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The Ohio State University, Ph.D., 1971
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THE EFFECT OF EXPERIENTIAL VS. DIDACTIC LEARNING AND LOCUS OF CONTROL UPON GROUP DECISION MAKING

DISSERTATION

Presented in Partial Fulfillment of the Requirements for the Degree Doctor of Philosophy in the Graduate School of The Ohio State University

By

Richard Lewis Catullo, B.A., M.A.

The Ohio State University
1971

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CHAPTER I

INTRODUCTION

Purpose

The present study has two major purposes. First, an attempt will be made to determine the effects, in terms of decisions on actual tasks of two different learning situations, experiential and didactic. Using pre and post measures on actual decision making tasks, numerical scoring will allow quantifiable data to compare the effectiveness of the group decisions, the extent to which individual resources are utilized, and the percent of change (gain or loss) in decision making effectiveness.

Secondly, the present endeavor will study the relationship between decision making and an attitudinal variable, locus of control. For this purpose, participants in both the experiential and the traditional course were subdivided into groups of high, low, and mixed (half high and half low) levels of internal/external locus of control.

Definition of Terms

A. Experiential learning approach: used synonymously with "T Group" approach or "experience-based" human relations methodology. Experiential learning situations may be analyzed by differences in
structure and process. The structural character of the experienced-based learning situation is conducive to participant involvement both verbally and nonverbally ("active" observation). Participants are seated in a face to face manner, utilizing a "cluster" design arrangement, i.e., a "fishbowl" technique of inner and outer circles. Individuals alternately experience the inner circle ("participants") and the outer circle ("process-observers"). While in the outer circle an individual may not participate in the discussion content, but is free to comment on or give "feedback" to a participant or the group process.

The process of the experiential method may be characterized by its emphasis on shared participation, "here and now" discussion, legitimation of feeling tone, and the nature of "feedback:"

(1) Shared participation: members share course expectations and collaborate on goal setting with instructor.

(2) "Here and now" emphasis: much of the content for study and analysis is the dynamics of one's own interpersonal functioning and actual group processes.

(3) Feeling tone: individuals share feelings in relation to self and others' participation.

(4) Feedback: individuals give and receive immediate feedback to participants and to the group in terms of processes and functioning.

B. Didactic: used to convey more traditional, systematic instructional approach which utilizes mainly lecture and reading assignments to transfer information. The didactic learning situation
may also be analyzed in terms of structure and process. The basic structure of the class places individuals in the usual row seating with the instructor giving the lecture and "conducting" the class from the front of the room. In contrast to the experiential method, the didactic process may be characterized by:

(1) Instructor-centeredness: instructor states expectations and sets most goals and standards.

(2) "There and then" focus: course content and concepts discussed in abstract or hypothetical terms, by examples from the text, or by discussion of third parties.

(3) Lack of feeling tone: most information transfer deals with content areas at the level of "facts" (quotes or other reference to documentation) or opinions (from self or others, e.g., "authorities").

(4) Lack of immediate feedback: except for "achievement" level feedback (test results), individuals share little feedback on interpersonal or group functioning.

C. **Locus of control**: a concept from Rotter's Social Learning Theory used to describe man's perception of his ability to control his personal environment. The control construct is considered a generalized expectancy, operating across a large number of situations, and distributing individuals on a continuum according to the degree to which they accept personal responsibility for what happens to them. While an individual's generalized attitude, belief, or expectancy may be relatively consistent (Rotter, 1971), it may differ in how the same individual regards different situations.
(1) **Internal** locus of control: refers to the perception that positive and/or negative events are a consequence of one's own actions, and thereby under personal control.

(2) **External** locus of control: refers to the perception of positive and/or negative events as being unrelated to one's own behavior in certain situations and, therefore, beyond personal control.

Therefore, individuals on the "external" end of the continuum attribute more reinforcements and events as being a result of luck, chance, fate, in the control of powerful others, or unpredictable due to the complex nature of an event. An "internal" individual would attribute more reinforcements and events as being contingent upon, caused by, or at least modifiable by his own performance.

**The Problem**

In my estimation, one of the most rapidly growing social phenomena in the United States is the spread of the intensive group experience—sensitivity training, basic encounter groups, T Groups (the labels are unimportant). The growth of this phenomenon is rendered more striking when one realizes that it is a 'grass roots' movement. There is not a university nor foundation nor government agency which has given it any significant approval or support until the last five or six years. Yet it has permeated industry, is coming into education, is reaching families, professionals in the helping fields, and many other individuals. Why? I believe it is because people—ordinary people—have discovered that it alleviates their loneliness and permits them to grow, to risk, to change. It brings persons into real relationships with persons.

So stated an optimistic, perhaps an idealistic, Carl Rogers (1968) in his discussion of the growth, development, and direction of the "intensive group movement" for the future. His paper follows some 22 years after the somewhat inadvertent creation of an educational
process called the Basic Skills Training Group (known as the T Group after 1956) at an education workshop in New Britain, Connecticut. Since 1946, the staff involved in the above workshop has evolved into the National Training Laboratories, affiliate of the National Education Association, and probably the major national impetus to "laboratory training" methods. Historically, industry has shown the greatest initiative in adopting the laboratory approach. House (1967) has stated: "There is little doubt that T Groups have become a popular management-development device." Mentioning NTL and other consulting firms, Campbell and Dunnette (1968) comment that now "... many colleges and universities incorporate T Groups as part of the curriculum in business education, public administration, education, or psychology." The promulgation of such methods and the popularization of the group movement has brought with it both public concerns and professional issues resulting in a recent glut of mostly opinion and partly serious research literature. In fact, House (1967) believes that

T-group education has been the subject of more controversy and has commanded more expenditure of managers' time and money and more attention from behavioral scientists and business school faculty members than perhaps any management technique to date. Ever since the early writings on T-group experiences there has been controversy over both the propriety and effectiveness of using T-groups as a method of management training.

Given the controversy and equivocal claims of T Group effectiveness, the recent literature has increasingly attempted to delineate more specific issues and to select more discrete training variables for study. Discussing training issues, Schein and Bennis (1966)
distinguish between training content, and process (what goes on), with training outcomes (what happens as a result), both immediate and those transferred to "back-home" situations. Similarly, Alderfer and Lodahl (1971) make the distinction "between those studies which attempt to evaluate or assess the potential usefulness of the learning method and those studies which attempt to understand or explain the processes utilized in laboratory education without particularly attending to the efficacy of the method itself." The former has held my personal interest, as it has for Argyris (1965), Bunker (1965) and Miles (1960).

One area of outcome research has attempted to ascertain the effectiveness of laboratory methods as opposed to other intervention forms. Schmuck (1968) has demonstrated increased utilization of diagnostic and action skills by teachers trained by T Group methods as opposed to more didactic "human relations" courses. Alderfer and Lodahl (1971) compared the attitudes and behavior of graduate students in administration during both experiential and didactic (more traditional) human relations courses. They found the T Group course ". . . showed more here-and-now behavior, more group dynamics and less organizational dynamics content, more involvement, more perceived comfort with feelings, and more perceived transfer of learning."

However, one major, persistent problem with outcome research has been its reliance on self or "other" reports on changes in attitudes and behavior. While Bunker (1965) improved on Miles' design (1960) by attempting to code behavior, they still rely on "perceived" change
in behavior, if only by others, rather than self reports. Argyris (1965) attempted to code on-the-job decision making behavior, but it is difficult to assess the degree of actual increase in decision making quality.

Not only has outcome research relied upon perceived change in behavior and attitudes, it has also focused predominantly upon individual participant changes. Hall and Williams (1970) make the point:

Given the increasing involvement of groups in decision making, whether by design or out of necessity, research emphasis is shifting from such considerations as group versus individual performance to issues of group effectiveness. The practical question is no longer one of whether to use groups, but rather how to use them most effectively in decision making.

One of the major hypotheses in their study is that laboratory trained groups should be superior to traditionally trained human relations groups in the quality of decision making and the utilization of resources. Using a standard decision making task (Twelve Angry Men) their hypotheses were confirmed. A major limitation to the study, however, is its lack of pre data on the attitudes, or psychological set of participants, and the skill level or decision-making effectiveness of the groups. Hall and Williams conclude that "... studies employing pre and post training provisions in their designs which focus upon comparisons of intervention strategies and the unique effects of training per se would seem to be in order."

To summarize then, the present study attempts to improve upon the Alderfer and Lodahl design by substituting an actual decision
making task for perceived change or coded behavior criteria in comparing the outcomes of experiential (T Group) and traditional (didactic) human relations courses. The present study should hopefully provide a valuable addition to the Hall and Williams study by providing both pre and post data in the design. Therefore, the first purpose of the study: To compare the effectiveness of actual decision making by groups from both experiential courses and didactic courses.

Another aspect of the present study is to investigate the possible task effect of individual and group differences due to individual attitudes or generalized expectancies at the time of decision making. The locus of control construct has been a well researched concept in the assessment of an individual's generalized attitudes, belief, or expectancy (Rotter, 1966). The locus of control dimension has been studied in relation to such variables as age, sex, intelligence, learning achievement, ethnic group membership, attempts to control the environment, and conformity. Locus of control has yet to be studied in relation to laboratory (T Group) outcomes nor as to the effectiveness of group decision making. Thus, the second purpose of the present study: To study and assess the effect of internal/external locus of control upon group decision making.
CHAPTER II

RESUME OF RELEVANT LITERATURE

Review of T Group Literature

The following sections will attempt briefly to give the reader an historical and societal perspective of the laboratory or T Group "movement." A review of the empirical literature follows with a discussion of outcomes and ways of measuring changes in participant characteristics and participant behavior. In addition, brief mention will be made of research problems and selected studies will be reviewed for present trends in the recent literature.

Introduction

The year, 1946, Summer, the place, the State Teachers College, New Britain, Connecticut, and what promised to be just another "educational workshop" would become an historic event. The training-research enterprise was jointly sponsored by the Connecticut Interracial Commission, the Connecticut Department of Education, and the Research Center for Group Dynamics, then located at the Massachusetts Institute of Technology. The objective was to train and develop more effective leadership behavior among participants.

The staff was composed of training leaders (L.P. Bradford, R. Lippitt, and K.D. Benne) and a research staff of observers (M. Deutch,
Mr. Horwitz, and M. Seeman) headed by Kurt Lewin and Ronald Lippitt of the Research Center for Group Dynamics.

The workshop or laboratory design consisted essentially of group discussions by the participants which were later discussed by the staff in closed meetings. In this particular session, some of the participants expressed curiosity as to the nature of the staff meetings and were subsequently invited to attend. As it turned out, having observers and staff members discuss participants' behavior in front of them had an electrifying effect. Participants began entering into the staff discussions, interactions became lively, and participants expressed how much more they were learning in the staff meetings. Specifically, the participants reported that they were deriving important understandings of their own behavior and of the behavior of their groups.

To the training staff it seemed that "a potentially powerful medium and process of reeducation had been, somewhat inadvertently, hit upon. Group members, if they were confronted more or less objectively with data concerning their own behavior and its effects, and if they came to participate nondefensively in thinking about these data, might achieve highly meaningful learnings about themselves, about the responses of others to them, and about group behavior and group development in general" (Bradford, et. al., 1964, p. 83).

The forerunner of the T Group was thus created. At that time, this kind of group meeting was known as the Basic Skills Training (BST) Group, and became a part (although not well integrated) of the
overall laboratory design from 1948 until 1956. The laboratory method at the same time became the responsibility of the National Education Association (the branch later known as the National Training Laboratory) and the Research Center for Group Dynamics at MIT. Laboratories for training and research were conducted (and still are) at the Gould Academy in Bethel, Maine. After 1946, the T Group became more recognized as an essential, if not the essential learning experience within the laboratory design.

The laboratory method of research and training spread throughout the United States. The influence of NTL itself brought forth the following affiliates: Western Training Laboratories (WTL) at the University of California (1952), Boston University Laboratory in the Improvement of Human Relations Training (1954), Pacific Northwest Laboratory (1954), Intermountain Laboratory in Utah (1955), Southwest Human Relations Laboratory in Texas (1955), and most recently Midwest Group for Human Resources (MGHR) of St. Louis (1968).

With the proliferation of "training" organizations like the above, not to mention the number of private consulting agencies using laboratory or T Group methods, the "movement" continues to grow. The T Group approach is becoming a most popular, if not dominant training and staff development method which industry seeks from organizational consulting firms, business schools, and managerial and executive training agencies. Some church dioceses and clergymen have been using "T Group discussion meetings" to deal with moral, spiritual, and other human issues. Rehabilitative programs such as
"Synanon," "Daytop," and "Encounter" use crude forms of encounter groups or quasi-T Group methods as essential elements of "the cure."

Thus, as T Group popularity (and notoriety) continue to gain in momentum, resources (money) spent in the use of laboratory methods know no equal among other training methods (House, 1967). This seems to be evident in spite of persistent questions as to its validity, its dangers, its unproven ability to transfer knowledge and/or attitudes, and to induce gains in operational skills. Such recent issues have been a constant source of pressure to increase the quality of research and to legitimize training standards and professional practices. Research generation and professional staff development (of trainers) are therefore at an all time high and increasing at a rapid rate.

