A COMPARATIVE ANALYSIS OF ALTERNATIVE INNOVATIVE LEARNING ENVIRONMENTS

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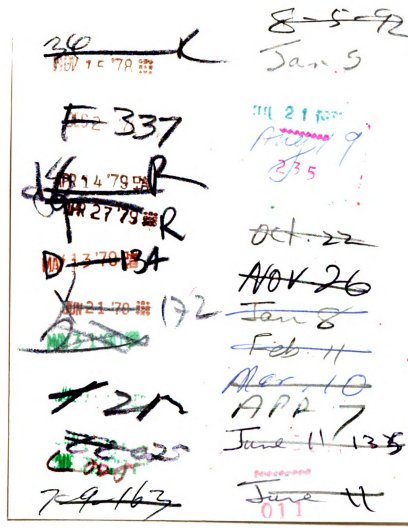

ABSTRACT

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This experiment developed and evaluated two alternative educational models which utilized different role requirements for both students and teachers. Subjects were randomly assigned to either a Small Group subsystem composed of 30 subjects randomly assigned to 6 groups, an AVT subsystem (audio-visual tutorial) with n = 26, or a Control subsystem with n = 26. It was hypothesized that the experimental groups would be superior to the control in achievement, student satisfaction, locus of control and other measures. Analysis of variance and covariance indicated the Small Group subsystem significantly more effective ($p < .05$) than the other conditions in 6 of 11 achievement measures, 2 of 3 satisfaction measures, 2 of 4 motivation measures cooperation with group goals, and identification with groups. The AVT subsystem was not significant.

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By

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CHAPTER I

THE PROBLEM

Introduction

During the past ten years many educational institutions often experienced tensions, turmoil, and controversies between dissident groups over critical issues facing both the educational community as well as society at large. In the late 1960's college campuses were frequently the scene of unrest as students voiced their dissatisfaction with the Viet Nam War, national priorities, or the more immediate priorities and policies of the colleges themselves. The discontentment often took the form of confrontation between students and administration with demands being made for the universities' greater responsiveness to the myriad of social problems as well as the need for educational change. Iterative claims by students commonly included demands for representation in administering educational policies, curriculum more relevant to their perceived needs, and some control over class content and how student assessments were made.

Concurrently, significant changes were also happening at the secondary and elementary level. The foremost important issue facing many schools

was the demand for equal educational opportunity for the many disadvantaged students traditionally excluded from the main stream of society. Struggles were fought both in the classrooms and courtrooms to open the doors of historically segregated institutions. Minorities from all segments of the country were demanding greater access and control over those educational/social processes from which they were habitually barred. They were demanding the right to close the gap in achievement and other successful school experiences which were directly related to the educational opportunities denied them. These were the same members of our society who were victimized most severely by other discriminatory practices.

This is illustrated in the interrelated problems of educational failure, school drop-outs, and juvenile delinquency. Studies have shown that achievement differences between students from varying economic and social backgrounds increase over time, as lower income and non-white students fall progressively farther beyond. As the gap continued to increase, the victims of unequal opportunity experienced repeated educational failures destroying any incentives to continue in the educational process.

Another school experience that is often associated with delinquency is the feeling that the educational system is fundamentally irrelevant to later life. Because school tasks, demands, and rewards are seen by many youth as having no payoff in the future, the school career becomes

meaningless and empty. Schools may augment feelings of alienation by utilizing textbooks and other curriculum materials which may have little relevance to the experiences, language style and skills of its students.

Another problem may be the use of teaching methods and techniques that are geared to the background, skills, and deficiencies of particular groups of students but which might be inappropriate for other groups. Partly as a result of inadequate understanding or inappropriate control or instruction technique, some teachers have been found to spend as much as 80 percent of their classroom time dealing with non-academic tasks such as exerting classroom control.

For some students the defeating helix becomes increasingly clear: lack of meaningful and successful educational experiences lead to dropping out of school which usually means being unemployed and it is this segment most prone to be active in delinquent acts.

While the overall dropout rate has been slightly declining between 1960-1970, the rate of dropouts for minority youth in the 16-17 age range is nearly twice that of white youth in the equivalent age group 32% and 18% respectively. High school dropouts are especially affected by unemployment rates, as reflected in the fact that 32% of all high school dropouts between 16 and 24 were unemployed in 1963 and the rate increased to 52% in 1970 (Bureau of Census, 1970).

Some studies report that school dropouts have over ten times higher delinquency rates than high school graduates. One study of over 2,200 inmate paroled from Michigan prisons in 1971 showed that 87% did not graduate from high school. Of that same group 61% were first arrested before their seventeenth birthday. One of several common denominators among the current inmate population in Michigan prisons is the lack of a high school education, 88% come to prison without a diploma. (Michigan Department of Corrections, 1976)

Concomitant to the concern for those who have failed and dropped out of school or are otherwise disaffected is the concern for those students who are staying in them but reportedly are achieving at lower levels.

The number of high school seniors scoring at high levels on the Scholastic Aptitude Tests has dropped dramatically since the mid-1966s. Between 1967 and 1974, the number of high school juniors and seniors scoring above 700 on the verbal S.A.T. test fell 50%. The number of students scoring above 600 fell by over 33%. The average S.A.T. scores in 1975 declined from the previous year by 10 points on the verbal section and 8 points on the mathematical portion. Although the S.A.T. scores had been declining steadily since 1964, the 1975 averages represented the largest drop in the past 12 years. The average verbal score in 1976 was down 3 points from the previous year while the average

in the mathematical section was the same as in 1975. Since 1972 the average verbal S.A.T. score has declined 22 points and the mathematical scores have dropped 12 points. There is some evidence that the S.A.T. scores of students in 14 of the 15 largest cities in the U.S. may be declining at even a faster rate.

A plethora of changes and modifications in the educational network, from elementary to college level, have been recommended in response to the various problems highlighted above.

Nearly ten years ago the Presidential Task Force on Juvenile Delinquency recommended that students be given significant voice in educational planning and decision-making; that students be given some share in the experience of authority which is meaningful; that the instructional process be altered to reflect the relevant needs of students (1967). It was pointed out that students are generally forced to take a passive role in the teacher-learning process and are given little opportunity to become actively and meaningfully involved. Other researchers have also proposed altering the traditional classroom role structure with suggestions ranging from the use of peer tutors to use of programmed instruction. The varietal recommendations are based on the generally held belief that one of the most effective ways to respond to potential dropouts and other disaffected students is to actively engage them in the educational process. This

principle underlies proposed modifications in school instruction to place a greater emphasis on the active rather than passive role in the learning process. It is believed that involvement of students in the instructional process can have a considerable positive effect on achievement, student satisfaction and consequently on their interest and commitment to education.

All classrooms across the country can be considered social environments, each with similarities and differences not unlike those found in other settings throughout our society. A classroom could be described, for example, in terms of its role definitions, communication patterns, group processes or many other social/psychological constructs just as easily as it might be defined in educational terms. Almost any survey of educational research conducted in the last ten years will reveal a focus on teaching and learning techniques in the context of considering the classroom as a social system. Studies reflect theoretical approaches which may vary from behavior modification and operant learning theory to the more humanistic position which serves as a framework for the "open classroom" (Silberman, 1970). Many divergent views have been set forth proposing the structures of a learning environment. There are those which clearly prescribe the rules, regulations, objectives and achievement levels for students as well as those which rely upon a more fluid classroom structure utilizing

alternative methods of learning and teaching techniques.

The orientation for this research study is derived from the experimental social model building methodology developed by George Fairweather and his associates (Fairweather, 1964, 1967). This method involves the identification of several possible alternative solutions to a particular social/educational problem, the subsequent development of subsystems utilizing the hypothesized alternative solutions, and the longitudinal comparison of these subsystems to evaluate their effectiveness according to a number of social change criteria. This research, therefore, does not represent a singular theory so much as it reflects an overall methodology concerned with the empirical comparisons of alternative subsystems.

Educational settings at most levels, be they secondary, or college have a number of characteristics in common. Perhaps the most notable is the social structure of the basic unit, the classroom. The traditional classroom is typically defined by very specific role functions for both the teacher and the student. In the most simplistic terms, the teacher's role is viewed as that of the provider of information while the student is the recipient. These roles are operationalized by the teacher lecturing and the students more or less listening. Certainly, there are often departures from this simplistic model that may take the form of group discussions, class projects, etc. but the fundamental superordinate-subordinate

nature of the teacher-student roles still prevails as the rule rather than the exception.

A role requirement of most teachers is to maximize the amount of information or subject material that is learned or acquired by students. A concurrent assumption often posited is that the more interesting the classroom experience the more students will learn about a given subject area. Little research has been conducted to even operationalize an "interesting classroom experience" much less to support the assumption. However, some deficiencies in the traditional classroom model have been defined: students' expressed dissatisfaction with their "powerless role" in learning; their desire for more active participation in the learning experience; utilization of more alternative methods of teaching and learning. In short, there is considerable reason to examine the social structure of the conventional classroom more closely and to propose alternative models which can be evaluated.

Purpose of the Study

The purpose of the study is to develop and evaluate the comparative effectiveness of alternative educational models which utilize different role requirements and behaviors for both student and teachers.

Subsystem I

The first experimental subsystem will combine social psychological principles of small group interaction as

as well as certain reinforcement strategies of behavior modification. It involves students interacting in a small peer group format with the peer group being the main instructional vehicle for this subsystem. Students discuss course topics, raise questions, and make decisions as a group in issues related to the subject material. The individual member of the group acts as both a teacher (imparting information) and a student (receiving information) depending upon his or her own specific needs as well as the needs of the other group members during the course of the experiment. Each group member is responsible for aiding and assisting the problems that their fellow group members encounter in learning different aspects of the subject material. For example, topic X might be well understood by group member A and not understood by member B, C, and D. Topic Y, on the other hand, may be understood by group member D and not by members A, B, and C. In each instance, the group members are to assist their peers in various topical problem areas. While one member might be functioning as a "teacher" in explaining one problem area to other members of the group, he or she might be a "student" for another area which is less understood and requires more explanation. In this subsystem the members function as a group and their performance is judged on a group contingency. For this model, the teacher's role is changed from that of a traditional lecturer and "sole source provider" to more of a facilitator and resource

person called upon by the group to answer certain questions, provide additional explanations, and make suggestions about the group performance.

Subsystem II

The second experimental subsystem utilizes a modified programmed instruction module. It is an audio-visual tutorial (AVT) program with individual carrels which provides each student with access to the subject material through a coordinated tape player and slide projector combined into a modified programmed instruction module. The distinguishing characteristic of this subsystem is the overt response required by the student to the multiple questions presented vis-a-vis the AVT. This model also allows the student to regulate the AVT according to the students' own rate of learning. It can be accelerated forward to different sections in the subject unit for those students who master a particular section quicker than others and it can be reversed for those students who wish to repeat certain material. This allows students to customize the instructional module to meet their individual needs. As in the first subsystem, the teacher's traditional role is modified to be that of a facilitator or a resource person. Since the AVT is designed to be a complete instructional unit by itself, the teacher's role is changed to that of answering specific questions, elaborating upon topics presented in the AVT, or suggesting further information which augments the AVT topics.

Subsystem III

The third subsystem is a control group for the other two experimental conditions. It represents the traditional classroom found in many schools throughout the country. The roles assumed are conventional. The teacher is the main provider of subject material by presenting a lecture on the same topics offered in the experimental conditions. The students are the recipient of the lectures by listening and taking notes. Formal rules, such as raising the hand when asking questions, serve to preserve the characteristic superordinate-subordinate roles often found in a classroom. Compared to the experimental subsystems, the students have a passive role in this educational setting. The teacher is essentially the "sole source provider" of information.

These subystems are designed to compare the effects of alternative student and teacher roles on student performance and interest. The primary social change outcome criteria are increased student performance and student interest.

Major Hypotheses

The major hypotheses are that the experimental subsystems when compared to the control subsystem will result in: higher achievement, greater student satisfaction, a greater sense of internal locus of control, and greater motivation.

A detailed list of the specific research hypotheses for each variable is presented in Chapter III.

Theoretical Background

The hypotheses for this study originate from research previously conducted in the fields of mental health and education. The first experimental subsystem was derived from pioneering work in community mental health. This involved the implementation of a small group ward in a mental hospital (Fairweather, 1964). The focus of the small group ward in that experiment differed from the usual mental health rehabilitation programs in that it was primarily concerned with the formation of functional small groups who performed on a continuous, autonomous basis within the context of the hospital ward. In that research project, rather than focusing on individual behavior and individual rehabilitation, the entire social structure on one of the hospital's wards was modified to accomodate the creation of reference group, their own peers. It was that group which became the basic unit to which the individual members belonged and had a well defined and established role; that role being substantially different from the traditionally subordinate passive role of a patient in a mental health hospital. The autonomous small group approach called for the peer group member to have active responsibilities both to himself and his group, to take an active participation in his own rehabilitation. In essence, the small group became the therapeutic treatment unit in the hospital instead of the individual patient; it was the major vehicle for self improvement and rehabilitation.

In this research, the basic premises of the small group ward were utilized in the classroom setting. Students assumed the roles of members of small groups, were to take an active part in deciding how class material was to be mastered, and their performance was judged primarily on a group basis. At each class session the individual students would meet with their own peer group and tackle the course material as a group effort. The members would divide the subject material among themselves according to the strengths and limitations of each member. Those students with mastery in one particular area would share that understanding through an explanation to the other members. This process would continue until the group as a whole reached a consensus that each of its members had a solid understanding of the subject matter.

While the small group ward study used outcome measures related to mental health rehabilitation, this basic model with its emphasis on increased decision-making, active participation, and shared responsibility, was adopted for an educational setting with achievement, student satisfaction, and other psychological/educational related variables as outcome measures.

The second subsystem find its theoretical framework grounded in research conducted by operant learning and behavior modification theorists (Skinner, 1968). Skinner's research has fully elaborated the principles of operant learning theory with its applicability to the educational

processes in general and programmed instruction in specific. An elementary proposition of both operant conditioning and programmed instruction is that a desired overt response is more likely to occur again if that response is reinforced or receives appropriate feedback (Skinner, 1953). The reinforcement of a correct response acts as a reward which increases the probability that the correct response will be repeated. An important characteristic of any programmed instruction technique is that it details the specific reinforcement contingencies for correct responses.

One argument used to support the use of programmed instruction is that it enables the students to progress at his or her own individual rate. Skinner (1964) contends that holding students together for instructional purposes in a class as a whole is probably the greatest inefficiency in our educational system.

Another argument used to support the use of programmed instruction is that the student must actively engage in overt behavior to obtain the desired reinforcements (de Gracia, et al., 1964). Programmed instruction strategies provide the contingencies needed to apply the principle "learning by doing." A similar argument states that programmed instruction and operant learning principles enables students to solve problems not by exercising some nebulus "mental ability" but rather by altering either the external situation or the relative probabilities of

parts of the students own response repertoire (Pressey, 1960). Both arguments of active participation through overt responses and individualizing the rate of responding and learning are congruent with the building of a subsystem designed to provide alternative roles, behaviors, and decision-making when compared to the traditional classroom format.

Although reinforcers can assume a variety of forms, in the case of a simple linear programmed instruction unit a correct answer to a programmed instruction unit or a correct answer to a programmed question serves as a reinforcer by assuming that the acquisition of the desired response is more inherently pleasing than the incorrect answer. The AVT subsystem in this research amounts to a modified programmed instruction module since it did not have the meticulously detailed branching sequences characteristic of a Skinnerian program. However, its combined audio and visual presentation of segmented subject material, carefully punctuated with key questions asked of the respondents at the end of each segment, constituted an individualized programmed learning technique. While structurally different from the small group subsystem, there are common conceptual elements in both. The alternative roles within the experimental subsystems are primarily characterized by more overt participation and increased decision-making on the part of students when contrasted to the more passive role within the conventional classroom set up.

In the small group model these factors are operationalized through the functions of the small groups. The learning-teaching role in those small groups require active participation by its members through questioning, answering, and explanation in the group meetings. The AVT model operationalizes these characteristics by requiring students to actively respond to programmed questions asked of them as well as self regulating their own rate of progress through the programmed units.

In contrast to the overt responses and active participation required in the experimental subsystems, the infrequent or even absence of question raising or answering often typifies the students' role in the conventional classroom format. Except at examination time, passivity and non-responsiveness is almost expected. It is generally assumed that the bulk of the students' effort takes place during periods of study outside the classroom. The teachers role of authority is clearly prescribed. The teacher is supposed to be the acknowledged authority both in reference to subject material and in class conduct. The lecture which is presented is often the primary source of information for the students and the teacher controls the content of the lectures. The third subsystem in this research is the control model and attempts to simulate these characteristics of a conventional classroom.

Overview

In Chapter II a detailed examination of the literature will be reviewed as it conceptually and empirically relates to the different subsystems. The use of small groups in mental health research as well as structural and functional characteristics of small groups will be examined both in the context of general group operations and academic achievement. The foundations, uses and effectiveness of programmed instructions and related individualized learning environments will be reviewed. Finally, research relevant to the comparison of different instructional modes will be reviewed.

Chapter III will include a discussion of the procedures, instruments, subjects, and statistical analyses used in this study.

Chapter IV will present the analyses of the relationships between the experimental and control subsystems as measured on multiple outcome criteria. The specific research hypotheses are also presented.

Chapter V will include the summary results and discussion of implications as well as limitations of this study.

CHAPTER II

REVIEW OF THE LITERATURE

This research project draws upon principles and research from a number of different disciplines. The development of the Small Group subsystem relies upon concepts based in organizational psychology and social psychology. The AVT subsystem uses principles in behavioral psychology and educational psychology. Both experimental models benefit from previous research in mental health, juvenile delinquency, and education.

Characteristics and Dynamics of Small Groups

There has been a great deal of research into the characteristics of small groups. For example, studies have focused on how groups are formed and why; the incentives operating to influence one to join a group; attributes which distinguish between a cohesive group and a non-cohesive group; roles of group members; characteristics of group performance and productivity; types of feedback necessary for certain levels of performance; roles and

association patterns within groups; distinctions between types of small groups such as task groups or social groups and many other social psychological features of small groups.

In studying a number of parameters of small group behavior, Cartwright and Zander (1968) list the following characteristics of a group's incentive value: a) attractiveness of group members, b) similarities among members (values, attitudes, beliefs), c) nature of group goals, d) type of interdependence among members, e) type of activities of the group, f) style of leadership in the group, g) opportunities to participate in decisions, and h) size of group.

Festinger et al., (1950) state that attractiveness of the group to its members and the amount of communication between the member and the group are major factors in maintaining group cohesion. The more attractive that belonging to the group appears to a member and the greater the communication among all members, the greater cohesion within the group. The cohesive group can perform tasks more efficiently than a disorganized, non-cohesive group.

There is also evidence that the performance of a task by a group is often superior to that of an individual.

In investigating the role small groups play when compared to the productivity of an individual, Zander (1971) found that people often work harder for small work teams

than they do for themselves. The small group is perceived as the worker's "home" within a larger organization. A number of other researchers have also provided evidence of the superior productivity of peer groups over individuals (Blau and Scott, 1963; Katz and Kahn, 1966; Smith, 1967).

The comparison of peer group task accomplishment to individual task accomplishment is a major focus of this current research. It appears that a small peer group is a social unit to which an individual can easily develop a frame of reference for one's identity in certain situations. When an entire group's performance is dependent upon the performance of each of its members, that peer interdependency apparently acts as a greater incentive toward influencing behavior than when one is working alone without peer group pressues. The mutual reliance upon each other amalgamates the individual member into a body capable of greater productivity. Individually, a member becomes more involved in the group's fate if rewards for the group's success will be equally shared and the flow of work requires that each member perform a part of the total task (Zander, 1971).

Another factor influencing a group's productivity is the feedback the group receives concerning its activities. Deutsch (1949) studied participants in a group who expected a unitary form of feedback. They developed more awareness of the interdependent relationship among

the group members and a strong desire for the group as a whole to do well on an assignment. Thomas (1957) concluded that group members are more willing to accept the interdepending relationships once members realize they will be judged as a group. When a reinforcement is perceived as coming to the entire group and not just certain individuals, members can more easily identify their role as a group member.

Glaser and Klaus (1966) studied contrasts in team performance when feedback was provided and when it was not. They found that when feedback stopped, the team performance deteriorated. Reintroduction of feedback caused performance to improve and the absence of feedback at a later time again resulted in deterioration of group performance. The researchers found that feedback on individual efforts did not cause improvement in a group's performance; feedback on the performance of the entire team was necessary for better output by the team.

In other research, Zander (1971) found that when subjects had an opportunity to receive feedback by comparing the performance of their own group with the scores of the other groups, they weighed the referent scores as well as their own units performance in selecting a future aspiration level. Jayaratne et al. (1974) found that a group's performance level was positively related to receiving feedback concerning their own group's performance as well as that of other competing groups.

Group performance and productivity are also a function of the types of goals or objectives which the group either sets for itself or has set for it. In goal-setting decisions, the group--like an individual--must often contend with two conflicting tendencies: the need for achievement and the fear of failure. When a group has a strong desire to succeed, the members tend to choose more realistic and attainable goals and to perform hard to achieve those goals. When group members have a strong desire to avoid failure, they tend to choose either very easy or very difficult goals and they may not work as hard to attain them.

In experimental groupings of high school boys given specified tasks, the researchers attempted to infuse a strong sense of unity into the experimental groups by telling them that their abilities and temperments were well-matched and by asking them to choose a group name for their team. Opposite tactics were used with the "weak" groups, whose members were addressed as individuals and who were told they did not match up well. The strong groups consistantly chose more realistic goals for their projects and performed better then less unified groups (Zander, 1971). This research indicated that when a group is treated as a group, such as being addressed as a group, enabling them to choose their own name, etc., a sense of unity is fostered which in turn helps promote productivity.

By increasing the responsibility for the accomplishment

of one's own group, the entire group experiences increased team spirit and desire for success (Zander, 1971). In an experiment, using 16 three-member groups of matched high school boys, the researchers assigned leadership positions for half of the group tasks to the one member of each group with high scores on individual motive to succeed; non-leadership positions were given to the member with high motive to avoid failure and to a third member with intermediate motive scales. A reward condition was set up for half the tasks and a cost condition for the other half. High achievers reported more tension in the cost condition where their personal needs for success clashed with the group need for avoiding failures; the failure avoiding subjects experienced greater tension during the reward condition tasks where their personal fear of failure conflicted with achieving group success.

Giving those members in the group who actually do the work more say about how much they do and how they do it places each of those members in a more central position in the group; in effect, transferring more responsibility for the group's success or failure to the individual (Zander, 1971).

In other research on group composition, Sanders, et al., (1964) hypothesized that groups composed of members representing a continuum of social activity (heterogeneous) would perform more adequately than groups comprised of more homogeneous activity (i.e., all low activity

or all high activity). Using a behavioral activity index, patients were given social activity scores over a two week period. The total distribution of these numbers was divided at the median and four experimental groups were randomly selected from above and below median groups to comprise the following four groups:

1. Homogeneous-high: all social activity scores above the median.
2. Heterogeneous-high: Two thirds of the scores above the median and one third below.
3. Heterogeneous-low: One third above the median and two thirds below the median.
4. Homogeneous-low: all scores below the median social activity score.

The staff at the hospital judged the heterogeneous-high to perform significantly better than the other groups, both in general performance and in problem-solving. It sought and received more information from the staff about its members which was seen as necessary for good problem-solving. This study also showed that negative and positive evaluations of group performance had a differential impact depending upon the composition and performance of the group. A positive evaluation of a group performing well helped maintain continued effective functioning. For a poorly performing group, the same positive evaluation did not result in any improvement. A negative evaluation of an adequately performing group seemed to demoralize the group and did not result in improvement. A negative evaluation of an ineffective group produced the opposite result; it

performed better the following week. This study clearly demonstrated that judgment from an authority figure substantially affected the performance of task groups. And that the groups' response to such judgment was dependent upon their past performance (Sanders, et al., 1964).

