<table>
<thead>
<tr>
<th>ATTITUDE AREA</th>
<th>&quot;Psychology Applied to Self&quot;</th>
<th>&quot;Psychology Applied to Problems&quot;</th>
<th>&quot;Psychology Applied to Others&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Descriptive Statistic</td>
<td>Mean</td>
<td>Standard Deviation</td>
<td>Mean</td>
</tr>
<tr>
<td>Mean</td>
<td>97.89</td>
<td>10.69</td>
<td>96.77</td>
</tr>
</tbody>
</table>

Table 18 shows the comparisons for the means shown on Table 17.

### TABLE 18

COMPARISONS OF MEANS FROM TABLE 17

<table>
<thead>
<tr>
<th>ATTITUDE AREA</th>
<th>&quot;Psychology Applied to Self&quot;</th>
<th>&quot;Psychology Applied to Problems&quot;</th>
<th>&quot;Psychology Applied to Others&quot;</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comparison</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>2 (97.89)</td>
<td>-1 (96.77)</td>
<td>-1 (94.98)</td>
<td>.76</td>
</tr>
<tr>
<td>2.</td>
<td>0</td>
<td>1 (96.77)</td>
<td>-1 (94.98)</td>
<td>.56</td>
</tr>
</tbody>
</table>

Neither comparison is significant; therefore, hypothesis $H_{R7}$ regarding decreasing generalization from "psychology applied to self" to "psychology applied to everyday practical problems" to "psychology
applied to others" is not supported. There is a trend in this direction but it is not significant. It appears that students, to quite an extent, lump all three areas together into a positive attitude toward psychology in general.

Regression Analysis

Here an attempt is made to find which combination of variables is the best predictor of "willingness to volunteer for extra work in psychology" (BCSUM). According to Rosenberg's formulation, the higher a student rates intrinsic psychological values and the higher a student rates the usefulness of psychology in reaching those values, the more likely it is for that student to volunteer for extra work in psychology. All post-semester items entered the stepwise regression analysis. CEPOST 3 (the instructor as a course organizer and stimulator of interest) emerged first ($R = .76$) following this item, an intrinsic value, VAPOST 6 (self-insight and understanding) emerged next ($R = .81$) and next, VAPOST 5 (an exciting life) which shows a negative relationship to BCSUM, brings the multiple $R$ up to .83. After these three items all partial correlations are below .30; therefore, this discussion is limited to only the first two items. In fact, VAPOST 5 only shows a partial correlation of .31. From VAPOST 5 on, it takes five items entered to attain an increase of .01 on the multiple $R$. This, although each item yielded a significant F-test, is not very practical. For example, a combination of thirty remaining items into a single measure would only add about .07 to the multiple $R$. 
Returning to the first two items (CEPOST 3 and VAPOST 6) an examination of their relationships to other items in the original correlation matrix indicates that the regression analysis is really only confirming what the factor analysis has already suggested. Post-semester Factor II implicates the same variables as does the regression analysis. The three course and instructor evaluations, the seven intrinsic psychological values, classroom conditions and BCSUM (volunteering for extra work in psychology) all show moderate to high correlations with each other. Once CEPOST 3 enters the stepwise regression, partial correlations from the remaining items loading on Factor II drop to below .20 except for VAPOST 6 because they are intercorrelated to quite an extent. Table 19 shows the correlations of these variables with CEPOST 3 and with BCSUM. One additional item is shown on Table 19, SEPOST 1, which is a semantic differential item (psychology applied to one's self is monotonous-challenging). This is the only other item which yields a correlation above .30 with CEPOST 3 and BCSUM.
TABLE 19
ITEMS CORRELATING WITH CEPOST 3 AND WITH BCSUM

<table>
<thead>
<tr>
<th>ITEMS</th>
<th>MAIN REGRESSION ITEMS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Volunteers for extra work (BCSUM)</td>
<td>.76</td>
</tr>
<tr>
<td>Usefulness of course (CEPOST 1)</td>
<td>.49  .57</td>
</tr>
<tr>
<td>Instructor receptivity to students (CEPOST 2)</td>
<td>.42  .49</td>
</tr>
<tr>
<td>Instructor organization and stimulation (CEPOST 3)</td>
<td>.76</td>
</tr>
<tr>
<td>Classroom conditions (GP)</td>
<td>.41  .49</td>
</tr>
<tr>
<td>Self-control (VAPOST 3)</td>
<td>.36  .33</td>
</tr>
<tr>
<td>Understanding others (VAPOST 4)</td>
<td>.33  .37</td>
</tr>
<tr>
<td>Self-insight and understanding (VAPOST 6)</td>
<td>.76  .79</td>
</tr>
<tr>
<td>Self-respect (VAPOST 8)</td>
<td>.30  .24</td>
</tr>
<tr>
<td>Inner harmony (VAPOST 11)</td>
<td>.30  .33</td>
</tr>
<tr>
<td>Expressing my needs and feelings (VAPOST 14)</td>
<td>.36  .31</td>
</tr>
<tr>
<td>Self-acceptance (VAPOST 16)</td>
<td></td>
</tr>
<tr>
<td>Psychology applied to self is challenging (SEPOST 1)</td>
<td>.32  .35</td>
</tr>
</tbody>
</table>

While a number of these correlations are not particularly high, it should be pointed out that the correlations of all other items with the items on this table are much lower or nonexistent. It appears that once post-semester factor number two is accounted for, little remains of much use for predicting BCSUM. In fact, given the
correlations on Table 20, it appears that the three course evaluation items together plus VAPOST 6 are the main predictors of BCSUM when using Rosenberg's formulation. Accordingly, the three course and instructor evaluation items are added for each student. This sum (CESUM) is multiplied by each student's score on VAPOST 6. This operation gives a composite score for each student (course evaluation total score times ranked importance of VAPOST 6, self-insight and understanding). This composite score is correlated with BCSUM (volunteering for extra work in psychology) which corresponds to the behavioral component of attitude (A in Rosenberg's formulation). CESUM corresponds to I (instrumentality of psychology) and VAPOST 6 corresponds to V (importance of the given value). The correlation between the composite score and BCSUM for the eighty-two students in the four psychology sections is .82. Following Rosenberg's formulation, it appears that the higher students rate self-insight and understanding and the higher they evaluate the psychology course and instructor as instrumentally useful, the more likely they are to volunteer for extra work in psychology. Table 20 shows the means and standard deviations of the four psychology sections for the composite score and for BCSUM.
TABLE 20
MEANS AND STANDARD DEVIATIONS OF BCSUM AND VAPOST 6-CESUM COMPOSITE SCORES FOR FOUR INTRODUCTORY PSYCHOLOGY SECTIONS

<table>
<thead>
<tr>
<th>Descriptive Statistic</th>
<th>GROUP</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>II</td>
</tr>
<tr>
<td>Mean BCSUM</td>
<td>14.5</td>
</tr>
<tr>
<td>Standard Deviation BCSUM</td>
<td>10.0</td>
</tr>
<tr>
<td>Mean Composite</td>
<td>177.3</td>
</tr>
<tr>
<td>Standard Deviation Composite</td>
<td>106.6</td>
</tr>
</tbody>
</table>

Significance tests here would be redundant as these variables have already been tested (as part of factor scores and as selected measures). The same trend, however, appears here as in previous comparisons, an increase in means from group two through group five (with the exception of group four on BCSUM). It appears that when value clarification and instrumental activities are both added to regular lecture and discussion, there is a considerable increase in BCSUM and in the composite of VAPOST 6 and CESUM as evidenced by comparing group two to group five. Groups three and four are also considerably higher than group two. This indicates that value clarification and instrumental activities each separately combined with lecture and discussion also increase BCSUM.