The volume of research literature may be differentiated, according to Buchanan (1969), into such areas as:

(1) methodology of evaluation
(2) theory development
(3) kinds of learning (outcome studies)
(4) factors influencing learning (process variables)
(5) types of individuals who learn from laboratory training
(6) laboratory training in organizational development

The bulk of this review will deal with outcome studies, and, when relevant, with the methodology of evaluation. Before progressing further, however, some definitions and distinctions may be helpful to the reader.
Throughout the review, references to T Groups, sensitivity training, personal growth, encounter groups, and marathons will have essentially similar meanings and may be interchanged, unless exceptions are noted. A laboratory or laboratory design will imply a kind of workshop which incorporates a number of activities besides the T Group, such as: skill exercises, role playing, group discussion, lectures on theory, etc. The T Group itself will refer to a meeting of eight to twelve members, usually, in a face-to-face situation, who share information and relatively immediate feedback on each others behavior and its consequences.

The distinction is usually made between the T Group process and group psychotherapy on the following points:

(1) The former's emphasis on "here and now" functioning and its consequences; and the latter's traditional emphasis on past behavior and experience.

(2) The former's focus on pre-conscious and conscious motivation and the latter's focus on unconscious motivation.

(3) The former's group composition consisting of "normal" individuals attempting to improve their functioning, and the latter's composition of "patients" attempting to become normal.

Summary of Research

In addition to the most recent studies concerning T Groups, four published reviews of the research (Stock, 1964; House, 1967; Campbell and Dunnette, 1968; and Buchanan, 1969) were examined in
developing this chapter. Stock considered a broad range of elements in the laboratory approach; and the course of development within the T Group; the effect of different group compositions; the character of the T Group as described by its members; the role of the trainer and its effects on the T Group; members' perceptions of one another; and the impact of the T Group on individual learning and change. The last element has received the most attention in research and is the major focus in the House, and Campbell and Dunnette studies. However, it should be noted that, in terms of individual learning and change, Stock and Buchanan draw upon a narrower range of studies, i.e., research which tests the "laboratory" effects as a whole, according to the "NTL type" of model. House, Campbell and Dunnette are more comprehensive in their examination of the literature, but in doing so have incorporated almost any study which "claims" to be testing the effects of sensitivity training or the T Group. This writer believes that the above difference accounts for the generally more positive outcome which Stock and Buchanan derive from the studies they reviewed.

To summarize briefly, Stock concluded on the basis of her review that "the following have been shown to be influenced by laboratory training: various perceptions of the self, effective behavior, congruity between self-percept and ideal-self, self-insight, sensitivity to the feelings of behavior of others, role flexibility, sensitivity to group decision, diagnostic ability, behavioral skill, utilization of laboratory techniques, self-confidence, and approach to diagnosing organization problems" (Stock, p. 434). Buchanan
concludes that laboratory training has had effects upon the reduction of extreme behavior, attitudes (e.g., openness, receptivity, tolerance of individual differences) and operational skills (e.g., listening, gatekeeping, soliciting feedback, and the use of new techniques). Impressive lists, but for the fact that not everyone is effected positively, and that people change in different degrees, and under certain conditions.

A further differentiation is necessary to place the four mentioned reviews in proper perspective. Stock was more concerned with individual learning, while the others were more concerned with the effect of the T Group in influencing individual behavior within the organization. Unlike Buchanan, however, House, and Campbell and Dunnette use the broadest criteria for the inclusion of a study in their review (almost anything called T Groups or sensitivity training), and the most narrow or critical bases for accepting a study's "positive" results.

With the above reservations in mind, an examination of some of the "representative" dependent variables will be considered. To simplify the nature of expected outcomes, House has conceptualized two different kinds of studies: Those concerned with the effects of the T Group on individual "characteristics" versus the effects on individual "behavior."

A. Effects on Participant Characteristics

House mentions a number of studies demonstrating changes in participant characteristics, Kernan (1963) used Thematic Apperception
Tests of tolerance, toughness, friendliness, interpersonal problems, dominance, and nurturance in an unsuccessful attempt to measure differences before and after training. He concluded that such "personal" changes may not result due to such a relatively short period of time in the laboratory experience. Bass (1962) used an incomplete sentence technique to measure changes in perception of participants who watched parts of the movie, *Twelve Angry Men*, before and after training (testing only one third, before). He concluded that participants positively changed in their "sensitivity to others," and these perceptual changes correlated positively with the judgments of participants by peers and staff psychologists.

Another study by Argyris (1962) supports Bass and derives similar results using questionnaires and ratings to show increased perceptions of members toward each other, but not toward people who were not in T Groups with them.

At least two studies (Massarik and Carlson, 1962; Lohman, et al., 1959) attempted to measure differences in personal perceptions using the California Psychological Inventory and the Gordon Personal Profile, respectively. The former study obtained only minor changes in the expected direction of increased spontaneity. The latter found no significant differences in self-adequacy, but contributed this result to the "already high" self-adequacy before the study.

Haiman (1963) used a composite open-mindedness scale to measure shifts in attitudes of participants and derived significant positive results. His scale was composed of items from Adorno's California F
Scale, and from Rokeach's Dogmatism Scale and received greatest shifts in participants who scored lower at the outset of training. It may be hypothesized that changes in high scores were limited by the upper boundary of the scale.

Using the Leader Opinion Questionnaire, consisting of Likert-type questions, Carron (1964) measured the amounts of "consideration" and "initiating structure" which the participants valued in the "ideal leader." Training had the effect of causing participants to value consideration more and structure less. Obviously the individual's job requirements in terms of need for consideration or need for structure would determine just how valuable these results may be considered.

As cited by Buchanan, other studies have indicated changes in "openness," "receptivity," "awareness," and the tolerance of individual differences (Bunker and Knowles, 1967; Schutz and Allen, 1966; Smith, 1966; Kolb, et al., 1968). Assessing perceived attitudes changes, Harrison and Oshry (1966) found that executives viewed their work environment more humanly and less impersonally; and they saw a positive connection between meeting interpersonal needs and work effectiveness.

With regard to attitude change on the job, Campbell and Dunnette mention three studies--Smith (1964); Schutz and Allen (1966); and Baumgartel and Goldstein (1967) which used the Fundamental Interpersonal Relations Orientation-Behavior (FIRO-B) questionnaire as the primary dependent variable. The FIRO-B measures three major
types of an individual's behavior in groups: control (i.e., attempting to influence the proceedings), inclusion (i.e., initiating contacts with others in a group), and affection (i.e., moving toward others in a close personal way). The questionnaire contains a pair of scales for each behavior category: One to assess the respondent's own tendency or desire to show the behavior, and the other to assess how much he wants others in the group to show it. The above mentioned studies demonstrated that the overall disparity between one's own behavioral tendencies and that desired in others decreased for the T Group trainees, but showed no change for those in the control group.

Baumgartel and Goldstein (1967) used, in addition to the FIRO-B, the Allport-Vernon-Lindzey Study of Values but were unable to show positive results. They hypothesized the insignificant "results" were due to the uncontrolled interactions of individual differences.

To assess changes in union and management attitudes toward supervisory practices, Blake and Mouton (1966) used an attitude measure derived from the Management Grid program. They found that, while managers tended to shift their attitudes more than union members, both groups shifted positively in their attitudes towards different "managerial styles."

From the above studies, it seems rather convincing that laboratory and/or T Group methods have demonstrated numerous changes in participant characteristics or attitudes. But, as Buchanan concludes: "The value of labs for job performance, however, is less convincing. (The above changes) . . . seem (like) small advances compared to the
powerful forces that maintain a status quo in organizations. But what such change does represent is an increased readiness for 'next steps'." (p. 472)

B. Effects on Participant Behavior

House reports some other studies which were designed to evaluate more directly the effects of laboratory training on job performance. Among them is a well controlled experiment by Miles (1960) which used The Ohio State Leader Description Questionnaire, the Group Performance Scale, and an open-ended post-training measure of perceived changes. Significant positive results were found only with the measure of perceived change, which was subsequently questioned, but then confirmed by Bunker (1965) in a similar study. Also, a related field experiment by Underwood (1965) used reports of "observed changes in behavior" by associates of the trainees. The measure yielded positive and negative changes in personal, interpersonal, and nonpersonal behavior on the job. He obtained a "large and meaningful" difference in favor of more positive changes for the experimental over the control group. Boyd and Ellis (in Buchanan, 1964) assessed changes in participants by obtaining observed reports from supervisors, two peers, and two subordinates. Participants were found to have the greatest number of positive changes, but also somewhat more undesirable changes than members of the control groups. They concluded that participants learned more about group behavior "such as the loss of the contributions to the group experienced through failure to listen, the effect
of pressures in creating resistance, and how unstated purposes often impede group work. They state that although learning about other people occurred in both groups (C and E) the laboratory resulted in more direct learning by experience as against conventional training, which tends to (be) an intellectual learning about the subject" (House, p. 17).

A set of categories, developed and tested by Argyris (1965) measured the interpersonal competence of participants by having raters audit tapes of problem-solving meetings. These scores were then compared with and found to correlate positively with member rankings as judged by independent observers. Experimental participants were found to be ranked higher and rated as more interpersonally competent in the problem-solving meetings.

Final mention should be made of studies by Buchanan (1964) and Blansfield (1962) on the effects of "T Group programs" administered to entire organizational units that resulted in "substantial positive changes in delegation of authority, managerial performance, teamwork and effectiveness of the organizational unit. Unfortunately no quantitative assessment of change is reported and control groups were not used" (House, p. 22).

Buchanan mentions the effect of laboratories in reducing extremes of behavior. The Schutz and Allan study (1966), indicates that very dominant participants became less dominant, and very submissive participants became more assertive. A number of studies list changes in other more operational skills such as listening, gatekeeping,
soliciting feedback, and attempting to use new techniques (Bunker and Knowles, 1967; Schutz and Allan, 1966; Morton and Wight, 1964; Sikes, 1964; DeMichele, 1966; and Schmuck, 1968). The Schmuck study will receive further elaboration later since it is well controlled, measures both actual and perceived changes and compares outcomes of an experiential approach (using laboratory methods) with outcomes from a more didactic learning situation (a seminar).

In terms of changes in participant behavior, then, one may tentatively conclude, as do Campbell and Dunnette, that "the evidence, though limited, is reasonably convincing that T group training does induce behavioral changes in the 'back home' setting" (p. 98).

Concluding statements from the four reviews point to the need for better controlled and higher quality research. Specifically, Campbell and Dunnette list five needs for future research approaches:

(1) Investigators need to specify explicit outcomes which they expect of training and develop methods by which they may be measured.

(2) More concern must be shown for individual differences and their control.

(3) More attention must be paid to the interaction between organizational characteristics, leadership climates, organizational goals, and training outcome and effects.

(4) Comparisons must be made of T group effects with other training methods and other learning experiences (also within the laboratory design, e.g., skill sessions, theory sessions, lectures, etc.).
(5) Determinations of the relative contributions of different technological elements within the laboratory must be made:

a. The effects of different trainer roles.
b. Optimal procedures for giving feedback.
c. Enhancing "psychological safety."
d. Total time spent in T groups and how the time is distributed.
e. Effects of the degree of laboratory isolation.
f. The nature of the participant populations.

C. Recent Studies

The most recent studies are included here to deal with some of the research needs as indicated by Campbell and Dunnette. Specifically, they bear on the need to compare the outcomes of T Group methods with other training or learning methods. Other studies and problems will be mentioned in terms of their importance to the present study.

Using judgments of perceived emotion on the Semantic Differential scale (proposed by Osgood), Delaney (1966) measured changes in the perception of nonverbal communications for counselors. Participants were asked to judge the emotionality (despair, fear, happiness, and anger) as perceived from films shown to them minus the sound. The experimental group (given sensitivity training) significantly changed in its perceptions to the film stimulus, whereas the control group (taught didactically) showed no significant changes.

Geitgey (1966) examined the effects of sensitivity training on nursing students with respect to quality of nursing care, interpersonal
relations with patients, teachers, and peers, grades in nursing courses, and attrition rates. These were measured with sociometric forms, questionnaires, and official records of the nurses. Besides the experimental group, two controls were used: one volunteer group which received a lecture discussion method of human relations training; and a regular control group. Positive results in favor of the experimental group were obtained for interpersonal relations with patients, attrition rates, and a slight trend for total grade points accumulated. The study mentions "other data" which reveal advantages of sensitivity training which were not specifically related to the study.

It should be mentioned that a study by Kepes (1965) attempted to demonstrate increased change in second person sensitivity for experiential participants over didactic participants, but used only eight one-hour sessions as the experimental manipulation. Even though some predictions were substantiated it is difficult to generalize from this kind of learning experience as having similar effects as a two to four day laboratory or 24 hour marathon T Group.