Other factors such as liking patterns within a group, sense of satisfaction with the group, and motivation are also correlated with activities of a group. Several theoretical analyses (Gronlind, 1959) and empirical studies (Sewell, Haller, and Straus, 1959, and Wilson, 1959) directly relate peer group processes to academic motivation and success of individual students.

Studies completed by Echelberger (1959), Lippitt and Gold (1959), Van Egmond (1960), and Sears (1959) on elementary school groups, as well as studies by Elkins (1959) and Schmuck (168) on high school youth indicate that peer liking patterns are associated with a student's classroom, that over time these associations achieve stability through formal and informal small group formation and that having low liking status in a well defined peer group is associated both with negative characteristics of mental health and low utilization of academic abilities (Schmuck, 1963). This relationship appears to hold for both individual and group performance. The more group members with a low liking status, the lower the performance of the entire group both in academic and non-academic achievement tasks (Noblit, 1973).

A study which is very relevant to the Small Group subsystem in this research investigated group performance and student satisfaction in a psychology class (Zander, 1969). The students were asked to form groups of five to seven members. Each group was to select and study an established organization in the local community and to write a report about that organization in accordance with a mimeographed set of instructions. Each was required, in addition, to prepare a report of its own group's procedures while accomplishing the assignemnt. The grade given to the written report, and that each member received for the joint project, was one fourth of his grade for the course. Thirteen groups were created. Each group had the same task and a common set of rules. Unlike the later research (Zander, 1971) during this project the group members had no reliable evidence about the quantity or quality of their group's work compared to that of other groups.

A brief questionnaire was given to all students at three separate times, each about three weeks apart. The questionnaire included such categories as: ratings of the quality of the group performance, personal participation in the group, satisfaction with the group and with personal performance, and others. Among the findings of this group study was that the mean rating of group performance at each measurement period revealed a generally increasing positive trend toward favorable perceptions of their group's performance, from 75% placing it on one of the six better

ranks (out of 13 possible) at the time of the first measurement to 90% among the top six at the final measurement ten weeks later. This seems to indicate that the students were not immediately pleased with their role as a group member but rather that student satisfaction with their group roles and performance has to develop over time. Most likely it develops as a result of more successful experiences within the group.

Fixsen et al. (1973) found that the opportunity to affect decisions resulted in more youth particiaption in daily self government meetings. In a more recent study (Kifer et al., 1974) the authors found the amount of participation allowed in the decision making process during self government meetings to be directly related to the clients' ratings of the fairness, pleasantness, and educational value of the self government process.

Organizational psychologists have studied the interrelationships between roles identities in larger groups, such as large organizations or bureaucracies, and member sense of satisfaction. Tannenbaum (1961) found that workers who have some sense of power in most large organizations are generally more positively disposed toward supervisors and managers and their managers are more positively disposed toward them. The sense of power within an organization enables a person to more easily identify with that organization and thus promote a greater sense of satisfaction. Blau, et al. (1962) also found

that the greater the power a worker has, the greater the job satisfaction and the identification with the organizational unit.

Likert (1961) found that an organization pattern in which substantial power accrues to both group leaders and members appears to be a major factor underlying effective organizational performance and member satisfaction. Morse and Reiner (1956) found that lowering the locus of power along the hierarchy of a group leads to increases in members motivation to produce, identify with, and get involved in the group. Likert (1961) suggests that the effective social organization is characterized by supportive relations, mental respect, confidence and trust and a substantial system of interaction and influence among members and between members and leaders.

Morse et al., (1956) suggests that a more equitable distribution of power within a group leads to greater organizational effectiveness. Furthermore, there is a definite correlation between: 1) amount of power in a large group or organization and organizational effectiveness, and 2) member participation in decision making and member satisfaction.

Much of the social psychological research on small groups is done in laboratory settings where various experimental conditions are simulated and operationalized. It can often be argued that laboratory studies yield data on group performance and characteristics which bear little

relationship to the nature of groups acting in the real world. A large part of the theoretical and empirical basis of this experiment is grounded in pioneering research on the use of small groups in mental health, as developed by George Fairweather and his associates, and in the field of juvenile delinquency.

Initially, Lerner and Fairweather (1963) studied the social behaviors of chronic schizophrenics in supervised and unsupervised work settings. The small groups of patients worked at policing a dormitory under one of two conditions of staff supervision: maximal (active leadership) and minimal (where patients were left to their own devices once the tasks were set). Relying on measures of performance (making beds, etc.) and social behavior (verbal interactions) over a seven week period, the researchers found the less supervised group developing more cohesiveness, less dependency on staff decisions, and some indication of increased job performance. The more effective groups were superior in the number of days in which they completed all the assigned tasks and showed more consistent improvement in the amount accomplished each day.

A subsequent longitudianl research project conducted by Fairweather (1964) demonstrated the utility of small groups in a mental hospital functioning more autonomously over time. That experimental treatment procedure focused upon the formation of autonomous, task oriented small

groups which performed on a relatively continuing basis and whose goal was the creation of a total alternative social situation. This social system was defined in terms of responsibilities and privileges within the small group.

The results of the experiment showed that these patient led groups altered the perception of the patients' role from that of a subordinate individual to that of a peer group member. The status of each member was upgraded from that of a passive recipient of treatment (whose dependencies were fostered by the traditional treatment modes) to that of an essentially independent person willing to accept responsibilities and perform necessary tasks.

Fairweather (1964) felt that if the patient population could be organized into cohesive groups within the hospital setting, these groups could then return to the community with their group and perform in a legitimate social role. These task groups could provide mutual support and well defined decision making guidelines for their members. Essential to this model was the belief that in order to make a successful transition as a group into the community, these task groups must be capable of problem solving and providing mutual assistance to their individual group members. It was important that the groups were given meaningful problems to solve and that these problems were relevant to each member of the group as opposed to

irrelevant token tasks. The resolution of the functional problems was a product of realistic group decisions, in which there was an active participation by all members.

In many traditional mental health programs (as in many traditional educational programs) the majority of problems regarding a particular patient are handled on an individual basis. This procedure clearly allows for the patient to view their role as a subordinate and essentially powerless one in which one must rely upon the staff for their final decisions with little or no patient input about the possible outcome. In contrast to that, the small group system created by Fairweather clearly defines the member's role as that of a participant in group discussion, problem solving, and recommendations. Although the hospital staff retained the final authority to accept or reject the group's recommendations, the primary responsibility of the task groups was to make realistic appraisals and recommend courses of action about significant problems facing the patients. The more realistic the decisions of the group, the less need for any staff intervention or modification and therefore, the more likely the group decision would be carried out. This created a model where patients had control over their behavior.

Fairweather (1964) found that the mere presence of a staff member (even if the staff member was only a silent observer) interferred with the formation of the patients' autonomous task group. By having a staff member physically

visible (however passive or silent) the patients immediately attributed the role of a group leader to the staff and therefore relied upon him or her to provide direction and make decisions for the group. This immediate acquiesence to an authority figure defeated the goal of the creation of autonomous problem solving groups. This important finding was incorporated into the creation of the Small Group subsystem for this research. In a classroom setting, the role of authority is easily attributed to a teacher, and therefore, the immediate presence of a teacher in a small group meeting would interfere with the formation of the group into an autonomous, problem solving unit.

To alleviate this, Fairweather (1964) instituted the note system of communication. A note would be written to a task group describing a particular problem and placed in a box. The group would then take the note from the box, discuss the nature of the problem, and make appropriate recommendations to the staff to ameliorate the problem. Through this mechanism, the task group was forced to rely upon itself for direction and decision-making. Since the forced self-reliance helped the groups develop their problem solving abilities, the same communication mechanism was adopted for implementation in this study. This research will test the feasibility of such a note system in an educational setting where the problem solving will be directly involved with academic achievement.

Fairweather found that the patients in the task groups attempted to solve problems by utilizing the suggestions of any group member who was willing to participate. These groups established norms of behavior which were constructive and problem oriented while at the same time preserving free verbal exchange. This experiment showed that it is possible to coalesce a group of individuals who were not task oriented, were incapable of carrying out most normal social functions, and who for the most part had not adapted to society into a unified, problem solving group capable of accomplishing specific tasks. It is this type of group formation which is the major focus of the Small Group subsystem in this study but within an educational context.

Internal Versus External Locus of Control

One of the focal points of this experiment is the examination of whether different learning modalities effect how students perceive their roles, especially as they are related to what extent students have a feeling of control over the consequences of their behavior.

One of the educational issues investigated in recent years is students' reaction to feelings of being over-controlled in the face of bureaucratic processes, rules, customs and procedures which govern their lives at school. Many students perceive this process and its administrators as restrictive and undemocratic. When a school structure facilitates the development of a role for staff as

the keepers of law and order, students perceive their teachers as caretakers rather than as educators. Often the role relationships are translated into a superordinate-subordinate paradigm. The students frequently view themselves in a subordinate role vis-a-vis the teacher, with little or no control in their own educational environment. Sometimes the feeling of powerlessness or of lack of control is experienced by the teachers as well, especially if they are working in a large school or university which has a rigid, unresponsive bureaucracy. The teachers may find themselves in a subordinate role in such an organization. Moeller and Charters (1966) examined the feelings of powerlessness among elementary and secondary classroom teachers from 20 different school systems that had been rated for degree of bureaucratization. The study measured sense of power from the standpoint of the ability of teachers to influence the larger organizational forces that shape their school policy. Among the findings were: 1) school systems characterized by an arbitrary, oppressive style of administration also tend to be those in which teachers' mean scores on sense of power are low; and 2) teachers in highly bureaucratic systems have a significantly higher, not lower sense of power than those in less bureaucratic systems.

Chesler and Barakat (1967) and Barakat (1967) found that the more teachers feel they are personally influential and have a greater sense of internal control, the more

they innovate and share educational practices.

More frequently, it is the students who feel alienation and a lack of control over their educational processes and outcomes. This study contends that a student's belief in his own educational efficacy can be measured by the student's sense of internal control. Belief in internal control represents a person's belief that reward follows from or is contingent upon his own behavior as opposed to the belief that rewards are controlled by forces outside himself and may be independent of his own actions. This variable subsumes a sense of one's own competency to influence the outcomes of situations through his own actions, plus a belief that hard work, effort and skill are the important determinants of success in life.

This notion of control over the outcome of one's behavior is captured in the concept of "internal-external locus of control" as explicated by Rotter (1966):

> When a reinforcement is perceived by the subject as following some actions of his own but not being entirely contingent upon his action, then, in our culture, it is typically perceived as the result of luck, chance, fate, as under the control of powerful others, or as unpredictable because of the great complexity of the forces surrounding him. When the event is interpreted in this way by an individual, we have labelled this belief as external control. If the person perceives the event as contingent upon his own behavior or his own relatively permanent characteristics, we have termed this a belief in internal control.

One of the first attempts to measure a generalized expectancy of belief in external control as a psychological variable was begun by Phares (1957). Phares developed

a Likert-type scale with 13 items stated as external attitudes and 13 as internal attitudes. He found that the items stated in an external direction could identify the externally oriented. He then found high agreement between the external items and chance situations versus skill items. In other words, the externally oriented person relies on chance, luck, rather than skill to manipulate the environment. Lucky breaks determine his progression goals in life.

In testing chance as related to the I-E variable, James (1958) tested reinforcement under chance and skill conditions. The internal group did not use chance in making decisions when possible; the external group relied on chance to give desired results.

One set of research findings with the internal-external dimension involves the prediction of externality in known ethnic groups. Battle and Rotter (1963) used a projective I-E test and found that lower SES blacks were significantly more external than lower SES whites or middle SES whites and blacks. In addition, highly external children reported significantly lower mean expectancies for success on a line matching test and raised their expectancies after failing and lowered them after success more often than subjects low in externality.

Using subjects enrolled in a southern black college, Gore and Rotter (1963) found that the I-E scale predicts the type and degree of commitment behavior exhibited to

effect social change. Those subjects scoring lowest in externality signed statements expressing the greatest amount of interest in social action, while the more external subjects either expressed no interest in participation or minimal involvement. Strickland (1965) replicated these findings in her comparison of black activists in the civil rights movement with black non-activists. After controlling for education and socioeconomic status, she found activists significantly more internal on the I-E scale. In a review of research concerning the I-E control construct, Lefcourt (1966) said that those groups whose social position is one of minimal power either by class or race tend to score higher in the external direction.

Delinquent males scored significantly higher on the external scale compared to non-delinquent males of the same age, race, and SES background. However, the I-E scale did not differentiate between delinquent and non-delinquent females (Pooley, 1969).

When the I-E scale was given to a prison population (Rotter, 1965), it was found that the prisoners tested (age 18-26, eighth grade reading ability plus) had a higher internal score than would be predicted for the population ($\bar{x}$ = 7.72 as compared to a college freshman population of $\bar{x}$ = 8.46 on the External score).

Henderson (1974) administered the I-E scale to 160 probationers to determine whether there was any significant relationship between that scale and seven other variables:

type of crime, race, number of adult offenses, number of juvenile offenses, risk, living area, age at time of last offense. He found that multiple offenses were significantly related to the Internal scale. Age was significant in that almost four times more of the older defendants scored higher on the Internal scale. Harris (1974) found no significant differences among delinquent youth on the I-E scale and their criminal history.

According to Wittes (1970) the relevance of locus of control for educational settings becomes clear when one considers that society has an ordered procedure for teaching its young through the student teacher relationship; it is institutionalized in the schools with people in formal roles who have the power to control one another. Each has some power to influence the other's behavior. This creates a stable and predictable setting in which the limits of behavior for every individual are known and in which one can build a satisfactory authority position of which he can be sure, knowing that he has certain methods of controlling even those who ignore his authority.

Wittes (1970) indicated that the belief that an individual has control over the outcome of his or her behavior has a critical relationship to academic behavior. The relationships between I-E control and achievement motivation and achievement behaviors were investigated by Crandall, Katkovokz, and Preston (1963) using their own Scale, Intellectual Achievement Responsibility (IAR) to

measure "self-responsibility" in achievement situations. They found a positive relationship between free play achievement behavior, achievement test scores and IAR scores for boys but not for girls. Cellura (1963) found a direct positive relationship between the SRA academic achievement test and IRA scale with lower socioeconomic status high school boys. Franklin (1963) studied a national stratified sample of 1,000 high school students and reported significant positive relationships between the internal score on the I-E scale and reported evidence of academic achievement motivation.

Fahs (1973) investigated perceptions of powerlessness, i.e., external control, among college students. Using the T-group training method, Fahs attempted to increase a sense of internal control with a group process oriented course compared to control subjects, taught by the same instructors, who completed a behavioral science course in which a different educatinal mode was used. The experimental subjects all increased their score on the internal end of the I-E scale. However, because of a large number of confounding variables, the results are open to question.

The Coleman (1966) study measured "sense of control of the environment" of respondents in grades six, nine, and twelve of the national survey on Equality of Educational

Opportunity. The measure was based on three questions 1) Good luck is more important than hard work for success; 2) Every time I try to get ahead, something or someone stops me; 3) People like me don't have much of a chance to be successful in life. For this general population the authors reported: "Of all variables measured in the survey including all measures of family background and all school variables, the attitudes of interest in school, self-concept and control of environment showed the strongest relationship to achievement at all three grade levels. For the minority group population, control of the environment was more strongly related to achievement than any other variable. Students who perceive a sense of control have a much higher achievement than those who do not."

Both the analytical techniques and the inferences drawn from the Coleman report have been subjected to serious criticism (Mosteller and Moznihan, 1972). Nevertheless, other research has supported the relationship between locus of control and achievement (Bachman, 1970; Crandall, Katkovsky, and Crandall, 1965).

Bachman, (1967) reported that internality, as measured by the Rotter Scale, is highly correlated (.30 and above) with variables which indicate achievement motivation and social responsibility, and moderately correlated (.20 - .30) with measures of academic achievement.

Morrison (1966) employed a revision of the Rotter Scale and examined the differential effects of instruction

in terms of pupil attitudes toward the teacher, and achievement in each group. The major relevant findings were: 1) internal students were found to have more positive attitudes toward teacher and learning environment than external students; 2) internal students demonstrated greater gains in achievement than do external students. These studies provide consistent evidence of the positive relationship between student internality and academic achievement.

Gurin, Gurin, Lao and Beattie (1969) presented findings from a number of studies based on a modified Rotter Internal-External Scale and a variety of motivational and performance measures. Factor analysis of the Rotter I-E Scale items revealed that the major loadings took place on two factors which they called 1) "sense of personal control," and 2) "control ideology." A sense of personal control, which has considerable overlap with other concepts such as sense of competence or personal efficacy, represents a person's feelings of whether or not he can influence the outcomes of situations through his own actions. The respondent who scores at the internal end of the continuum of this scale has a strong conviction about his competence and believes he can control what happens in his life. The respondent who is rated on the external end feels that what happens in his life is the result of luck, chance or fate, and not of personal skill, ability or effort. The ideology of control, on the other hand, is designed to measure the respondent's ideology or general beliefs about

the role of internal and external forces in determining success or failure in the culture at large. The respondent who rates at the internal end in this scale believes that hard work, effort, skill, and ability are the important determinants of success in life. The person who is rated at the external end believes that success follows from luck, chance, or the right breaks.

In a study of black college students Gurin, et al., (1969) find that students who have a high sense of "personal control" also expressed heightened expectancies of success. They have confidence in their abilities for academic and job performance and aspire to jobs that are more prestigeful and demanding--characteristics that have been related to high achievement motivation in many studies reported in the achievement literature. However, the authors find no relationship between "control ideology" and these same measures. They find that the "personal" control measure and the "ideological" control measure work in opposite ways in the performance area. Students who score higher on internal "personal control" also score higher on achievement tests, achieve higher grades in college and perform better on an anagram task. In contrast, those who are strongly internal on the "ideological" dimension perform less well on this dimension than the more strongly external students. On the basis of these findings and similar ones from a study of high school drop-outs, the authors suggest that those items

from the Rotter I-E Scales that load on "personal control" factor more closely capture the concept of "belief in internal control" articulated in Rotter's definition.

However, there are some researchers who have questioned the notion of a generalized trait like locus of control or like self-esteem (Becker, 1964; Michael, 1968). Wiley (1961) similarly notes the disagreement over the conceptual similarities of generalized measures of self-esteem, self-concept, etc. Measures of "personal control" and "internal control" may be as difficult to differentiate as "self-esteem" or "self concept." Brookover's (1965) self-concept of school ability and Weber, Cook, and Campbell's (1969) academic self-concept are examples of attempts to measure a trait for a more restricted range of behavior.

Calyson (1973) investigates possible counsel relationships between self-esteem, locus of control, and achievement in two models he posits: Model 1 assumes that changes in self-esteem cause more subsequent changes in achievement than vice versa; Model 2 considers self-esteem to be a consequence of achievement rather than a cause.

He found no pattern of causal predominance between general self-esteem and achievement for children of any age, race, or sex. He found achievement to be causally predominant over academic self-concept; locus of control was found to be causally predominant over achievement in males, but not females, although only two of the studies

he analyzed had measures of locus of control and only one of those had measures on females.

In discussing the implications of the study, Calysn said that findings support Model 2, namely that achievement is a stronger cause of academic self-concept. This position is strengthened by the limited effect Brookover (1965, 1967) had in increasing academic achievement by first increasing students' self-concept of school ability. The increases which were achieved disappeared one year after the treatment was discontinued. These findings were also consistant with Maccoby and Zellner (1970). They considered self-esteem to be a consequence of achievement rather than a cause.

Calysn (1973) further argued that if locus of control is in fact causally predominant over achievement, education programs should utilize techniques aimed at increasing internal control.

White and Howard (1970) found that an instructional model which forced seventh grade students to assume the role of scientist and devise his own program of study was superior to a more teacher directed curriculum for those students externally controlled. This model makes the externally controlled student behave more like internally controlled students by assuming the responsibility for the consequences of their behavior.

Individualized instructional modules which are sequenced so that the student succeeds a higher proportion

of time is a good example of an educational technique to increase internal control (Maccoby and Zellner, 1970).

Behavior Modification, Programmed Instruction, and Other Techniques

Principles of behavior modification can be viewed as summary statements of learning principles derived from extensive and systematic laboratory research on the relationships between environmental events and behavior. The systematic and explicit application of learning principles in remedying human problems constitute the original meaning of the term "behavior modification." There are behavior modification techniques based on both "operant" and "respondent" learning principles (Brandura, 1969). Respondent learning principles are based on research (e.g. Pavlov, 1927) on the acquisition of reflex-like responses (i.e., responses that are elicited by specific preceding stimuli). Operant learning principles are based on research on the acquisition of behaviors that operate on the environment to produce consequences for the operator. Comprehensive summaries of operant learning principles can be found in a number of texts (e.g., Holland and Skinner, 1961; Sherman and Baer, 1968; Skinner, 1953).

In learning theory conceptualizations, behavior is viewed and defined as involving the interaction of the individual with a particular environment. Thus, the particular aspects of an individual's behavior are not only a function of the individual and his response tendencies

(whether conceptualized as related to personality or disposition) but also to the physical and social environment which may serve to elicit, facilitate, evoke, and even provoke certain types of behavior.

Underlying operant behavior modification is the social learning view that behavior, be it social-interactions or skill acquisition, is learned (Bandura, 1969). This view of behavior has been applied in the fields of mental health and corrections as well as education. This "educational" or learning model for deviant behavior is in sharp contrast to the traditional "medical" model which depicts deviant behavior as symptomatic of underlying pathology. Stated differently, the socially maladaptive behaviors of an individual in a mental health or correctional institution are not viewed as indicative of illness in the usual psychiatric sense. Rather, the assumption is made that the individual lacks certain skills necessary to function in ways that are more socialy adaptive and/or that the individual lacks adequate regulation of and discrimination with respect to his behavior. This is analogous to the educational premise that a student who lacks certain requisite skills in one subject cannot progress to another.

In most behavioral treatment approaches, social and environmental events are rearranged in a manner designed to teach the participant (i.e., student, patient, inmate) the skills that will help him become a more successful

member of his family school, job, and community (Wolf et al., 1974). The rearrangement of social and environmental events usually involves: (a) the establishment of an incentive system in which events occur contingent on learning and engaging in selected target behaviors, (b) the use of methods to teach or elicit appropriate levels of the target behaviors, and (c) the use of methods designed to increase the likelihood of "generalization" or maintenance of behavior changes to situations outside the treatment environment.

Common types of behavior modification programs include such techniques as programmed instruction, token economy, behavioral contract or contingency management incentive system. The experimental subsystems in this research utilize many of the principles in programmed instruction and the contingency management system. The Audio-Visual-Tutorial subsystem uses a modification of programmed instruction in its presentation of the subject material with the taped audio program combined with the slide presentation in each individual carrel. These carrels, as is true of other programmed-related instructional techniques, are based upon the most fundamental operant conditioning principles: feedback or reinforcement and overt responding. Feedback refers to the process of the respondent receiving information back concerning the correctness or effectiveness of the initial response. Generally, the more accurate and immediate the feedback

(reinforcement), the greater the probability of a subsequent correct response (Skinner, 1968; 1970).

The concept of overt responding is closely allied with that of feedback. An overt response, especially when there is feedback for that response, strengthens the response chain between the respondent and the external environment. Through the overt response, the relationship between the respondent and the enviornment can be tested (Skinner, 1968; 1970).

Some studies (Marsh and Sherman, 1966; Silverman, 1966) conclude that the act of making a response (overt or covert) is crucial to problem solving. Researchers investigating laboratory problem solving behavior indicate that verbalizations lead to better performance on discrimination tasks (Pyler, 1967; Rossman and Goss, 1951; Kurtz and Howlang, 1953; Wolff, 1957; Wier and Stevenson, 1959). Overt behavior occuring in the form of classroom discussion produced better results compared to a lecture (Faw, 1957; Bovard, 1951; Bloom, 1953; Eglash, 1954). Maxwell (1971) used 135 students and tested whether overt responding in the classroom had a positive effect on retention. The results did support the hypothesis when achievement was measured with a fill-in instrument but the hypothesis was not supported when achievement was measured with a multiple choice instrument. Other studies with programmed instruction concluded that the differences between overt and covert responding on achievement were not significant

(Coulson and Silberman, 1960; Krumbaltz and Wersman, 1962; Cunnings and Goldstein, 1964; Crist, 1966).