The next and last unit examines the duration of the influences of classroom conditions over a three-year time span.
Analysis of Three-Year Follow-up Data

Three sets of data are analyzed: 1) total scores divided by seven from the rankings of the seven intrinsic psychological values, 2) total scores from the semantic differential applied to one attitude area "Psychology is:", and 3) single scores from a five-point scale. The scale is preceded by the following question: "Looking back, how worthwhile and useful did Psychology 151 prove to be?" The scale is anchored on one end by "Quite Useful" and at the other end by "Not Very Useful." All scoring is in the positive direction. Table 21 shows the Kruskal-Wallis one-way analysis of variance applied to semantic differential scores, to intrinsic value scores and to rated usefulness of Psychology 151 scores.
TABLE 21

KRUSKAL-WALLIS ANOVA APPLIED TO THE SEMANTIC DIFFERENTIAL, INTRINSIC VALUES AND USEFULNESS RATING OF PSYCHOLOGY 151 SCORES FROM FOLLOW-UP GROUPS

<table>
<thead>
<tr>
<th>GROUP</th>
<th>SEMANTIC DIFFERENTIAL</th>
<th>INTRINSIC VALUES</th>
<th>RATED USEFULNESS OF PSYCHOLOGY</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Raw Score</td>
<td>Rank</td>
<td>Raw Score</td>
</tr>
<tr>
<td>II Psychology</td>
<td>79</td>
<td>1</td>
<td>17.57</td>
</tr>
<tr>
<td></td>
<td>107</td>
<td>16</td>
<td>7.43</td>
</tr>
<tr>
<td></td>
<td>103</td>
<td>13.5</td>
<td>12.71</td>
</tr>
<tr>
<td></td>
<td>90</td>
<td>4</td>
<td>15.43</td>
</tr>
<tr>
<td>III Psychology</td>
<td>90</td>
<td>4</td>
<td>16.71</td>
</tr>
<tr>
<td></td>
<td>93</td>
<td>6</td>
<td>17.00</td>
</tr>
<tr>
<td>Plus Value</td>
<td>100</td>
<td>10</td>
<td>15.86</td>
</tr>
<tr>
<td>Clarification</td>
<td>101</td>
<td>11</td>
<td>17.71</td>
</tr>
<tr>
<td></td>
<td>99</td>
<td>9</td>
<td>18.71</td>
</tr>
<tr>
<td>IV Psychology</td>
<td>88</td>
<td>2</td>
<td>18.57</td>
</tr>
<tr>
<td>Plus</td>
<td>98</td>
<td>7.5</td>
<td>14.14</td>
</tr>
<tr>
<td>Instrumental</td>
<td>90</td>
<td>4</td>
<td>9.00</td>
</tr>
<tr>
<td>Activities</td>
<td>103</td>
<td>13.5</td>
<td>20.57</td>
</tr>
<tr>
<td></td>
<td>102</td>
<td>12</td>
<td>20.71</td>
</tr>
<tr>
<td></td>
<td>104</td>
<td>15</td>
<td>16.71</td>
</tr>
<tr>
<td></td>
<td>114</td>
<td>25</td>
<td>22.29</td>
</tr>
<tr>
<td>V Conditions</td>
<td>98</td>
<td>7.5</td>
<td>21.71</td>
</tr>
<tr>
<td>III and IV</td>
<td>110</td>
<td>19.5</td>
<td>18.29</td>
</tr>
<tr>
<td></td>
<td>110</td>
<td>19.5</td>
<td>19.43</td>
</tr>
<tr>
<td></td>
<td>108</td>
<td>17</td>
<td>20.29</td>
</tr>
<tr>
<td></td>
<td>110</td>
<td>19.5</td>
<td>16.71</td>
</tr>
<tr>
<td></td>
<td>111</td>
<td>22</td>
<td>17.71</td>
</tr>
<tr>
<td></td>
<td>113</td>
<td>24</td>
<td>18.57</td>
</tr>
</tbody>
</table>

\[ H = 8.76^* \quad H = 13.44^* \quad H = 6.83^* \]

\[ \chi^2 .95 \ (3df) = 6.25 \]
All three sets of scores show significant increases in rankings going from group two through group five. It appears that the initial group differences found on the post-semester measures still hold for these measures.

The use of group means for samples this small is questionable; however, a comparison of these students' post-semester scores to their questionnaire scores seems useful for examining the effects of time. Table 22 displays the questionnaire and post-semester means for these groups of students on the semantic differential and on the seven intrinsic values. Total scores are used from the semantic differential. The rankings of the seven intrinsic values are added and divided by seven to obtain an average ranking which can be compared to a possible high of twenty-three (the average of the highest possible rankings for any seven values, twenty-six down to twenty).

**TABLE 22**

<table>
<thead>
<tr>
<th>Measure</th>
<th>II</th>
<th>III</th>
<th>IV</th>
<th>V</th>
</tr>
</thead>
<tbody>
<tr>
<td>Post-Semester</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Semantic Differential</td>
<td>106.0</td>
<td>98.2</td>
<td>95.0</td>
<td>101.3</td>
</tr>
<tr>
<td>Questionnaire</td>
<td>94.8</td>
<td>98.8</td>
<td>98.8</td>
<td>108.7</td>
</tr>
<tr>
<td>Intrinsic Values</td>
<td>13.5</td>
<td>16.6</td>
<td>16.3</td>
<td>16.8</td>
</tr>
<tr>
<td>Questionnaire</td>
<td>13.3</td>
<td>17.2</td>
<td>17.5</td>
<td>19.1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Measure</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Post-Semester</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Semantic Differential</td>
<td>106.0</td>
<td>98.2</td>
<td>95.0</td>
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<tr>
<td>Questionnaire</td>
<td>94.8</td>
<td>98.8</td>
<td>98.8</td>
<td>108.7</td>
</tr>
<tr>
<td>Intrinsic Values</td>
<td>13.5</td>
<td>16.6</td>
<td>16.3</td>
<td>16.8</td>
</tr>
<tr>
<td>Questionnaire</td>
<td>13.3</td>
<td>17.2</td>
<td>17.5</td>
<td>19.1</td>
</tr>
</tbody>
</table>
All groups of follow-up students except group two (lecture and discussion only) show increases on both measures over the three-year time span. Group five again is most striking. Considering that the highest scores possible on the semantic differential and on the intrinsic values are 119 and twenty-three respectively, group five could not score much higher on these measures. Given these trends across groups, one more comparison seems desirable. Table 23 shows the group means from ratings of the usefulness of Psychology 151.

TABLE 23

GROUP MEANS FROM RATED USEFULNESS OF PSYCHOLOGY 151 BY FOLLOW-UP GROUPS

<table>
<thead>
<tr>
<th>Rated Usefulness of Psychology 151</th>
<th>GROUP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Means</td>
<td>II</td>
</tr>
<tr>
<td></td>
<td>3.0</td>
</tr>
</tbody>
</table>

Given that these means are from a five-point scale, it appears that groups four and five in looking back rated the usefulness of Psychology 151 as quite high, higher in fact that initial ratings obtained immediately following the course.

Rosenberg's formulation appears to hold up well over time for these students. And again, the results from group five suggest that the combination of value clarification and instrumental behavioral activities in class are associated with the most positive and long-lasting effects. The number of returned completed questionnaires from each group may also indicate continued involvement to some extent. Table 24 displays the original post-semester numbers.
in each group, the number of questionnaires mailed, the number of returned and completed questionnaires, the number of unopened and returned questionnaires because of unknown addresses and the number of questionnaires apparently reaching the students but not completed or returned. These counts are broken down by group. The actual number of students reached in each group is calculated by subtracting the "no address" column from the "mailed" column for each group. Percentage of completed and returned questionnaires from each group is calculated using this frequency as a base. Table 25 illustrates these frequencies and percentages.

TABLE 24
QUESTIONNAIRE FREQUENCY COUNTS FOR EACH GROUP

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>Mailed</th>
<th>Completed</th>
<th>No Address</th>
<th>Not Returned</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>18</td>
<td>16</td>
<td>2</td>
<td>5</td>
<td>9</td>
</tr>
<tr>
<td>II</td>
<td>15</td>
<td>14</td>
<td>4</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>III</td>
<td>20</td>
<td>17</td>
<td>6</td>
<td>8</td>
<td>3</td>
</tr>
<tr>
<td>IV</td>
<td>20</td>
<td>16</td>
<td>7</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>V</td>
<td>27</td>
<td>24</td>
<td>11</td>
<td>10</td>
<td>3</td>
</tr>
</tbody>
</table>
TABLE 25
FREQUENCIES OF STUDENTS ACTUALLY CONTACTED
AND PERCENTAGES OF RETURNED AND
COMPLETED QUESTIONNAIRES

<table>
<thead>
<tr>
<th>Group</th>
<th>Questionnaire Frequencies</th>
<th>Percent Completed</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number Reached</td>
<td>Number Completed</td>
</tr>
<tr>
<td>I</td>
<td>11</td>
<td>2</td>
</tr>
<tr>
<td>II</td>
<td>9</td>
<td>4</td>
</tr>
<tr>
<td>III</td>
<td>9</td>
<td>6</td>
</tr>
<tr>
<td>IV</td>
<td>10</td>
<td>7</td>
</tr>
<tr>
<td>V</td>
<td>14</td>
<td>11</td>
</tr>
</tbody>
</table>

The trend of completed and returned questionnaires is quite apparent. Again there is an increase going from group one through group five. Again it appears that actual behavioral involvement with psychology is highest for group five.
CHAPTER V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

The major research sections in this study deal with the influences of different classroom conditions on psychology students' intrinsic humanistic values and behavioral involvement with related subject matter beyond course requirements. Given the volunteer sign-up sheets (used to indicate behavioral involvement) concerned activities to be initiated during the following semester, it seems reasonable to assume that students volunteering for these activities were not doing so in order to improve their grades or to make favorable impressions. Also, again it should be noted that all measures, including the sign-up sheets, required no names.