The study by Schmuck (1968) compared teachers taught experientially (using T Groups) with those in a human relations seminar. He found marked differences in the two groups as to the number of practices (classroom diagnosis methods and exercises) the participants tried out in their classrooms (5-17 by lab P's and 1-2 by seminar P's). In addition, he found that students of lab participants perceived themselves as having more influence in the class, as being better
liked and an integral part of a friendship group in the class, and
as being helpful to each other. These measures were part of a
pre-post design of perceived changes.

Finally, a study by Alderfer and Lodahl (1971) attempted to
measure perceived changes of participants by comparing an experiential
learning situation (T Group course) with a traditional human relations
course. Measures used were coded behavior from tapes and self-reports.
They conclude that the experiential group evidenced more "here and now"
behavior, greater involvement, more perceived comfort with feelings,
and more perceived transfer of learning.

D. Present Status

The above studies then represent attempts to compare differences
in learning outcomes of participants within both experiential and
more didactic learning situations. Along with most of the literature
in outcome research, however, they may be characterized by their
focus on individuals. As Buchanan (1969) indicates, this may be due
to the lack of theory development at the level of processes of group
development.

With the exception of Argyris (1965) who studied the "inter-
personal competence" of participants at problem solving meetings (as
measured by raters of taped sessions), only Hall and Williams (1970)
have attempted to assess the laboratory effects on groups of individuals.
Taking into account the limitations of both self-perceived and "other"-
perceived ratings of change, they utilize a group-decision making task
(Twelve Angry Men) as the dependent variable. Comparisons were made
in terms of quality of decision making by groups of trained (T Groups) and untrained participants. The major limitation they state, is the lack of pre and post training provisions of their design.

In summary, the above research would seem to support many assumptions about the outcomes or individual effects of T Groups on participants. Specifically, changes were reported in: (1) attitudes, values, feelings, perceptions, and beliefs, and (2) behavior (both diagnostic and action skills) on and off the job. The support is less conclusive for on-the-job behavior, and when changes do occur, they are not always in a positive direction. More discouraging is the paucity of participant changes being demonstrated by actual behavioral or behaviorally related measurements. With the exception of the Schmuck and Hall and Williams studies, most of the change measurement technology has had to rely upon perception of change in attitudes or behavior by the "self" or "others." It seems in order then, that studies involving demonstrations of increments or development in actual skill behaviors would be of value to the field.

**Literature Summary: Locus of Control**

Julian Rotter (1966) cites the crucial role of reinforcement or gratification as being the almost universal determinant to the acquisition of skills or knowledge. His Social Learning Theory states, however, that a simple "stamping in" process of reinforcement is too simple to explain complex human behavior. Briefly, social learning theory maintains that a reinforcement strengthens the
expectancy of reinforcement if the reinforcement is perceived by the individual as being contingent upon (i.e., causally related to) his own behavior. The degree of expectancy would be determined by the person's past history of reinforcement and the value with which the person ascribes to the reinforcement. Since expectancies may generalize from specific to related or similar situations, then both generalized and specific expectancies, along with the value of reinforcement set to determine choice behavior in different situations.

Lefcourt (1966) and Rotter (1966) attribute individual differences in generalized expectancy across situations to be largely determined by the degree to which the person perceives contingency, causality, or responsibility between the event and his behavior. The concept of internal control has been attributed to individuals who believe to a large degree that events or reinforcements are contingent upon their performance. The concept of external control is attributed to individuals who believe that to a great extent, events are dependent upon luck, fate, control by powerful others, or so complex as to be unpredictable (Rotter, 1966). Rotter concludes that the control construct (generalized expectancy) is of major significance in understanding the nature of the learning process in different learning situations and also that constant individual differences exist among individuals in the degree to which they attribute personal control to some situation.

Phares (1957), Rotter, Seeman, Liverant and Crowne (Rotter, 1966) have contributed to the development and final version of a scale to measure degrees of internal/external control. The final scale is a
29 item, forced choice test (see Appendix A) which includes six filler items to make the purpose of the test more ambiguous. Test data regarding the measurement are summarized by Rotter (1966) and are based on a series of large samples (see Appendix B). While test-retest reliability is quite consistent (r ranges from .49 to .83 with N=382), it varies due to differences in group and individual testing administrations. Means of test-retest reliability typically dropped about one point in the direction of less externality. Also, the mean reliabilities were higher (.72) when retested after one month than the mean reliability (.55) for retesting after two months.

Correlation of I-E Measures with other Variables

The variables briefly considered here are the relation of internal/external control to (1) attempts to control the environment, (2) learning and achievement, and (3) resistance to subtle suggestion or conformity.

A. Attempts to control the environment

Gore and Rotter (1963) used externality (measured with the I-E scale) to predict the type and degree of commitment behavior manifested to effect sound change. The measures taken on members of a southern Negro college demonstrated that the low externals were more active and committed than high externals. Similarly, Strickland (1965), matched individuals in education and socio-economic status, and supported Gore and Rotter's findings. Using another sample of Negroes, she found that activists in the Negro civil rights movement to be
significantly more internal than non-activists.

A well controlled study by Phares (1965) matched individuals on attitudes toward maintaining fraternities and sororities and then requested that they be "experimenters," specifically that they influence other students' attitudes toward fraternities and sororities. He found that low externals were more active in attempts to influence and more successful in influencing other students' attitudes than high externals.

Assuming that attempts to control the environment might be related to attempts to control self, Straits and Sechrest (1963) investigated internal/external control of smokers and non-smokers. They found that smokers are significantly more external than non-smokers. In a study which replicated their results, James, Woodruff and Werner (1965) measured locus of control after the Surgeon General's report. They found that smokers who quit smoking and didn't return were more internal than those smokers who believed the report but did not quit.

B. Learning and Achievement

An investigation of control in tuberculosis patients by Seeman and Evans (1962) revealed that more external patients asked less questions and know less about their condition than internals. A related study by Seeman (1963) of prison inmates demonstrated that more internal inmates learned and knew the requirements of parole and behaved accordingly moreso than did more external inmates. The study lends support to the notion (Rotter, 1966) that the control construct
allows prediction of learning and achievement variables when the materials are perceived as relevant to the person's goal strivings.

Studying achievement motivation for internal/external control, Rotter and Mulry (1965) tested internals and externals in two different achievement situations, skill and chance conditions. Low externals, they found, took more time making decisions during skill tasks than chance tasks than did high externals. The high externals showed no significant differences in time to reach decisions during the chance or skill condition. They concluded that low externals seem to value reinforcement for skill more than chance conditions.

C. Resistance to Subtle Suggestion and Conformity

Crowne and Liverant (1963) tested internals and externals by using an Asch-type experiment to assess conformity and disagreement with others (experimental confederates). High externals yielded to a majority much more often than did low externals. They found also that when high externals did disagree with the majority, they were much less confident about their decisions than were low externals.

Studying the reaction of individuals to manipulation, Strickland (1962) used a verbal conditioning task to obtain differences between high and low externals. She found a significant difference on locus of control for those persons who were aware of the conditioning and resisted, and those who were aware of conditioning and conformed. The low externals resisted subtle suggestion. That this might indicate more negativism in low externals was investigated by Gore (1962). He used two conditions, overt and covert influence, in
requesting subjects to select TAT cards from which to respond. No significant differences exist between high and low externals for the overt condition, but the low externals tended to resist covert influence, i.e., they told significantly shorter stories.

To summarize briefly then, the above literature lends support to the hypothesis (Rotter, 1966) that low external individuals are more likely to:

1. be alert to those aspects of the environment which provide useful information for his future behavior,
2. take steps to improve his environmental condition,
3. place greater value on skill or achievement reinforcements, and,
4. be resistive to subtle attempts to influence them.
CHAPTER III

THE STUDY

Settings and Subjects

In all, 90 participants (P's), from two social psychology courses* were employed for the study. Both courses met twice weekly for a three-hour session, used the same text, and both were taught by the same instructor**, an associate of the National Training Laboratories. The instructor, interested in possible differences in achievement, taught one class (60+ students) experientially and the other more didactically (traditional, lecture method). To date, no significant achievement differences have been obtained (Kepes, personal communication, August 17, 1971). Until obtaining the post data collection, the instructor was led to assume that both courses were being used as "controls" for a weekend laboratory in human relations training.

Differences between the samples exist for grade level, age, sex, and grade point average (see Table 1). Two thirds of the experiential group were graduate students (43 of whom had their bachelor's degree), while the "didactic learning" group ranged from sophomores to seniors. The median age range for the experimental

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**Sherwin Kepes, Professor, Department of Psychology
TABLE 1

COMPARISON OF EXPERIENTIAL AND DIDACTIC LEARNING GROUPS IN TERMS OF PERSONAL DATA

<table>
<thead>
<tr>
<th>PERSONAL DATA</th>
<th>EXPERIENTIAL</th>
<th>DIDACTIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Sex</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>10</td>
<td>11</td>
</tr>
<tr>
<td>Female</td>
<td>48</td>
<td>18</td>
</tr>
<tr>
<td>2. Grade Level</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sophomore</td>
<td>6</td>
<td>20</td>
</tr>
<tr>
<td>Junior</td>
<td>8</td>
<td>7</td>
</tr>
<tr>
<td>Senior</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>1st Year Graduate</td>
<td>22</td>
<td>0</td>
</tr>
<tr>
<td>2nd Year Graduate &amp; Beyond</td>
<td>20</td>
<td>0</td>
</tr>
<tr>
<td>3. Degree</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bachelors</td>
<td>43</td>
<td>0</td>
</tr>
<tr>
<td>Masters</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>4. Age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18-19</td>
<td>2</td>
<td>13</td>
</tr>
<tr>
<td>20-21</td>
<td>6</td>
<td>12</td>
</tr>
<tr>
<td>22-23</td>
<td>12</td>
<td>2</td>
</tr>
<tr>
<td>24-25</td>
<td>14</td>
<td>0</td>
</tr>
<tr>
<td>26-27</td>
<td>9</td>
<td>1</td>
</tr>
<tr>
<td>28-29</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>30+</td>
<td>15</td>
<td>1</td>
</tr>
<tr>
<td>5. Grade Point Average</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-2.0 - 2.4</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>2.5 - 2.9</td>
<td>3</td>
<td>11</td>
</tr>
<tr>
<td>3.0 - 3.4</td>
<td>13</td>
<td>9</td>
</tr>
<tr>
<td>3.5+</td>
<td>41</td>
<td>5</td>
</tr>
</tbody>
</table>
group was 22-25 (with 15 P's over 30) and the median range for the control group was 18-21. One third of the control group were males while one sixth of the experimental group were males. The median grade point average for the control group was 3.0, while 54 of the 60+ experimental group had GPA's of 3.0 or better.

**Treatment**

The basic differences between the two treatments (generally outlined on pp. 1-3) exist in the specific process and structural variances of experiential and didactic methods. The process differences of the experience based groups may be characterized by the following elements:

1. Members expose (verbally and nonverbally) ideas and feelings to others.
2. Members interact with others and receive feedback about themselves.
3. Members explore each others beliefs, attitudes, values and resultant behaviors.
4. Members examine multiple values and generate alternate behavioral possibilities.
5. Interaction takes place within a supportive atmosphere without personal threat or leader authority.
6. Professor offers supportive attitude of encouragement and acceptance but doesn't supply "ready" answers to participants.

Structurally, an observer might record the following differences between the experiential (E) and didactic (D) groups:
(1) The E section receives no lecture whereas D groups do.

(2) The E section sits in two large circles (one outer and one inner) while D groups sit in row seats with the lecturer at the front of the room.

(3) The content area discussed in the D section derives itself predominantly from issues, concepts, theories and questions from the members' reading. In the E section, members hypothesize and conceptualize more directly from the personal experience of the group process.

(4) The E section uses the inner circle as a participative group and the outer circle as an observational group which may comment on the process or give feedback to the inner circle or any of its members.

Procedures for Data Collection

Data collection consisted of a two part pre- and a three part post-measurement procedure for both the experiential (E) and didactic (D) courses (see Flow Chart, Figure 1). During the pre-measurement, all participants (P's) were given the I-E scale, and an individual decision making task (NASA ranking exercise), divided into groups of 6 P's each, and requested to complete the same task as a group. The post-measurement procedure was identical except for the decision making task content (Occupational Prestige Ranking) and the addition of a post-questionnaire to obtain personal data. Pre-data collection took place after one week of a summer session, and the post-data
Pre-Data Collection

Procedures:
1. Administer I-E Scale
2. Score and divide on basis of median split
3. Administer individual task (NASA)
4. Split into groups and complete task (NASA)

Experiential
\[
\begin{array}{ccc}
30 \text{ hi} & 30 \text{ lo} & 3 \text{ hi} & 3 \text{ lo} & 4 \text{ mixed} \\
\text{N}= & (18) & (18) & (24) \\
\end{array}
\]

Didactic
\[
\begin{array}{ccc}
15 \text{ hi} & 15 \text{ lo} & 2 \text{ hi} & 2 \text{ lo} & 1 \text{ m} \\
\text{N}= & (12) & (12) & (6) \\
\end{array}
\]

Post-Data Collection

Procedures:
1. Same
2. Same
3. Same (Occupational Prestige)
4. Same (Occupational Prestige)
5. Administer Questionnaire

Experiential
\[
\begin{array}{ccc}
30 \text{ hi} & 30 \text{ lo} & 3 \text{ hi} & 3 \text{ lo} & 3 \text{ mixed} \\
\text{N}= & (18) & (18) & (24) \\
\end{array}
\]

Didactic
\[
\begin{array}{ccc}
12 \text{ hi} & 12 \text{ lo} & 1 \text{ hi} & 1 \text{ lo} & 2 \text{ m} \\
\text{N}= & (6) & (6) & (12) \\
\end{array}
\]

FIGURE 1
Flow Chart
collection took place five weeks later, one week prior to course completion. Prior to both pre and post sessions, P's were asked if anyone had knowledge of or was familiar with either of the tasks (NASA or Occupational Prestige) or the I-E scale. One P had completed the NASA exercise previously and was therefore asked to be an "observer."