In the past few years, numerous research projects have been done with programmed instruction at various levels of education. As Schramm's (1962, 1964) reviews of various studies have indicated, superiority of programmed devices over traditional classroom methods has not been clearly established. Goldstein (1964) summarized research on three learning variables in programmed instruction: the program, the presentation mode, and the learner. The reported studies of program variables and of presentation mode showed inconclusive differences.

The effectiveness of programmed instruction was investigated by Doty and Doty (1964) in relation to five student characteristics: cumulative grade point average (GPA), creativity, achievement need, social need, and attitude toward programmed instruction. Significant correlations were attained between scores on an achievement test over the programmed unit and GPA, creativity, and social need. When effects of GPA were partialled out, significant correlations were found between achievement on programmed instruction and social need.

Many of the fundamental principles of operant conditioning have been used extensively in training juvenile delinquents, prison inmates, and mental health patients in remedial education, vocational education, trade training programs, and even college level courses (Patterson, 1963;

Burchard, Lyler, 1964; Furmiss, 1964; Buehler, Patterson, Furmiss, 1966; Akers, 1966; Dinsmoor, 1966; Lang, 1966; Schwitzgebel, 1967).

Stuart (1972) examined the use of behavioral contracts, feedback systems, and programmed instruction modules in effectively assisting both delinquents and their families. He found that the delinquents needed to receive positive reinforcement as a direct consequence of correct behavior for behavior modification to be effective. The most effective positive reinforcement came in the form of verbal praise from parents, teachers, or siblings or in the form of positive feedback of a correct response in an individualized instruction module.

In teaching high school drop-outs remedial verbal and mathematical skills, Clark, Lachowicz, and Wolf (1969), used a simple linear programming technique. Despite its simplistic programming approach, the authors reported a greater utilization and usage of programmed instruction then when a similar group of drop-outs had classes using the traditional teacher format.

Clements and McKee (1969) found that prison inmates progressed at a faster rate and with a lower error rate with programmed instruction than before the P.I. was introduced. Using individualized instructional packages both increased the efficiency of study habits and also made students rate their learning environment as being more satisfying when compared to non-individualized

classrooms (Fox, 1966; Cohen, 1968). It appears that enabling students to progress at their own rate through the use of programmed instruction gives them a greater sense of control over the consequences of their efforts. This, in turn, leads to a greater feeling of satisfaction. One could hypothesize that the students using programmed instruction would score higher on the Internal end of the I-E scale and experience greater satisfaction. This is suggested by Bachman, et al., (1967); Morrison (1960; Gurin, et al. (1969) and others cited earlier. The relationship between the self regulation of programmed instruction, internal locus of control, and sense of satisfaction will be studied closely in this research as the programmed instruction subsystem is compared to the other subsystems.

When comparing the effects of teacher imposed versus student self-imposed response contingencies on academic achievement, Lovitt and Curtiss (1969) found the self-imposed contingency schedule to be superior. Lloyd and Knutzen (1969) found that students who paced themselves in programmed instruction made fewer errors and increased their achievement level higher when compared to students using a programmed instruction with a fixed response contingency rate. These findings are consistent with Zimmerman, Zimmerman and Rider (1970) when they compared a self-paced classroom which included programmed instruction among other devices with a teacher imposed classroom schedule. This is also consistent with studies by Semb (1976) who

found that self regulated programs are particularly beneficial to students who perform poorly in traditional courses. In a study of matched students in conventional lecture classroom groups and self regulated groups, low performance students in the traditional group gained 1.43% between the first and third exams while comparable students in the self regulated groups gained 16.14%. Lagowski (1976) found that students using self regulated and computer assisted methods showed significantly higher achievement than students taught by conventional methods. Some students finished the course material in 70% of the time allotted for it in conventionally taught classes.

A combination of audio visual presentations and self regulated programmed instruction in individual carrels was found to be the most effective learning combination for teaching remedial reading and vocational materials to prison inmates (McKee and Seay, 1968; Seay, 1967).

Meredith (1968) found that allowing a student to monitor his own self-paced progress coupled with using "correct responses" as reinforcement from programmed instruction enabled those who had been labeled as slow learners to progress at approximately the same rate as the rest of the class. Seay (1967) pointed out the facilitative role that teachers can play in conjunction with programmed instruction where the teacher responds to students who use programmed instruction by elaborating on certain concepts as questions arise. This results in

a more efficient use of time for both students and teachers as found by Lagowski (1976) in a study using a computer assisted course.

Roid (1971) compared computer-assisted instruction mode to a printed program instruction mode. The computer-assisted instruction (CAI) prepared an introductory psychology course using a IBM teletype system. Portions of the lessons involved branching and remedial instruction and were designed as basically frame-by-frame instruction requiring the student to respond by typing in a word or phrase. A parallel set of lessons was prepared by making a written version of the CAI lessons, which required the reader to make overt responses only after approximately each fifth frame. Branching characteristics were maintained by using a "scrambled text" format where necessary. Significant increases between pretest and post tests of learning were found for each of the five CAI lessons in the experimental group and for the last two of the written lessons in the control group. A multi-variate analysis of covariance using lesson posttests of learning as dependent variables and lesson pretests as covariates revealed no significant differences between the experimental and control groups.

Using a Skinner oriented learning process called the Auto-Paced Process, Siemankowski (1971) compared it to conventional instructions in terms of 1) achievement in physical science, 2) attitudes toward science,

3) understanding the processes of science, 4) ability to prepare science unit plans, and 5) time required to complete course assignments. The results show the auto-paced group scored significantly higher on achievement, had strongly favorable change in attitudes, prepared better science plans, and required 78 per cent less time to complete assignments. There were no differences between groups in understanding scientific processes.

Bhusan (1971) compared a linear programmed textbook with the same biology test material taught in the usual way. An achievement test based upon both the programmed text and the usual text was constructed by the teacher and given to all students (62 in the experimental group and 43 in the control) as a pretest measure. At the end of the experiment the same test was again given to both groups to get achievement test scores. The results support the hypothesis that programmed instruction, as compared to conventional classroom teaching, was significantly more effective.

The research cited up to this point has reviewed the importance of programmed instruction as an operant learning technique and its effectiveness as an educational method for allowing students to control their own rate of progress through self regulation and the use of positive reinforcement. The operant principles for these techniques are operationalized in the AVT subsystem in this research.

Another behavioral method is the contingency management

system which serves as the basis for the Small Group subsystem. In a contingency management system a participant can earn points contingent on their behavior and exchange those points for privileges (Kagdin and Bootzin, 1972). The systematic use of a contingency system can serve to strengthen appropriate behaviors through positive reinforcement and to weaken inappropriate behavior through such response cost procedures as point fines. Using a contingency system to teach complex skills can be facilitated by teaching the skill(s) in carefully graduated incremental steps (Bandura, 1969; Kaufmann and Wagner, 1972; Schwitzgebel and Kolb, 1974; Kirigin et al., 1975).

Behavior modification programs involving contingent responses and comprehensive teaching procedures have been shown effective in teaching skills to predelinquent and delinquent youths in homework skills resulting in increased grades (Kirgin, et al., 1975); the skills involved in the appropriate acceptance of negative feedback (Timbers et al., 1973); employment interview skills (Brankman et al., 1974); successful interactions with parents (Kifer et al., 1974); and other living-learning situations.

In a CASE II (Contingencies Applicable for Special Education) project, youths participated in a behavioral program where points were earned for participating in an educational program involving programmed instruction. With the points the youths could purchase privileges such as store items, a private room, and access to a lounge with

jukebox and television. A total of 41 youths (13-19 years old) participated for an average of 8 months. Results showed a significant increase in achievement test scores (Cohen, et al., 1968; Cohen et al., 1970). However, there was no control group and only pre and post testing. In a program at Draper Correctional Center progress in programmed instructional material allowed access to a variety of activities in a lounge area (Clements and McKee, 1968; McKee and Clements, 1971). More recently, a cellblock token economy was implemented where points could be earned for promptness, room cleaning, educational programs, and other assignments. Points were used to purchase privileges such as televeision, canteen items, time away from the cellblock and catalogue items. Twenty-nine participants in the program and 113 prisoners in a comparison group were studied. Results showed significant achievement gains for program participants as well as a lower recidivism rate. A similar token economy system at a Michigan correctional facility was evaluated by this author (1975). Although recidividm rates were not measured, the participants in the token economy program showed a significant improvement in their W.R.A.T. scores. However, due to a number of potential confounding variables, it was not possible to attribute the increase solely to program participations.

A community based, community controlled project called Achievement Place makes extensive use of contingency

management systems and other social learning theory principles to operate a behavioral program for 12 to 16 year-old court adjudicated youths. It is a teaching-family model group home which uses intensive programmed teaching procedures, a self-governing system, and various social activities as a flexible incentive system. Results of an evaluation using a comparison indicated significant improvements in academic achievement (Phillips et al., 1973, 1974). Another program for school-referred junior high students, the Family and School Consultation Project, utilized a contingency system in the form of behavioral contracts between youths and their parents and teachers (Jayaratne et al., 1974; Stuart and Fripodi, 1973; Stuart and Lott, 1972). The researchers measured youth performance in their schools, homes, and community. In a four month follow up of 60 youths randomly assigned either to the treatment group or to a control group revealed that the youths in the treatment program did significantly better in school performance and parent relations (Stuart et al., 1975). The PREP project (Preparation through Responsible Educational Programs), which operated in a Maryland junior high school, used a token contingency system in which students earned points for performance in regular and programmed instruction (Cohen and Filipczak, 1972; Filipczak and Cohen, 1972). Thirty participating students did significantly better than matched controls on measures of grades, achievement test scores, and disciplinary referrals.

Numerous studies have demonstrated the effectiveness of contingency systems in dealing with aggressive and deviant behaviors (Walter and Gilmore, 1973; Wiltz and Patterson, 1974; Patterson, 1974; O'Dell, 1974; Christophersen et al., 1975; see review by Berkowitz and Graziano, 1972). The use of various operant techniques has also been used with a cross section of student populations from teaching inner city youths to special education classes (Hall, et al., 1968; Hamblin and Buckholdt, 1968; Hamblin, et al., 1970; Reynolds and Risley, 1968; Staats and Butterfield, 1965; Wolf et al., 1968). Most of these have used techniques which have relied largely upon the use of individual reinforcement contingencies and have been used to decrease disruptive behavior.

The disbursement of social reinforcers is applicable, however, not only to individuals or a set of individuals but also on a group contingency basis. These social reinforcers may be token points, verbal praise, differential feedback on performance or in other forms of rewards. However, they are administered to the group as a whole to influence the group's activities. Wolf et al., (1968) successfully used a limited group reinforcement system to increase arithematic scores with inner city children. Hathaway (1972) used a more extensive set of group reinforcement contingencies to encourage students to develop peer tutoring behaviors as a means of increasing academic achievement. Peer tutoring behaviors occurred

when reinforcement contingencies were structured so that students receive reinforcement not only for their own progress but for the progress of other members of their group.

Wodarski et al., (1971) studied 120 inner city fifth grade studetns. A 4 x 4 Latin-square design was employed to investigate the effects of individual, group, and two contingencies composed of different proportions of individual and group reinforcement on: a) peer tutoring behavior; b) progress in arithematic skills as evidenced by greater increments in the number of problems worked correctly in an assignment; c) occurance of disruptive behavior; and d) incidence of studying behaviors. Two comparison groups were utilized to provide a criterion against which the progress of the four experimental groups could be judged.

When the students were under the individual contingency they received a dollar for each problem they worked correctly. When the 100% group contingency was employed the number of dollars each student received was determined by averaging the scores of the lowest four students in the group; every pupil then received this average. Students received 67 cents for every problem they worked correctly and 33 cents for the average of the number of problems worked correctly by the bottom four pupils on the 67% individual/33% group reinforcement contingency. In the 33% individual/67% group reinforcement contingency the

students received 33 cents for every problem they worked correctly and 67 cents for the average of the number of problems worked correctly by the botton four students.

The individual reinforcement contingency was chosen since it has been the predominant mode utilized by other researchers structuring reinforcement contingencies in classroom experiments. The group lowest four average contingency was selected because the researchers felt that: a) more peer tutoring would occur under this contingency since the number of reinforcers the brighter students would obtain was dependent upon the performance of the slower students and b) this contingency would place more pressure on the slower students to achieve. The combination contingencies were employed in an attempt to determine whether it was necessary to structure a certain amount of individual reinforecment in a contingency to keep the lower students, top students, and the group as a whole working on their problems and to indicate how different proportions of group reinforcement affected math, studying, nonstudying, disruptive and peer tutoring behaviors.

The results showed that the various reinforcement contingencies did not lead to significant differences in the rates of studying, nonstudying, and disruptive behavior. The incidence of peer tutoring was the only behavioral variable on which the contingencies had a pronounced differential effect. Data supported the hypothesis that the greatest incidence of peer tutoring behavior would

occur when the group reinforcement contingency was employed and that as each contingency was composed of a greater proportion of individual reinforcement, the occurance of peer tutoring behavior would decrease.

Results on the incidence of studying, nonstudying, and disruptive behaviors indicated that all of the contingencies maintained high rates of studying behavior and low rates of disruptive and non studying behaviors. The greatest difference in the incidence of these behaviors occurred between baseline and the introduction of the reinforcement contingencies, i.e., studying increased and nonstudying and disruptive behaviors decreased. The slight variance which occurred from contingency to contingency indicated that as the proportion of group reinforcement increases, the incidence of studying behavior increases and the incidence of nonstudying and disruptive behavior decreases.

This study was reported in depth because of its relevance to the development of the Small Group subsystem in this study. This small subsystem will have peer tutoring as the major activity of each small group. This study (as did Wodarski et al.) will investigate the utility of peer tutoring as well as the impact of differential group contingencies on academic achievement. In one sense, this study will attempt to replicate some of Wodarski's findings on a different student population but it will also compare the peer tutoring small group format with other instructional modules.

Beach (1960) studied academic achievement in four different kinds of learning situations: a lecture class, a peer tutoring group with an instructor, a peer tutoring group without an instructor, and an independent study group. The results showed that students with high sociability patterns performed significantly better in the peer tutoring group without an instructor while students who are not sociable perform better in a traditional lecture class.

LeCompte and Brady (1971) compared one group of students who used programmed instruction to acquire detailed classroom material with a comparison group who operated on a group reinforcement contingency. No significant differences were found between the groups. Jasmine (1974) also compared a group using programmed instruciton with a group receiving a 100% group contingency schedule. The group contingency was based on the mean test score for the group in each of ten tests. Overall there were no significant differences in achievement scores although the programmed instruction group scored consistently higher.

Summary

The studies reviewed provide ample support for the development of the two experimental subsystems in the research. The dynamics of a small task group will offer an alternative to the traditional classroom format in terms of mutual decision making, shared responsibility, peer tutoring and overt participation. The AVT subsystem will make feedback contingent upon overt responses and will

allow students to have control over their own rate of progress. Both of these subsystems should enhance the students' sense of internal control and increase academic achievement when compared to the control group.

CHAPTER III

METHODS AND PROCEDURES

Design of Study

This project had two experimental subsystems: the Small Group Subsystem (Sub A); the Audio-Visual Tutorial Subsystem (Sub B); and the traditional classroom subsystem used as a control (Sub C). There were two teachers (T1) and (T2) who each served as a teacher-facilitator for each of the subsystems on a rotating basis. Subjects were randomly assigned to both experimental and control conditions, 30 subjects (six groups of five members) in Sub A, and 26 in Sub B and Sub C. Table 3.1 presents a diagram of the study.

Table 3.1 Cell Observations by Treatment

	Sub A	Sub B	Sub C	
T1	n = 3 3 groups of 5 S_s	n = 13	n = 13	29
T2	n = 3 3 groups of 5 S_s	n = 13	n = 13	29
	6	26	26	58

Sample

The subjects used in this experiment were chosen from students attending an urban community college which had a total enrollment of 6,365 in Spring Term, 1972. Of this population, 3,991 (62.7%) were part-time students and 2,374 (37.3%) were full-time students.

The subjects were not chosen at random from the entire population but were selected in the following manner: Administrative agreements were made to allow a special section of Introductory Psychology to be opened which could accomodate the registration of 90-100 students for a single class section, well over the normal limit of 35. This was to be considered the pool from which subjects were randomly assigned to the experimental and control conditions.

There were 86 subjects in the original sample, 46 females and 40 males. Four of the subjects, all females, voluntarily dropped out of the study during the first three days. This reduced the number to 82 subjects, ranging from 18 to 36 years of age. The mean age was 25.4 years. Part-time students constituted 64.6% of the sample while 35.4% were full-time students.

Instruments

All the instruments used in this study were developed and tested during a four week pilot study in which both of the experimental subsystems were operationalized. All reliabilities were established on this pilot group which was similar in age, background, and grade point average to the

subjects in the experiment.

The reliability of all instruments except the achievement measures was determined using the test-retest method during the pilot phase (Ebel, 1965). The reliability of the achievement measures was established by the internal consistency method (Ebel, 1965).

Achievement

The achievement dimension was measured using a series of multiplechoice tests specifically constructed to reflect the introductory psychology material, the primary subject content used in this experiment. The achievement tests consisted of a pretest, a series of 10 short quizzes each covering separate topics in the course, and a post-test which comprehensively covered all topics in the course. The reliability between the pre-tests was r = .81. The reliability of the 10 short quizzes ranged from = = .79 to r = .90. The reliability for the posttest was r = .86. Through the assessment of an independent psychologist, all of the achievement tests were judged to have content validity (Ebel, 1965). An example of each of the achievement instruments is presented in Appendix A.

Student Satisfaction

The dimension of student satisfaction was measured by modifying an original scale which was used in the Coleman report (Coleman, 1966). The original Coleman scale was intended for use with secondary students but was modified in this study for applicability to post

secondary students. The test-retest reliability for the student satisfaction scale was r = .74. An example of the student satisfaction scale is presented in Appendix B.

Locus of Control

The concept of internal versus external locus of control was measured by using a scale developed by Rotter (1966). This scale has been used extensively in other research studies and, in fact, is one dimension which has proven to be remarkably consistent throughout the various re-analyses of Coleman's data. The reliability coefficients for the I-E scale have ranged from r = .49 to r = .83. During the pilot phase of this study the reliability coefficient was r = .69. This was with the full Rotter scale and not the abbreviated form used in many studies, including the Coleman study. The I-E scale is presented in Appendix C.

Self Acceptance Scale

A self acceptance scale, designed to identify persons characterized as having internalized values and a positive sense of self worth, was chosen for use in this study to examine the relationship that might exist between participating in a small, task oriented, peer group and scores of self acceptance (Burger, 1952). The reliability of the original Burger scale was measured using the matched-half

reliabilities and then the Spearman-Brown formula to estimate the whole test reliability (Ebel, 1965). Those estimates range from r = .75 to r = .89. The Burger scale was modified and shortened for this study and during the pilot study produced a reliability coefficient r = .71. An example of the self-acceptance scale is presented in Appendix D.

Social Responsibility

A social responsibility scale, developed by Berkowitz and Zutterman (1958) was designed to assess a person's traditional social responsibility and orientation toward helping others even when there is nothing to be gained. This scale was included in this experiment to examine the relationship of the small peer group experimental condition with its clear emphasis on shared responsibility and shared reinforcement with any changes in the social responsibility scale that might result from participants who experience the socialization of the autonomous small group subsystem. While there was no reliability information reported in the original study, the reliability of the social responsibility scale during the pilot study was r = .79. An example of this scale is presented in Appendix E.

There were two other dimensions measured in this experiment which relate closely to the concept of social responsibility. In 1967, Perloe designed a social values questionaire (SVQ) to study the impact of varying kinds of

college environments on student's orientations relevant to participation in a democratic society (Perloe, 1967). Two orientations of this questionnaire were of major interest: social responsibility and participation in secondary groups. Four homogeneous factor dimensions were found with this questionnaire:

1. The first concerns the acceptance of a moral obligation to protect and promote the welfare of others.

2. The second is concerned with cooperation and conformity in secondary groups.

3. This factor stresses the value and necessity of proper personal development, of becoming deeply involved, and identified with some group.

4. This factor taps the extent to which an individual should be concerned with another person's morals.

Items which constituted the second and third factors in this questionnaire were homogeneous scales which measured: a) cooperation toward group goals, and b) identification with groups (Perloe, 1967).

Since the small peer group experimental condition in this study would probably present a large number of classroom experiences and expectations uncommon to most participants, the cooperation toward group goals scale and the identification with groups scale were used to monitor any attitude changes in these areas that might be a result of participating in small, task oriented groups. The test-retest reliability coefficient for the cooperation toward group goals scale was determined in the pilot phase to be

r = .67. The test-retest reliability coefficient for the identification with groups scale was determined to be r = .62. An example of each of the scales is presented in Appendix F.

Behavioral Motivation Index

While there appears to be an excessive reliance upon paper and pencil measuring instruments, a specific effort was made to obtain an unobtrusive behavioral index of student motivation. This was done by compiling a list of 25 articles, each relating to some specific topic covered by the subject material. Each of the articles on the list was placed on reserve in the college library and this list, called the suggested reading list, was given to each of the participants in this experiment. Since the articles were not required reading, it was reasoned that those students who choose to make an extra effort to read the articles from the suggested reading list were demonstrating greater motivation than those students who did not. An arrangement was made with the librarian in the college to check-off the names of each student who requested an article from the suggested reading list. In this way the participants of the different treatment conditions were monitored for their extra effort (operationally defined as motivation) by recording the frequency of articles read for each subsystem.

Procedures

Development of the Small Group Subsystem

Subjects assigned to the Small Group subsystem were randomly assigned to small groups, consisting of five subjects per group. There were a total of six small groups, three groups in one teacher's section and three groups in the other teacher's section. After the subjects were assigned to their group, each group was told to elect a group leader and to vote on a name for their group. Among the more colorful names the groups came up with for themselves: The Screaming Yellow Zonkers; the Death Defying Dummies; the Skinnered Rats; and the Red Riots. One group came up with the rather unoriginal but also uncomplicated name of Group 3.

The group leader in each group was responsible for dividing the work among its members; directing the group activity during their meetings; communicating with the resource teacher.

Each small group met for one hour twice a week for a total of ten weeks.

The physical environment was such that each small group had their own individual room in which to meet and carry out their activities. These rooms were approximately nine feet by nine feet with one door and no windows in any of the walls. Inside each room there was one large discussion table surrounded by chairs. An identical room with table and chairs was available for each group.

Each student of each small group received their own copy of the subject material which was printed in textbook form in small pamphlets. Each chapter in the pamphlet corresponded to a unit in the AVT condition and to a section in the control condition. Each student also received a list of specific objective covering the subject material for which they were responsible. During any given group meeting, the group leader divided the subject material among its members in such a way that each member was responsible for "teaching" or "tutoring" the other members of the group in some area of the subject material. Through group discussion, questions and answers, and general presentation, each group member was responsible for explaining to the other group members the subject material to which he or she was assigned. The exact format which was followed during the group meeting was left to the discretion of the group leader and the respective members.