Comparisons testing increases in means from group one through group five indicate significant group differences due to classroom conditions in the following areas: 1) the seven intrinsic psychological values, 2) volunteering for extra work in psychology, and 3) the factor scores derived from Factor II (Intrinsic Psychological Values and Related Behavior) which includes, in addition to the areas just noted, course and instructor evaluations.

Comparisons testing intrinsic value changes and increases in group means in terms of change magnitude also indicate significant group differences due to classroom conditions. Research hypotheses $H_{R1}$ through $H_{R6}$ (listed below) addressing differences in group means
due to classroom conditions were largely supported for the measures just noted.

$H_{R1}$ There will be differences in psychological intrinsic values among the five groups of students at the end of the semester.

$H_{R2}$ There will be differences in willingness to volunteer for extra work, information and short seminars in psychology among the five groups of students at the end of the semester.

$H_{R3}$ There will be differences in instructor and course evaluation among the four groups of introductory psychology students at the end of the semester.

$H_{R4}$ There will be differences in attitudes toward psychology in a number of areas among the five groups of students at the end of the semester.

$H_{R5}$ There will be differences in intrinsic value changes among the five groups of students when pre-semester and post-semester scores are compared.

$H_{R6}$ There will be differences in terms of increasing group means beginning with group one and increasing through group five for each area addressed by the preceding hypotheses.

A three-year follow-up study of these groups indicates that the differences were maintained and actually increased to some extent. This is especially true of the seven intrinsic values and the rated usefulness of psychology.

It appears that a fairly clear shift in value structure also took place. Intrinsic values splintered over a number of minor pre-semester factors. A small fourth pre-semester factor appears to
correspond to factors found by Morris noted earlier in the literature review, "Dionysian" and "Promethean." This factor shows high positive loadings from the extrinsic values pleasure, a comfortable life, achievement and social recognition. Self-acceptance, respect for others, service to others and self-insight load negatively on this factor. A very small seventh pre-semester factor seems to correspond to the third factor found by Morris, "Buddhistic." This small factor shows high loadings from intrinsic values such as self-insight, inner harmony, self-control, self-acceptance, self-respect and wisdom. Comfortable life, achievement and social recognition load negatively on this factor. Post-semester Factor II, however, displays positive loadings from all seven intrinsic psychological values, including understanding others, and negative loadings from the more extrinsic values of comfort, pleasure, an exciting life, social recognition and accomplishment. It appears that students did examine and more clearly define and structure their values over the semester. A minor post-semester factor should be mentioned here. A third post-semester factor shows positive loadings from understanding others, service to others, respect for others, self-respect and self-honesty. It displays negative loadings from a comfortable life, pleasure, happiness, inner harmony and mature love. This factor seems to correspond to a factor identified by Osgood, Ware and Morris which was identified as "other-oriented versus egocentricity." This factor displays a low classroom condition or GP loading so it was not included in the data analysis. Comparisons to the value factors identified by studies noted earlier in the literature survey are difficult because much depends on what
items enter the original data matrices in the first place. It appears, however, that post-semester Factor II does indicate a shift toward one's self and others as important centers of experience and development (not to be confused with egocentricity) and away from more external areas such as achievement for its own sake, excitement, social recognition, pleasure and comfort. The shift seems to be from extrinsic values to intrinsic values. Given the convergence on Factor II of positive "Buddhistic" and negative "Dionysian" and "Promethean" types of values, it appears that a somewhat singular dimension has evolved which might be called "the importance of intrinsic humanistic values over external rewards and pleasures."

The semantic differential applied to the three attitude areas (psychology applied to one's self, practical problems, and others) did detect overall group differences and did indicate significant attitude changes for three of the four psychology sections. Systematic increases in means from group one through group five did not occur on this measure. However, three of the four psychology sections display means which are significantly higher than the control group's mean.

Hypothesis \( H_{R7} \) (there there will be systematic differences among the three attitude areas for the four psychology classes) is not clearly supported. A trend in decreasing generalization occurred but the differences among the three attitude areas are not significant. However, hypothesis \( H_{R7} \) is not supported because of lack of generalization but in fact because there was too much of it. The ceiling effects on the semantic differential mentioned earlier resulted in scores so high in all three attitude areas that significant differences
in means among these areas are impossible. In effect, over-generalization took place in the form of an overall positive attitude toward psychology regardless of whether it is applied to one's self, practical problems or to others. A more specifically worded measure should have been used here. Each item should describe the application of psychology to some specific area followed by a seven-point scale anchored with "very useful" and "not very useful." These areas should begin with items concerning the immediate, commonly-accepted specific areas of psychological applications (e.g., solving family problems) and then range to more distant, general and less commonly-accepted areas (e.g., solving world problems). Likert, Thurstone and/or Guttman scales and scaling techniques would be useful in defining measured steps of attitude generalization.

Perhaps fifty to one hundred bipolar adjectives on the semantic differential applied to the attitude area "Psychology is:" could be used to capture various dimensions of the meaning of psychology to students. The moderator scales (importance and certainty) accompanying the semantic differential items in this study suggest that certain adjectives are more appropriate for examining psychology than others. The criterial values list, the course evaluations and the adjectives students checked as important indicate that interesting and stimulating, useful and effective, and meaningful and relevant may be leading candidates as the major dimensions of this semantic space.

The Allport-Vernon-Lindzey Study of Values measure indicates a trend of increasing group means on the theoretical, aesthetic and
social values. These trends are much too small to be significant. Given the problems associated with the semantic differential and the lack of influence shown on the Study of Values measure, it appears that course-related, specific value and attitude items should be used if the influences of classroom experiences on attitudes and values are to be examined and assessed unambiguously. Most items on the Allport-Vernon-Lindzey Study of Values appears to be somewhat dated. Supposedly, the items on the theoretical and social value scales are related to the seven intrinsic values emphasized in this study. Some of the items from each of these scales appear to be similar to the intrinsic psychological values and others on the value ranking measure. However, many are not similar at all; the total scores from the theoretical and social values probably mask the items which would correlate with the intrinsic values. To examine this, of course, the Allport-Vernon-Lindzey Study of Values would have to be broken down to its singular item scores as were many of the measures in this study.

Finally, it also appears that the values on the ranking measure should be more clearly detailed; they may mean somewhat different things to different people. It also seems that twenty-six values are too numerous for a ranking exercise. Many appear to overlap to quite an extent. And, a number of these values may well be subsumed under a single inclusive value. Students' behavior during the value clarification exercise and when ranking the values indicated that they were indeed looking for central values under which other values on the measure could be included. Given the competition among these values (most of them are quite positive and appear desirable) as
ranking choices are made, the search for central and more inclusive values seems a natural sort of activity. However, during the value clarification exercise, students hotly debated the values on the list and also other values advanced by members of the class. Part of this debate concerned which values were more all inclusive but much of it centered on the relative merits of each value as a central guiding principle proscribing a way of life which would include the merits of lesser values. This searching activity for an "ultimate" value is interesting and should be further explored. A number of different measuring techniques applied to the same values over a variety of situations and groups should be examined by factor analysis. Most of the measures used in this study should properly be referred to as "pilot measures" because they have a short history of application regarding the study of specific values and attitudes.

Future studies of this nature should incorporate more detailed values and attitudes which have already been examined as indicated by preceding paragraphs. Interest, need, personality and cognitive style measures may also be applied in examining affective domain components. In this particular study, a measure getting at self-actualization and related dimensions should have been used as intrinsic humanistic self-related values were emphasized. Unfortunately, the development and integration of comprehensive measures requires much time, application of the measures and computer capacity.

Examination of group differences, Factor I, and especially Factor II in terms of the structural and functional network developed earlier suggests that some aspects of this network are more relevant
than others regarding classroom experiences.

In the following discussion, three areas are examined: One, the importance of motivational functions; two, the importance of behavioral tendency as a component of attitudes and values; and three, a potential for humanistic intrinsic values.