Pre-data Collection

The administration of the I-E scale preceded the task exercises for both the pre and post measurements. All P's from the E and D courses reported their own raw scores to the experimenter. A frequency distribution was placed on the chalk board and on the basis of a median split (Md=12, coinciding with the overall mean, 12, to date, Rotter, 1971) the E and D classes were divided into two sections of "hi" and "lo" P's.

In the E course, the two sections (approximately 30 lo's and 30 hi's) were then split into groups of 6 P's each, 3 groups of lo's (N=18), 3 groups of hi's (N=18), and 4 mixed groups (N=24). Each mixed group consisted of 3 lo's and 3 hi's. For the D course, the same grouping method obtained 2 lo, 2 hi, and 1 mixed group.

After the pre-measurement grouping assignments were made, all P's for E and D courses were requested to complete the NASA ranking task individually. Actual groups were then constituted, and P's were requested to complete the task as a group, attempting to use the method of "consensus" (see Instruments, pp. 38-41). Some members
(or "observers") were requested to time the group task, but all P's were told that the exercise was not a "time-limited" task. Following the group task completion, the groups were given the "correct" rankings (Pfeiffer and Jones, 1970). P's scored their individual and group worksheets, and reported the results, which were summarized on the chalkboard. Groups and individual P's then received feedback on the effectiveness of their decision making relative to the other P's in their respective classes, E or D. At the conclusion of this session, P's were told that the I-E scale was an "attitude measurement" and that the experimenter would return "in a few weeks" to explain the nature and specific purposes of the study and its instruments.

Post-data Collection

Using the I-E scale again, the same grouping procedure was used to assign P's to new, or ad hoc groups of hi's, lo's, and mixed P's. The E class (N=60+) again obtained 3 hi, 3 lo, and 4 mixed groups. Due to absenteeism, however, the D class (N=24+) could only be split into four groups, 1 hi, 1 lo, and 2 mixed.

During the second part of the post-session, P's were once again asked to complete a ranking task, this time the Occupational Prestige exercise, as individuals and then in groups. As in the pre-session, the groups were timed, worksheets scored, and results were summarized on the chalkboard.

All P's in both the E and D classes were then given a questionnaire to obtain general information regarding age, sex, grade level,
grade point averages, and degrees obtained. The experimenter then discussed the study, some hypotheses, and the instruments with each of the two classes.

Measures and Instrumentation

The I-E Scale

The Internal-External Control Scale is a forced-choice-type measure which offers different alternatives between internal and external control interpretations of various events (Lefcourt, 1966). The Rotter monograph (1966) provides extensive data on the development, validity, and reliability of the present I-E Scale. Most of the data are based upon the final version of the scale, a 29-item test which includes 6 filler items intended to make the purpose of the test somewhat more ambiguous. A modification was made in the instructions due to a different scoring method (See Appendix C).

Rotter's administration uses a test booklet and separate answer sheet, while the present study merely requested that P's circle their answers on the same sheet of paper.

The I-E scale itself (see key in Appendix D) is scored by totaling the number of external choices. The items deal with the person's belief about the nature of the world, i.e., "they are concerned with the subjects' expectations about how reinforcement is controlled. Consequently, the test is considered to be a measure of a generalized expectancy" (Rotter, 1966). The scores range from 0, the consistent belief that individuals can influence the environment--
that rewards come from internal forces, to 23, the belief that all rewards come from external forces (Rotter, 1971).

Decision Making Tasks

The NASA and Occupational Prestige ranking tasks (see Appendixes E and F) were utilized to assess the decision-making performances during the pre and post-phases, respectively. P's were asked to complete the rankings first as individuals, and then as groups, using the method of "consensus." Briefly, the NASA exercise asks P's to rank order a list of 15 items in terms of their survival importance to a space crew stranded on the surface of the moon. The Occupational Prestige task requests that P's rank order a list of 15 occupations according to the "prestige" which is attached to each in the United States.

Task Measures Employed

The tasks afford a number of measures of group decision making quality (Hall and Williams, 1970). The quality of the group performances are evaluated and compared in terms of numerical indices on (1) decision adequacy, (2) utilization of resources, (3) percent of group gain, (4) attainment of the assembly effect bonus, and (5) the utilization of most adequate resources.

1. Decision adequacy index. Since the tasks require P's to rank individually and then as groups, it is possible to compare individual and group rankings with the "correct" rank orders (see Appendix H). The adequacy of each individual's and each group's
decision can be assessed in terms of its summed deviations (absolute difference per item) from the correct rank orders. These summed deviations represent Error Scores and are inversely related to the accuracy of rank orders, and, hence, to decision quality. Strictly numerical assessments of decision adequacy are the Individual Error Scores (IES) and the Group Error Scores (GES).

2. Utilization of resources index. The averaged or pooled IES's (Mean IES or MIES) may be used as the base line from which group decisions are evaluated. The MIES's, as measures of control tendency, reflect the skill level of the groups prior to interaction. Gain or loss in adequacy of the final group product, GES, over the MIES, represented by group difference scores (GDS), then reflect the effects of interaction and, therefore, serve as an index of the degree to which in-group resources have been effectively utilized in deriving group decisions. A gain or loss in GDS would be represented by a + or - GDS, respectively.

3. Percent of group difference score. Since the two decision making tasks differ in content, raw score indices of GES, MIES, and GDS are not comparable from pre to post. To compare pre and post decision adequacy, it is necessary to compare a ± GDS percent in relation to the MIES (± GDS% = GDS / MIES).

4. Assembly effect bonus. The production of group decisions (GES) which surpass in quality the individual decisions (IES) of the groups' most accurate members are additional measures of the quality of the groups' interaction. The frequency with which this effect
was obtained was noted as was the percent of groups achieving it under each condition.

5. **Utilization of most adequate resources.** A final index used to evaluate the decision making performances of the groups studied was a measure of the degree to which each group's solution (GES) approached the solution (IES) of the most accurate member of that group prior to interaction. The difference score, or \( \pm GI \) (from \( IES - GES = \pm GI \)) notes the direction of differences relative to absolute accuracy between the GES and the IES of each group's most accurate member (a \( + GI \) would represent a lower GES than the best IES and therefore a group decision superior in quality to its most valuable resource). This is determined in order to assess how well each group utilized this most accurate resource. Again as with the \( \pm GDS \) computation, pre-post comparisons of the GI are made by converting it to a percentage of gain or loss relative to the GES, i.e., \( \pm GI \) percent (\( \pm GI\% = GI \div GES \)).

**Summary Statement of Theoretical Assumptions, Hypotheses, and Questions**

Outcome research to date has focused upon changes or perceived changes in behavior and attitudes of individuals more than groups. Such individual changes attributed to experiential group participation have been variously listed as:

(1) changed attitudes such as openness, caring, awareness, curiosity, authenticity, and perceived comfort with feelings.

(2) changed behaviors such as improved listening skills; improved
diagnostic and action skills (responsiveness, less withholding of information, opinion, or feelings); perceived transfer of learning; and increased involvement (Schmuck, 1968; Alderfer and Lodahl, 1971; Stock, 1964).

The research of Hall and Williams (1970) has been unique in its focus upon changes in group behavior and attitudes rather than individuals. They feel that the need is to utilize group dynamics training to "modify group processes in the direction of theoretically more effective practices" (Hall and Williams, p. 39). They, therefore, utilize the experiential group as a means of changing group member skills and attitudes toward improved group decision making effectiveness and increased utilization of group resources. Hall and Williams base their assumptions on previous research findings which suggest that decision making groups will perform more effectively when--

1. Democratic or 'participative' leadership is employed so that:
   a. the interpersonal climate will be relatively free of power-based constraints (e.g., Thelen, 1951; and Thibaut, 1950);
   b. all members feel that they share equally in opportunities for influencing the direction of group effort (e.g., Berlo, 1957; Goldman, Bolen, and Martin, 1961; and Pelz, 1956);
   c. there is opportunity for 'emergent' leadership based on relevant expertise and group needs (e.g., Roby and Lanzetta, 1961).

2. Flexible patterns of communication are used so that:
   a. all members are able to participate equally and at will (e.g., Gibb, 1951; Heise and Miller, 1951; and Shaw, 1954);
   b. minority opinions are encouraged and, consequently, more likely to be voiced (e.g., Maier and Solem, 1952; and Shaw, 1954).

3. A cooperative 'problem-solving' approach to discussion is employed rather than a competitive 'win-lose' approach, so that:
a. disagreements may be viewed as substantive rather than affective and, therefore, tolerated (e.g., Deutsch, 1949; Guetzkow and Gyr, 1954; Hammond and Goldman, 1961; and Torrance, 1957);
b. individual members become more sensitive to the ideas and reactions of others (e.g., Fouriezos, Hutt, and Guetzkow, 1950; and Schutz, 1955).

(4) Members deal openly and candidly with one another so that:

a. 'hidden agendas' or personal needs do not distort the handling of the task (e.g., Fouriezos, Hutt, and Guetzkow, 1950; Glidewell, 1951; and Thelen, 1951);
b. feelings of resistance or doubt can be discussed and resolved at the time they are experienced, rather than remaining latent barriers to commitment (e.g., Coch and French, 1948; and Lewin, 1958).

(5) Decision techniques which favor a sharing of responsibility via a protection of individual rights are used, rather than techniques which place the responsibility clearly in the hands of but a portion of the group membership, so that:

a. all share equally the burden of performing the necessary task and social-maintenance functions required by the above actions (e.g., Bales, 1953; Barnlund, 1959; Berlo, 1957; and Deutch, 1949);
b. all members feel a sense of responsibility for group success (e.g., Benne and Sheats, 1948).

The group process suggested by this combination of studies results in an integration of task and social-emotional factors deemed by Collins and Guetzkow (1964) to be of prime importance in effective decision making. Task demands would seem to be better met because of the increased number of resources or 'directions' fostered by equality of participation and flexible communication patterns. Not only is the cancellation-of-individual-errors effect capitalized upon under conditions of less constrained interaction, but opportunities for emergent and creative solutions to be explored are provided as well. In addition, there is a tolerance for conflict inherent in the process which simultaneously produces a more constructive group climate and affords that open expression of differences which frequently leads to group creativity. Similarly, the interpersonal and group maintenance issues of importance in decision making are likely to receive greater attention under the suggested process because of the need to guard against the likelihood of conformity, dominance, withdrawal, and other self-referencing behaviors which seriously deter the achievement of commitment. (Hall and Williams, pp. 40-41)
Hypotheses

The main hypothesis of this study is that the effect on individuals in an experiential learning situation will produce significantly greater gains in the effectiveness of group decision making than will be realized by individuals taught more didactically. No significant gains in the effectiveness of group decision making from pre to post for the didactic are hypothesized.

Specifically, the experiential group will realize significantly greater gains than the didactic group in:

1. decision adequacy index, the group error score (GES).
2. utilization of resources index, the group difference score (GDS).
3. percent of group difference score (GDS%).
4. assembly effect bonus.
5. utilization of most adequate resources.

The second purpose of the study is to explore the effects upon the effectiveness of group decision making (using the above five criteria) of internal/external locus of control (groups of hi, lo, and mixed P's). Some questions may be advanced to determine any differences in effect across hi, lo, and mixed groups by comparing:

1. decision quality criteria (1-5 above).
2. time to reach consensus.

Without specific research on group decision making and locus of control, an attempt is made here to speculate upon the interactive effects between externality, decision making time (time to reach consensus) and the extent to which resources are utilized. An
unweighted value may be attributed to each of the five predictive behaviors which have been shown to differentiate between hi and lo externals (see Table 2). The five behaviors were speculated to have a positive, negative or both positive and negative relationship upon time and utilization of resources. The summed values indicate a possible superiority (+3) by groups of lo externals to utilize resources. Least effective would be the hi externals (-5) while the mixed groups (-2) fell somewhere between hi's and lo's. Estimates on time to reach consensus show the mixed groups to be the fastest (+3) with doubtful differences between hi (-1) and lo (0) groups.