Communication with the resource teacher was allowed only through the "note system" as was done in the samll

group ward study by Fairweather (Fairweather, 1964). This note system was used to foster group autonomy and group problem-solving abilities. Since a teacher is traditionally perceived by the students in an authority or a superordinate role, facilitating problem-solving skills is difficult with the teacher present. Just the mere presence of an authority figure tends to reinforce the expected dependency on the person in the superordinate role. Since one of the objectives of the experimental condition was to develop autonomous problem-solving groups, it was felt that the continual presence or even the visual presence of a teacher would result in the students lapsing into the conventional dependence of a teachers presentation. Using the same rationale as was used in the small group hospital ward by Fairweather (1964) it was decided that the resource teachers would not be present during the student's group meetings unless requested by the group leader with the consent of the entire group. This communication was to take place in the form of the note system and it worked in the following manner: When the majority of the group had a queston which could not be answered by any of the other members or when the group wanted an elaboration on some issues related to the subject material, it was the responsibility of the group leader to write out the question for the resource teacher. This written note was then placed outside the group's room and in an envelope on the door. The resource teacher would then read the

question and make a verbal presentation to the group. This is where the resourcefulness of the teacher's role is important. Rather than answering a question directly, it was the responsibility of the resource teacher to provide additional resources or references and attempt to give general explanations of principles as well as specific details.

Originally, during the pilot test of the note system, it was thought that the resource teacher would provide a written response to the written question. However, the students strongly objected to the complete absence of the student-teacher contact and threatened to terminate the class immediately as well as make their objections known to the administration. Therefore, it was decided that it would be appropriate as well as useful for the resource teacher to make a verbal presentation and explanation to the group's written note. When this change was made during the pilot phase, the students expressed a great deal of satisfaction with this model. The verbal presentation by the resource teacher was incorporated in the model used in the acutal experiment.

Each small group was allowed five free notes per meeting session. Additional notes were labeled "red notes" and the accumulation of five red notes for any group meeting was used by the resource teacher as an indication that the problem-solving abilities of that group were not working. The resource teacher could ask the group to elect a new

group leader for any group which had accumulated five red notes. In actual fact, during the course of the experiment there were no red notes from any of the problem-solving groups.

The reinforcement contingency for this subsystem was on a group basis. After each unit of study was completed, a short quiz over that unit was taken by all members of the group. These short quizzes were scored on a 60-40 ratio. For any given member of the group, 60% of their score was based upon their own individual quiz score and 40% of their score was based on the group mean for that quiz. For example, if a quiz was given to a 5 member group which had a total possible score of 10 correct answers, and person "A" received a score of 6, person "B" received a score of 5, person "C" received a score of 5, person "D" received a score of 3, and person "E" received a score of 3, the mean score for that group would be 4.4. For person "A" whose score was 6, 60% of that 6 equals 3.6. Forty per cent of the mean score (4.4) is equal to 1.68. The sum of the individual's score plus the mean score would then be 3.6 plus 1.68 equals 5.36. For person "E" whose individual score was 3, 60% of his individual score equals 1.8, and 40% of the mean score equals 1.76. Therefore, person "E" would receive a score which would be the sum of 60% of the individual score (1.8) plus 40% of the group mean (1.76). His score would be 3.56.

The effects of this group contingency can be readily

seen. It has the effect of raising the low scoring members of the group and lowering the high scoring members of the group toward the mean score. Person "A" while originally receiving an individual score of 6 would have his score lowered to 5.36 while person "E" whose original score was 3 would have his score raised to 3.56.

The intended effect of this group contingency was to manifest the mutual dependence of each individual group member upon all other group members and to motivate those members who received high scores to assist their fellow group members who received low scores so that the group mean would be raised. The group contingency makes it readily apparent to the individual member who receives a low score, that his score is pulling down the scores of his other group members.

Each week the groups would be ranked, based upon the mean of their quiz. This would allow each member to see how his or her group's performance compared to the other groups. This was another technique used to develop group cohesion. It enables individuals to identify with their group in a sort of "us" versus "them" context. Group unity can be developed when members of the group perceive they have a common opponent. In this case, it is the competitive achievement of the other groups to be ranked No. 1. Each week, the group which ranked first was reinforced with tokens redeemable at the end of the experiment.

Each token was worth one dollar.

If any one group was ranked the lowest for two consecutive weeks in a row, the resource teacher could call for the immediate replacement of the group leader and an election of a new leader for that particular group. This technique was used by the resource teacher to indicate to the group that they were not performing their assigned tasks and that they were not performing as a problem-solving group.

While each task group was expected to progress through at least one work unit per week (at which time they would take the quiz over that unit) the group could also decide to progress at a faster rate and subsequently take the quiz at an earlier time. This allowed each small group to progress at its own rate within the limits of completing at least one unit per week.

Pretest and post-test measures were obtained for all the subjects in the subsystem on all variables. Short quizzes over specific course content were given at the completion of each work unit. There were ten such short quizzes one per week. In addition to the short quizzes, there was a major post-test for achievement administered at the end of the experiment. The student satisfaction scale was administered after 3 weeks, and then again at 3 week intervals in an attempt to obtain a longitudinal measure of student satisfaction.

Development of the AVT Subsystem

The AVT modules used in this experiment were modifications of an existing AVT program that was currently in use at the community college. Therefore, the physical facilities were already available. Each student had an individual carrel which had a reel-to-reel tape deck, a slide carriage which contained photographic slides of various illustrations and examples of psychology experiments, a small screen on which the slides were projected, an ear phone head-set, and control switches for on-off; forward-reverse; volume.

The existing taped units were altered to resemble a linear programmed instruction model. This was accomplished by progressively structuring subject material in question form, from simpler questions (requiring one or two word answers) to more complex questions which required a phrase or sentence to correctly answer.

The AVT subsystem uses the operant conditioning principle that the probability of a particular response occurring again increases if it is positively reinforced. In this instance, the reinforcement was operationally defined as the feedback of the correct response to the respondent. The audio-tape asked the student a question; there was a 15 second pause during which time the student was expected to give a written response to the question. After the 15 seconds had elapsed, the correct response to the question was then fed back to the student through the audiotape.

As was the case in the Small Group Subsystem and the Control Subsystem, each student had a written narrative corresponding to each AVT unit. In addition, each student had an outline of the questions asked via the AVT and space after each question for the student to provide a written answer.

The student would sit down in the AVT carrel during the designated class period and put on the AVT tape and slides which corresponded to the unit the student wanted to study. There were 10 units altogether and each student was expected to complete at least one per week, although a student could progress more quickly if desired. The forward-reverse control of the AVT carrel allowed each student to review sections that were unclear or to move ahead to sections at a quicker pace if, for example, the student had completed extra study and was therefore ahead of other classmates. The students could follow the audio-visual presentation with their written narrative and outline, answering the questions as they progress. The act of writing down the answers to the AVT questions was the overt response considered integral in operant learning theory.

The resource teacher was utilized by the students in this subsystem in a similar fashion to that of the Small Group Subsystem. However, the students communicated directly with the resource teacher and were allowed to ask questions concerning specific problem areas. In this subsystem each individual could react with the teacher on

a one-to-one basis. The student could request help from the resource teacher at any time by merely turning the AVT unit off. The resource teacher could come to an AVT carrel and the student could ask whatever question he or she had about the subject matter in the audio-visual presentation. The primary instructional source was the AVT but students were free to utilize the resource teacher by asking as many or as few questions to help explain general principles or to give examples not presented in the AVT unit.

As in the other subsystems, pre and post test measures on all variables were obtained for all subjects in the AVT Subsystem. There was no group contingency or reinforcment used in the 10 short quizzes for this subsystem. An individual's score on any of the quizzes was calculated to be the number of correct responses and not based on any ratio of the group average. Each student was free to take the quiz over a particular AVT unit after they had completed it. This resulted in some students taking the quiz for unit one while others were taking the quiz for unit two. This is consistant with the individualized rate of instruction emphasized in the AVT subsystem.

The student satisfaction scale was administered at three week intervals. Posttest measures were required on all the other variables at the end of the experiment.

Development of the Control Subsystem

This subsystem was developed to simulate a traditional classroom. Both the students and teacher were to assume their traditional roles. The teacher would lecture to the classroom as a group using as a guideline a written copy of the subject material provided in each of the other subsystems. As in the traditional classroom, the student's primary responsibility was to listen to the lecture and to take any notes thought necessary. Students were allowed to ask questions to clarify points or issues when needed. In this subsystem there was no shared decision making or overt responding that was required. Even the note taking and questions were at the discretion of the student. This contrasts sharply with the two experimental subsystems where overt responses were specifically required. The students had the same subject material in pamphlet form as did the students in the other subsystems. The teacher delivered a lecture based on this written narrative of subject material.

Pre and post measures on all variables were obtained for all students in this control subsystem.

Teacher Training

One of the first steps in developing and implementing this social/educational experiment was obtaining the appropriate administrative agreements which would allow the implementation of the innovation and the accompanying

changes in role requirements and other procedures. One of the first agreements was to obtain the services of two teachers for this study. Two female instructors one 23 years of age, and one 21 years of age, agreed to be the instructors for this experiment and were reimbursed by the experimenter. Both instructors had taught introductory psychology before and had approximately one year of previous teaching experience.

During the pilot phase of this experiment, the instructors were trained in the alternative role of being a resource person or facilitator, the role they would play in the experimental subsystems, compared to the traditional lecture role in the control condition. This was loosely but operationally defined by having the instructor, when answering questions raised by the students, refer to examples, general principles, refer to other source documents, as well as answering specific questions. This is contrasted with the instructor's conventional role where students' questions were answered directly, and without necessarily any elaboration. Over the four week period of the pilot phase, two independent observors rated the instructor's ability to perform both in the traditional lecture and as a resource person or facilitator. An inter-rater reliability of $r = .61$ was obtained. Both observers recorded over the four week period a change in the increased ability of the instructors to perform in alternative roles.

The experimenter explained to both instructors that

each was expected to function in each of the three treatment conditions. At the beginning of the experiment, Teacher I served as the instructor for first the small group condition, then the AVT condition, and then the control condition. Teacher II served as the instructor for first the control condition, then the AVT condition, then the small group condition. Midway through the experiment (after five weeks) a reversal was made so that Teacher I first met with the control condition, then the AVT, and finally the small group condition. Teacher II then served as the instructor for the small group condition first, then the AVT, and finally the control group. This was done as an effort to control for possible sequencing effects, i.e., since the teachers were to meet with different treatment conditions at different times, having the teacher always meet with one condition at a later time may have effected the outcome measures in that condition. Similarly, having one teacher always meeting with one treatment condition early in the period when both students and teachers were fresh and alert could have biased the outcome measures for that condition.

Analysis of the Data

According to Campbell, et al., (1963) the proper statistical analysis for a research design which has both pre and posttest measures on all subjects and random assignment of subjects to experimental conditions is the analysis of covariance. In this experiment, a univariate analysis

of covariance is performed with each pretest used as a covariate. When pre measures were not used, analyses of variance were performed as the appropriate statistical analysis.

Research Hypotheses

The purpose of this study is to implement and evaluate the effectiveness of alternative learning modules, one utilizing small group processes, the other utilizing a programmed instruction module, and a traditional format used as a control. There are three main dependent variables in this study: 1) academic achievement, 2) student satisfaction and 3) locus of control. It is hypothesized that students in both experimental subsystems will have greater academic achievement, higher student satisfaction, and more internal locus of control when compared to students in the control subsystem.

Major Research Hypotheses

Achievement

1. The subjects in the Small Group subsystem will achieve more than the subjects in the Control subsystem.
2. The subjects in the AVT subsystem will achieve more than the subjects in the Control subsystem.

Student Satisfaction

1. The subjects in the Small Group subsystem will express higher student satisfaction than subjects in the Control subsystem.

2. The subjects in the AVT subsystem will express higher student satisfaction than subjects in the Control subsystem.

Locus of Control

1. The subjects in the Small Group subsystem will express a greater sense of internal control than the subjects in the Control subsystem.

2. The subjects in the AVT subsystem will express a greater sense of internal control than the subjects in the Control subsystem.

Minor Research Hypotheses

Motivation: 1) The subjects in the Small Group subsystem will demonstrate greater motivation than the subjects in the Control subsystem. 2) The subjects in the AVT subsystem will demonstrate greater motivation than the subjects in the Control subsystem.

Self acceptance: 1) the Subjects in the Small Group subsystem will demonstrate higher self-acceptance than subjects in the Control subsystem. 2) The subjects in the AVT subsystem will demonstrate higher self-acceptance than subjects in the Control subsystem.

Social responsibility: The subjects in the Small Group subsystem will demonstrate greater social responsibility than subjects in the other subsystems.

Group goals: The subjects in the Small Group subsystem will demonstrate greater cooperation toward group goals than the subjects in the other subsystems.

Group identification: The subjects in the Small Group subsystem will demonstrate greater identification

toward groups than the subjects in the other subsystems.

Summary

In this chapter the exact methods and procedures used to develop the subsystems were explained. The instruments were presented. The research hypotheses were detailed.

CHAPTER IV

ANALYSIS AND RESULTS

The statistical hypotheses were tested using the analysis of variance and where appropriate covariates were available, the analysis of covariance. Both are omnibus tests of non-zero differences between group means. All hypotheses were tested using the .05 alpha level of significance.

In using both the anlaysis of covariance and the analysis of variance, the statistical models must meet several assumptions. Among the more important assumptions, the error term must be normally and independently distributed with a mean = 0 and a variance = σ_{ε}^{2}. In general, tests of significance in both the analysis of covariance and the analysis of variance are usually robust with respect to violation of the assumption of normality and independence.

The design of this experiment clearly violates the assumption of independence. In the Small Group subsystem, the subjects are intended to interact and depend upon each other's efforts. The subjects were purposely assigned randomly to small task groups comprised of five members each. Therefore, rather than having an n = 30

for that treatment condition, the number of units of observation is really n = 6, i.e., 6 task groups comprised of five members each. In this case, the unit appropriate for the analysis is the task group, the n = 6.

In the AVT subsystem the assumption of independence is clearly not violated and therefore, the unit of analysis would remain the individual subject and the n = 26.

In the Control subsystem, it could be argued that the assumption of independence of observations was violated. The subjects in that treatment condition collectively listened to lectures, were not physically separated as were the subjects in the AVT, and in theory, had ample opportunity to interact with one another. In fact, however, the subjects rarely interacted with each other. An equally strong argument could be made that in this experiment the subjects' passivity in the Control subsystem amounted to independence of observations.

The analysis of variance and covariance were performed using the task group as the appropriate unit of observation for the Small Group Subsystem (n = 6). The individual subject was used as the unit of observation for the AVT (n = 26) and the Control (n = 26), the total n = 58.

Major Hypotheses

Achievement

1A Null Hypothesis: The subjects in the Small Group subsystem and the subjects in the Control subsystem will not differ in achievement levels.

1B Alternative Hypothesis: The subjects in the Small Group subsystem will achieve at a higher level then subjects in the Control subsystem.

2A Null Hypothesis: The subjects in the AVT subsystem and the Control subsystem will not differ in achievement levels.

2B Alternative Hypothesis: The subjects in the AVT subsystem will achieve at a higher level than the subjects in the Control subsystem.

An analysis of covariance was computed with the pre-test as the covariate and the post-test the dependent variable. Significant differences were found between treatment conditions ($F = 18.78$, $df = 2,52$). The mean post-test score for the Small Group subsystem was clearly higher than the Control subsystem ($\bar{x} = 102.50$ and $\bar{x} = 73.96$, respectively). However, there were no significant differences between the AVT subsystem and the Control subsystem ($\bar{x} = 73.81$ and $\bar{x} = 73.96$, respectively).

The test for differences between the two teachers failed to show any differences.

The test for a treatment x teacher interaction failed to show significant differences.

The ten weekly quizzes were analyzed by using a seperate analysis of variance for each quiz. While the results were varied, there were significant differences between treatment conditions on some of the quizzes. Table 4.1 presents the means for all the achievement variables, including the post-test, for each treatment condition.

Table 4.1 Achievement Means for Experimental and Control Subsystems

	Small Group	AVT	Control	Significance Level
Quiz A	3.33	3.35	3.39	.9764
Quiz B	4.33	4.35	4.23	.8644
Quiz C	4.97	4.42	4.73	.0883
Quiz D	6.03	5.46	5.50	.1380
Quiz E	6.73	5.73	5.92	.0001
Quiz F	6.50	6.27	6.35	.3022
Quiz G	9.47	6.04	6.50	.0001
Quiz H	9.67	6.31	7.15	.0001
Quiz I	9.90	6.65	7.58	.0001
Quiz J	9.90	6.81	7.80	.0001
Post-test	102.50	73.81	73.96	.0001

For the first quiz, taken at the end of the first week, there were no differences between treatment conditions ($F = .0161$, $df = 2,52$). There were also no differences on the second, third, and fourth weekly quizzes (Quiz B, $F = .1442$, $df = 2,52$; Quiz C, $F = 1.80$, $df = 2,52$; Quiz D, $F = 2.06$, $df = 2,52$). There were significant differences between treatment conditions on Quiz E, measured at the fifth week ($F = 6.53$, $df = 2, 52$). Quiz F, measured at the sixth week, yielded no significant differences ($F = .4764$, $df = 2,52$). Each of the quizzes measured in the last four weeks of the experiment produced significant differences between treatment conditions (Quiz G, $F = 72.74$, $df = 2,52$, Quiz H, $F = 76.58$, $df = 2,52$; Quiz I, $F = 76.68$, $df = 2,52$; Quiz J, $F = 49.05$, $df = 2,52$).

In the tests for teacher differences and for interactions, there were no significant differences on any of the ten quizzes.

These results showed that when the post-test is the dependent variable, the null hypothesis 1A was rejected and, considering the direction of the differences between the means, the alternative hypothesis 1B was accepted: the subjects of the Small Group subsystem scored higher on that achievement measure than did the subjects in the Control subsystem. Null hypothesis 2A was not rejected, as subjects in the AVT subsystem did not score significantly higher than the control subjects on the post-test.

When the weekly quizzes are considered as the dependent measures, the results were more varied, as is evident in Table 4.1. For the first four quizzes there were no significant differences between treatment conditions and the null hypothesis 1A was not rejected. There were significant differences on Quiz E and the null hypothesis 1A was rejected.

The null hypothesis 1A was rejected for Quiz E (Small Group $\bar{x}$ = 6.73, Control $\bar{x}$ = 5.92) and the alternative hypothesis 1B was accepted. The null hypothesis 1A was not rejected for Quiz F. However, the null hypothesis 1A was rejected and the alternative hypothesis 1B accepted for Quiz G (Small Group $\bar{x}$ = 9.47, Control $\bar{x}$ = 7.15); for Quiz I (Small Group $\bar{x}$ = 9.90, Control $\bar{x}$ = 75.8); and for Quiz J (Small Group $\bar{x}$ = 9.90, Control $\bar{x}$ = 7.80).

The Null hypothesis 2A was not rejected for any of the ten quizzes.

Student Satisfaction

1A Null Hypothesis: The subjects in the Small Group subsystem will not express any different satisfaction than the subjects in the Control subsystem.

1B Alternative Hypothesis: The subjects in the Small Group subsystem will express higher satisfaction than the subjects in the Control subystem.

2A Null Hypothesis: The subjects in the AVT subsystem will not express any different satisfaction than the subjects in the Control subsystem.

2B Alternative Hypothesis: The subjects in the AVT subsystem will express higher satisfaction than the subjects in the Control subsystem.

The student satisfaction scale was administered periodically throughout the experiment to see if satisfaction changed over time. The satisfaction measurements were taken at the end of three, six, and nine weeks. At the end of three weeks, the null hypothesis 1A was not rejected. At the end of six weeks, the null hypothesis 1A was rejected and the alternative hypothesis 1B was accepted ($F = 18.2828$, $df = 2,52$). At the end of nine weeks, the null hypothesis 1A was rejected and the alternative hypothesis 1B was accepted. The mean satisfaction score at the end of six weeks was $\bar{x} = 70.40$ for the Small Group subsystem and $\bar{x} = 57.31$ for the Control subsystem. At the end of nine weeks the mean satisfaction of the Samll Group subsystem subjects was $\bar{x} = 67.27$ compared to $\bar{x} = 58.77$ for the Control subsystem subjects. Table 4.2 presents the mean satisfaction scores for each of the treatment conditions.

Table 4.2 Mean Satisfaction Scores for Experimental and Control Subsystems

	Small Group	AVT	Control	Significant Level
Satisfaction 3	58.03	58.50	58.58	.9474
Satisfaction 6	70.40	58.42	57.31	.0001
Satisfaction 9	67.27	59.58	58.77	.0001

The null hypothesis 2A was not rejected for any of the satisfaction measurements. There were no significant differences on satisfaction between teacher condition or in the teacher x treatment interaction.

Locus of Control

1A Null Hypothesis: There will be no differences in locus of control between subjects in the Small Group subsystem and the Control subsystem.

1B Alternative Hypothesis: The subjects in the Small Group subsystem will express a greater sense of internal control than the subjects in the Control subsystem.

2A Null Hypothesis: There will be no differences in locus of control between subjects in the AVT subsystem and the Control subsystem.

2B Alternative Hypothesis: The subjects in the AVT subsystem will express a greater sense of internal control than the subjects in the Control subsystem.

The locus of control was measured with the Internal-External Locus of Control Scale (I-E). An analysis of covariance was performed using the I-E pre-test as the covariate. Neither null hypothesis 1A or null hypothesis 2A was rejected. There were also no significant I-E differences between teachers or in the teacher x treatment interaction.

Minor Hypothesis

1A Null Hypothesis: There will be no difference in self-acceptance between subjects of the Small Group subsystem and the Control subsystem.

1B Alternative Hypothesis: The subjects in the Small Group subsystem will score higher in self-acceptance than the subjects in the Control subsystem.

2A Null Hypothesis: There will be no difference in self-acceptance between subjects of the AVT subsystem and the Control subsystem.

2B Alternative Hypothesis: The subjects in the AVT subsystem will score higher in self-acceptance than the subjects in the Control subsystem.

Using a self-esteem (SE) scale pre-test measurement as a covariate, the analysis of covariance produced no significant differences between treatment conditions, teacher conditions or in the teacher x treatment interaction. Neither null hypothesis 1A or null hypothesis 2A was rejected.

Null Hypothesis: There will be no differences between subjects in the Small Group subsystem and the Control subsystem in social responsibility.

Alternative Hypothesis: The subjects of the Small Group subsystem will demonstrate higher social responsibility than the subjects in the Control subsystem.

The social responsibility scale (SR) was administered as a pre-test and post-test. Using the pre-test as a covariate, an analysis of covariance yielded no significant differences between treatment conditions, teacher conditions or teacher x treatment interaction. The null hypotheses were not rejected.

Null Hypothesis: There will be no differences between subjects in the Small Group subsystem and the Control subsystem in cooperation toward group goals.

Alternative Hypothesis: The subjects of the Small Group subsystem will show greater cooperation toward group goals than the subjects in the Control subsystem.

A cooperation with group goals scale (GG) was administered both as a pre-test and post-test. Using the pre-test

as a covariate, an analysis of covariance produced significant differences between treatment conditions. The null hypothesis was rejected and the alternative hypothesis accepted ($F = 14.320, df = 2,52$). The subjects in the Small Group subsystem demonstrated a greater cooperation toward group goals than did the subjects of the Control subsystem ($\bar{x} = 25.37$ compared to $\bar{x} = 21.92$). There were no significant differences in cooperation with group goals between teacher conditions or in the teacher x treatment interaction.

> Null Hypothesis: There will be no differences between subjects in the Small Group subsystem and the Control subsystem in the identification with groups.
>
> Alternative Hypothesis: The subjects of the Small Group subsystem will show greater identification with groups than the subjects in the Control subsystem.

The identification with groups scale (ID) was administered as a pre-test and a post-test. Using the pre-test as a covariate, an analysis of covariance produced significant differences between treatment conditions ($F = 9.96$, $df = 2,52$). The subjects of the Small Group subsystem showed a significantly greater identification with groups when compared to the subjects of the Control subsystem ($\bar{x} = 18.47$ compared to $\bar{x} = 15.85$). There were no significant ID differences between teacher conditions or in the teacher x treatment interaction.

> 1A Null Hypothesis: There will be no differences between subjects in the Small Group subsystem and the Control subsystem in motivation.