First, given that group five (exposed to value clarification and behavioral activities) scored the highest on intrinsic values, related behavioral involvement (e.g., volunteering for extra work in psychology) and on course evaluations, it appears that Katz's motivational functions are of major importance as sources of influence regarding the formation and change of values. This seems especially true for the functions of adjustment and value expression. The increases in group means from group one through group five on the above measures, suggest that the more direct experiences students have regarding these two functions, the greater will be the influences on related values. The function of knowledge is also of importance as indicated by the finding that the psychology class exposed to lecture and discussion only still scored significantly higher on the above measures than did the control group.

Second, the curious lack of correlation between the semantic differential and the measures noted above, resulting in Factor I, composed of semantic differential items, and Factor II, composed of intrinsic values, course evaluations and volunteering for extra work, suggests an interesting difference in terms of how attitudes are related to values. Course evaluations and volunteering for extra work appear to involve all four attitudinal components (e.g., cathetic, cognitive, evaluative, and behavioral tendency). These measures also
show a strong relationship to intrinsic values and classroom conditions as evidenced by Factor II. Factor I, referred to as Attitude Toward Psychology In General, and composed almost extensively of semantic differential items, is only moderately related to classroom conditions and course evaluations; and shows no relationship to intrinsic values or to volunteering for extra work. The attitude component clearly missing in Factor I is behavioral tendency. It appears that the other three attitude components (cathetic, cognitive, and evaluative) are present in Factor I. It is suggested here that the closeness or connectedness of a given attitude to a related value depends to a considerable degree on the extent to which the attitude component of behavioral tendency is present in the given attitude. Volunteering for extra behavior as an indicator of behavior involvement is absent in Factor I (attitudes in general); however, volunteering for extra work is very much present in Factor II along with specific intrinsic values and specific attitudes in the form of course evaluations. It appears that as attitudes are generalized from specific areas, especially those areas involving direct experiences, the attitudes lose strength in terms of the attitude component behavioral tendency. It is possible that the behavioral tendency component is the major bond connecting an attitude to a related value. Bem's work noted earlier does suggest that the behaving aspect of an attitude or a value is quite important. This behaving aspect does indeed appear important when considering the three modes of attitude expression, instrumental (goal seeking behavior), affective (displaying feelings) and expressive (expressing values). These modes are certainly
behavioral and appear nearly synonomous with a number of the humanistic psychological values examined earlier (e.g., self-insight and understanding and expressing needs and feelings). Behavioral involvement appears to emerge as a most important aspect of values. The extent to which a value, terminal or instrumental, is held, created or influenced appears centrally related to the three modes of attitude expression which are couched in actual behavioral. The intrinsic values self-insight and understanding, expressing needs and feelings, self-control, and understanding others, for example, are best inculcated by actual direct behavioral experiences in which the values are operational. Discussing, feeling, evaluating or thinking about self-insight or a glass of water are relevant and legitimate experiences; however, the direct experience of a self-insight or a glass of water is presumably why they are discussed in the first place. To a great extent, then, professed values become a part of social reality only when they enter actual behavior. The experience, testing, creation, and modification of values are much-enhanced by direct behavioral experiences. The preceding statement is supported upon comparing group two (lecture and discussion only) to group five (value clarification and behavioral activities in addition to lecture and discussion) in terms of the measures loading on Factor II (Intrinsic Values and Related Behavior). The importance of the behavioral component is further emphasized upon noting the two functions of values: guiding behavioral choices and guiding end-state choices.

Third, the emergence of Factor II, Intrinsic Values and Related Behavior, coupled with group differences on related factor
scores, suggest some implications for the earlier philosophical assumptions concerning intrinsic humanistic values as desirable modes of conduct. The intrinsic values loading on Factor II show a strong relationship to volunteering for extra work in related areas as noted previously. Also, as noted previously, the strength of the intrinsic values and related behavioral involvement appears to be influenced considerably by the classroom experiences in value clarification and instrumental behavioral activities involving these intrinsic values especially self-insight and self-expression. It would seem, then, that positive, rewarding, and meaningful experiences which involve a given value tend to promote that value not only as an end state but also as a way of behaving; the two functions of the value become the same: the value as a way of life. When these functions merge, the structural aspects of the value (hierarchical or level, criterial or standard and dynamic or motivating) also merge as do the types of values (terminal and instrumental). Behavioral involvement with intrinsic humanistic values as a way of life promotes growth as noted by Maslow earlier. The findings concerning Factor II demonstrates that volunteering for work at a mental health center or for a seminar dealing with self-insight and understanding are behavioral aspects of such intrinsic values as self-insight, understanding others, self-expression, and self-control. Positive experiences tend to be repeated, as such, humanistic intrinsic values, once experienced, should continue; and experientially, should justify and promote themselves. The follow-up study results suggest that the above proposition is at least partially true. An understanding, enlightened concern for one's self and others
as a way of life, operationalized and promoted by rewarding experiences involving intrinsic humanistic values rather than because of authoritarian mandate, appears viable as a social reality.

Returning once again to immediate findings, it appears that some general conclusions are warranted. The changes in value structure coupled with significant increases in ranking scores of intrinsic values as a function of classroom conditions points to the fact that humanities and social sciences courses are potential sources of influence. This seems especially true in terms of class experiences which stimulate students to examine, question, test and possibly create or change values, both their own and those espoused by a given area of academic inquiry. Given the high loadings on Factor II from the volunteer form, from the course evaluation regarding usefulness of psychology, and from the classroom conditions, it appears that the extent to which classroom conditions relate to students and their needs is the extent to which students will become involved with a course, evaluate it positively, and also continue to be interested in course-related experiences. In a motivational context, values may be examined as desired end states (terminal values) or goals and also as desired modes of conduct (behavioral values) or ways to live. The opportunity to experience and examine these values behaviorally (classroom conditions involving instrumental activities) in addition to considering them philosophically (classroom conditions involving value clarification) appears to arouse Katz's factors of adjustment, value expression and knowledge. Group five was exposed to both conditions under classroom condition five; this group scored the highest of all the groups on all measures.
Motivational involvement appears to be a potential which may be tapped by any academic area if a given course is offered on the basis of its relevance and usefulness.

Rosenberg's attitude formulation was found valid. Volunteering for extra work in psychology (a behavioral component of attitude) appears to be a function of the extent to which one holds intrinsic psychological values times the course and instructor evaluation scores. Rosenberg's formulation applied to a classroom setting suggests two instructor tasks. One, given that a course is related to needs and values, these relationships should be communicated to students so that they can examine them, reject or accept them in terms of their own needs and values. If a course has any merit, the above task seems reasonable enough. Two, given that an instructor is able to demonstrate that course-related values have some merit, the course itself must be covered in such a fashion so that students see it as instrumental in attaining or sustaining these values. Rosenberg's formulation also suggests that if an instructor is successful in these tasks, students will be left with positive attitudes toward the course including behavioral involvement.

It appears that the old teaching maxim, "tell them what you're going to tell them, tell them, and then tell them what you have told them" needs an additional first phrase. This phrase might be "tell them why you're going to tell them." In other words, the relevance and usefulness (e.g., value and instrumentality) of a given area should be demonstrated before and during the teaching of it.
Maslow observes that self-actualizing people tend to search for ultimate values which are intrinsic, which cannot be reduced to anything more ultimate. He believes that meta-counselors are needed to aid people in discovering and fulfilling meta-needs which stem from ultimate values and which are the meaning of life for most people even though many do not recognize that they have meta-needs. It would seem that both Hartman's call for a science of values and Maslow's wish for value counseling could be seen by the humanities and social sciences as affective domain challenges to be met in the classroom. And, assuming some degree of success, these challenges will continue to be raised and met by students long after exposure to a given area of inquiry.

Given the present era of shrinking enrollments and doubts concerning the worth of college experiences, it appears that those courses justified on the basis of their relevance and usefulness will continue to attract students. Affective domain components such as needs, attitudes, values, behavioral involvement and changes in needs, attitudes and values are perhaps more relevant now than ever before, to education and to individuals as they choose life styles, careers and values.

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102 Maslow, Motivation and Personality, pp. 146-54.
APPENDIX A

BEHAVIORAL OBJECTIVES

GENERAL PSYCHOLOGY 151
UNIT ONE: INTRODUCTION TO PSYCHOLOGY AS A SCIENCE, A PHILOSOPHY, AND AS A TOOL FOR LIVING

1. The student will list and describe the four basic goals of psychology.

2. The student will be able to list and describe a minimum of five major branches of psychology.

3. The student will be able to list the three categories of variables causing human behavior and give two examples of each.