It must be emphasized again, that the analysis is speculative and lacks precision or a rationale for attributing different weights to the values. No formal hypothesis, therefore, will be made with regard to locus of control and the quality of group decision making.
### TABLE 2

**LIST OF PREDICTIVE BEHAVIORS AND THEIR SPECULATED VALUES UPON GROUP DECISION MAKING, TIME, AND THE UTILIZATION OF RESOURCES**

<table>
<thead>
<tr>
<th>Behaviors Found Differentially Predictive of Hi and Lo Externals</th>
<th>TIME</th>
<th>UTILIZATION OF RESOURCES</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>lo</td>
<td>hi</td>
</tr>
<tr>
<td>1. Alert to useful information in the environment.</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>2. Effort to improve environment, i.e., activity and effectiveness.</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>3. Rewards from achievement and skill conditions.</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>4. Resistance to conformity and subtle suggestion.</td>
<td>-</td>
<td>+</td>
</tr>
<tr>
<td>5. Time to make individual decisions.</td>
<td>-</td>
<td>+</td>
</tr>
</tbody>
</table>

| TOTAL VALUES | 0 | -1 | +3 | +3 | -5 | -2 |
CHAPTER IV

RESULTS

The results are represented in three main sections. The first section deals with analysis of decision performance criteria in relation to the effects of the experiential and didactic learning situations. The second section examines the effects of locus of control upon decision making. The last section analyzes the interaction effects between locus of control and experiential/didactic learning.

Measures of Group Performance

A summary of the means and standard deviations for the seven performance criterion variables are presented in Table 3 (pre-data) and Table 4 (post-data). The data were arranged in a 2 X 3 factorial analysis of variance design to be analyzed with unequal cell weights. In addition, F tests for the differences between means were used to compare experiential with didactic effects.

It was hypothesized that the effect of being in an experiential learning situation would produce greater gains in decision making effectiveness and the utilization of resources than would a control group in a didactic learning situation. A preliminary inspection of Table 3 suggests that the average resources (MIES) for both didactic
### TABLE 3

MEANS AND STANDARD DEVIATIONS OF DECISION-MAKING PERFORMANCE VARIABLES DURING PRE-DATA COLLECTION

<table>
<thead>
<tr>
<th>EXPERIENTIAL</th>
<th>MIES</th>
<th>GES</th>
<th>GDS</th>
<th>GDS</th>
<th>GI</th>
<th>GIZ</th>
<th>ABE</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;Hi&quot; 1)</td>
<td>39.3</td>
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<td>19.3</td>
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<td>50</td>
<td>1</td>
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<tr>
<td>2)</td>
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<td>26</td>
<td>17.0</td>
<td>40</td>
<td>+8</td>
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<td>1</td>
</tr>
<tr>
<td>3)</td>
<td>47.0</td>
<td>24</td>
<td>23.0</td>
<td>49</td>
<td>+10</td>
<td>42</td>
<td>1</td>
</tr>
<tr>
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<td>19.8</td>
<td>46.0</td>
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<tr>
<td>SD</td>
<td>3.85</td>
<td>3.06</td>
<td>3.03</td>
<td>5.19</td>
<td>1.15</td>
<td>9.5</td>
<td></td>
</tr>
<tr>
<td>&quot;Lo&quot; 4)</td>
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<td>40</td>
<td>3.0</td>
<td>7</td>
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<td>-40</td>
<td>0</td>
</tr>
<tr>
<td>5)</td>
<td>38.3</td>
<td>20</td>
<td>18.3</td>
<td>48</td>
<td>14</td>
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<td>7</td>
<td>16</td>
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<td>-13</td>
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<td>5.6</td>
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<td>7.93</td>
<td>21.54</td>
<td>15.18</td>
<td>57.2</td>
<td></td>
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<tr>
<td>&quot;Mixed&quot; 7)</td>
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<td>12.7</td>
<td>25</td>
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<td>1</td>
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<tr>
<td>8)</td>
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<td>38</td>
<td>5</td>
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</tr>
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<td>39.3</td>
<td>28</td>
<td>11.3</td>
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<tr>
<td>10)</td>
<td>47.7</td>
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<td>13.7</td>
<td>29</td>
<td>+6</td>
<td>18</td>
<td>1</td>
</tr>
<tr>
<td>M=</td>
<td>45.2</td>
<td>34.5</td>
<td>10.7</td>
<td>23.7</td>
<td>4.00</td>
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<td>4.73</td>
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<td>6.4</td>
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<td>13.03</td>
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<td>3.70</td>
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<tr>
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<td>4.11</td>
<td>6.20</td>
<td>4.72</td>
<td>11.58</td>
<td>6.21</td>
<td>24.4</td>
<td></td>
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<td>DIDACTIC</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot;Hi&quot; 1)</td>
<td>46.0</td>
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<td>26</td>
<td>57</td>
<td>18</td>
<td>90</td>
<td>1</td>
</tr>
<tr>
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<td>15.3</td>
<td>35</td>
<td>4</td>
<td>14</td>
<td>1</td>
</tr>
<tr>
<td>M=</td>
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<td>24</td>
<td>20.7</td>
<td>46.3</td>
<td>11</td>
<td>52</td>
<td>T=2</td>
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<tr>
<td>SD</td>
<td>1.91</td>
<td>5.66</td>
<td>7.57</td>
<td>15.5</td>
<td>9.90</td>
<td>53.7</td>
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<tr>
<td>&quot;Lo&quot; 3)</td>
<td>56.3</td>
<td>20</td>
<td>36.3</td>
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<td>120</td>
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<td>17</td>
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<td>9.40</td>
<td>1.4</td>
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<td>4.2</td>
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</tr>
<tr>
<td>&quot;Mixed&quot; 5)</td>
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<td>-14</td>
<td>-37</td>
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<tr>
<td>GM</td>
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<td>18.2</td>
<td>40</td>
<td>9.60</td>
<td>60.2</td>
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<td>SD</td>
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<td>4.95</td>
<td>8.48</td>
<td>8.40</td>
<td>7.78</td>
<td>28.9</td>
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</tbody>
</table>

**KEY:**
- MIES - Mean Individual Error Score
- GES - Group Error Score
- GDS - Group Difference Score (MIES - GES)
- GDS - GDS ÷ MIES
- GI - Lowest IES ÷ GES
- GIZ - GI ÷ GES
- ABE - Assembly Effect Bonus
TABLE 4
MEANS AND STANDARD DEVIATIONS OF DECISION-MAKING PERFORMANCE VARIABLES DURING POST-DATA COLLECTION

<table>
<thead>
<tr>
<th>EXPERIENTIAL</th>
<th>MIES</th>
<th>GES</th>
<th>GDS</th>
<th>GDS%</th>
<th>GI</th>
<th>GI%</th>
<th>ABE</th>
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</thead>
<tbody>
<tr>
<td>&quot;Hi&quot;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4)</td>
<td>28.0</td>
<td>22</td>
<td>6.0</td>
<td>21</td>
<td>-4</td>
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<tr>
<td>5)</td>
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<td>12</td>
<td>17.7</td>
<td>58</td>
<td>+10</td>
<td>83</td>
<td>1</td>
</tr>
<tr>
<td>6)</td>
<td>30.3</td>
<td>22</td>
<td>8.3</td>
<td>27</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>M =</td>
<td>29.6</td>
<td>18.7</td>
<td>10.7</td>
<td>35.3</td>
<td>2.0</td>
<td>21.7</td>
<td>T=2</td>
</tr>
<tr>
<td>SD</td>
<td>1.42</td>
<td>5.7</td>
<td>6.2</td>
<td>19.8</td>
<td>7.2</td>
<td>53.8</td>
<td></td>
</tr>
<tr>
<td>&quot;Lo&quot;</td>
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<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1)</td>
<td>28</td>
<td>30</td>
<td>2.0</td>
<td>7</td>
<td>-12</td>
<td>-40</td>
<td>0</td>
</tr>
<tr>
<td>2)</td>
<td>28.7</td>
<td>18</td>
<td>10.7</td>
<td>37</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>3)</td>
<td>30.7</td>
<td>20</td>
<td>10.7</td>
<td>35</td>
<td>4</td>
<td>20</td>
<td>1</td>
</tr>
<tr>
<td>M =</td>
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<td>22.7</td>
<td>7.8</td>
<td>26.3</td>
<td>-2.67</td>
<td>-6.67</td>
<td>T=2</td>
</tr>
<tr>
<td>SD</td>
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<td>6.4</td>
<td>5.0</td>
<td>16.7</td>
<td>8.3</td>
<td>30.5</td>
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</tr>
<tr>
<td>&quot;Mixed&quot;</td>
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<td></td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>7)</td>
<td>29.2</td>
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<td>15.2</td>
<td>52</td>
<td>0</td>
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<td>33.0</td>
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<td>13</td>
<td>39</td>
<td>8</td>
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<td>1</td>
</tr>
<tr>
<td>9)</td>
<td>27.8</td>
<td>18</td>
<td>9.8</td>
<td>35</td>
<td>2</td>
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<td>9.7</td>
<td>38</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>M =</td>
<td>28.9</td>
<td>17.0</td>
<td>11.9</td>
<td>41.0</td>
<td>2.50</td>
<td>12.7</td>
<td>T=4</td>
</tr>
<tr>
<td>SD</td>
<td>3.0</td>
<td>2.5</td>
<td>2.6</td>
<td>7.5</td>
<td>3.7</td>
<td>18.8</td>
<td></td>
</tr>
<tr>
<td>DM =</td>
<td>29.2</td>
<td>19.5</td>
<td>10.4</td>
<td>36</td>
<td>0.80</td>
<td>9.60</td>
<td>T=8</td>
</tr>
<tr>
<td>SD</td>
<td>1.94</td>
<td>4.87</td>
<td>4.60</td>
<td>14.67</td>
<td>6.40</td>
<td>34.37</td>
<td></td>
</tr>
</tbody>
</table>

| DIDACTIC    |      |     |     |      |    |     |     |
| "Hi" 1)    | 35.7 | 20  | 15.3| 43   | -2 | -10 | 0   |
| "Lo" 2)    | 33.7 | 30  | 3.7 | 11   | -8 | -27 | 0   |
| "Mixed"    |      |     |     |      |    |     |     |
| 3)          | 40.8 | 34  | 6.8 | 17   | 0  | 0   | 1   |
| 4)          | 37.8 | 20  | 17.8| 47   | 6  | 30  | 1   |
| M =         | 39.3 | 27  | 12.3| 32.0 | 3.0| 15  | T=2 |
| SD          | 2.1  | 9.8 | 7.7 | 21.2 | 4.2| 21.2|     |
| DM =        | 37.1 | 26  | 11.0| 29.7 | -1.0| -1.75| T=2 |
| SD          | .70  | 3.27| 2.83| 7.07 | 1.40| 7.07|     |

Key:
MIES - Mean Individual Error Score
GES - Group Error Score
GDS - Group Difference Score (MIES - GES)
GDS% - GDS ÷ MIES
GI - Lowest IES - GES
GI% - GI ÷ GES
ABE - Assembly Effect Bonus
(grand mean MIES = 44.6) and experiential (g.m. MIES = 43.5) are the same (nonsignificant F test). Therefore, the average resources or total knowledge brought to bear upon the specific pre-task (NASA) for both the E and D groups are the same. The didactic groups, however, obtained somewhat lower group error scores (GES = 24, F = 3.45, p < .10 and 7 df), and a greater percentage of gain over individual decision making (GDS% = 40, F = 4.88, p < .10 and 7 df). This suggests that the didactic groups, therefore, demonstrated higher quality group decision making prior to the intervention conditions. In addition to decision effectiveness, Table 2 indicates that the utilization of the best resource (GI) was achieved to a greater extent by the didactic groups (GI = 9.60) than by the experiential groups (GI = 4.00). This measure does not, however, reach statistical significance.

An inspection of Table 4 indicates that the average resources (MIES) brought to bear upon the post-task (Occupational Prestige) were significantly different for the experiential and didactic groups (F = 34.0, p < .001 and 7 df). The pooled or average resources prior to group interaction for the experiential groups (MIES = 29.6) were greater (lower IES's) than the didactic groups (MIES = 37.1). The quality of decision making also favors the experiential groups. The group error score (GES) for the experiential groups (GES = 19.5) represents higher quality group decisions than those of the didactic groups (GES = 26) on the post task. This difference approaches statistical significance (F = 3.95, p < .10 and 7 df). An apparent
improvement of the experiential groups over the didactic groups in terms of percentage of group gain (GDS% = 36), and utilization of best resources \( (GI = +0.80 \text{ and } GI\% = +9.60) \) does not reach statistical significance.

Part of the original hypothesis predicted the greater frequency with which the experiential groups should achieve the assembly effect bonus (ABE), i.e., achieves a GES with less error than its most useful resource (the lowest IES). Comparing ABE from Table 3 and Table 4 demonstrates the equal ability of the experiential and didactic groups to achieve ABE (both = 80%). During the post-condition, ABE was again achieved by 80% of the experiential groups and only 50% of the didactic groups. The ABE is a crude form of measurement, however, and did not reach statistical significance.