1B Alternative Hypothesis: The subjects in the Small Group subsystem will demonstrate greater motivation than the subjects in the Control subsystem.

2A Null Hypothesis: There will be no differences between subjects in the AVT subsystem and the Control subsystem in motivation.

2B Alternative Hypothesis: The subjects in the AVT subsystem will demonstrate greater motivation than subjects in the Control subsystem.

The measure of motivation was obtained by counting the number of articles read from a suggested reading list for students in each of the treatment conditions. The frequencies were totaled at three week intervals to provide a longitudinal analysis allied with achievement and student satisfaction. The frequency totals at the end of three weeks and six weeks showed no significant differences between treatment conditions, teacher conditions, or teacher x treatment interaction.

There were no significant differences in motivation at the end of three weeks and six weeks in the teacher condition or in the teacher x treatment interaction.

Motivation measured at the end of nine weeks produced significant differences between treatment conditions. Null hypothesis 1A was rejected and the alternative hypothesis 1B accepted. The mean number of articles read in the Small Group subsystem was 1.57 and for the Control .73 ($F = 5.17$, $df = 2,52$).

The null hypothesis 2A was not rejected for motivation measured at nine weeks.

There were no significant differences in motivation at nine weeks in the teacher condition or in the teacher x treatment interaction.

The total frequency of articles read by the end of the experiment showed significant differences between treatment conditions. The null hypothesis 1A was rejected and the alternative hypothesis 1B was accepted for motivation measured at the end of the experiment. The subjects in the Small Group subsystem demonstrated higher motivation than subjects in the Control ($\bar{x}$ = 4.13 and $\bar{x}$ = 2.66, respectively).

The null hypothesis 2A was not rejected.

There were no significant differences in total motivation between teacher conditions or in the teacher x treatment interactions.

The results of an analysis of the data using the individual as the unit of observation for the Small Group is presented in Appendix H.

Summary

Each hypothesis was tested at the .05 alpha level of significance using either the analysis of variance or the analysis of covariance. Each hypothesis was tested with df = 2,52 and using the task group as the unit of observation for the Small Group Subsystem. The total, n = 58.

There were significant differences between treatment conditions ($p < .0001$), no differences between teachers,

and no teacher x treatment interaction.

The subjects in the Small Group subsystem scored higher on the post-test than did subjects in either the Control or the AVT subsystems. There were no significant differences between the experimental and control conditions for the first four weekly quizzes.

There were significant differences between treatment groups on Quiz E; the subjects of the Small Group subsystem scored higher than the subjects of either the Control or the AVT subsystem.

There were no significant differences between treatment groups on Quiz F. On the last four quizzes, there were significant differences between treatments, with the Small Group subsystem consistently higher than either the Control or AVT subsystem.

There were no significant differences between treatment means on the locus of control measure.

There were no significant differences between treatment means on measures of self-acceptance or social responsibility.

There were significant differences between treatment means on the measure of cooperation toward group goals. The mean of the Small Group subsystem was higher than the mean of the Control subsystem or the mean of the AVT subsystem.

There were significant differences between treatment means on the measure of identification with groups. The

mean of the Small Group subsystem was greater than either the mean of the Control subsystem or the mean of the AVT subsystem.

There were no significant differences between treatment means on motivation measured at the end of three and six weeks.

Motivation at the end of nine weeks and also the total measure of motivation showed significant differences between treatment means. The subjects in the Small Group subsystem demonstrated greater motivation than the subjects in either the Control or the AVT subsystem.

CHAPTER V

SUMMARY AND CONCLUSIONS

Summary

The purpose of the study was to develop and evaluate the effectiveness of two alternative educational models which utilized different role requirements and behaviors for both student and teachers. Two experimental subsystems and a control subsystem were developed. The Small Group subsystem combined social psychological principles of small group interaction as well as reinforcement strategies of behavior modificaiton. Each student became a member of a small task group which functioned as the primary instructional mechanism for this subsystem. Acting both as a learner and as a teacher, each group member was responsible for assisting their fellow group members in mastering the coursework.

The second experimental audio-visual tutorial (AVT) subsystem had individual carrels each with a coordinated tape player and slide projector. They were combined into a modified programmed instruction module. This subsystem allowed the students to regulate the presentation of material to correspond to individual learning rates. The AVT subsystem required students to overtly respond through

written answers to questions presented via the tape player.

In both experimental subsystems the teachers role was modified to become a facilitator and alternative information source rather than the traditional sole source.

The third subsystem was a control condition for the other. It represented the traditional classroom with conventional teacher-student roles. The teacher presented lectures to a class while the students listened and took appropriate notes.

The subjects used in this experiment were chosen from students attending an urban community college. The subjects were randomly assigned to the treatment condition. Those in the Small Group subsystem were again randomly assigned to their task groups. There was a total of 58 subjects: 6 groups of 5 members each in the Small Group subsystem, 26 in the AVT subsystem, and 26 in the Control subsystem.

There were two teachers used in the experiment with each teacher functioning in each of the treatment conditions at alternating times.

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

1. Subjects in the Small Group subsystem would achieve more than the subjects in the Control subsystem.

2. Subjects in the AVT subsystem would achieve more than the subjects in the Control subsystem.

3. Subjects in the Small Group subsystem would express more satisfaction than subjects in the Control subsystem.

4. Subjects in the AVT subsystem would express more satisfaction than subjects in the Control subsystem.

5. Subjects in the Small Group subsystem would express greater internal control than subjects in the Control subsystem.

6. Subjects in the AVT subsystem would express greater internal control than subjects in the Control subsystem.

7. Subjects in the Small Group subsystem will express higher self-acceptance than subjects in the Control subsystem.

8. Subjects in the AVT subsystem will express higher self-acceptance than the subjects in the Control subsystem.

9. Subjects in the Small Group subsystem will express greater social responsibility than subjects in the other subsystems.

10. Subjects in the Small Group subsystem will express greater cooperation toward group goals than the subjects in the other subsystems.

11. Subjects in the Small Group subsystem will express greater identification toward groups than the subjects in the other subsystems.

12. Subjects in the Small Group subsystem will demonstrate greater motivation than subjects of the Control subsystem.

13. Subjects in the AVT subsystem will demonstrate greater motivation than subjects of the Control subsystem.

Following is a summary of the research results calculated using the .05 alpha level of significance and df = 2,52.

1. Subjects in the Small Group subsystem scored higher than subjects in the Control subsystem on the post-test of achievement.

2. Subjects in the Small Group subsystem scored higher than the subjects in the Control subsystem on the, fifth, seventh, eighth, ninth and tenth weekly quizzes, but there were no differences between groups on the first, second, third, fourth, and sixth quiz.

3. Subjects in the AVT subsystem did not score higher in achievement on the post-test or on any of the ten weekly quizzes.

4. Subjects in the Small Group subsystem expressed greater satisfaction than the subjects in the Control when measured at the end of six and nine weeks. There were no differences at the end of three weeks.

5. Subjects in the AVT subsystem did not express greater satisfaction than the Control subjects on any of the measures.

6. Subjects in the Small Group subsystem did not express greater internal control than subjects in the Control subsystem.

7. Subjects in the AVT subsystem did not express greater internal control than subjects in the Control subsystem.

8. Subjects in the Small Group subsystem did not express greater self-acceptance than subjects in the Control subsystem.

9. Subjects in the AVT subsystem did not express greater self-acceptance than subjects in the Control subsystem.

10. Subjects in the Small Group subsystem did not express greater social responsibility than subjects in the other subsystems.

11. Subjects in the Small Group subsystem did express greater cooperation toward group goals than the subjects in the other subsystems.

12. Subjects in the Small Group subsystem did express greater identification with groups than the subjects in other subsystems.

13. Subjects in the Small Group subsystem demonstrated greater motivation measured at nine weeks, and total than subjects in the Control subsystem. There was no difference at the end of three and six weeks.

14. Subjects in the AVT subsystem did not demonstrate greater motivation than subjects in the Control subsystem in any of the motivation measures.

Conclusions and Discussion

Table 5.1 presents a summary of the null hypotheses tested at the .05 alpha level and df = 2,52.

Table 5.1 Summary of Null Hypotheses Tested*

	Small Group	AVT	p less than
Quiz A	-	-	
Quiz B	-	-	
Quiz C	-	-	
Quiz D	-	-	
Quiz E	+	-	.0001
Quiz F	-	-	
Quiz G	+	-	.0001
Quiz H	+	-	.0001
Quiz I	+	-	.0001
Quiz J	+	-	.0001
Post-test	+	-	.0001
Satisfaction 1	-	-	
Satisfaction 2	+	-	.0001
Satisfaction 3	+	-	.0001
Internal Control	-	-	
Self-Acceptance	-	-	
Social Responsibility	-	-	
Group Goals	+	-	.0001
Group Identification	+	-	.0001
Motivation 1	-	-	
Motivation 2	-	-	
Motivation 3	+	-	.0002
Motivation 4	+	-	.0002

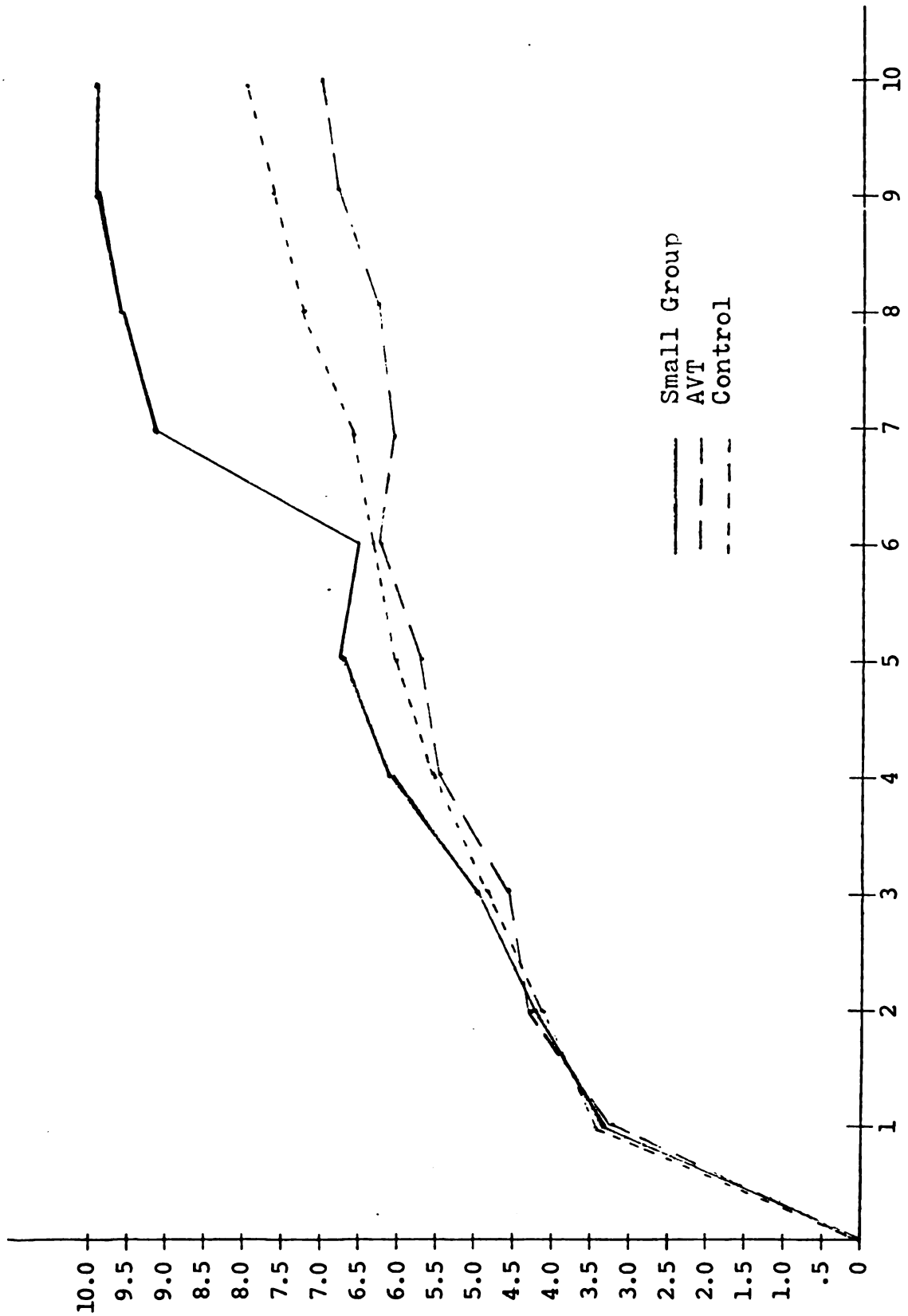
*
+ Null hypothesis rejected
- Null hypothesis not rejected

The Small Group subsystem was more effective than the Control in 52.17% of the hypotheses tested, contrasted to the AVT which was not effective at all when compared to

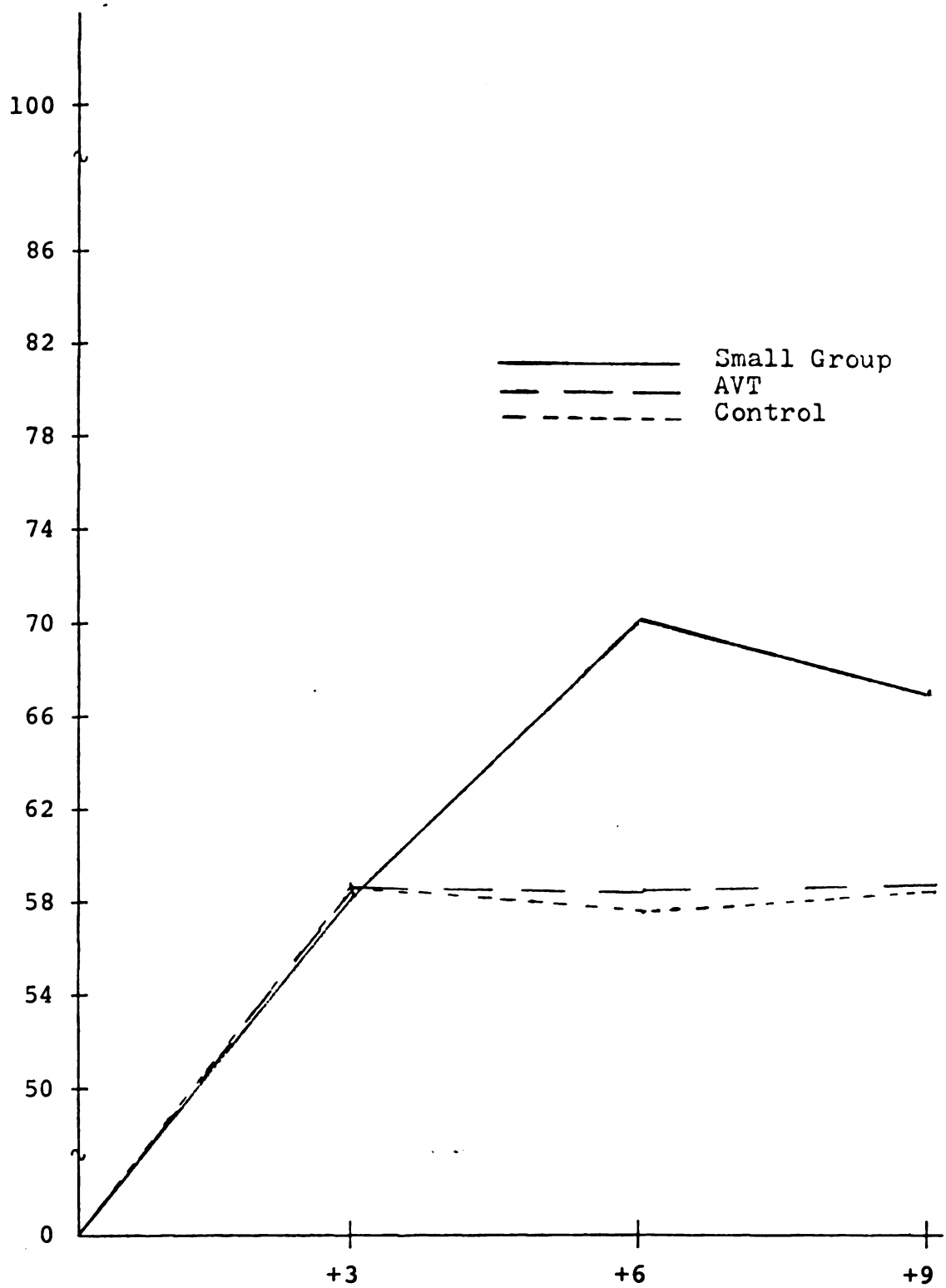
the Control subsystem. It appears that a group formation process was taking place in the Small Group subsystem. During the ten week period of the experiment, students who were assigned to small groups at random began to coalesce into task oriented groups and worked together for the common good of each group. This is illustrated in the achievement measures. Student achievement during the first four weeks did not differ in any of the treatement conditions but differences appeared in the fifth week and became greater during the remaining weeks of the experiment. Graph 5.1 shows the differences in achievement during the course of the experiment.

Graph 5.1 shows there were no achievement differences during the first four weeks of the experiment. Students in the Small Group subsystem began scoring significantly higher in the fifth week and those minimal differences continued until the seventh week when the task groups began achieving at dramatically higher levels than the other conditions. These dramatic differences continued to be reflected in the post-test given in the eleventh week. The post-test mean for the Small Group subsystem was 102.5 compared to a mean of 73.81 for the AVT subsystem and 73.96 for the Control.

Evidence for the existance of a group formation process can further be found when considering the data on student satisfaction and motivation. Graph 5.2 presents the mean student satisfaction scores by treatment condition



Graph 5.1 Group Means on Weekly Quizzes



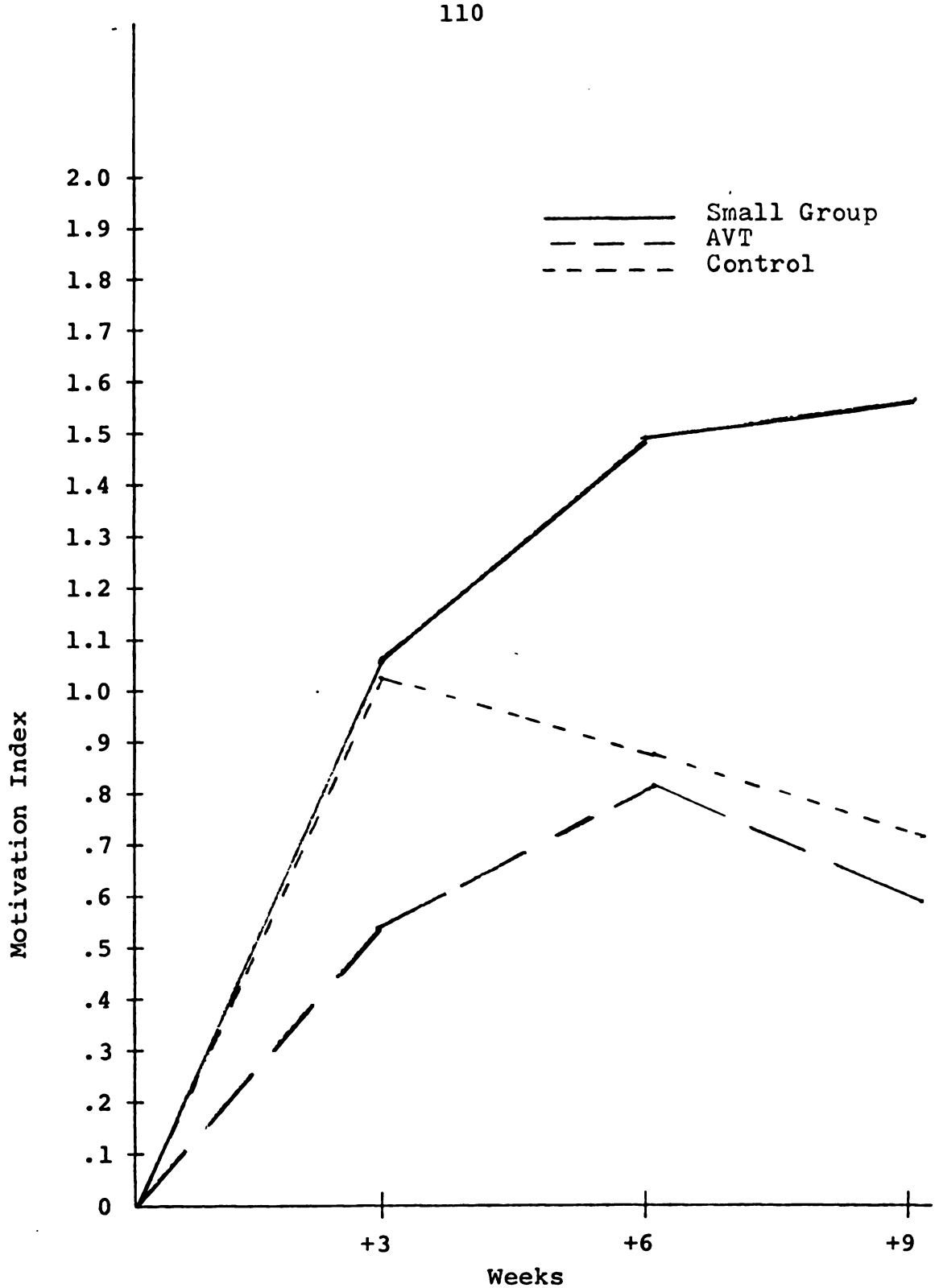
Graph 5.2 Mean Student Satisfaction Scores by Treatment Condition Measured Over Time

for each measurement taken over time.

The mean satisfaction scores presented in Graph 5.2 show that the students did not differ in satisfaction at the end of three weeks. By the end of six weeks the students in the task groups were clearly expressing greater satisfaction with their educational environment than students in the other conditions. The mean satisfaction score at the end of six weeks was 70.40 for the Small Group subsystem compared to a mean of 58.42 for the AVT subsystem and 57.31 for the Control subsystem. In spite of a small decline in satisfaction at the end of nine weeks, the differences between treatement conditions persisted. The mean satisfaction score at the end of nine weeks was 67.27 for the Small Group subsystem, compared to a mean of 59.58 for the AVT and 58.77 for the Control subsystem.

A similar relationship becomes apparent when analyzing the motivation data. The motivation index was totaled at three week intervals and at the end of the experiment by adding up the number of articles each student read from the suggested reading list. Graph 5.3 shows the mean number of articles per treatment condition measured longitudinally.

There were no differences between the Small Group subsystem and the Control subsystem at the end of six weeks. Between the sixth and ninth weeks large differences in motivation were recorded and persisted until the end of the experiment. At the end of six weeks the



Graph 5.3 Mean Motivation of Treatment Conditions Over Time

Small Group $\bar{x}$ = 1.50 compared to the Control $\bar{x}$ = .89. At the end of nine weeks the Small Group $\bar{x}$ = 1.57 compared to the Control $\bar{x}$ = .73. The mean of the total motivation index for the Small Group subsystem was 4.13 and for the Control 2.65.

There appear to be some differences in motivation measured at three weeks between the Small Group subsystem and the AVT subsystem ($\bar{x}$ = 1.07 and $\bar{x}$ = .539, respectively). These differences continued at six weeks (Small Group $\bar{x}$ = 1.50 and AVT $\bar{x}$ = .81) and at nine weeks (Small Group $\bar{x}$ = 1.57, AVT $\bar{x}$ = .58). The mean of the total motivational index for the Small Group subsystem was 4.13 and the AVT 1.92.

When the data from Graph 5.1-5.3 are considered together, it is clear that there were no differences between treatment conditions on achievement, satisfaction or motivation during the first four weeks. Treatment differences begin to appear between the fourth and sixth weeks and become more prominent at nine weeks. These data support the position that a group formation process was occurring in the Small Group subsystem and that the students began to function as task oriented groups.