4. The student will be able to name the two basic methods of study used by psychologists and give one example of each.

5. The student will be able to construct an experiment investigating one hypothesized cause and effect relationship and identify the variables in the study using experimental terminology, i.e., dependent and independent variables, etc.

6. The student will name and describe the basic systems of psychology, including in this, descriptions, their major goals, theories, contributions, and methods.

7. The student will list and describe at least three contributions of psychology toward maximizing individual productivity and satisfaction in everyday life.

8. The student will introspect for twenty minutes and hand in a written record of his thoughts.

9. The student will observe any behavior for ten-twenty minutes and submit these observations in writing along with any comments he may have.

10. The student will define interacting variables. The student will expand this definition by describing the phenomenon.

11. The student will submit one example of interacting variables in an experiment and in a "real-life" setting.
12. The student will be able to name and describe the four basic measurement scales.

13. The student will identify in one sentence:

<table>
<thead>
<tr>
<th>Term</th>
<th>Term</th>
<th>Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population</td>
<td>Variability</td>
<td>Scattergram</td>
</tr>
<tr>
<td>Random sampling</td>
<td>Standard deviation</td>
<td>Hypothesis</td>
</tr>
<tr>
<td>Inference</td>
<td>Z distribution</td>
<td>Level of significance</td>
</tr>
<tr>
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<td>Correlation</td>
<td>Theory</td>
</tr>
<tr>
<td>Mode</td>
<td>Z score</td>
<td>Significant difference</td>
</tr>
<tr>
<td>Median</td>
<td>Probability</td>
<td>Linear relationship</td>
</tr>
<tr>
<td>Central tendency</td>
<td>Frequency</td>
<td>Inverted U relationship</td>
</tr>
</tbody>
</table>

14. Given a distribution, the student will be able to calculate mean and standard deviations and describe the information they yield.

15. The student will be able to describe the properties of the normal curve.

16. The student will design and participate in small project experiments. From these data, he will be expected to calculate some basic statistics such as mean, standard deviation, correlation, and Z. He will be expected (during the semester) to apply these statistics to the normal curve and/or other basic statistical tables (provided by the instructor) in order to reach a decision about his data.

UNIT TWO: LEARNING

1. The student will name and describe four ways in which classical and instrumental conditioning differ.

2. The student will list and describe the four types of operant training.

3. The student will list the three ways in which a stimulus-stimulus association may be accomplished.

4. The student will identify each of the following terms in one sentence:

<table>
<thead>
<tr>
<th>Term</th>
<th>Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cond. fear</td>
<td>Counter conditioning</td>
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<tr>
<td>The Zimmerman Schedule</td>
<td>Variable ratio schedule</td>
</tr>
<tr>
<td>Stimulus generalization</td>
<td>Latent learning</td>
</tr>
<tr>
<td>Response generalization</td>
<td>Learning by insight</td>
</tr>
<tr>
<td>Discrimination</td>
<td>Trial and error learning</td>
</tr>
</tbody>
</table>

5. The student will describe the methods you would use in applying instrumental and classical conditioning to reduce smoking behavior.
6. The student will list and describe the three methods used to measure recall.

7. The student will identify each of the following terms in one sentence:
   - Positive transfer
   - Negative transfer
   - Retroactive inhibition
   - Proactive inhibition
   - Active responding
   - Mnemonic device

8. The student will discuss learning by the "part method" versus learning by the "whole method." How would you apply these to your studying?

9. The student will discuss massed and distributed practice in the same manner as question eight.

10. The student will list two ways in which knowledge of results may improve one's performance.

11. The student will briefly describe learning and recall and explain why they should be examined separately.

12. The student will describe short-term memory and long-term memory. How might going over your notes right after class improve your learning in the light of the above description?

13. The student will describe the relationship between rehearsing retrieval and exam performance.

14. The student will discuss emotional maladjustment in terms of faulty or no learning.

15. The student will discuss therapy in terms of learning using only independent and dependent variables.

16. The student will discuss child raising using only the Skinnerian techniques of instrumental conditioning.

17. The student will describe something they have learned under classical conditioning, something they have learned by insight, and something they have learned under instrumental conditioning.

18. The student will list and describe three schedules of reinforcement they feel have influenced their present behavior.
UNIT FOUR: PHYSIOLOGICAL PSYCHOLOGY AND EMOTION

1. The student will describe any six of the following brain organs in terms of their functional influence on each other and their resulting influence on internal and external behavior:

   Cerebrum   Septum
   Cerebellum  Hippocampus
   Hypothalamus Amygdala
   R.A.S.      Frontal lobes

2. The student will describe the interaction of the above systems in terms of their contribution to a caveman's survival when he sees his first tiger and it's coming at him.

3. The student will describe the three basic theories of emotion (James-Lange, Cannon-Bard, and Arnold) in terms of their differences.

4. The student will use two components of emotion, physiological and psychological to explain why we have so many different words describing emotional states.

5. The student will explain why it is healthier to control emotions by using them expressively in behavior rather than by suppressing them.

6. The student will discuss the relationship between emotions and needs.

7. The student will describe briefly:

   Motor neuron
   Sensory neuron
   Association neuron
   Synapse
   Reflex arc

8. The student will list and describe three commonly experienced emotional states especially the physiological components of these states.

UNIT FIVE: MOTIVATION AND EMOTION

1. The student will list the eight motivational categories and one accompanying emotion for each.

2. a. The student will diagram the motivational sequence beginning with stimulus and ending with outcome.
b. The student will list two dimensions of each stage in the above sequence.

c. The student will mark the stages in the sequence which energize behavior with an "E" and the states which direct behavior with a "D".

d. The student will describe one possible adjustment problem associated with each stage of the sequence.

3. The student will describe briefly the equilibrium theory of motivation.

4. The student will explain why tension could be desirable as well as undesirable.

5. The student will discuss man's need for meaning.

6. The student will discuss "unconscious" needs and list four ways they may be measured.

7. The student will explain the difference between "symbolic" goals and "real" goals.

8. The student will give two examples of how emotional or motivational "poverty" can lead to poor adjustment.

9. The student will list and describe five of his most commonly experienced emotions and note the most common motivational causes for them.

10. The student will list and describe two of the four needs noted as common causes of conflict.

11. The student will list and describe three of his responses to frustration that he considers to be somewhat ineffective.

12. The student will self-administer the Luscher color test, evaluate the results, and write a self-evaluation.

UNIT SIX: COGNITION

1. The student is expected to compare simplex and multiplex cognitive systems in terms of attitude change, consonance-dissonance, tolerance for ambiguity, and dogmatism.

2. The student will list and describe three dimensions of cognitive systems not included in the above.

3. The student will discuss the two ways in which cognitions may be changed.
4. The student will list and describe five variables which influence the accuracy of our perceptions of others.

5. The student will list the eight manipulative roles commonly played.

6. The student is expected to be able to play a minimum of four of these roles in class participation.

7. The student will take a test measuring thinking flexibility and describe his reactions to solving the problems in the test.

8. The student will be able to describe the relations between motivation, perception, and cognition and state why it is useful to study cognition.

UNIT SEVEN: PSYCHOLOGICAL TESTING

1. The student will identify the following terms:

   capacity  internal reliability
   ability    equivalent reliability
   achievement factor analysis
   predictive validity norm
   concurrent validity percentile
   face validity  Buros Mental Measurement Yearbook
   construct validity criteria
   retest reliability

2. The student will discuss the differences between capacity and ability and between ability and achievement.

3. The student will list and describe, briefly, giving two examples of each, the four categories of tests.

4. Given a behavioral interest area, the student will analyze the behavior into dependent and independent variable classifications. He will select the tests to be used for predicting the desired behaviors. He will back his test selection with rationale justifying the use of the tests.

5. The student will self-administer, score, and evaluate a number of tests. He will also integrate these results into an overall evaluation of his dominant personality traits, motivational characteristics, and social behavior.

6. The student will be able to read, interpret, and apply basic information regarding reliability, validity, and norms taken from test manuals.
UNIT EIGHT: THEORIES OF PERSONALITY

1. The student is expected to discuss the following theories in terms of descriptive units, personality dynamics, personality development, and the determinants of personality:
   a. Freud's Psychoanalytic Theory
   b. Adler's Individual Theory
   c. Erikson's Psychosocial Theory
   d. Sullivan's Interpersonal Theory
   e. Allport's Individual Psychology
   f. Roger's Self Theory
   g. Maslow's Humanistic Theory
   h. Learning Theory

UNIT NINE: ADJUSTMENT, DISORDER, AND THERAPY

1. The student is expected to discuss the concept of adjustment in terms of the negative approach (freedom from abnormal symptoms) and in terms of the positive approach (the desirable behavioral components seen in the healthy personality).