**Locus of Control Effects**

It was previously speculated that group decision making would be most effective for groups composed of lo externals and least effective for groups of hi externals. An analysis of I-E scores for participants affirmed the significant differences between the means for each classification of hi, lo, and mixed groups (see Table 5). Groups of participants classified as hi, lo, or mixed externality were different in GES, GDS, and GDS\% for the pre-data collection but not during post-data collection. An inspection of the pre-data in Table 6 demonstrates the similarity of hi, lo, and mixed groups in average resources (MIES = 43.9, 44.4, and 43.8, respectively) prior to group interaction. The hi and lo groups
### Table 5

**Pre and Post-Data Summary of T Values for Differences Between Group I-E Score Means of Hi, Lo, and Mixed Groups**

<table>
<thead>
<tr>
<th></th>
<th>I-E Groups</th>
<th>Means</th>
<th>df</th>
<th>t value</th>
</tr>
</thead>
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<td>Experimental</td>
<td>Lo/Mix</td>
<td>6.83/9.63</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Hi/Mix</td>
<td>13.10/9.63</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>Lo/Mix</td>
<td>8.42/11.33</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Hi/Mix</td>
<td>15.83/11.33</td>
<td>16</td>
</tr>
<tr>
<td><strong>Post</strong></td>
<td>Experimental</td>
<td>Lo/Mix</td>
<td>6.9/9.25</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Hi/Mix</td>
<td>14.6/9.25</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>Lo/Mix</td>
<td>7.5/11.8</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Hi/Mix</td>
<td>15.8/11.8</td>
<td>16</td>
</tr>
</tbody>
</table>

* P < .05
** P < .01
TABLE 6

EFFECTS OF LOCUS OF CONTROL UPON INDIVIDUAL AND GROUP DECISION MAKING IN THE PRE-CONDITION

<table>
<thead>
<tr>
<th></th>
<th>MIES</th>
<th>GES</th>
<th>GDS</th>
<th>GDS%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hi:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E</td>
<td>43.1</td>
<td>23.3</td>
<td>19.8</td>
<td>46.0</td>
</tr>
<tr>
<td>D</td>
<td>44.7</td>
<td>24.0</td>
<td>20.7</td>
<td>46.3</td>
</tr>
<tr>
<td>M</td>
<td>43.9</td>
<td>23.7*</td>
<td>20.2*</td>
<td>46.15**</td>
</tr>
<tr>
<td>Lo:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E</td>
<td>42.1</td>
<td>32.7</td>
<td>9.4</td>
<td>23.6</td>
</tr>
<tr>
<td>D</td>
<td>46.7</td>
<td>17.0</td>
<td>29.7</td>
<td>63.5</td>
</tr>
<tr>
<td>M</td>
<td>44.4</td>
<td>24.8*</td>
<td>29.1*</td>
<td>43.4**</td>
</tr>
<tr>
<td>Mixed:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E</td>
<td>45.2</td>
<td>34.5</td>
<td>10.7</td>
<td>23.7</td>
</tr>
<tr>
<td>D</td>
<td>42.3</td>
<td>38.0</td>
<td>4.3</td>
<td>10.5</td>
</tr>
<tr>
<td>M</td>
<td>43.8</td>
<td>36.2*</td>
<td>7.5*</td>
<td>17.1**</td>
</tr>
</tbody>
</table>

* p < .10
** p < .05
both, however, surpass the mixed groups in decision making effectiveness, i.e., GES (F = 3.49, p < .10 and 14 df), GDS (F = 3.08, p < .10 and 14 df), and GDS\% (F = 4.17, p < .05 and 14 df). This effect was not replicated in the post condition, nor was the order of decision making quality, i.e., lo's and hi's over mixed groups.

**Interaction Effects of Locus of Control**

As in the analysis of locus of control effects, some significant differences were obtained from pre-data but not from the post-data collection (see Table 7). The locus of control effects upon the experiential groups produced decision making quality differences in the following order: (1) hi's, (2) lo's, and (3) mixed groups. Decision making quality differences for the didactic group were in a different order: (1) lo's, (2) hi's, and (3) mixed groups. These differences approach significance for GES (F = 2.77, p = .116 and 14 df), and reach significance for GDS (F = 5.31, p < .05 and 14 df), GDS\% (F = 5.06, p < .05 and 14 df), and the GI (F = 5.88, p < .05 and 14 df).

**Summary**

The experiential groups did not manifest significant gains in the effectiveness of group decision making when compared with groups in a didactic learning situation. There was, however, a reversal effect in favor of the experiential group, an effect which approached but did not reach statistical significance. Data suggest that hi external and lo external groups surpass mixed groups in terms of decision
<table>
<thead>
<tr>
<th></th>
<th>MIES</th>
<th>GES</th>
<th>GDS</th>
<th>GDS%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>E</td>
<td>D</td>
<td>E</td>
<td>D</td>
</tr>
<tr>
<td><strong>HI</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre</td>
<td>43.1</td>
<td>44.7</td>
<td>23.3</td>
<td>24.0</td>
</tr>
<tr>
<td>Post</td>
<td>29.6</td>
<td>35.7</td>
<td>18.7</td>
<td>20.0</td>
</tr>
<tr>
<td><strong>LO</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre</td>
<td>42.1</td>
<td>46.7</td>
<td>32.7</td>
<td>17.0</td>
</tr>
<tr>
<td>Post</td>
<td>29.1</td>
<td>33.7</td>
<td>22.7</td>
<td>30.0</td>
</tr>
<tr>
<td><strong>MIXED</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre</td>
<td>45.2</td>
<td>42.3</td>
<td>34.5</td>
<td>38.0</td>
</tr>
<tr>
<td>Post</td>
<td>28.9</td>
<td>39.3</td>
<td>17.0</td>
<td>27.0</td>
</tr>
</tbody>
</table>
making quality and the utilization of resources. Differences due to interaction effects were noted prior to the experiential/didactic interventions, i.e., on the pre condition. They were dissimilar for the experiential and didactic groups and were not replicated during post testing.
CHAPTER V

DISCUSSION AND CONCLUSIONS

It was hypothesized that the experiential learning situation would produce greater gains in the effectiveness of group decision making than would didactic learning conditions. The initial, greater effectiveness of the didactic groups in group problem solving, and final gains in the decision making quality of the experiential group did not reach statistical significance. The data do suggest that the experiential group was at least able to "catch up" with the initial high decision making effectiveness of the didactic groups, while the latter realized no gains (an apparent loss) in decision making effectiveness.

It was also found that decision making effectiveness is facilitated by homogeneous grouping of hi and lo externals. Based upon the behaviors which have previously been found to differentiate hi and lo externals, it was earlier speculated that the hi's would be most and lo's least superior in the utilization of resources. However, in contradiction, pre-data suggest that both hi's and lo's effectively utilize resources, more so than do the mixed groups.

A further inspection of Table 7 reveals the apparent, if not significant, differences between pre and post decision making effectiveness for hi, lo and mixed groups. Examining at least,
the GDS\% (percent of gain from group error score of mean individual error score) finds that lo externals (LE P's) in the experimental condition remain relatively constant (pre GDS\% = 23.6 and post GDS\% = 26.3). The GDS\% of LE P's in the didactic condition, however, shows an apparently large "decrease" (pre GDS\% = 63.5 and post GDS\% = 11.0). Graphing the GDS\% for all groups, lo, hi, and mixed externality, suggests that differences in externality cause different gains in decision making effectiveness from pre to post conditions (see Figure 2). Unless one is to assume that D group LE P's decreased in skill level, the post-condition stability of the E group LE P's suggests an improvement in decision making effectiveness.

Therefore, it is suggested and further hypothesized that hi externals, while demonstrating the greatest ability to utilize resources and achieve effective decisions, have the least to gain from experiential learning toward improved group decision making. Conversely, LE P's in the experiential condition show the most gain in decision making effectiveness when compared to LE P's in the didactic condition.

**Limitations**

A number of factors may have contributed to the lack of "safety" with which conclusions can be made.

(1) It is difficult to specify the intervention (experiential) and didactic situations) in terms of quantifiable as well as qualifiable operations. The Hall and Williams (1970) study was able to
FIGURE 2

Pre and Post Interaction of Locus of Control Upon the Percent of Gain in Group Decision Making Effectiveness
use what is known as "instrumented" labs for their intervention. No "trainers" were used, but instead, identical "data" are "fed" to all treatment groups. For this study, one must rely on the "expertise" of the instructor to not only have some effect, but also a "positive" effect on a very large group (N = 60). Trainer "variables" of course, also make it difficult to compare interventions (Harrison, 1971). While this design used the same "trainer," differential reactions both of the trainer and of the classes are difficult to measure.

(2) The use of ad hoc groups during both pre and post conditions make it difficult to compare outcomes. The use of ad hoc groups were to control for practice effects from pre to post measures. Also, groups having worked together on tasks, exhibit what Hall and Williams (1966) term tradition effects. Such effects afford increments in decision making in the absence of training. Hall and Williams (1970) used ad hoc groups "since the ability of individuals to transfer the learning accruing from training from one group to another is a critical issue in testing the efficacy of training in group dynamics and since this ability may be confounded with group tradition effects . . ." While the major outcome effects are preserved, the use of ad hoc groups eliminate the direct comparison of the hi, lo, and mixed external groups from pre- to post-data.

(3) A major problem was realized when all groups were requested and essentially "taught" the method of consensus in the directions of the group task. Hall and Williams (1970) did not use this method but allowed groups to solve the problem any way they could. The
consensus method, therefore, controlled for different problem solving processes, but made it much more difficult to obtain decision making quality differences due to "sensitivity," listening, gatekeeping, or other "human relation" attitudes and skills.

(4) A major problem is the extent to which the two tasks (NASA and Occupational Prestige) were not identical. While the decision making processes were identical, the nature of the content required different knowledge areas for decision making resources. In addition, while both tasks required the individual to perceive previously established judgments, the previous judgments or "baselines" were established differently. The "correct" judgments for the NASA exercise were established by a consensual agreement of a "knowledge-elite," basing their judgments primarily upon technological knowledge. The Occupational Prestige exercise rankings were obtained by merely polling the judgments of a large, random sampling of the general population. One might speculate therefore that the Occupational Prestige task differed for example in the degree of ambiguity between a "technological" norm (NASA) and a "prestige" norm. This leads to the next issue.

(5) Related to the degree of ambiguity, is the extent to which the term "effectiveness" of decision making brings into play different degrees of value judgments. Wherever there is a greater degree of ambiguity, one might speculate increased reliance upon less operationally based beliefs, feelings, ideas and value connotations. Thus, in the absence of "real" absolutes, the term "effectiveness" (toward what goal or in which direction) will remain a debatable issue.
(6) A final problem is in attempting to realize significant changes in a design which relies on the cumulative effect of "spaced" learning sessions. Most of the research literature previously cited demonstrates perceived and actual behavior changes following intensive T Group designs or laboratory training which takes place over an entire weekend or one to two week session.

Suggestions for Further Study

It would be of interest to study the outcomes in terms of decision making for different interventions and intervention designs, e.g., classes taught democratically or autocratically; other experiential designs; laboratory (T Group) vs. experiential classroom groups; and personal growth vs. organizational development laboratory designs.

Since the task exercises are used as learning techniques in various lab designs it would be helpful if normative data regarding the specific instruments (e.g., NASA vs. Occupational Prestige) were accumulated.

Assuming the researcher could obtain large enough samples, controls could be devised for some of the problems indicated above. A double split half design for example could pre-test one half the sample, and give half of the pre-tested sample the "pre test" and the other half, the "post test." Other studies using pre and post designs could also incorporate both ad hoc and identical groups to assess direct changes due to classification (e.g., locus of control) and training intervention.
INSTRUCTIONS FOR THE I-E SCALE

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

Your answers to the items on this inventory are to be recorded on a separate answer sheet which is loosely inserted in the booklet. REMOVE THIS ANSWER SHEET NOW. Print your name and any other information requested by the examiner on the answer sheet, then finish reading these directions. Do not open the booklet until you are told to do so.

Please answer these items carefully but do not spend too much time on any one item. Be sure to find an answer for every choice. Find the number of the item on the answer sheet and black-in the space under the number 1 or 2 which you choose as the statement more true.