This explanation becomes more plausible when one considers the contingencies under which students behaved in the Small Group subsystem. The details of this contingency system are detailed in Chapter III. They became members of task groups which were constructed by random

assignment. A critical feature of this subsystem was that each student was dependent upon the performance of the other peer group members. A student's grade for any particular quiz was scored on a 60:40 ratio, where 40% of the grade was the task group mean and 60% was the individual score. If the task group mean was lower than a given students' score, this would have the effect of lowering that student's grade. This group contingency theoretically served as an incentive for each group member to be responsible for the performance of their fellow group members.

Other features were also implemented in the Small Group subsystem to foster the group formation process and a sense of peer responsibility within each task group. Each group elected its own group leader; each group voted for its own distinctive name (like the Screaming Yellow Zonkers); each group had to reach careful concensus over which questions should be asked of the teacher-facilitator, since an overabundance of questions could lead the teacher-facilitator to the conclusion that the problem-solving skills in the group were not working and a new group leader was needed. Another method to generate group cohesion was to rank the performance of each of the different task groups after each weekly quiz, allowing the members to compare the performance of his or her group to the performance of all others. Each member of the group which was ranked first at the end of the week received tokens

redeemable at the end of the experiment. This public ranking encouraged a "we versus them" attitude which further served to enhance group cohesion.

The ratio scoring, the group elections, and the performance rankings were all designed to generate group cohesion, mutual reliance, mutual responsibility, and problem-solving skills in forming the task group. Since these characteristics are not common to most traditional educational environments, it took a period of adjustment for the students to understand and then utilize the task group. The data indicate that this period of adjustment lasted at least four weeks. Students not accustomed to group problem solving operated as they had in other traditional classrooms with the emphasis on individual performance. At the end of the four week period, the groups' problem-solving skills were not operating efficiently. The mean number of questions the groups submitted to the teacher-facilitator declined only slightly during the first four weeks, from 3.92 the first week to 3.27 the fourth week, indicating the students were still dependent on the teacher-facilitator for information and guidance. The students in the Small Group subsystem did not differ from students in the other subsystem on measures of achievement, student satisfaction, or motivation.

Differences between treatment conditions began to appear about the fifth week. The F-ratio with df = 2,52 calculated on Quiz E showed the Small Group students scored

significantly higher at the end of the fifth week ($\bar{x}$ = 6.73 compared to $\bar{x}$ = 5.73 and $\bar{x}$ = 5.92). The mean number of questions the task groups submitted to the teacher-facilitator dropped to .50. It appears that in the fifth week the small groups are coalescing into task units with effective problem-solving skills: their achievement is increasing and the frequency of relying upon the teacher is decreasing which implies they are solving problems together as a cohesive group.

This process appears to have been temporarily interrupted in the sixth week. The differences in Quiz F achievement were not significant (Small Group $\bar{x}$ = 6.50, AVT $\bar{x}$ = 6.27, Control $\bar{x}$ = 6.35) although the task groups still ranked higher than the other students.

The mean number of questions the task groups asked jumped from .50 the previous week to 2.33. Although the treatment conditions did not differ on achievement and motivation at the end of six weeks, the students of the Small Group subsystem expressed greater student satisfaction than the other students.

The results of the sixth week might be explained by the nature of course material being studied at that time. It was a unit on personality development which

relied heavily on new terminology, Freudian theory, and principles of operant conditioning. When the students in the task groups had some difficulty mastering the new theories and lexicon, their questions directed to the teacher-facilitator increased, their performance on that particilar quiz decreased, and there may have been some interference with their motivation. However, these difficulties appeared to be specific to that course material, as their enthuiasm for the class remained high, measured by their high satisfaction scores. This temporary decline in achievement did not occur at any other time in the experiment.

The most dramatic differences in the experiment took place between the seventh week and the end of the experiment. The mean achievement scores for the Small Group subsystem rose to 9.47 the seventh week, 9.67 the eighth, and 9.90 the ninth and tenth weeks. The means for the AVT and Control subsystems, however, rose only slightly (Quiz G, 6.04 and 6.5; Quiz H, 6.31 and 7.15; Quiz I, 6.65 and 7.58, respectively). At the end of the seventh week, the mean number of questions the task groups asked dropped to 0.00 and remained there for the rest of the experiment. At nine weeks, the task groups expressed significantly greater satisfaction and motivation compared

to other students in either the AVT or Control subsystem. Finally, the post-test results were a glaring testimony to the effectiveness of the Small Group subsystem ($\bar{x}$ = 102.50 compared to $\bar{x}$ = 73.81 and $\bar{x}$ = 73.96). The Small Group subsystem was unquestionably more effective than the other two subsystems.

When viewed with a longitudinal perspective, the data clearly show a group problem-solving process developing. Intuitively, the evaluation of the group process is understandable. Any time a number of strangers are put together and expected to function jointly a certain amount of "feeling out" and adjustment occurs before group cohesion develops. When one considers the conditions and parameters under which the students operated in the Small Group subsystem, it was totally unlike any educational (or social) model they had experienced before. One would expect a period of adjustment for students to learn how the subsystem operated. The data from this experiment suggest the period of adjustment lasted for the first four weeks.

After this period of acclimation, the students apparently began to accept and utilize the concept of shared responsibility and their problem-solving skills improved. This is evidenced between the fourth and sixth weeks of the experiment. The task groups became highly efficient and effective during the seventh through tenth weeks. This conclusion is supported not only by the data

on acheivement, satisfaction, and motivation but two additional scales specifically designed to measure attitudes toward groups. The students of the Small Group subsystem expressed a significantly greater tendency to cooperate with the goals of a group than the students of the other subsystems ($\bar{x}$ = 25.37 compared to $\bar{x}$ = 22.58 for AVT and $\bar{x}$ = 21.92 for Control). The students who had experienced the shared responsibility and problem-solving abilities of the task groups were more willing to subordinate an individual goal for a goal of the group. These same students also expressed a greater tendency to join groups, having experienced a cohesive and productive group membership. The mean score of the Small Group subsystem on the tendency to identify with groups was 18.47 compared to 16.12 for the AVT and 15.85 for the Control. The successful experience of the task groups influenced its students to have a greater likelihood to either join or identify with future groups.

The outcomes of this experiment lend support to much of the previous research involving small group behavior. The heavy emphasis on interdependence and concomitant intercommunication promoted group cohesion, as found by Festinger, et al. (1950).

The ranking of group performance on the weekly quizzes served as a form of feedback to the entire group. The members learned not only how well each member was doing but how well they were performing vis a vis the other

groups. This enhanced group cohesion and the willingness of members to accept inter-dependent relationships, as Thomas (1957) and Jayarantne, et. al. (1974) concluded. Glaser and Klaus (1966) also found performance feedback to the entire group was necessary for increased productivity.

The task groups' decisions on how to divide and share the responsibilities for the coursework among its members had the effect of actively involving the members in the flow of work and therefore, involved in the fate of the group, according to Zander (1971). The use of a 60:40 group ratio method of scoring individual and group achievement on the weekly quizzes functioned as a group contingency which facilitated peer tutoring and problem-solving behaviors within the task group. This conclusion supports Wolf et al. (1968) who used group reinforcement to increase arithematic scores; Hathaway (1972) also successfully used group reinforcements to increase peer tutoring as a means of increasing achievement; Wodarski et al. (1971), using a variety of group contingency ratios, found the greatest incidence of peer tutoring when group contingencies were used and that as each contingency was composed of a greater ratio of individual reinforcement the occurance of peer tutoring decreased.

Lerner and Fairweather (1963) compared the work performance of groups under maximum supervision and under minimal supervision and found that the less supervised

group developed more cohesion, less dependency on staff decisions, and some increased job performance. In subsequent research, Fairweather (1964) developed the note system of communication to further enhance problem-solving skills and group autonomy. That note system was adopted for this experiment and was equally effective in facilitating the groups' self-reliance and decision'making. As the groups' performance improved, the number of questions directed to the teacher-facilitator decreased and the number of questions solved by each group alone increased. By the time the number of questions referred to the teacher had dropped to zero in week seven, the groups' performance was reaching its maximum efficiency. The groups' mean score on the quizzes in the last four weeks ranged from 9.47 to 9.90 out of a possible 10 points. Further evidence of the group cohesion was found in the significantly high student satisfaction scores.

The results of this experiment which showed increases in performance with concomitant increases in student satisfaction and motivation support the positive relationship Zander (1971) found between satisfaction and achievement in small group performance. Initially, Zander found a period of dissatisfaction with the small group environment and low performance. This was then followed by increased satisfaction and increased performance just as in this Small Group subsystem of this experiment.

The absence of any significant differences between

the AVT subsystem and the Control indicates that in this experiment, at least, the AVT was not an effective alternative to the traditional educational model. The total lack of any AVT-Control differences suggests the possibility of an ineffective or faulty programmed instruction presentation. Perhaps the entire reinforcement continency needed a vigorous revision to more closely approximate the effective reinforcement ratios found in Skinnerian research. However, the results of the AVT subsystem in this experiment are similar to the inconclusive research findings of Gold (1964) and Schramm (1962, 1964).

The absence of any significant realtionships between either of the experimental subsystems and increased internal locus of control does not support the work of Franklin (1963) who found significant positive relationships between internal control and academic achievement motivation, or similar findings of Coleman (1966), Bachman (1967), and Morrison (1966). The low correlations between the I-E measure and the self-esteem (.04) and between the post-test (-.13) do not give any support to the causal relationships which Calysn (1973) found between these three measures.

Both experimental subsystems were developed as alternative educational models to the traditional classroom. Each required alternative roles and behaviors for both students and teachers. Each subsystem used a different reinforcement contingency. Each required overt responding from the students and active participation in the decisions

affecting the learning of the coursework. The results of the experiment show that the Small Group subsystem was effective alternative to the traditional model in measures of achievement, satisfaction, and motivation. The AVT did not prove to be an effective alternative.

Implications

The positive findings of the Small Group subsystem suggest several interesting implication for utilization and future research. In many ways the mechanics of the small task groups were very similar to successful task groups developed in hospital wards by other researchers. This research provides strong supplemental evidence for the efficacy of developing small groups of individuals into problem-solving task groups. Since this study was conducted with a student population, it further broadens the applicability of small task groups. In doing so, it challenges many of the traditional beliefs of the conventional student-teacher roles. This study indicates that the students were extremely capable of learning the coursework through self-direction and shared efforts with their peers, and that continual input from teachers was not necessary. The data indicated that the better the groups were performing, the less frequent the need to consult with the teachers. The teachers did not need to be the primary information source for the students but instead functioned effectively by answering questions and elaborating

on issues directed to them from the students. This in no way denigrates the importance of the teacher's role but rather shifts the emphasis toward providing detailed explanations of assorted problem areas in the course material. In many ways, this would seem to indicate a more efficient teaching role because the teacher would immediately become aware of the problems the students are having by virtue of the questions raised. The teachers are then expending the bulk of their efforts specifically addressing problem areas and utilizing their expertise by providing detailed and expanded explanations.

Teacher training programs should incorporate principles of small group dynamics as a useful adjunct to teaching skills. All teachers should be knowledgeable on how groups function and be capable of implementing a task group.

The model also suggests a more efficient role for students. Within the group context, there exists definite peer pressure for each student to actively participate in the group's tasks, i.e., learning the course material. This is most commonly called "pulling your own weight." This pressure for active involvement serves as a deterrant to students who delay studying for a class until exam time, often at the expense of effective performance. The requirement in the subsystem that the members of each task group must decide how to divide the different sections of the coursework among themselves invites a greater possibility

that any particular member would be preparing a topic which best suits his or her own interests. By having to prepare for consumption only a fraction of the material from any one of each of the ten units, the individual student can concentrate on a more limited area of course-work. Then, within the group meeting, the student presents the prepared material as well as listens to other presentations from the other group members.

Since the data from this experiment show the Small Group subsystem to be effective in increasing achievement, student satisfaction, and motivation, it would be logical to apply the task group concepts to a population which is traditionally low in each of those three areas, such as school dropouts (who were the original, although unsuccessful, target population of this study), truants, delinquents, or low achievers. Typically, members of these groups have poor achievement records, are lacking academic motivation, and find little satisfaction in their roles as unsuccessful students. Ironically, these are often the same people who are easily influenced by their peers. Therefore, by channeling the peer group pressure into the formation of problem-solving task groups, educational institutions would then offer these students a practical and effective method of increasing achievement and the students would have the opportunity to begin encountering successful experiences from a system which traditionally they have found to be unresponsive and unrewarding.

As a logical follow-up to this study, there is a clear need to replicate the Small Group subsystem to establish the reliability of the positive results. This might be done either using a similar sample of community college students or with a sample drawn from different populations such as middle school, high school, or junior/senior undergraduates. Because the task groups require certain cooperative skills, the task groups may not be a useful model at the elementary level.

In addition to the target population, another consideration for replicative research would be the course material. This experiment used an introductory psychology class, divided into ten fairly independent sections. One could raise the question of the small groups' effectiveness with a similar course of advanced material or with a class involving highly technical or scientific content. It may have been that an introductory social science class was uniquely suited for this experiment.

A critical direction which any future research must consider is determining the different parameters of an effective task group. This experiemnt used a 60:40 ratio group contingency to facilitate autonomy and mutual responsibility within a group. There is a need to investigate how important that ratio is to the success of a group. This could be done by conducting an experiment which compared that ratio to various other ratio possibilities, such as 40% individual 60% group or 0% individual 100% group.

As noted earlier, there is limited evidence that as the group contingency increases, performance will increase. By comparing different ratios, it will be possible to determine their relationship to increased performance as well as if the performance of the groups continue longitudinally or reach a plateau.

Other characteristics of the task groups which might be examined include how important is the note system of communication; whether there are other types of communication systems which are effective; whether more or less frequent teacher-student contact is critical.

Since in this research, the small groups met for an hour each, twice weekly, future studies may wish to determine the effects of longer or shorter, or more or less frequent group meetings.

While the generalizability of the result of this experiment are technically limited to the group of students who signed up for an introductory psychology class at a specific community college, the significant results of the study provide very promising avenues to future research for those who are interested in the social psychological dynamics of classroom environments and are searching for effective alternatives to conventional educational models.

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APPENDICES

APPENDIX A

ACHIEVEMENT

PRE-TEST

1. Attitudes are distinguished from emotions in that attitudes, not emotions:
   1. are measured in two "dimensions": positive vs negative, and strong vs weak
   2. have a cognitive aspect and are relatively long-lasting
   3. have a "feeling" aspect
   4. are always relatively positive and strong

2. Attitudes tend to be very resistent to change because they are reinforced by:
   1. perceptual constance
   2. cognitive dissonance
   3. changing behavior
   4. extremely high pay

3. A person will tend to change his attitudes in the direction of what a group's expects if:
   1. the cohesiveness of the group is low
   2. the person is outside the group's pattern of interaction
   3. he aviods committing himself publicly to the group's opinions
   4. the group is more attractive to him than other groups

4. From the standpoint of psychology, should we expect compulsory racial integration to lead more favorable attitudes toward integration?
   1. yes, according to research cited in this course
   2. no, according to the theory of "cognitive dissonance"
   3. yes, only if the integration is forced at gunpoint
   4. no, according to experiments by Asch and Festinger

5. A person is likely to become more violent in a mob than he is at other times because:
   1. a mob has a "mind" of its own
   2. a mob is usually led by an outsider
   3. a mob tends to lift inhibitions against violent tendencies the individual already has
   4. a mob lowers an individual's perception of his own importance

6. If two groups which are working for the same goal have equal power to threaten each other, what is likely to happen?
   1. they both will forget the goal and use the power
   2. they will work together to reach the goal more than if they had less power
   3. one group will voluntarily give in to the other
   4. they will realize that their power has become useless and will negotiate to lower their power.

7. Studies by Milgram of obedience to authority showed that:
   1. most people are not willing to cause pain for anybody else
   2. most people are willing to injure others seriously, especially if they can't see the victims
   3. most people will injure enemies but not friends
   4. most people will turn violently against an authority figure who tells them to harm someone else

8. Studies of leadership seem to indicate that:
   1. some people are "born leaders" and will rise to the top anywhere
   2. a person who is persistent, dependable, self-confident, and popular and who speaks well and takes a lively part in the group's activities is almost sure to become a leader
   3. there are no traits or set of traits which can be found in every effective leader of a group
   4. all groups tend to select the same kinds of leaders

9. If a group requires an authoritarian leader, the leadership role is likely to be filled best by someone who is very
   1. laissez-faire
   2. democratic
   3. intelligent
   4. anxious

4

10. If a person is somewhat, though not too much, different from the rest of his group and is assigned a position of centrality, he is most likely to:
    1. become anxious
    2. leave the group
    3. become accepted as a leader
    4. reject the group's attitudes

11. Homeostasis or the tendency of an organism to return to a state of equilibrium is produced primarily by the action of the:
    (1) sympathetic nervous system (2) parasympathetic nervous system (3) id (4) superego

12. According to Freud the part of the mind which tries to balance the motive toward pleasure and the motive toward fulfilling the demands of the social environment is the:
    (1) id (2) ego (3) superego (4) libido

13. To watch the late movie on television or to get a good night's sleep shows a situation where there is:
    1. approach-approach conflict
    2. approach-aviodance conflict
    3. aviodance-aviodance conflict
    4. double approach-aviodance conflict

14. A polygraph measures:
    1. guilt or innocence with respect to a specific act
    2. truth or falseness of "yes" or "no" responses
    3. physiological changes from which emotion is inferred
    4. whether emotion is positive or negative

15. A man who couldn't afford to buy a motorcycle remarked "Motorcycling is a dangerous hobby and I won't take the risk." He is:
    (1) projecting (2) repressing (3) rationalizing (4) regressing

16. A three-year-old all of a sudden wants his bottle again when the family's new baby was brought home from the hospital. This is:
    (1) substitution (2) projection (3) repression (4) regression

17 The man who claims that everybody is dishonest may be exhibiting a defense mechanism called: (1) identification (2) regression (3) projection (4) denial

18. Freud's contributions to modern psychological thought concerning emotions:
    1. have been interesting but relatively minor
    2. are primary in illustrating the independence of emotion and motivation
    3. include the recognition of unconscious motivation
    4. all of these

19. Which of the following statements is <u>true</u> of defense mechanisms?
    1. defense mechanisms always involve a distortion of reality
    2. defense mechanisms are learned
    3. defense mechanisms primarily reduce anxiety rather than solve one's problems
    4. all of the above

20. There is evidence to support the hypothesis that there is a relationship between the <u>need to achieve</u> and <u>risk taking</u>. Which of the following is <u>true</u>?
    1. the higher the need to achieve, the higher the risk taken
    2. high achievers are moderate risk takers
    3. high achievers never take a risk
    4. low achievers are moderate risk takers

21. Which of the following is <u>not</u> likely to have a doctor's degree in psychology but <u>must</u> have a M.D. degree and <u>may</u> treat neurosis or psychosis with drug therapy?
    1. clinical psychologist
    2. counseling psychologist
    3. medical social worker
    4. psychiatrist

22. An obsession is: 1. an irresistible thought
    2. an irresistible action
    3. an unreasonable fear of something
    4. an exaggerated hopelessness

QUIZ #1

1. Consider the following two distributions of numbers:
   Group A = 9, 12, 10, 11, 12, 12, 10, 10, 13
   Group B = 1, 7, 10, 18, 20, 22, 15, 1, 5
   Which of the following statements is true?
   1. Group A has a greater variation than Group B.
   2. Group B has a greater variation than Group A.
   3. They have equal variation since their means are equal.
   4. One cannot determine a difference in variation.

2. Refer to Group B in the above question. What is the median of this group of numbers?
   (1) 12.5 (2) 11 (3) 10 (4) 1

3. Which of the following is the definition of the mean?
   1. the most frequent score.
   2. the mid-point in a distribution of numbers.
   3. a measure of the mean deviation.
   4. the average score.

4. To test the hypothesis that college men who are given physical exercise will achieve better grades than those who are not given this exercise, what would be the independent variable:
   (1) grades (2) physical exercise (3) sex (4) level of education

5. Psychiatric patients from the same hospital were divided into three groups. One group received plastic poker chips immediately after exhibiting appropriate social behavior. Another group received the plastic chips at the end of the week for all the appropriate social behavior exhibited during the week. Both groups could exchange the chips for food. Another group received no reward for appropriate social behavior. The control group is:
   1. the group receiving chips immediately after appropriate behavior.
   2. the group receiving chips at the end of the week.
   3. the group receiving no chips.
   4. both groups receiving chips.

6. A psychologist wishes to measure what effect the sex of teachers has on the learning rate of elementary school students. In this experiment, identify the extraneous variables which the psychologist would have to take into consideration:
   1. sex of the teacher (male vs female)
   2. the learning rate of the students
   3. grade placement, social class, nutrition and sex of the students.
   4. both 1 and 2 are correct

7. In an experiment which tests the relationship between alcohol and learning comprehension, the group which receives the alcohol would be the:
   (1) experimental group (2) control group (3) research group (4) variable group

8. Which of the following is the definition of the mode?
   1. the most frequent score
   2. the average score
   3. the score which appears more than one time.
   4. the mid-point in a distribution of numbers.

9. Which of the following correlation coefficients has the greatest power of prediction.
   (1) +.65 (2) +.01 (3) -.05 (4) -.78

10. Which of the following is <u>not</u> a characteristic of the normal curve?
    1. each normal curve has the same standard deviation.
    2. each normal curve is bell shaped.
    3. each normal curve is symmetrical.
    4. the mean, mode, and median of a normal distribution lie exactly at the center of a normal curve.

QUIZ #2

1. Which of the following is not a method of studying the brain?
   1. stereotaxis 2. brain stimulation 3. brain damage in man
   4. action currents

2. Damage or injury in the reticular formation would most likely produce:
   1. unconsciousness 2. loss of equilibrium 3. blindness 4. agitation

3. The part of the brain that has direct control over the primary drives such as hunger, thirst, sex, and sleep is the:
   1. cerebral cortex 2. mid-brain 3. hypothalmus 4. medulla

4. Which of the following allows communication between the two hemispheres of the brain?
   1. cerebral cortex 2. mid-brain 3. medulla 4. corpus collosum

5. The cerebellum serves which of the following functions:

   1. center of pleasurable feelings
   2. necessary for consciousness
   3. maintains equilibrium
   4. controls the basic body functions

6. Each neuron has a threshold which is the amount of stimulation necessary for the neuron to respond with a nerve impulse. Which law applies to this phenomenon?
   1. Weber's Law 2. the all-or-none law 3. the law of effect
   4. the absolute law

7. In a reflex arc, a stimulus travels:
   1. from the receptor to the spinal cord to the effector.
   2. from the receptor, to the spinal cord, to the brain, back to the spinal cord, and finally to an effector.
   3. from the receptor to the effector.
   4. from the brain to the effector.

8. A "synapse" in the nervous system is:
   1. the area where an impulse is transmitted from one neuron to another.
   2. the part of a neuron which carries the impulse away from the cell body.
   3. a balance between sympathetic and parasympathetic activity.
   4. a neuron which connects a sensory nerve to a motor nerve.

9. Cerebellum is to muscle coordination as medulla is to:
   1. motor movements 2. basic body functioning 3. consciousness
   4. motivational behavior

10. The result of a lobotomy is:
   1. make patients more active.
   2. increase patients social sensitivity.
   3. increase a person's ability to think in abstract terms.
   4. make patients more docile.

QUIZ #5

1. Going into a darkened room and perceiving a pinpoint of stationary light move about is an example of:

   1. the auto-kinetic effect
   2. an innate perceptual difference
   3. perceptual constancy
   4. subliminal perception

2. When two groups of children were asked to make a variable disc of light equal to the size of different coins, which of the following describes the results of the research?
   1. The poor children overestimated to a much greater degree than the rich children.
   2. The rich children overestimated to a much greater degree than the poor children.
   3. The poor children underestimated the size of the coins.
   4. Both groups underestimated the size of the coins.