2. The student will be able to list and describe the categories of disorders.

3. The student will be able to list and describe a minimum of six defense mechanisms.

4. The student is expected to discuss and summarize the material covered in discussion, text, and lecture concerning the effects of heredity and learning variables as causes for mental disorders.

5. Using the results of self-administered personality tests and personal history background data, the student is expected to apply the material in this unit to himself (anonymously) in the form of self-analysis. Specifically, this analysis should be a listing of what the student believes to be those strengths and weaknesses which distinguish him (at least to some extent) from others. He is also expected to offer the causes he believes produced these strengths and weaknesses.
6. The student is expected to differentiate among the following therapies in terms of background theory, actual practice, and areas of effective application:

   a. Psychoanalysis
   b. Behavior Therapy
   c. Group Therapy
   d. Existential Therapy
   e. Client-Centered Therapy
   f. Drug Therapy

UNIT TEN: SOCIAL PSYCHOLOGY

1. The student will describe the following terms:
   a. Social Norms
   b. Social Status
   c. Social Roles
   d. Reference Groups

2. The student will list and describe three variables which influence one's choice of friends and love objects.

3. The student will discuss attitudes and attitude change in terms of obedience, conformity, persuasion, personality, and experience.

4. The student is expected to write a paper describing a social situation he has experienced in which his behavior was more controlled by the situation than by himself and list the variables he feels were responsible for this.

5. The student is expected to describe at least two relationships between role behavior and personality.

* Unit Three is temporarily deleted.
APPENDIX B

VALUE CLARIFICATION MODEL
A Framework For Value-Centered Evaluation

1

Value Identification

1. Identifying The Types of Values at Issue

What are the values people in the situation hold?

4

Value Prescription

Determining which values, if any, ought to serve as a guide to conduct.

2

Value Clarification

Helping people become clear about their values and how strongly they hold to them.

Which values should be adhered to?

3

Value Assessment

Examining the validity of various values

Are those values held by people defensible?

What is the strength of commitment by people to various values?
APPENDIX C

RELAXATION TECHNIQUES
RELAXATION OF ARMS
(Time: 4-5 minutes)

Settle back as comfortably as you can. Let yourself relax to the best of your ability. . . . Now, as you relax like that, clench your right fist, just clench your fist tighter and tighter, and study the tension as you do so. Keep it clenched and feel the tension in your right fist, hand, forearm . . . and now relax. Let the fingers of your right hand become loose, and observe the contrast in your feelings. . . . Now, let yourself go and try to become more relaxed all over. . . . Once more, clench your right fist really tight . . . hold it, and notice the tension again. . . . Now let go, relax; your fingers straighten out, and you notice the difference once more. . . . Now repeat that with your left fist. Clench you left fist while the rest of your body relaxes; clench that fist tighter and feel the tension . . . and now relax. Again enjoy the contrast. . . . Repeat that once more, clench the left fist, tight and tense. . . . Now do the opposite of tension--relax and feel the difference. Continue relaxing like that for a while. . . . Clench both fists tighter and tighter, both fists tense, forearms tense, study the sensations . . . and relax; straighten out your fingers and feel that relaxation. Continue relaxing your hands and forearms more and more. . . . Now bend your elbows and tense your biceps, tense them harder and study the tension feelings . . . all right, straighten out your arms, let them relax and feel that difference again. Let the relaxation develop. . . . Once more, tense your biceps; hold the tension and observe it carefully . . . Straighten the arms and relax; relax to the best of your ability. . . . Each time, pay close attention to your feelings when you tense up and when you relax. Now straighten your arms, straighten them so that you feel most tension in the triceps muscles along the back of your arms; stretch your arms and feel that tension. . . . And now relax. Get your arms back into a comfortable position. Let the relaxation proceed on its own. The arms should feel comfortably heavy as you allow them to relax. . . . Straighten the arms once more so that you feel the tension in the triceps muscles; straighten them. Feel that tension . . . and relax. Now let's concentrate on pure relaxation in the arms without any tension. Get your arms comfortable and let them relax further and further. Continue relaxing your arms even further. Even when your arms seem fully relaxed, try to go that extra bit further; try to achieve deeper and deeper levels of relaxation.

RELAXATION OF FACIAL AREA WITH NECK, SHOULDERS, AND UPPER BACK
(Time: 4-5 minutes)

Let all your muscles go loose and heavy. Just settle back quietly and comfortably. Wrinkle up your forehead now; wrinkle it tighter. . . . And now stop wrinkling your forehead, relax and smoothe it out. Picture the entire forehead and scalp becoming
smoother as the relaxation increases. . . . Now frown and crease your brows and study the tension. . . . Let go of the tension again. Smooth out the forehead once more. . . . Now, close your eyes tighter and tighter. . . . feel the tension. . . . and relax your eyes. Keep your eyes closed, gently, comfortably, and notice the relaxation. . . . Now clench your jaws, bite your teeth together; study the tension throughout the jaws. . . . Relax your jaws now. Let your lips part slightly. . . . Appreciate the relaxation. . . . Now press your tongue hard against the roof of your mouth. Look for the tension. . . . All right, let your tongue return to a comfortable and relaxed position. . . . Now purse your lips, press your lips together tighter and tighter. . . . Relax the lips. Note the contrast between tension and relaxation. Feel the relaxation all over your face, all over your forehead and scalp, eyes, jaws, lips, tongue and throat. The relaxation progresses further and further. . . . Now attend to your neck muscles. Press your head back as far as it can go and feel the tension in the neck; roll it to the right and feel the tension shift; now roll it to the left. Straighten your head and bring it forward, press your chin against your chest. Let your head return to a comfortable position, and study the relaxation. Let the relaxation develop. . . . Shrug your shoulders, right up. Hold the tension. . . . Drop your shoulders and feel the relaxation. Neck and shoulders relaxed. . . . Shrug your shoulders again and move them around. Bring your shoulders up and forward and back. Feel the tension in your shoulders and in your upper back. . . . Drop your shoulders once more and relax. Let the relaxation spread deep into the shoulders, right into your back muscles; relax your neck and throat, and your jaws and other facial areas as the pure relaxation takes over and grows deeper . . . deeper . . . ever deeper.

RELAXATION OF CHEST, STOMACH AND LOWER BACK
(Time: 4-5 minutes)

Relax your entire body to the best of your ability. Feel that comfortable heaviness that accompanies relaxation. Breathe easily and freely in and out. Notice how the relaxation increases as you exhale . . . as you breathe out just feel that relaxation. . . . Now breathe right in and fill your lungs; inhale deeply and hold your breath. Study the tension. . . . Now exhale, let the walls of your chest grow loose and push the air out automatically. Continue relaxing and breathe freely and gently. Feel the relaxation and enjoy it. . . . With the rest of your body as relaxed as possible, fill your lungs again. Breathe in deeply and hold it again. . . . That's fine, breathe out and appreciate the relief. Just breathe normally. Continue relaxing your chest and let the relaxation spread to your back, shoulders, neck and arms. Merely let go . . . and enjoy the relaxation. Now let's pay attention to your abdominal muscles, your stomach area. Tighten your stomach muscles, make your abdomen hard. Notice the tension. . . . And relax. Let the muscles loosen and notice the contrast. . . . Once more, press and tighten your stomach muscles.
Hold the tension and study it. . . . And relax. Notice the general well-being that comes with relaxing your stomach. . . . Now draw your stomach in, pull the muscles right in and feel the tension this way. . . . Now relax again. Let your stomach out. Continue breathing normally and easily and feel the gentle massaging action all over your chest and stomach. . . . Now pull your stomach in again and hold the tension. . . . Now push out and tense like that; hold the tension . . . once more pull in and feel the tension . . . now relax your stomach fully. Let the tension dissolve as the relaxation grows deeper. Each time you breathe out, notice the rhythmic relaxation both in your lungs and in your stomach. Notice thereby how your chest and your stomach relax more and more. . . . Try and let go of all contractions anywhere in your body. . . . Now direct your attention to your lower back. Arch up your back, make your lower back quite hollow, and feel the tension along your spine . . . and settle down comfortably again relaxing the lower back. . . . Just arch your back up and feel the tensions as you do so. Try to keep the rest of your body as relaxed as possible. Try to localize the tension throughout your lower back area. . . . Relax once more, relaxing further and further. Relax your lower back, relax your upper back, spread the relaxation to your stomach, chest, shoulders, arms and facial area. These parts relaxing further and further and further and ever deeper.