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

### TABLE B1

**Distribution of I-E Scale Scores for 575 Males and 605 Female Ohio State Elementary Psychology Students**

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<thead>
<tr>
<th>I-E Score</th>
<th>Males</th>
<th>Cum. %</th>
<th>Females</th>
<th>Cum. %</th>
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<td>1</td>
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<td>99.65</td>
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<td>3</td>
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<td>8</td>
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<table>
<thead>
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<th>N = 575; Mean = 8.15; SD = 3.58.</th>
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<tr>
<td>N = 605; Mean = 8.42; SD = 4.00.</td>
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APPENDIX B
APPENDIX B

INTERNAL VERSUS EXTERNAL CONTROL OF REINFORCEMENT

<table>
<thead>
<tr>
<th>TABLE 3</th>
<th>MEANS AND STANDARD DEVIATIONS OF I-E SCORES FOR SAMPLES OF SEVERAL POPULATIONS</th>
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<td>Testing Conditions</td>
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<tr>
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<td>Group</td>
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<td>Elementary psychology students (combined samples)</td>
<td>Experimental</td>
</tr>
<tr>
<td>Elementary psychology students (combined samples)</td>
<td>Combined</td>
</tr>
<tr>
<td>Kansas State University</td>
<td>Group</td>
</tr>
<tr>
<td>Elementary psychology students</td>
<td>Experimental</td>
</tr>
<tr>
<td>Elementary psychology students</td>
<td>Combined</td>
</tr>
<tr>
<td>University of Connecticut</td>
<td>Group</td>
</tr>
<tr>
<td>Elementary psychology students</td>
<td>Experimental</td>
</tr>
<tr>
<td>Elementary psychology students</td>
<td>Combined</td>
</tr>
<tr>
<td>Florida State University</td>
<td>Group</td>
</tr>
<tr>
<td>Negro students, psychology classes</td>
<td>Experimental</td>
</tr>
<tr>
<td>Peace Corps trainees (three programs combined)</td>
<td>Group</td>
</tr>
<tr>
<td>Peace Corps trainees (three programs combined)</td>
<td>Assessment</td>
</tr>
<tr>
<td>Peace Corps trainees (three programs combined)</td>
<td>Combined</td>
</tr>
<tr>
<td>Prisoners, age 16-26</td>
<td>Individual</td>
</tr>
<tr>
<td>5th grade plus reading</td>
<td>Experiment (?)</td>
</tr>
<tr>
<td>Columbus, Ohio</td>
<td>Small groups (3-12)</td>
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<tr>
<td>12th grade, college applicants</td>
<td>Experimental</td>
</tr>
<tr>
<td>12th grade, college applicants</td>
<td>Combined</td>
</tr>
<tr>
<td>National stratified sample, Purdue opinion poll</td>
<td>Various</td>
</tr>
<tr>
<td>10th, 11th, and 12th grades</td>
<td></td>
</tr>
<tr>
<td>15-year-old subjects from Boston area</td>
<td>Individual</td>
</tr>
<tr>
<td>15-year-old subjects from Boston area</td>
<td>Combined</td>
</tr>
</tbody>
</table>

* Personal communication.
APPENDIX C
I-E SCALE

Instructions

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

To record your answers, merely circle (a) or (b) from each of the 29 items. Please answer these items carefully but do not spend too much time on any one item. Be sure to find an answer for every choice.

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

1) a. Children get into trouble because their parents punish them too much.
b. The trouble with most children nowadays is that their parents are too easy with them.
2) a. Many of the unhappy things in people’s lives are partly due to bad luck.
b. People’s misfortunes result from the mistakes they make.
3) a. One of the major reasons why we have wars is because people don’t take enough interest in politics.
b. There will always be wars, no matter how hard people try to prevent them.
4) a. In the long run people get the respect they deserve in this world.
b. Unfortunately, an individual’s worth often passes unrecognized no matter how hard he tries.
5) a. The idea that teachers are unfair to students is nonsense.
b. Most students don’t realize the extent to which their grades are influenced by accidental happenings.
6) a. Without the right breaks one cannot be an effective leader.
b. Capable people who fail to become leaders have not taken advantage of their opportunities.
7) a. No matter how hard you try some people just don’t like you.
b. People who can’t get others to like them don’t understand how to get along with others.
8) a. Heredity plays the major role in determining one’s personality.
b. It is one’s experiences in life which determine what they’re like.
9) a. I have often found that what is going to happen will happen.
b. Trusting to fate has never turned out as well for me as making a decision to take a definite course of action.
10) a. In the case of the well prepared student there is rarely if ever such a thing as an unfair test.
b. Many times exam questions tend to be so unrelated to course work that studying is really useless.
11) a. Becoming a success is a matter of hard work, luck has little or nothing to do with it.
b. Getting a good job depends mainly on being in the right place at the right time.
12) a. The average citizen can have an influence in government decisions.
b. This world is run by the few people in power, and there is not much the little guy can do about it.

13) a. When I make plans, I am almost certain that I can make them work.
b. It is not always wise to plan too far ahead because many things turn out to be a matter of good or bad fortune anyhow.

14) a. There are certain people who are just no good.
b. There is some good in everybody.

15) a. In my case getting what I want has little or nothing to do with luck.
b. Many times we might just as well decide what to do by flipping a coin.

16) a. Who gets to be the boss often depends on who was lucky enough to be in the right place first.
b. Getting people to do the right thing depends upon ability, luck has little or nothing to do with it.

17) a. As far as world affairs are concerned, most of us are the victims of forces we can neither understand, nor control.
b. By taking an active part in political and social affairs the people can control world events.

18) a. Most people don’t realize the extent to which their lives are controlled by accidental happenings.
b. There really is no such thing as "luck."

19) a. One should always be willing to admit mistakes.
b. It is usually best to cover up one’s mistakes.

20) a. It is hard to know whether or not a person really likes you.
b. How many friends you have depends upon how nice a person you are.

21) a. In the long run the bad things that happen to us are balanced by the good ones.
b. Most misfortunes are the result of lack of ability, ignorance, laziness, or all three.

22) a. With enough effort we can wipe out political corruption.
b. It is difficult for people to have much control over the things politicians do in office.

23) a. Sometimes I can’t understand how teachers arrive at the grades they give.
b. There is a direct connection between how hard I study and the grades I get.

24) a. A good leader expects people to decide for themselves what they should do.
b. A good leader makes it clear to everybody what their jobs are.

25) a. Many times I feel that I have little influence over the things that happen to me.
b. It is impossible for me to believe that chance or luck plays an important role in my life.

26) a. People are lonely because they don’t try to be friendly.
b. There’s not much use in trying too hard to please people, if they like you, they like you.

27) a. There is too much emphasis on athletics in high school.
b. Team sports are an excellent way to build character.

28) a. What happens to me is my own doing.
b. Sometimes I feel that I don’t have enough control over the direction my life is taking.

29) a. Most of the time I can’t understand why politicians behave the way they do.
b. In the long run the people are responsible for bad government on a national as well as on a local level.
APPENDIX D
### The I-E Scale with Correlations of Each Item with Total Score, Excluding That Item

<table>
<thead>
<tr>
<th>Item</th>
<th>200 M</th>
<th>200 F</th>
<th>400 M + F</th>
</tr>
</thead>
<tbody>
<tr>
<td>1a. Children get into trouble because their parents punish them too much.</td>
<td></td>
<td></td>
<td>(Filler)</td>
</tr>
<tr>
<td>b. The trouble with most children nowadays is that their parents are too easy with them.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2a. Many of the unhappy things in people's lives are partly due to bad luck.</td>
<td>.265</td>
<td>.250</td>
<td>.260</td>
</tr>
<tr>
<td>b. People's misfortunes result from the mistakes they make.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3a. One of the major reasons why we have wars is because people don't take enough interest in politics.</td>
<td>.214</td>
<td>.147</td>
<td>.182</td>
</tr>
<tr>
<td>b. There will always be wars, no matter how hard people try to prevent them.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4a. In the long run people get the respect they deserve in this world.</td>
<td>.238</td>
<td>.344</td>
<td>.269</td>
</tr>
<tr>
<td>b. Unfortunately, an individual's worth often passes unrecognized no matter how hard he tries.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5a. The idea that teachers are unfair to students is nonsense.</td>
<td>.230</td>
<td>.131</td>
<td>.179</td>
</tr>
<tr>
<td>b. Most students don't realize the extent to which their grades are influenced by accidental happenings.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6a. Without the right breaks one cannot be an effective leader.</td>
<td>.345</td>
<td>.299</td>
<td>.319</td>
</tr>
<tr>
<td>b. Capable people who fail to become leaders have not taken advantage of their opportunities.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7a. No matter how hard you try some people just don't like you.</td>
<td>.200</td>
<td>.262</td>
<td>.229</td>
</tr>
<tr>
<td>b. People who can't get others to like them don't understand how to get along with others.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8a. Heredity plays the major role in determining one's personality.</td>
<td></td>
<td></td>
<td>(Filler)</td>
</tr>
<tr>
<td>b. It is one's experiences in life which determine what they're like.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9a. I have often found that what is going to happen will happen.</td>
<td>.152</td>
<td>.172</td>
<td>.164</td>
</tr>
<tr>
<td>b. Trusting to fate has never turned out as well for me as making a decision to take a definite course of action.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10a. In the case of the well prepared student there is rarely if ever such a thing as an unfair test.</td>
<td>.227</td>
<td>.252</td>
<td>.238</td>
</tr>
<tr>
<td>b. Many times exam questions tend to be so unrelated to course work that studying is really useless.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11a. Becoming a success is a matter of hard work, luck has little or nothing to do with it.</td>
<td>.391</td>
<td>.215</td>
<td>.301</td>
</tr>
<tr>
<td>b. Getting a good job depends mainly on being in the right place at the right time.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12a. The average citizen can have an influence in government decisions.</td>
<td>.313</td>
<td>.222</td>
<td>.265</td>
</tr>
<tr>
<td>b. This world is run by the few people in power, and there is not much the little guy can do about it.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13a. When I make plans, I am almost certain that I can make them work.</td>
<td>.285</td>
<td>.285</td>
<td>.271</td>
</tr>
<tr>
<td>b. It is not always wise to plan too far ahead because many things turn out to be a matter of good or bad fortune anyhow.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14a. There are certain people who are just no good.</td>
<td></td>
<td></td>
<td>(Filler)</td>
</tr>
<tr>
<td>b. There is some good in everybody.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Item</td>
<td>Biserial item correlations</td>
<td>200 M</td>
<td>200 F</td>
</tr>
<tr>
<td>------</td>
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</tr>
<tr>
<td>15.a. In my case getting what I want has little or nothing to do with luck.</td>
<td>.369</td>
<td>.209</td>
<td>.288</td>
</tr>
<tr>
<td>b. Many times we might just as well decide what to do by flipping a coin.</td>
<td>.295</td>
<td>.318</td>
<td>.307</td>
</tr>
<tr>
<td>16.a. Who gets to be the boss often depends on who was lucky enough to be in the right place first.</td>
<td>.313</td>
<td>.407</td>
<td>.357</td>
</tr>
<tr>
<td>b. Getting people to do the right thing depends upon ability, luck has little or nothing to do with it.</td>
<td>.255</td>
<td>.307</td>
<td>.271</td>
</tr>
<tr>
<td>17.a. As far as world affairs are concerned, most of us are the victims of forces we can neither understand, nor control.</td>
<td>.108</td>
<td>.197</td>
<td>.152</td>
</tr>
<tr>
<td>b. By taking an active part in political and social affairs the people can control world events.</td>
<td>.226</td>
<td>.224</td>
<td>.227</td>
</tr>
<tr>
<td>18.a. Most people don't realize the extent to which their lives are controlled by accidental happenings.</td>
<td>.258</td>
<td>.362</td>
<td>.310</td>
</tr>
<tr>
<td>b. There really is no such thing as &quot;luck.&quot;</td>
<td>(Filler)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>19.a. One should always be willing to admit mistakes.</td>
<td>.521</td>
<td>.440</td>
<td>.480</td>
</tr>
<tr>
<td>b. It is usually best to cover up one's mistakes.</td>
<td>(Filler)</td>
<td></td>
<td></td>
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<td>20.a. It is hard to know whether or not a person really likes you.</td>
<td>.179</td>
<td>.227</td>
<td>.195</td>
</tr>
<tr>
<td>b. How many friends you have depends upon how nice a person you are.</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>21.a. In the long run the bad things that happen to us are balanced by the good ones.</td>
<td>.331</td>
<td>.149</td>
<td>.238</td>
</tr>
<tr>
<td>b. Most misfortunes are the result of lack of ability, ignorance, laziness, or all three.</td>
<td>.004</td>
<td>.211</td>
<td>.109</td>
</tr>
<tr>
<td>22.a. With enough effort we can wipe out political corruption.</td>
<td>.275</td>
<td>.248</td>
<td>.255</td>
</tr>
<tr>
<td>b. It is difficult for people to have much control over the things politicians do in office.</td>
<td>(Filler)</td>
<td></td>
<td></td>
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<td>23.a. Sometimes I can't understand how teachers arrive at the grades they give.</td>
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<td>.310</td>
<td>.480</td>
</tr>
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<td>b. There is a direct connection between how hard I study and the grades I get.</td>
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<td>24.a. A good leader expects people to decide for themselves what they should do.</td>
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<td></td>
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<td>b. It is impossible for me to believe that chance or luck plays an important role in my life.</td>
<td>(Filler)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>26.a. People are lonely because they don't try to be friendly.</td>
<td>.179</td>
<td>.227</td>
<td>.195</td>
</tr>
<tr>
<td>b. There's not much use in trying too hard to please people, if they like you, they like you.</td>
<td>(Filler)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>27.a. There is too much emphasis on athletics in high school.</td>
<td>.331</td>
<td>.149</td>
<td>.238</td>
</tr>
<tr>
<td>b. Team sports are an excellent way to build character.</td>
<td>(Filler)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>28.a. What happens to me is my own doing.</td>
<td>.004</td>
<td>.211</td>
<td>.109</td>
</tr>
<tr>
<td>b. Sometimes I feel that I don't have enough control over the direction my life is taking.</td>
<td>(Filler)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>29.a. Most of the time I can't understand why politicians behave the way they do.</td>
<td>.313</td>
<td>.209</td>
<td>.288</td>
</tr>
<tr>
<td>b. In the long run the people are responsible for bad government on a national as well as on a local level.</td>
<td>(Filler)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note.—Score is number of underlined items.
15.a. In my case getting what I want has little or nothing
to do with luck.
   b. Many times we might just as well decide what to do by
      flipping a coin.