3. Which of the following is not a factor which thresholds appear to depend?
   1. the acuity of the subject's senses.
   2. the just noticeable difference used in finding the absolute threshold.
   3. the past experiences of the subject.
   4. what other stimuli are being administered at the same time.

4. Consider the American flag demonstration in black became white; green became red; and yellow became blue after following the instructions on the tape. This phenomenon would most likely support which of the following theories of color vision?
   1. the Young Helmholtz 2. the Purkinje 3. the Hering 4. the color vision

5. Perception is a process assigning _____ to sensation.
   1. feeling 2. thresholds 3. distortions 4. meaning

6. You look at the moon on the horizon and the moon appears larger than when it is at its zenith. Why?
   1. because you perceive each stimulus as being harmonious with the rest of the pattern.
   2. because it is closer to you.
   3. because on the horizon it is not as bright as when it is at its zenith.
   4. because it is closer to the earth.

7. A psychology teacher tries a new technique to improve her students' grades. While they are in the classroom listening to the lecture, several microphones in the room are broadcasting "study psychology, study psychology", etc. below the range of the students' hearing thresholds. This is an example of the use of:
   1. just noticeable differences
   2. perceptual constancy
   3. subliminal cues
   4. proximity

8. Joe can just barely discriminate between a 10-pound weight and an 11-pound weight. He is trying to keep his wife, Tess, on her diet. Before she goes off to the annual dinner of the Women's Knitting and Peach Preserve Society, he checks her weight by lifting her and finds that she weighs 200 pounds. How much can she afford to gain before he will notice the difference in her weight after she returns?
   1. 1 pound 2. 11 pounds 3. 19 pounds 4. 22 pounds

9. When a door is slightly opened, it still looks like a rectangular door to you even though the stimulus on your retina is actually trapezoidal. This is an example of:
   1. shape constancy
   2. a figure-ground relationship
   3. size constancy
   4. just noticeable difference (JND)

10. A tree 100 yards away may project on the retina an image no bigger than that of a toothpick a foot away. Despite this fact, the tree is perceived as being much larger. This feature of perception is known as:
   1. figure 2. [illegible] effect 3. ground 4. constancy

QUIZ #4

1. A young housewife was listening to her stereo that was playing Jimi Hendrix's "Foxy Lady" and peeling onions. Her eyes became very tearful. Now everytime she hears "Foxy Lady" on the radio, she becomes tearful. The unconditioned stimulus is:
   1. the stereo 2. the song "Foxy Lady" 3. onions 4. tears

2. In a replication of Pavlov's research, consider a dog who had completed the process of extinction until he only sallvated one drop when presented the bell alone. Two days later the dog was brought back to the experimental situation and when the bell was presented he sallvated three drops. This illustrates which of the following phenomenon?
   1. discrimination
   2. stimulus generalization
   3. spontaneous recovery
   4. trial and error learning

3. Instructors are paid every two weeks at LCC. What schedule of reinforcement are they on?
   1. fixed ratio 2. fixed interval 3. variable ratio 4. variable interval

4. Which of the following is a statement of the Law of Effect?
   1. If a response was followed by a reward this response would be more likely to occur again.
   2. The more often a response is repeated, the stronger the learning will be.
   3. The animal must be physiologically prepared.
   4. If an organism is presented with the results when attempting a task, his performance will improve.

5. If you were lost in the woods and you randomly wandered around until you found your way out, and then a year later you got lost in the same woods and it took you much less time to find your way out the second time, then this would be an example of:
   1. drive 2. trial and error learning 3. insight learning 4. discrimination

6. The chimpanzee who has been given two short hollow sticks that could be fitted together, who has been trying to reach a banana by only using one of them, and who suddenly fitted the two sticks together and successfully reached the banana, illustrated:
   1. latent learning 2. sign learning 3. insight learning 4. stimulus generalization

7. In Hull's Theory, the observable quality or kind of reinforcement refers to which of the following constructs:
   1. Drive 2. Value 3. Intensity 4. Work

8. Consider a rat in a Skinner box who gets reinforced everytime he presses the bar 12 times. This is an example of:
   1. variable interval schedule
   2. variable ratio
   3. fixed interval schedule
   4. fixed ratio schedule

9. A war veteran drops into a ditch whenever a car backfires. The phenomenon illustrated is:
   1. insight learning
   2. superstitious behavior
   3. stimulus discrimination
   4. stimulus generalization

10. After conditioning, the <u>unconditioned response</u> becomes the:
   1. conditioned stimulus
   2. unconditioned stimulus
   3. conditioned response
   4. intervening variable

QUIZ #5

1. Which of the following is a difference between massed and distributed practice?
   1. Whether or not the material is learned at the beginning, middle, or end of each practice session.
   2. The amount of material presented.
   3. How quickly knowledge of results follows each practice session.
   4. The length of time it takes to complete the total amount of practice.

2. Which of the following is an example of motivated forgetting?
   1. disuse theory
   2. wanting to feel an unpleasant feeling such as guilt
   3. interference of one type causing a person to forget other material
   4. repression

3. Consider that you are taught in the United States to drive on the right-hand side of the road. If you plan to dirve while visiting England, it will be necessary for you to drive on the left-hand side of the road. You will have difficulty making the switch. This is an example of:
   1. retroactive inhibition
   2. positive transfer of learning
   3. negative transfer of learning
   4. stimulus generalization

4. Why do psychologists often use nonsense syllables in experiments with verbal learning?
   1. Subjects tend to be more familiar with nonsense syllables than with meaningful words.
   2. Nonsense syllables make tasks more difficult than meaningful words.
   3. Subjects are likely to be equally familiar with nonsense syllables, hence effect of past experience is controlled.
   4. Nonsense syllables are easier to memorize than meaningful words.

5. Which of the following is an example of paired-associate learning?
   1. insight learning
   2. learning a poem
   3. latent learning
   4. learning the vocabulary of a foreign language

6. Items at the beginning and the end of lists are learned more rapidly than items in the middle of the list. This is called:
   1. the serial position effect
   2. redintegration
   3. listing effect
   4. the Law of Effect

7. Which of the following statements is true?
   1. Negative transfer is the principle underlying proactive inhibition.
   2. Retroactive inhibition is related to positive transfer.
   3. Retroactive inhibition is an example of motivated interference.
   4. There is no transfer of learning when mediation occurs.

8. Overlearning is necessary considering that:
   1. a great amount of material has been learned.
   2. not enough time had been spent on the task in the first place.
   3. the material is to be retained for a long period of time.
   4. self-recitation is helpful in learning material.

9. To test proactive inhibition, one directs an experimental group to:
   1. learn A, learn B, recall A
   2. learn A, learn B, recall B
   3. learn A, rest, recall A
   4. learn A, recall A, learn B

10. If you once knew how to roller skate and you hadn't skated for some time, but you put on a pair of skates and took off, then this would be an example of:
    1. redintegration 2. recall 3. recognition 4. relearning

QUIZ #6

1. The _____ is composed in part of the ideals and standards acquired in childhood.
   1. superego 2. ego 3. libido 4. id

2. Five years after graduation, a student still remembers the name of a professor who gave him an A, but has forgotten the name of the professor who gave him an F. This illustrates:
   1. rationalization 2. projection 3. regression 4. repression

3. In a study of personality traits, all the members of a fraternity rated each other. Paul rated a number of his fellow members "very obstinate and stubborn." The consensus of all the men was that Paul was the most stubborn man in the house. It would seem that Paul, in making his ratings, was influenced by:
   1. regression 2. projection 3. rationalization 4. repression

4. A young woman now enrolled in college has just received a marriage proposal from a man with whom she is very much in love. If she does not complete her college training she will be handicapped later in life, but if she gets married it will be impossible for her to [illegible] in college. If she does not accept the proposal at this time, however, the man may marry someone else. This type of conflict is:
   1. avoidance-avoidance conflict
   2. approach-approach conflict
   3. approach-avoidance conflict
   4. double approach-avoidance conflict

5. If there existed a continuum of motivation with no motivation at one end (end A) and extremely high motivation at the opposite (end B). Where on the continuum would the most efficient behavior most likely occur?
   1. close to end A
   2. close to end B
   3. approximately half way between A and B
   4. close to both A and B

6. Primary reinforcer is to water as secondary reinforcer is to:
   1. money 2. food 3. air 4. hamburger

7. The function of the parasympathetic nervous system is to:
   1. relax the organism after an emotional arousal.
   2. quickly increase the activity of the adrenal and pituitary glands.
   3. carry impulses to the motor nerves.
   4. carry impulses from effectors to the central nervous system.

8. Suppose that you are offered a new job. The job is one you have wanted for a long time. It satisfies achievement needs. On the other hand, you have some doubts about your ability to succeed, and you fear failure. Such a situation might be considered to be an:
   1. avoidance-avoidance conflict
   2. approach-avoidance conflict
   3. approach-approach conflict
   4. double approach-avoidance conflict

9. The instrument which measures changes in the electrical resistance of the skin occuring as the result of emotion is called:
   1. EKG 2. electroencephalograph 3. polygraph 4. galvanometer

10. The _____ works in the "service of the reality principle."
    1. id 2. libido 3. ego 4. superego

QUIZ #7

1. For the neurotic, depression is characterized by:
   1. irrational thoughts appearing at inappropriate times.
   2. over-reaction to a disappointment or loss.
   3. excessive tiredness and prolonged tension.
   4. disabling obsessive thoughts.

2. _____ are intense fears of objects or situations that in fact present no real dangers.
   1. compulsions 2. obsessions 3. anxieties 4. phobias

3. If a person withdraws completely from normal life and contact with reality he is called a:
   1. neurotic 2. psychotic 3. sociopathic 4. psychosomatic

4. A constant feeling of anxiousness is indicative of:
   1. general anxiety reaction
   2. asthenic reaction
   3. hypochondriasis
   4. depressive reaction

5. If a person believes he has an injured spinal cord, but the doctor is not able to confirm any disability, this would be an example of:
   1. a psychosomatic symptom
   2. a hypochondriacal symptom
   3. an organic psychosis
   4. a functional psychosis

6. Which of the following is an example of a psychosomatic symptom?
   1. extreme mood swings
   2. an irrational fear of small rooms
   3. blindness without any observable disorder in the eye.
   4. nasal congestion apparently caused by stress.

7. Which of the following is a symptom of a sociopathic disorder?
   1. criminal behavior 2. schizophrenia 3. peptic ulcer 4. claustrophobia

8. The doctor of a young woman cited as a reason for her failure to hand in an essay on the assigned date, the excuse that her right arm was paralyzed from the shoulder downward. No physical disorder could account for it. This is an example of:
   1. phobic reaction 2. anxiety reaction 3. conversion reaction 4. hypochondriacal reaction

9. A type of therapy that most often, although not always, involves interchange between two or more persons is called _____.
   1. conditioning therapy 2. shock therapy 3. medical therapy 4. psychotherapy

10. An ambitious young man who has failed to get a promotion decides that his superior executive has a grudge against him. He is probably showing symptoms of:
   1. rationalization 2. projection 3. repression 4. regression

1. According to Erikson, the main task of the adolescence is the resolution of:
   1. intimacy vs isolation
   2. trust vs mistrust
   3. identity vs diffusion
   4. autonomy vs shame-doubt

2. In Freud's phallic stage, the _____ is seen as the rival in Oedipus complex, and the _____ as the rival in Electra complex.
   1. boy, girl 2. girl, boy 3. mother, father 4) father, mother

3. When the beans from a tall thin jar are poured into a wide jar and a 5-year-old maintains that the tall jar has more beans than the wide jar, this child most probably
   1. is mentally retarded
   2. is displaying sensorimotor development.
   3. hasn't reached the stage of concrete operations.
   4. is not developing normally.

4. The following process may manifest itself at birth or long after birth. It follows an orderly and predictable sequence of events but its rate may be somewhat altered by environmental circumstances. It also sets limits on what a person is physiologically prepared to learn. It is called:
   1. intellectual development
   2. inheritance
   3. generalization
   4. maturation

5. Research by F. J. Kallman indicated that the degree of genetic closeness is positively correlated with:
   1. the inheritance of high intelligence.
   2. the incidence of mental illness among relatives.
   3. the ability to withstand frustration.
   4. motor ability in rats.

6. Freud's latency period lasts from about _____ until _____.
   1. the first year of life, the second year
   2. 4 years of age, 7-8 years of age
   3. 7-8 years of age, the start of puberty
   4. the start of puberty, adolescence

7. To be considered "normal" in his development, from a psychological point of view, a person must:
   1. prefer what is real over what is not real.
   2. be totally free of anxiety.
   3. be totally free of defense mechanisms.
   4. conform to the norms of his society.

8. According to Piaget, a child's perceptual intelligence develops through several stages:
   1. oral, anal, phallic, latent, genital
   2. trust, autonomy, initiative, industry, identity
   3. sensorimotor, preconceptual, intuitive, concrete operation, formal operations
   4. id, ego, superego, reality, libido

9. What is not true of maturation?
   1. It is a biological process.
   2. It sets limits on what can be learned.
   3. It always follows an orderly sequence
   4. It proceeds automatically regardless of environment.

10. Researchers have found that body height is more similar for people closely related than for people not related at all. This is an example of:
    1. correlational research
    2. experimental research
    3. significant result
    4. clinical research

PSY 201
Mr. McKenzie

QUIZ #9

1. The Rorschach and TAT tests are examples of:
   1. objective tests
   2. situational tests
   3. pencil-paper tests
   4. projective techniques

2. In the following test item, the subject is required to choose between two phrases that appear equally acceptable or equally undesirable:
   A. I feel depressed when I fail at something.
   B. I fell nervous when giving a talk before a group.

   This is an illustration of:
   1. an arbitrary scale
   2. a forced-choice scale
   3. a paired comparison scale
   4. a performance scale

3. How can you best check the validity of a motor aptitude test?
   1. Find the correlation coefficient between the scores on the test and the scores on another aptitude test.
   2. Find the correlation coefficient between scores on this test, and perormance ratings on the job for which the test was designed.
   3. Find the correlation coefficient between the scores some people make today on the test, and scores the same people make on the same test five days later.
   4. Find the correlation coefficient between the scores on the first half of the test and the scores on the second half of the same test.

4. If a psychologist told you that a certain individual was mentally ill because of "bumps in his skull," you would conclude that this psychologist was a practitioner of:
   1. psychoanalysis 2. pupillometrics 3. phrenology 4. behavior modification

5. _____ is making a judgement of a person as _____ is to grading a person above or below each of the others on each criterion involved.
   1. performance test, pencil-paper test
   2. pencil-paper test, performance test
   3. ranking, rating
   4. rating, ranking

6. An intelligence test has a standard deviation of 16 IQ points and a mean of 100. John has a deviation IQ of 132. Approximately on what percentile would he be in relation to others his age?
   1. 16th percentile 2. 50th percentile 3. 84th percentile 4. 98th percentile

7. A microcephalic has an unusually small cranium. What characteristics can we assume from this outward appearance?
   1. inability to get along with others
   2. his score on personality tests
   3. muscle coordination
   4. none of these

8. Sue is a very careless person, but you rate her as unusually careful because you are impressed by her charm and modesty. This is an illustration of:
   1. objectivity 2. leniency error 3. forced-choice rating 4. halo effect

9. The main purpose of test standardization is to:
   1. establish objectivity in scoring
   2. establish norms
   3. have high reliability and validity coefficients
   4. get consistent results

10. Which of the following is false?
    1. A test can be valid without being reliable.
    2. A test can be reliable without being valid.
    3. A test may be objective without being standardized.
    4. Objectivity is essential for reliability and standardization.

POST-TEST

1. Attitudes are distinguished from emotions in that attitudes, not emotions:
   1. are measured in two "dimensions": positive vs negative, and strong vs weak
   2. have a cognitive aspect and are relatively long-lasting
   3. have a "feeling" aspect
   4. are always relatively positive and strong

2. Attitudes tend to be very resistent to change because they are reinforced by:
   1. perceptual constance
   2. cognitive dissonance
   3. changing behavior
   4. extremely high pay

3. A person will tend to change his attitudes in the direction of what a groups expects if:
   1. the cohesiveness of the group is low
   2. the person is outside the group's pattern of interaction
   3. he avoids committing himself publicly to the group's opinions
   4. the group is more attractive to him than other groups

4. From the standpoint of psychology, should we expect compulsory racial integration to lead more favorable attitudes toward integration?
   1. yes, according to research cited in this course
   2. no, according to the theory of "cognitive dissonance"
   3. yes, only if the integration is forced at gunpoint
   4. no, according to experiments by Asch and Festinger

5. A person is likely to become more violent in a mob than he is at other times because:
   1. a mob has a "mind" of its own
   2. a mob is usually led by an outsider
   3. a mob tends to lift inhibitions against violent tendencies the individual already has
   4. a mob lowers an individual's perception of his own importance

6. If two groups which are working for the same goal have equal power to threaten each other, what is likely to happen?
   1. they both will forget the goal and use the power
   2. they will work together to reach the goal more than if they had less power
   3. one group will voluntarily give in to the other
   4. they will realize that their power has become useless and will negotiate to lower their power.

7. Studies by Milgram of obedience to authority showed that:
   1. most people are not iwlling to cause pain for anybody else
   2. most people are willing to injure others seriously, especially if they can't see the victims
   3. most people will injure enemies but not friends
   4. most people will turn violently against an authority figure who tells them to harm someone else

8. Studies of leadership seem to indicate that:
   1. some people are "born leaders" and will rise to the top anywhere
   2. a person who is persistent, dependable, self-confident, and popular and who speaks well and takes a lively part in the group's activities is almost sure to become a leader
   3. there are no traits or set of traits which can be found in every effective leader of a group
   4. all groups tend to select the same kinds of leaders

9. If a group requires an authoritarian leader, the leadership role is likely to be filled best by someone who is very
   1. laissez-faire
   2. democratic
   3. intelligent
   4. anxious

10. Which of the following is not a characteristic of the normal curve?
    1. each normal curve has the same standard deviation.
    2. each normal curve is bell shaped.
    3. each normal curve is symmetrical.
    4. the mean, mode, and median of a normal distribution lie exactly at the center of a normal curve.

11. What is the mean deviation of the following group of numbers - 26, 24, 20, 16, 14?
    1. 20 2. 6 3. 5 4. 4

12. On a previous Psychology exam the mean score was 50 and the standard deviation was calculated to be 10. If you had taken that exam and had scored a 30 on it, how many standard deviations would a score of 30 be from the mean?
    1. 1 2. 2 3. 3 4. 4

13. Which of the following is not a method of studying the brain?
    1. stereotaxis 2. brain stimulation 3. brain damage in man 4. action currents

14. Damage or injury in the reticular formation would most likely produce:
    1. unconsciousness 2. loss of equilibrium 3. blindness 4. agitation

15. The part of the brain that has direct control over the primary drives such as hunger, thirst, sex, and sleep is the:
    1. cerebral cortex 2. mid-brain 3. hypothalamus 4. medulla

16. Which of the following allows communication between the two hemispheres of the brain?
    1. cerebral cortex 2. mid-brain 3. medulla 4. corpus collosum

17. The cerebellum serves which of the following functions:
    1. center of pleasurable feelings 3. necessary for consciousness
    2. maintains equilibrium 4. controls the basic body functions

18. Each neuron has a threshold which is the amount of stimulation necessary for the neuron to respond with a nerve impulse. Which law applies to this phenomenon?
    1. Weber's Law 2. the all-or-none law 3. the law of effect 4. the absolute law

19. In a reflex arc, a stimulus travels:
    1. from the receptor to the spinal cord to the effector.
    2. from the receptor, to the spinal cord, to the brain, back to the spinal cord, and finally to an effector.
    3. from the receptor to the effector.
    4. from the brain to the effector.

20. A "synapse" in the nervous system is:
    1. the area where an impulse is transmitted from one neuron to another.
    2. the part of a neuron which carries the impulse away from the cell body.
    3. a balance between sympathetic and parasympathetic activity.
    4. a neuron which connects a sensory nerve to a motor nerve.

21. Cerebellum is to muscle coordination as medulla is to:
    1. motor movements 2. basic body functioning 3. consciousness 4. motivational behavior

22. Going into a darkened room and perceiving a pinpoint of stationary light move about is an example of:
    1. the auto-kinetic effect 3. perceptual constancy
    2. an innate perceptual difference 4. subliminal perception

23. When two groups of children were asked to make a variable disc of light equal to the size of different coins, which of the following describes the results of the research?
    1. The poor children overestimated to a much greater degree than the rich children.
    2. The rich children overestimated to a much greater degree than the poor children.
    3. The poor children underestimated the size of the coins.
    4. Both groups underestimated the size of the coins.

24. Which of the following is <u>not</u> a factor which thresholds appear to depend?
    1. the acuity of the subject's senses.
    2. the just noticeable difference used in finding the absolute threshold.
    3. the past experiences of the subject.
    4. what other stimuli are being administered at the same time.

25. Consider the American flag demonstration in black became white; green became red; and yellow became blue after following the instructions on the tape. This phenomenon would most likely support which of the following theories of color vision?
    1. the Young Helmholtz 2. the Purkinje 3. the Hering 4. the color vision

26. Perception is a process assigning _____ to sensation.
    1. feeling 2. thresholds 3. distortions 4. meaning

27. You look at the moon on the horizon and the moon appears larger than when it is at its zenith. Why?
    1. because you perceive each stimulus as being harmonious with the rest of the pattern.
    2. because it is closer to you.
    3. because on the horizon it is not as bright as when it is at its zenith.
    4. because it is closer to the earth.

28. A psychology teacher tries a new technique to improve her student's grades. While they are in the classroom listening to the lecture, several microphones in the room are broadcasting "study psychology, study psychology," etc. below the range of the student's hearing thresholds. This is an example of the use of:
    1. just noticeable differences 3. subliminal cues
    2. perceptual constancy 4. proximity

29. Joe can just barely discriminate between a 10-pound weight and an 11-pound weight. He is trying to keep his wife, Tess, on her diet. Before she goes off to the annual dinner of the Women's Knitting and Peach Preserve Society, he checks her weight by lifting her and finds that she weighs 200 pounds. How much can she afford to gain before he will notice the difference in her weight after she returns?
    1. 1 pound 2. 11 pounds 3. 19 pounds 4. 22 pounds

30. When a door is slightly opened, it still looks like a rectangular door to you even though the stimulus on your retina is actually trapezoidal. This is an example of:
    1. shape constancy 3. a figure-ground relationship
    2. size constancy 4. just noticeable difference (JND)

31. A tree 100 yards away may project on the retina an image no bigger than that of a toothpick a foot away. Despite this fact, the tree is perceived as being much larger. This feature of perception is known as:
    1. figure 2. the linen effect 3. ground 4. constancy

32. The fact that XXXOOO is perceived as two groups rather than 6 symbols, illustrates the concept of:
1. proximity 2. similarity 3. closure 4. a figure-ground relationship

33. In human perception, there is a tendency to organize perceptual stimuli into meaningful patterns, which is strongly influenced by our culture. Which of the slides in Unit Three was an example of this?
1. the dog
2. the American flag experiment
3. the full moon near the horizon
4. the red urn - pink faces

34. The tendency to organize stimuli on the basis of their relationship to each other (how they are grouped) is known as:
1. similarity 2. closure 3. optical illusion 4. proximity

35. The image on the retina of an eye is an example of:
1. a proximal stimulus
2. a distal stimulus
3. a conditioned stimulus
4. an absolute threshold

36. A young housewife was listening to her stereo that was playing Jimi Hendrix's "Foxy Lady" and peeling onions. Her eyes became very tearful. Now everytime she hears "Foxy Lady" on the radio, she becomes tearful. The unconditioned stimulus is:
1. the stereo 2. the song "Foxy Lady" 3. onions 4. tears

37. In a replication of Pavlov's research, consider a dog who had completed the process of extinction until he only salivated one drop when presented the bell alone. Two days later the dog was brought back to the experimental situation and when the bell was presented he salivated three drops. This illustrates which of the following phenomenon?
1. discrimination
2. stimulus generalization
3. spontaneous recovery
4. trial and error learning

38. Instructors are paid every two weeks at LCC. What schedule of reinforcement are they on?
1. fixed ratio 2. fixed interval 3. variable ratio 4. variable interval

39. Which of the following is a statement of the Law of Effect?
1. If a response was followed by a reward this response would be more likely to occur again.
2. The more often a response is repeated, the stronger the learning will be.
3. The animal must be physiologically prepared.
4. If an organism is presented with the results when attempting a task, his performance will improve.