RELAXATION OF HIPS, THIGHS AND CALVES FOLLOWED BY COMPLETE BODY RELAXATION

Let go of all tensions and relax. . . . Now flex your buttocks and thighs. Flex your thighs by pressing down your heels as hard as you can. . . . Relax and note the difference. . . . Straighten your knees and flex your thigh muscles again. Hold the tension. . . . Relax your hips and thighs. Allow the relaxation to proceed on its own. . . . Press your feet and toes downwards, away from your face, so that your calf muscles become tense. Study that tension. . . . Relax your feet and calves. . . . This time, bend your feet towards your face so that you feel tension along your shins. Bring your toes right up. . . . Relax again. Keep relaxing for a while. . . . Now let yourself relax further all over. Relax your feet, ankles, calves and shins, knees, thighs, buttocks and hips. Feel the heavi ness of your lower body as you relax still further. . . . Now spread the relaxation to your stomach, waist, lower back. Let go more and more. Feel that relaxation all over. Let it proceed to your upper back, chest, shoulders and arms and right to the tips of your fingers. Keep relaxing more and more deeply. Make sure that no tension has crept into your throat; relax your neck and your jaws and all your facial muscles. Keep relaxing your whole body like that for a while. Let yourself relax.

Now you can become twice as relaxed as you are merely by taking in a really deep breath and slowly exhaling. With your eyes closed so that you become less aware of objects and movements around
you and thus prevent any surface tensions from developing, breathe in deeply and feel yourself becoming heavier. Take in a long, deep breath and let it out very slowly. . . . Feel how heavy and relaxed you have become.

In a state of perfect relaxation you should feel unwilling to move a single muscle in your body. Think about the effort that would be required to raise your right arm. As you think about raising your right arm, see if you can notice any tensions that might have crept into your shoulder and your arm. . . . Now you decide not to lift the arm but to continue relaxing. Observe the relief and the disappearance of the tension. . . .

Just carry on relaxing like that. When you wish to get up, count backwards from four to one. You should then feel fine and refreshed, wide awake and calm.

MAJOR SOURCES FOR INSTRUMENTAL TASK ACTIVITIES


APPENDIX E

COURSE AND INSTRUCTOR EVALUATION ITEMS
COURSE AND INSTRUCTOR EVALUATION ITEMS

ITEMS MAKING UP CE 1:

1. After student ideas and/or questions had been expressed, the instructor usually responded to my satisfaction.

2. If I had wanted to take advantage of the instructor's knowledge, insights, and experiences, I would have found that the instructor had much to offer.

3. The course was or will be worthwhile to me.

4. The textbook and other materials were of value in this course.

ITEMS MAKING UP CE 2:

1. The instructor allowed us to express our ideas and/or questions.

2. If I wanted individual help, I felt the instructor was readily available.

3. When seeking individual help, I found the instructor easy to talk to.

4. The instructor's voice and mannerisms were acceptable.

ITEMS MAKING UP CE 3:

1. I understood the material covered in the course.

2. I usually understood the instructor's explanations and presentations.

3. My interest in the subject area has been stimulated by this course.

4. This instructor was an effective instructor.

5. In general, the instructor taught (a. above, b. below, or c. to) the level of the student.

6. The work load for this course was reasonable.

Each of the above items is followed by a five-point scale anchored with strongly agree and strongly disagree.
APPENDIX F

FACTOR LOADINGS OF POST-SEMESTER FACTORS I AND II
## APPENDIX F

**FACTOR LOADINGS OF POST-SEMESTER FACTORS I AND II**  
* (EIGENVALUES IN PARENTHESES)

<table>
<thead>
<tr>
<th>ITEMS</th>
<th>FACTOR I (19.5)</th>
<th>FACTOR II (7.8)</th>
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<tbody>
<tr>
<td>GP - Group or Classroom Conditions</td>
<td>.17</td>
<td>.49</td>
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<tr>
<td>Sex</td>
<td>-.02</td>
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<td>GDS - Grades</td>
<td>.07</td>
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<td>WK - Work Ratings</td>
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<td>.03</td>
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<td>Allport-Vernon-Lindzey Values</td>
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<td>AVLPOST 1 - Theoretical</td>
<td>.22</td>
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<td>AVLPOST 2 - Economic</td>
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<td>AVLPOST 3 - Aesthetic</td>
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<td>AVLPOST 4 - Social</td>
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<td>AVLPOST 5 - Political</td>
<td>.20</td>
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<td>AVLPOST 6 - Religious</td>
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<td>-.07</td>
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<td>Semantic Differential Adjectives</td>
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<tr>
<td>1) Using psychological knowledge to gain insight about my thoughts, feelings and needs</td>
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<tr>
<td>SEPOST 1 - Monotonous--Challenging</td>
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<td>SEPOST 2 - Worthwhile--Worthless</td>
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<td>SEPOST 3 - Unpleasant--Pleasant</td>
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<tr>
<td>SEPOST 4 - Passive--Active</td>
<td>.37</td>
<td>.15</td>
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<tr>
<td>SEPOST 5 - Wise--Foolish</td>
<td>.70</td>
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<tr>
<td>SEPOST 6 - Successful--Unsuccessful</td>
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<td>SEPOST 7 - Strong--Weak</td>
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<td>SEPOST 8 - Meaningless--Meaningful</td>
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<td>SEPOST 9 - Good--Bad</td>
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<td>SEPOST 10 - Precise--Vague</td>
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<td>SEPOST 11 - Productive--Destructive</td>
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<td>SEPOST 12 - Real--Unreal</td>
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<td>SEPOST 13 - Important-Unimportant</td>
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<td>SEPOST 14 - Interesting--Uninteresting</td>
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<td>SEPOST 15 - Effective--Ineffective</td>
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<td>SEPOST 17 - Boring--Exciting</td>
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2) Using psychological knowledge to gain insight about practical problems of everyday living:

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3) Using psychological knowledge to gain insight about others' thoughts, feelings and needs:

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<td>OTPOST 12</td>
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</tr>
<tr>
<td>OTPOST 13</td>
<td>.36</td>
<td>.03</td>
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<tr>
<td>OTPOST 14</td>
<td>.19</td>
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<tr>
<td>OTPOST 15</td>
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<tr>
<td>OTPOST 16</td>
<td>.17</td>
<td>.05</td>
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<tr>
<td>OTPOST 17</td>
<td>.20</td>
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</table>
### Value Ranking Measures

<table>
<thead>
<tr>
<th>Item</th>
<th>Factor I (19.5)</th>
<th>Factor II (7.8)</th>
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<tbody>
<tr>
<td>VAPOST 1 - A comfortable life</td>
<td>-0.23</td>
<td>-0.26</td>
</tr>
<tr>
<td>VAPOST 2 - Accomplishment</td>
<td>0.15</td>
<td>-0.42</td>
</tr>
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<td>VAPOST 3 - Self-control</td>
<td>0.13</td>
<td>0.36</td>
</tr>
<tr>
<td>VAPOST 4 - Understanding others</td>
<td>-0.05</td>
<td>0.28</td>
</tr>
<tr>
<td>VAPOST 5 - An exciting life</td>
<td>0.15</td>
<td>-0.26</td>
</tr>
<tr>
<td>VAPOST 6 - Self-insight and understanding</td>
<td>0.18</td>
<td>0.80</td>
</tr>
<tr>
<td>VAPOST 7 - Pleasure</td>
<td>-0.01</td>
<td>-0.27</td>
</tr>
<tr>
<td>VAPOST 8 - Self-respect</td>
<td>0.05</td>
<td>0.23</td>
</tr>
<tr>
<td>VAPOST 9 - Happiness</td>
<td>0.03</td>
<td>-0.17</td>
</tr>
<tr>
<td>VAPOST 10 - Respect for others</td>
<td>-0.08</td>
<td>0.16</td>
</tr>
<tr>
<td>VAPOST 11 - Inner harmony</td>
<td>-0.08</td>
<td>0.37</td>
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<tr>
<td>VAPOST 12 - A meaningful life</td>
<td>-0.03</td>
<td>-0.18</td>
</tr>
<tr>
<td>VAPOST 13 - Freedom</td>
<td>0.12</td>
<td>-0.50</td>
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<tr>
<td>VAPOST 14 - Expressing my needs and feelings</td>
<td>0.23</td>
<td>0.35</td>
</tr>
<tr>
<td>VAPOST 15 - Service to others</td>
<td>-0.10</td>
<td>0.01</td>
</tr>
<tr>
<td>VAPOST 16 - Self-acceptance</td>
<td>0.04</td>
<td>0.23</td>
</tr>
<tr>
<td>VAPOST 17 - Social recognition</td>
<td>0.10</td>
<td>-0.08</td>
</tr>
<tr>
<td>VAPOST 18 - True friendship</td>
<td>-0.14</td>
<td>-0.16</td>
</tr>
<tr>
<td>VAPOST 19 - Self-honesty</td>
<td>-0.01</td>
<td>0.15</td>
</tr>
<tr>
<td>VAPOST 20 - Wisdom</td>
<td>0.06</td>
<td>-0.15</td>
</tr>
<tr>
<td>VAPOST 21 - Mature love</td>
<td>-0.21</td>
<td>-0.15</td>
</tr>
<tr>
<td>VAPOST 22 - Interesting work</td>
<td>-0.05</td>
<td>-0.23</td>
</tr>
<tr>
<td>VAPOST 23 - Personal maturity</td>
<td>-0.27</td>
<td>0.22</td>
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<tr>
<td>VAPOST 24 - An education</td>
<td>0.06</td>
<td>-0.10</td>
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<tr>
<td>VAPOST 25 - Special abilities</td>
<td>-0.04</td>
<td>-0.11</td>
</tr>
<tr>
<td>VAPOST 26 - Time to relax and think</td>
<td>-0.05</td>
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</tbody>
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### Behavioral Choices