16.a. Who gets to be the boss often depends on who was
      lucky enough to be in the right place first.
   b. Getting people to do the right thing depends upon
      ability, luck has little or nothing to do with it.

17.a. As far as world affairs are concerned, most of us are
      the victims of forces we can neither understand, nor
      control.
   b. By taking an active part in political and social affairs
      the people can control world events.

18.a. Most people don't realize the extent to which their
      lives are controlled by accidental happenings.
   b. There really is no such thing as "luck."

19.a. One should always be willing to admit mistakes.
   b. It is usually best to cover up one's mistakes.

20.a. It is hard to know whether or not a person really likes
      you.
   b. How many friends you have depends upon how nice a
      person you are.

21.a. In the long run the bad things that happen to us are
      balanced by the good ones.
   b. Most misfortunes are the result of lack of ability,
      ignorance, laziness, or all three.

22.a. With enough effort we can wipe out political corruption.
   b. It is difficult for people to have much control over the
      things politicians do in office.

23.a. Sometimes I can't understand how teachers arrive at
      the grades they give.
   b. There is a direct connection between how hard I study
      and the grades I get.

24.a. A good leader expects people to decide for themselves
      what they should do.
   b. A good leader makes it clear to everybody what their
      jobs are.

25.a. Many times I feel that I have little influence over
      the things that happen to me.
   b. It is impossible for me to believe that chance or luck
      plays an important role in my life.

26.a. People are lonely because they don't try to be friendly.
   b. There's not much use in trying too hard to please
      people, if they like you, they like you.

27.a. There is too much emphasis on athletics in high school.
   b. Team sports are an excellent way to build character.

28.a. What happens to me is my own doing.
   b. Sometimes I feel that I don't have enough control over
      the direction my life is taking.

29.a. Most of the time I can't understand why politicians
      behave the way they do.
   b. In the long run the people are responsible for bad govern-
      ment on a national as well as on a local level.

Note.—Score is number of underlined items.
APPENDIX E

PASS EXERCISE INDIVIDUAL WORKSHEET

INSTRUCTIONS: You are a member of a space crew originally scheduled to rendezvous with a mother ship on the lighted surface of the moon. Due to mechanical difficulties, however, your ship was forced to land at a spot some 200 miles from the rendezvous point. During landing, much of the equipment aboard was damaged, and, since survival depends on reaching the mother ship, the most critical items available must be chosen for the 200-mile trip. Below are listed the 15 items left intact and undamaged after landing. Your task is to rank order them in terms of their importance to your crew in allowing them to reach the rendezvous point. Place the number 1 by the most important item, the number 2 by the second most important, and so on, through number 15, the least important.

15. Box of matches
14. Food concentrate
13. 50 feet of nylon rope
12. Parachute silk
11. Portable heating unit
10. Two .45 calibre pistols
9. One case of dehydrated Pet milk
8. Two 100-lb. tanks of oxygen
7. Stellar map (of the moon's constellation)
6. Life raft
5. Magnetic compass
4. 5 gallons of water
3. Signal flares
2. First aid kit containing injection needles
1. Solar-powered FM receiver-transmitter
GROUP WORKSHEET

INSTRUCTIONS: This is an exercise in group decision-making. Your group is to employ the method of Group Consensus in reaching its decision. This means that the ranking of each of the 15 survival items must be agreed upon by each group member before it becomes part of the group decision. Consensus is difficult to reach. Therefore, not every ranking will meet with everyone's complete approval. Try, as a group, to make each ranking one with which all group members can at least partially agree. Here are some guides to use in reaching consensus:

1. Avoid arguing for your own individual judgments. Approach the task on the basis of logic.

2. Avoid changing your mind only in order to reach agreement and avoid conflict. Support only solutions with which you are able to agree somewhat, at least.

3. Avoid conflict reducing techniques such as majority vote, averaging, or trading in reaching your decision.

4. View differences of opinion as helpful rather than as a hindrance in decision-making.

____ Box of matches
____ Food concentrate
____ 50 feet of nylon rope
____ Parachute silk
____ Two .45 calibre pistols
____ One case of dehydrated Pet milk
____ Two 100-lb. tanks of oxygen
____ Stellar map (of moon's constellation)
____ Life raft
____ Magnetic compass
____ Five gallons of water
____ Signal flares
____ First aid kid containing injection needles
____ Solar-powered FM receiver-transmitter
____ Portable heating unit
APPENDIX F

OCCUPATIONAL PRESTIGE RANKING WORKSHEET

Instructions: Rank the following occupations according to the prestige which is attached to them in the United States. Place a "1" in front of the occupation which you feel to be most prestigious, etc., all the way to '15,' least prestigious.

<table>
<thead>
<tr>
<th>Rank</th>
<th>Occupation</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>Author of novels</td>
</tr>
<tr>
<td>14</td>
<td>Newspaper columnist</td>
</tr>
<tr>
<td>13</td>
<td>Policeman</td>
</tr>
<tr>
<td>12</td>
<td>Banker</td>
</tr>
<tr>
<td>11</td>
<td>U.S. Supreme Court Justice</td>
</tr>
<tr>
<td>10</td>
<td>Lawyer</td>
</tr>
<tr>
<td>9</td>
<td>Undertaker</td>
</tr>
<tr>
<td>8</td>
<td>State governor</td>
</tr>
<tr>
<td>7</td>
<td>Sociologist</td>
</tr>
<tr>
<td>6</td>
<td>Scientist</td>
</tr>
<tr>
<td>5</td>
<td>Public school teacher</td>
</tr>
<tr>
<td>4</td>
<td>Dentist</td>
</tr>
<tr>
<td>3</td>
<td>Psychologist</td>
</tr>
<tr>
<td>2</td>
<td>College Professor</td>
</tr>
<tr>
<td></td>
<td>Physician</td>
</tr>
</tbody>
</table>
Instructions: This is an exercise in group decision-making. Your group is to employ the method of Group Consensus in reaching its decision. This means that the ranking of each occupation must be agreed upon by each group member before it becomes a part of the group decision. Consensus is difficult to reach. Therefore, not every ranking will meet with everyone's complete approval. Try, as a group, to make each ranking one with which all group members can at least partially agree. Here are some guides to use in reaching consensus:

1. Avoid arguing for your own individual judgments. Approach the task on the basis of logic.

2. Avoid changing your mind only in order to reach agreement and avoid conflict. Support only solutions with which you are able to agree somewhat, at least.

3. Avoid "conflict reducing" techniques such as majority vote, averaging, or trading in reaching your decision.

4. View differences of opinion as helpful rather than as a hindrance in decision-making.

____ Author of novels
____ Newspaper columnist
____ Policeman
____ Banker
____ U.S. Supreme Court Justice
____ Lawyer
____ Undertaker
____ State governor
____ Sociologist
____ Scientist
____ Public School Teacher
____ Dentist
____ Psychologist
____ College Professor
____ Physician
APPENDIX G
APPENDIX G

QUESTIONNAIRE

Your help is requested in a research investigation of decision making. Please answer the following questions. Your individual questionnaires will be essentially anonymous, and all information will remain confidential.

1. Year in College: Sophomore, Junior, Senior, Graduate Student: 1st yr., 2nd yr., beyond 2nd yr.

2. Degrees obtained: H.S., B.A., etc.

3. Age: (years, months)

4. Sex: Male, Female

5. Undergraduate Major, Minor, Graduate Major, if minor

6. Undergraduate Grade Point Average, Graduate Grade Point Average

7. If professionally employed: Occupation, How Long?

8. Workshops attended (indicate kind, when, where, sponsoring agency):
   Human Relations Laboratories: (number, length, sponsoring agency) (Encounter, Sensitivity Training)

9. Past experience in decision making: (e.g., employment experience, administrative functions, committee work, etc.)
APPENDIX H

TEST SAMPLES
Instructions

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

To record your answers, merely circle (a) or (b) from each of the 29 items. Please answer these items carefully but do not spend too much time on any one item. Be sure to find an answer for every choice.

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

1) a. Children get into trouble because their parents punish them too much. (b) The trouble with most children nowadays is that their parents are too easy with them.
2) a. Many of the unhappy things in people's lives are partly due to bad luck. (b) People's misfortunes result from the mistakes they make.
3) a. One of the major reasons why we have wars is because people don't take enough interest in politics. (b) There will always be wars, no matter how hard people try to prevent them.
4) a. In the long run people get the respect they deserve in this world. (b) Unfortunately, an individual's worth often passes unrecognized no matter how hard he tries.
5) a. The idea that teachers are unfair to students is nonsense. (b) Most students don't realize the extent to which their grades are influenced by accidental happenings.
6) a. Without the right breaks one cannot be an effective leader. (b) Capable people who fail to become leaders have not taken advantage of their opportunities.
7) a. No matter how hard you try some people just don't like you. (b) People who can't get others to like them don't understand how to get along with others.
8) a. Heredity plays the major role in determining one's personality. (b) It is one's experiences in life which determine what they're like.
9) a. I have often found that what is going to happen will happen. (b) Trusting to fate has never turned out as well for me as making a decision to take a definite course of action.
10) a. In the case of the well prepared student there is rarely if ever such a thing as an unfair test. (b) Many times exam questions tend to be so unrelated to course work that studying is really useless.
11) a. Becoming a success is a matter of hard work, luck has little or nothing to do with it. (b) Getting a good job depends mainly on being in the right place at the right time.
12) a. The average citizen can have an influence in government decisions.
b. This world is run by the few people in power, and there is not much the little guy can do about it.

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14) a. There are certain people who are just no good.
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17) a. As far as world affairs are concerned, most of us are the victims of forces we cannot understand, nor control.
b. By taking an active part in political and social affairs the people can control world events.

18) a. Most people don't realize the extent to which their lives are controlled by accidental happenings.
b. There really is no such thing as "luck."

19) a. One should always be willing to admit mistakes.
b. It is usually best to cover up one's mistakes.

20) a. It is hard to know whether or not a person really likes you.
b. How many friends you have depends upon how nice a person you are.

21) a. In the long run the bad things that happen to us are balanced by the good ones.
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22) a. With enough effort we can wipe out political corruption.
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3. Avoid "conflict reducing" techniques such as majority vote, averaging or trading in reaching your decision.
4. View differences of opinion as helpful rather than as a hindrance in decision-making.
INSTRUCTIONS: You are a member of a space crew originally scheduled to rendezvous with another ship on the lighted surface of the moon. Due to mechanical difficulties, however, your ship was forced to land at a spot some 200 miles from the rendezvous point. During landing, much of the equipment aboard was damaged, and, since survival depends on reaching the mother ship, the most critical items available must be chosen for the 200-mile trip. Below are listed the 15 items left intact and undamaged after landing. Your task is to rank order them in terms of their importance to your crew in allowing them to reach the rendezvous point. Place the number 1 by the most important item, the number 2 by the second most important, and so on, through number 15, the least important.

1. Two .45 calibre pistols
2. One case of dehydrated Pet milk
3. 5 gallons of water
4. Life raft
5. Sun flare
6. Life jacket
7. First aid kit containing injection needles
8. Two 100-lb. tanks of oxygen
9. Two 100-lb. tanks of water
10. Two 100-lb. tanks of oxygen
11. Two .45 calibre pistols
12. One case of dehydrated Pet milk
13. Portable heating unit
14. Food concentrate
15. Box of matches
INSTRUCTIONS: This is an exercise in group decision-making. Your group is to employ the method of Group Consensus in reaching its decision. This means that the ranking of each of the 15 survival items must be agreed upon by each group member before it becomes part of the group decision. Consensus is difficult to reach. Therefore, not every ranking will meet with everyone's complete approval. Try, as a group, to make each ranking one with which all group members can at least partially agree. Here are some guides to use in reaching consensus:

1. Avoid arguing for your own individual judgments. Approach the task on the basis of logic.

2. Avoid changing your mind only in order to reach agreement and avoid conflict. Support only solutions with which you are able to agree somewhat, at least.

3. Avoid conflict reducing techniques such as majority vote, averaging, or trading in reaching your decision.

4. View differences of opinion as helpful rather than as a hindrance in decision-making.

GROUP WORKSHEET

15 Box of matches
1 Food concentrate
6 50 feet of nylon rope
9 Parachute silk
13 Two .45 caliber pistols
10 One case of dehydrated Pet milk
1 Two 100-lb. tanks of oxygen
4 Stellar map (of moon's constellation)
1 Life raft
12 Magnetic compass
2 Five gallons of water
11 Signal flares
7 First aid kit containing injection needles
5 Solar-powered FM receiver-transmitter
8 Portable heating unit
Primary Sources


Secondary References