<table>
<thead>
<tr>
<th>Item</th>
<th>Factor I</th>
<th>Factor II</th>
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<tbody>
<tr>
<td>BCPOST 1 - The choice to sign up for a five-hour free seminar on self-awareness</td>
<td>-0.03</td>
<td>0.61</td>
</tr>
<tr>
<td>BCPOST 2 - The choice to sign up for the next level psychology course on personality and adjustment</td>
<td>0.18</td>
<td>0.64</td>
</tr>
<tr>
<td>BCPOST 3 - The choice to sign up for volunteer work at a local mental health center</td>
<td>0.06</td>
<td>0.66</td>
</tr>
<tr>
<td>ITEMS</td>
<td>FACTOR I (19.5)</td>
<td>FACTOR II (7.8)</td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
<td>-----------------</td>
<td>-----------------</td>
</tr>
<tr>
<td><strong>BCPOST 4</strong> - The choice to subscribe to the magazine <em>Psychology</em> Today</td>
<td>.12</td>
<td>.32</td>
</tr>
<tr>
<td><strong>BCPOST 5</strong> - The choice to take a number of personality and interest tests at the counseling center</td>
<td>.13</td>
<td>.33</td>
</tr>
<tr>
<td><strong>BCPOST 6</strong> - The choice to request information on professions in psychology</td>
<td>.14</td>
<td>.57</td>
</tr>
<tr>
<td><strong>BCPOST 7</strong> - The choice to buy three books dealing with awareness, adjustment, and therapy</td>
<td>-.07</td>
<td>.55</td>
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<tr>
<td><strong>Sum of Behavioral Choices</strong></td>
<td>.12</td>
<td>.92</td>
</tr>
<tr>
<td><strong>BCSUM</strong></td>
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<td></td>
</tr>
<tr>
<td><strong>Instructor and Course Evaluations</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>CEPOST 1</strong> - Worthwhileness of course and of instructor's knowledge</td>
<td>.41</td>
<td>.49</td>
</tr>
<tr>
<td><strong>CEPOST 2</strong> - Instructor's desirability as a person and receptiveness to students' ideas</td>
<td>.30</td>
<td>.40</td>
</tr>
<tr>
<td><strong>CEPOST 3</strong> - Effectiveness of instructor's organization, presentations, stimulation, and reasonableness of assignments</td>
<td>.13</td>
<td>.83</td>
</tr>
</tbody>
</table>
APPENDIX G

DESCRIPTIVE STATISTICS FOR ALL GROUPS FROM THE THREE SCALES ACCOMPANYING THE BIPOLAR ADJECTIVES ON THE POST-SEMESTER SEMANTIC DIFFERENTIAL FOR THE THREE ATTITUDE AREAS COMBINED
APPENDIX G

DESCRIPTIVE STATISTICS FOR ALL GROUPS FROM THE THREE SCALES ACCOMPANYING THE BIPOLAR ADJECTIVES ON THE POST-SEMESTER SEMANTIC DIFFERENTIAL FOR THE THREE ATTITUDE AREAS COMBINED

<table>
<thead>
<tr>
<th>SEMANTIC DIFFERENTIAL BIPOLAR ADJECTIVES</th>
<th>Evaluation Score (7-point scale)</th>
<th>Importance (5-point scale)</th>
<th>Certainty (5-point scale)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean Dev.</td>
<td>Mean Dev.</td>
<td>Mean Dev.</td>
</tr>
<tr>
<td>1. Monotonous--Challenging</td>
<td>5.95 1.17</td>
<td>4.0 1.12</td>
<td>4.1 1.0</td>
</tr>
<tr>
<td>2. Worthwhile-- Worthless</td>
<td>6.20 .94</td>
<td>4.5 .75</td>
<td>4.3 .98</td>
</tr>
<tr>
<td>3. Unpleasant--Pleasant</td>
<td>5.10 1.23</td>
<td>3.5 .80</td>
<td>4.0 1.11</td>
</tr>
<tr>
<td>4. Passive--Active</td>
<td>5.26 1.18</td>
<td>3.6 1.04</td>
<td>3.4 1.09</td>
</tr>
<tr>
<td>5. Wise--Foolish</td>
<td>5.80 1.11</td>
<td>3.9 1.20</td>
<td>3.7 .87</td>
</tr>
<tr>
<td>6. Successful--Unsuccessful</td>
<td>5.27 1.15</td>
<td>4.1 .90</td>
<td>3.9 1.10</td>
</tr>
<tr>
<td>7. Strong--Weak</td>
<td>5.02 1.14</td>
<td>3.2 1.11</td>
<td>3.3 1.14</td>
</tr>
<tr>
<td>8. Meaningless--Meaningful</td>
<td>6.04 1.03</td>
<td>4.0 1.09</td>
<td>4.0 .95</td>
</tr>
<tr>
<td>9. Good--Bad</td>
<td>5.82 1.06</td>
<td>4.1 .90</td>
<td>3.8 .94</td>
</tr>
<tr>
<td>10. Precise--Vague</td>
<td>4.63 1.18</td>
<td>3.5 .76</td>
<td>3.7 1.07</td>
</tr>
<tr>
<td>11. Productive--Destructive</td>
<td>5.45 1.20</td>
<td>4.1 .74</td>
<td>3.8 .89</td>
</tr>
<tr>
<td>12. Real--Unreal</td>
<td>5.53 1.18</td>
<td>3.8 1.00</td>
<td>3.8 1.16</td>
</tr>
<tr>
<td>13. Important--Unimportant</td>
<td>6.01 1.09</td>
<td>4.3 .94</td>
<td>4.1 .84</td>
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</tbody>
</table>
### APPENDIX G -- Continued

#### SCALES ACCOMPANYING EACH ADJECTIVE

<table>
<thead>
<tr>
<th>SEMANTIC DIFFERENTIAL BIPOLAR ADJECTIVES</th>
<th>Evaluation Score (7-point scale)</th>
<th>Importance (5-point scale)</th>
<th>Certainty (5-point scale)</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>Std. Dev.</td>
<td>Mean</td>
</tr>
<tr>
<td>14. Interesting--Uninteresting</td>
<td>6.17</td>
<td>1.05</td>
<td>4.4</td>
</tr>
<tr>
<td>15. Effective--Ineffective</td>
<td>5.48</td>
<td>1.10</td>
<td>4.1</td>
</tr>
<tr>
<td>16. Powerless--Powerful</td>
<td>5.27</td>
<td>1.20</td>
<td>3.6</td>
</tr>
<tr>
<td>17. Boring--Exciting</td>
<td>5.64</td>
<td>1.15</td>
<td>3.6</td>
</tr>
</tbody>
</table>

The average correlation among importance scores from the three attitude areas is .89. The average correlation among certainty scores from the three attitude areas is .75. These correlations are high enough to justify combining the three attitude areas for each bipolar adjective. Also, the correlation between importance and certainty over all three attitude areas for all seventeen adjective pairs is .75. Apparently, the students are more certain of their responses to adjectives they rate as important. Causality is inferred from this correlation because the students rated importance first and then certainty.
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Locke, E. A. "Relationship of Task Success to Task Liking and Satisfaction." Psychological Reports 49 (1967).


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