40. If you were lost in the woods and you randomly wandered around until you found your way out, and then a year later you got lost in the same woods and it took you much less time to find your way out the second time, then this would be an example of:
1. drive 2. trial and error learning 3. insight learning 4. discrimination

41. The chimpanzee who has been given two short hollow sticks that could be fitted together, who has been trying to reach a banana by only using one of them, and who suddenly fitted the two sticks together and successfully reached the banana, illustrates:
1. latent learning 2. sign learning 3. insight learning 4. stimulus generalization

42. In Hull's Theory, the observable quality or kind of reinforcement refers to which of the following constructs:
    1. Drive 2. Value 3. Intensity 4. Work

43. Consider a rat in a Skinner box who gets reinforced everytime he presses the bar 12 times. This is an example of:
    1. variable interval schedule
    2. variable ratio schedule
    3. fixed interval schedule
    4. fixed ratio schedule

44. A war veteran drops into a ditch whenever a car backfires. The phenomenon illustrated is:
    1. insight learning
    2. superstitious behavior
    3. stimulus discrimination
    4. stimulus generalization

45. After conditioning, the unconditioned response becomes the:
    1. conditioned stimulus
    2. unconditioned stimulus
    3. conditioned response
    4. intervening variable.

46. The professor who was lured out the door by students who paid more attention whenever he moved toward the door is an example of:
    1. spontaneous recovery
    2. shaping behavior
    3. trial and error learning
    4. insight learning

47. You are sitting in a restaurant and begin to salivate as you are reading the menu. According to the theories of classical conditioning, the menu would be:
    1. the conditioned response
    2. the conditioned stimulus
    3. the unconditioned response
    4. the unconditioned stimulus

48. Associationists emphasize the principle that:
    1. when events occur together more often, the association between them becomes weaker.
    2. sensations which occur together tend to become associated with each other.
    3. humans learn more by intuition than by conditioning.
    4. more probable responses reinforce less probable responses.

49. Consider a person who has his environment completely controlled by some external force. During a given 8 hour period each day, the subject chooses to swim for 2 hours, shoot baskets for 3 hours, sit for 1 hour, eat for one hour, and lift weights for one hour. According to the Premack Principle, if one wanted to increase the amount of time the subject spent eating during the eight hour period, which of the following would be the most effective reinforcer?
    1. deprive him of food
    2. allow him to sit down
    3. swimming
    4. basket shooting

50. While walking on the beach, you suddenly remember how you used to walk on another beach. This is an example of:
    1. recall 2. redintegration 3. relearning 4. recognition

51. Which of the following statements is not true?
    1. Nonsense syllables will be retained to a greater degree than prose.
    2. If material is organized, it is much easier to remember.
    3. You will be able to learn meaningful material much more rapidly than meaningless material.
    4. Material learned through understanding will most likely stand the test of time with respect to the amount retained.

52. Which of the following is a difference between massed and distributed practice?
    1. Whether or not the material is learned at the beginning, middle, or end of each practice session.
    2. The amount of material presented.
    3. How quickly knowledge of results follows each practice session.
    4. The length of time it takes to complete the total amount of practice.

53. Which of the following is an example of motivated forgetting?
    1. disuse theory
    2. wanting to feel an unpleasant feeling such as guilt.
    3. interference of one type causing a person to forget other material.
    4. repression

54. Consider that you are taught in the United States to drive on the right-hand side of the road. If you plan to drive while visiting England, it will be necessary for you to drive on the left-hand side of the road. You will have difficulty making the switch. This is an example of:
    1. retroactive inhibition
    2. positive transfer of learning
    3. negative transfer of learning
    4. stimulus generalization

55. Why do psychologists often use nonsense syllables in experiments with verbal learning?
    1. Subjects tend to be more familiar with nonsense syllables than with meaningful words.
    2. Nonsense syllables make tasks more difficult than meaningful words.
    3. Subjects are likely to be equally familiar with nonsense syllables, hence effect of past experience is controlled.
    4. Nonsense syllables are easier to memorize than meaningful words.

56. Which of the following is an example of paired-associate learning?
    1. insight learning
    2. learning a poem
    3. latent learning
    4. learning the vocabulary of a foreign language

57. Items at the beginning and the end of lists are learned more rapidly than items in the middle of the list. This is called:
    1. the serial position effect
    2. redintegration
    3. listing effect
    4. the Law of Effect

58. Which of the following statements is true?
    1. Negative transfer is the principle underlying proactive inhibition.
    2. Retroactive inhibition is related to positive transfer.
    3. Retroactive inhibition is an example of motivated interference.
    4. There is no transfer of learning when mediation occurs.

59. Overlearning is necessary considering that:
    1. a great amount of material has been learned.
    2. not enough time had been spent on the task in the first place.
    3. the material is to be retained for a long period of time.
    4. self-recitation is helpful in learning material.

60. To test proactive inhibition, one directs an experimental group to:
    1. learn A, learn B, recall A
    2. learn A, learn B, recall B
    3. learn A, rest, recall A
    4. learn A, recall A, learn B

61. If you once knew how to roller skate and you hadn't skated for some time, but you put on a pair of skates and took off, then this would be an example of:
    1. redintegration 2. recall 3. recognition 4. relearning

62. Feedback means:
    1. being deprived of food which you can receive while your behavior is being shaped.
    2. returning to a stage of your life where previous learning had occurred.
    3. being able to know immediately how well you are performing a task.
    4. that a relationship exists between organization and retention of material.

63. The _____ is composed in part of the ideals and standards acquired in childhood.
    1. superego 2. ego 3. libido 4. id

64. Five years after graduation, a student still remembers the name of a professor who gave him an A, but has forgotten the name of the professor who gave him an F. This illustrates:
    1. rationalization 2. projection 3. regression 4. repression

65. In a study of personality traits, all the members of a fraternity rated each other. Paul rated a number of his fellow members "very obstinate and stubborn." The consensus of all the men was that Paul was the most stubborn man in the house. It would seem that Paul, in making his ratings, was influenced by:
    1. regression 2. projection 3. rationalization 4. repression

66. A young woman now enrolled in college has just received a marriage proposal from a man with whom she is very much in love. If she does not complete her college training she will be handicapped later in life, but if she gets married it will be impossible for her to remain in college. If she does not accept the proposal at this time, however, the man may marry someone else. This type of conflict is:
    1. avoidance-avoidance conflict
    2. approach-approach conflict
    3. approach-avoidance conflict
    4. double approach-avoidance conflict

67. If there existed a continuum of motivation with no motivation at one end (end A) and extremely high motivation at the opposite (end B). Where on the continuum would the most efficient behavior most likely occur?
    1. close to end A 3. approximately half way between A and B
    2. close to end B 4. close to both A and B

68. Primary reinforcer is to water as secondary reinforcer is to:
    1. money 2. food 3. air 4. hamburger

69. The function of the parasympathetic nervous system is to:
    1. relax the organism after an emotional arousal.
    2. quickly increase the activity of the adrenal and pituitary glands.
    3. carry impulses to the motor nerves.
    4. carry impulses from effectors to the central nervous system.

70. Suppose that you are offered a new job. The job is one you have wanted for a long time. It satisfies achievement needs. On the other hand, you have some doubts about your ability to succeed, and you fear failure. Such a situation might be considered to be an:
    1. avoidance-avoidance conflict
    2. approach-avoidance conflict
    3. approach-approach conflict
    4. double approach-avoidance conflict

71 The instrument which measures changes in the electrical resistance of the skin occurring as the result of emotion is called:
    1. EKG 2. electroencephalogram 3. polygraph 4. galvanometer

72. The _____ works in the "service of the reality principle."
    1. id 2. libido 3. ego 4. superego

73. Harry F. Harlow concluded that _____ served an important function in the affectional development of the infant monkeys.
1. proper feeding and nourishment 3. contact comfort
2. love 4. lack of fear and anxiety

74. An ambitious young man who has failed to get a promotion decides that his superior executive has a grudge against him. He is probably showing symptoms of:
1. rationalization 2. projection 3. repression 4. regression

75. A _____ is allowed to administer drugs in the treatment of psychopathology.
1. psychologist 2. psychiatrist 3. behaviorist 4. all of these

76. For the neurotic, depression is characterized by:
1. irrational thoughts appearing at inappropriate times.
2. over-reaction to a disappointment or loss.
3. excessive tiredness and prolonged tension.
4. disabling obseesive thoughts.

77. ____ are intense fears of objects or situations that in fact present no real dangers.
1. compulsions 2. obsessions 3. anxieties 4. phobias

78. If a person withdraws completely from normal life and contact with reality he is called a:
1. neurotic 2. psychotic 3. sociopathic 4. psychosomatic

79. A constant feeling of anxiousness is indicative of:
1. general anxiety reaction 3. hypochondriasis
2. asthenic reaction 4. depressive reaction

80. If a person believes he has an injured spinal cord, but the doctor is not able to confirm any disability, this would be an example of:
1. a psychosomatic symptom 3. an organic psychosis
2. a hypochondriacal symptom 4. a functional psychosis

81. Which of the following is an example of a psychosomatic symptom?
1. extreme mood swings
2. an irrational fear of small rooms
3. blindness without any observable disorder in the eye.
4. nasal congestion apparently caused by stress.

82. Which of the following is a symptom of a sociopathic disorder?
1. criminal behavior 2. schizophrenia 3. peptic ulcer 4. claustrophobia

83. /The doctor of
A young woman cited as a reason for her failure to hand in an essay on the assigned date, the excuse that her right arm was paralyzed from the shoulder downward. No physical disorder could account for it. This is an example of:
1. phobic reaction 2. anxiety reaction 3. conversion reaction 4. hypochondriacal reaction

84. A type of therapy that most often, although not always, involves interchange between two or more persons is called _____.
1. conditioning therapy 2. shock therapy 3. medical therapy 4. psychotherapy

85. Researchers have found that body height is more similar for people closely related than for people not related at all. This is an example of:
1. correlational research 3. significant result
2. experimental research 4. clinical research

86. According to Erikson, the main task of the adolescence is the resolution of:
1. intimacy vs isolation
2. trust vs mistrust
3. identity vs diffusion
4. autonomy vs shame-doubt

87. In Freud's phallic stage, the ____ is seen as the rival in Oedipus complex, and the _____ as the rival in Electra complex.
1. boy, girl 2. girl, boy 3. mother, father 4. father, mother

88. When the beans from a tall thin jar are poured into a wide jar and a 5-year-old maintains that the tall jar has more beans than the wide jar, this child most probably:
1. is mentally retarded
2. is displaying sensorimotor development.
3. hasn't reached the stage of concrete operations.
4. is not developing normally.

89. The following process may manifest itself at birth or long after birth. It follows an orderly and predictable sequence of events but its rate may be somewhat altered by environmental circumstances. It also sets limits on what a person is physiologically prepared to learn. It is called:
1. intellectual development
2. inheritance
3. generalization
4. maturation

90. Research by F. J. Kallman indicated that the degree of genetic closeness is positively correlated with:
1. the inheritance of high intelligence.
2. the incidence of mental illness among relatives.
3. the ability to withstand frustration.
4. motor ability in rats.

91. Freud's latency period lasts from about _____ until _____.
1. the first year of life, the second year
2. 4 years of age, 7-8 years of age
3. 7-8 years of age, the start of puberty
4. the start of puberty, adolescence

92. To be considered "normal" in his development, from a psychological point of view, a person must:
1. prefer what is real over what is not real.
2. be totally free of anxiety.
3. be totally free of defense mechanisms.
4. conform to the norms of his society.

93. According to Piaget, a child's perceptual intelligence develops through several stages
1. oral, anal, phallic, latent, genital
2. trust, autonomy, initiative, industry, identity
3. sensorimotor, preconceptual, intuitive, concrete operation, formal operations
4. id, ego, superego, reality, libido

94. What is <u>not</u> true of maturation?
1. It is a biological process.
2. It sets limits on what can be learned.
3. It always follows an orderly sequence
4. It proceeds automatically regardless of environment.

95. The Rorschach and TAT tests are examples of:
1. objective tests 2. situational tests 3. pencil-paper tests 4. projective techniques

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1. objective tests 2. situational tests 3. pencil-paper tests 4. projective techniques

106. Which of the following statements is a reason for limiting the use of personality typing?
   1. Typing of people tends to ignore too many individual differences.
   2. Too many people fall into a "middle" so that they don't really fit any one category.
   3. both of the above
   4. neither 1 or 2

107. What would be a limitation of the concept of personality traits?
   1. Traits tend to be situational.
   2. The trait theory does not explain what some other theorists observe.
   3. The trait theory cannot adequately explain the nature of the unique interaction between one trait and another within a given personality.
   4. all of the above

108. Why do we give people psychological tests?
   1. to try to make people as much alike as possible.
   2. to compare one person with another in order to predict their behavior.
   3. to place people into categories in order to label them.
   4. to grade them according to how much personality they have.

109. The Wechsler Adult Intelligence Scale:
   1. is a group test
   2. uses standard deviation of 100 IQ points
   3. has both a verbal and performance scale
   4. is based on mental age concept

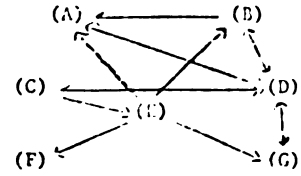
110. If a person is somewhat, though not too much, different from the rest of his group and is assigned to a position of centrality, he is most likely to:
   1. become anxious
   2. leave the group
   3. become accepted as a leader
   4. reject the group's attitudes

111. In a study by Solomon Asch about individual judgment and group pressure to conform, it was found that:
   1. subjects relied on their own judgments.
   2. there was no relationship between individual judgment and conformity.
   3. the subjects depended on others for their understanding, feelings, and sense of reality.
   4. all of the above are true.

112. A cigarette smoker is aware of the dangers of tobacco to his health, but continues to smoke. This is an example of:
   1. cognitive dissonance 2. an opinion 3. an attitude 4. perceptual constancy

113. Which of the following describes an attitude but <u>not</u> an emotion?
   1. It can be either strong or weak.
   2. It can be either positive or negative.
   3. It is relatively intense.
   4. It is relatively long-lasting.

114. In the following sociometric diagram, which is the most central person?
   1. person C 2. person D 3. person E 4. none of the people are most central



115. An attitude is a fairly consistent tendency to think, feel, and act positively or negatively toward a person or group. Which of the following factors is responsible for the fact that most of our attitudes are long-lasting in nature?
   1. We tend to perceive our environment in a way that is consistent with attitudes we already hold.
   2. Attitudes are formed individually, without any group influences.
   3. Attitudes are formed and continually reinforced by the groups in which we live.
   4. both 1 and 3 are correct.

116. A PSY 201 student was doing a research project about attitudes. She was studying the perceptions of students concerning the most liked people in a class. She gave each person an inventory designed to measure the degree to which each person liked every other person in the group. This method of measuring is:
   1. personality inventory
   2. sociometric rating
   3. measure of cognitive dissonance
   4. a scatter diagram

117. In his work with experimental neurosis, how did J. H. Masserman achieve control to make sure the neurosis was related to the conflict?
   1. He repeated the same experiment several times.
   2. He made sure all his rats were exactly the same age.
   3. He conducted a series of control experiments, each treating some other aspect of the experiment as the independent variable.
   4. He used two control groups instead of one.

118. Which of the following is a reason why it is important to replicate research?
   1. Because mathematical procedures make it necessary that you do all research many times to achieve valid results.
   2. To see if the experimenter used the most statistically significant equipment.
   3. So that the researcher can use the same population again in order to be able to generalize.
   4. To test its reliability.

119. In your supplemental reading text, Doherty and Shemberg describe the case of Dicky, a 3-1/2 year old boy, who was severely disturbed. He threw temper tantrums, had sleeping and eating problems, and refused to wear his glasses. He was treated by having constructive behavior rewarded in successive approximations, and by ignoring or mildly punishing undesirable forms of behavior. In this particular experiment, how did the researchers achieve experimental control?
   1. a control group was used
   2. the subject served as his own control
   3. everything in the environment was held constant.
   4. through counterbalancing.

120. Which of the following is a characteristic of correlational research?
   1. tight experimental control of all groups used.
   2. it will yield cause and effect relationships.
   3. you can manipulate the subject's environment.
   4. the prediction of one kind of behavior from another.

121. One of the basic differences between the Schacter Study on group affiliation and stress and the Brady Study on the effects of stress was that:
   1. different types of subjects were used.
   2. different operational defintions of stress were used.
   3. both of the above are differences.
   4. none of the above are differences.

122. Which of the following is an example of an ethical consideration while doing research?
   1. using control groups
   2. using animals in place of humans.
   3. examining the interrelatedness of questions.
   4. answering a small, highly specific question, that is, one concerning a particular aspect of a big question.

123. Which of the following is a difference between the theoretical approach and the Skinnerian tradition approach?
   1. only one approach uses the scientific method.
   2. only one approach uses animals while doing research.
   3. only one approach is concerned with what goes on inside the organism.
   4. all of the above are correct.

124. Statistically significant means:
   1. a result cannot be said to have happened by chance.
   2. important to a large number of the population.
   3. socially significant.
   4. that you have to replicate research in order for it to apply to a large number of the people in your sample.

125. What is the primary similarity between the experiment concerning the executive monkeys and the experiment of Schacter concerning the need for affiliation?
   1. both tested man's response to profound isolation.
   2. in both, all subjects had control of their destinies.
   3. both showed how hypochondriacs are conditioned.
   4. in both, stress was the independent variable.

APPENDIX B

STUDENT SATISFACTION

1. This class allows for my own individual learning rate more than most other classes.
   SA A D SD

2. This class enables me to express my own opinions more than other classes.
   SA A D SD

3. There is more required of my own behavior in this class than in other classes.
   SA A D SD

4. I feel I am learning more in this class than in most other classes.
   SA A D SD

5. This class is particularly relevant to my own every day experiences.
   SA A D SD

6. I am more comfortable in this class than in most classes.
   SA A D SD

7. The instructor is more important to the success or failure of this class than in most classes.
   SA A D SD

8. My fellow classmates are more important to me in this class than in most classes.
   SA A D SD

9. My role in this class is more satisfying to me than in most classes.
   SA A D SD

10. I have more responsibility for what I learn in this class than in most classes.
    SA A D SD

11. The requirements of this class are too narrow and confining.
    SA A D SD

12. I feel less like the traditional student in this class than in most classes.
    SA A D SD

13. I am able to utilize what I have learned before more in this class than than in other classes.
    SA A D SD

14. I had to make more decisions in this class than in most classes.
    SA A D SD

15. I feel that I have greater control over my final grade in this class than in most classes.
    SA A D SD

16. I am glad more classes are not like this class.
    SA A D SD

17. I like this class less than most other classes.
    SA A D SD

18. I feel like I am "just a number" in this class.
    SA A D SD

19. Giving students more responsibility will result in them learning more.
    SA A D SD

20. I would highly recommend this class to my friends.
    SA A D SD

APPENDIX C

LOCUS OF CONTROL

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.

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. For each item indicate your choice by circling one of the alternatives, (a) or (b).

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.

(go on to the next page)

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 dependes 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.

(go on to the next page)

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

SELF ACCEPTANCE

USE THE FOLLOWING SCALE WHEN RESPONDING TO HOW YOU FEEL ABOUT THE STATEMENTS BELOW: CIRCLE THE APPROPRIATE RESPONSE

SA STRONGLY AGREE
A AGREE
D DISAGREE
SD STRONGLY DISAGREE

1. I feel that I have a number of good qualities.
   SA A D SD

2. I take a positive attitude toward myself.
   SA A D SD

3. All in all, I am inclined to feel that I am a failure.
   SA A D SD

4. I am able to do things as well as most other people.
   SA A D SD

5. I feel that I do not have much to be proud of.
   SA A D SD

6. On the whole, I am satisfied with myself.
   SA A D SD

7. I wish I could have more respect for myself.
   SA A D SD

8. I certainly feel useless at times.
   SA A D SD

9. I would rather decide things when they come up than always try to plan ahead.
   SA A D SD

10. I have always felt pretty sure my life would work out the way I wanted it to.
    SA A D SD

11. I seem to be the kind of person that has more bad luck than good luck.
    SA A D SD

12. I never have any trouble making up my mind about important decisions.
    SA A D SD

13. I have always felt that I have more will power than most people.
    SA A D SD

14. There's not much use for me to plan ahead because there's usually something that makes me change my plans.
    SA A D SD

15. I nearly always feel pretty sure of myself even when people disagree with me.
    SA A D SD

APPENDIX E

SOCIAL RESPONSIBILITY

PLEASE RESPOND TO THE STATEMENTS BELOW USING THE FOLLOWING SCALE:

SA STRONGLY AGREE
A AGREE
D DISAGREE
SD STRONGLY DISAGREE

1. It is no use worrying about current events or public affairs; I can't do anything about them anyway.
SA A D SD

2. Every person should give some of his time for the good of his town or country.
SA A D SD

3. Our country would be a lot better off if we didn't have so many elections and people didn' have to vote so often.
SA A D SD

4. Letting your friends down is not so bad because you can't do good all the time for everybody.
SA A D SD

5. It is the duty of each person to do his job the very best he can.
SA A D SD

6. People would be a lot better off if they could live far away from other people and never have to do anything for them.
SA A D SD

7. At school I usually volunteered for special projects.
SA A D SD

8. I feel very bad when I have failed to finish a job I promised I would do.
SA A D SD

APPENDIX F

COOPERATION TOWARD GROUP GOALS AND IDENTIFICATION WITH GROUPS

USE THE SCALE BELOW WHEN RESPONDING TO THE FOLLOWING STATEMENTS:

SA STRONGLY AGREE
A AGREE
D DISAGREE
SD STRONGLY DISAGREE

1. Individuals should be ready to inhibit their own pleasures if these inconvenience others.
   SA A D SD

2. Whether an individual acts to protect the welfare of persons beyond his circle of friends and relatives is a matter of personal preferance, not moral obligation.
   SA A D SD

3. Not only does everyone have an inablienable right to life, liberty and the pursuit of happiness, he also has an equally inablienable moral obligation to protect others from having these rights taken from them.
   SA A D SD

4. An individual who has not caused another person's misfortune has no moral obligation to help the other person.
   SA A D SD

5. A person who witnesses an unlawful or immoral act, such as physical assault and who does not try to do what he can to stop its occurrance shares part of the guilt with the transgressor.
   SA A D SD

1. There is nothing wrong in the members of a group trying to persuade indifferent or mildly dissenting members to go along with the group.
   SA A D SD

2. A person should be willing to cooperate with democratically selected group leaders, even though they are not the ones he personally preferred.
   SA A D SD

3. Conformity to the policies of your group when you are not wholeheartedly in agreement with them is wrong, even when the policies are the result of a democratic process in which you were free to participate.
   SA A D SD

4. A person should not feel bound to follow the decisions of the groups to which he belongs if these decisions are not in accord with his private preferences.
   SA A D SD

5. A democratically organized group has the right to determine what should be considered proper behavior in areas relevant to the group.
   SA A D SD

6. Group members should not be criticized when they refuse to do something in which they have no interest even when the action in question is necessary for their group to reach its goals.
   SA A D SD

7. People damage themselves as individuals when they inhibit or in some other way modify their behaviors as a result of the rules of the groups to which they belong.
   SA A D SD

8. In the long run, people are best off if left to regulate their own behavior, rather than setting up group norms and sanctions.
   SA A D SD

1. People who identify strongly with some group usually do so at the expense of their development and individual self-fulfillment.
   SA A D SD

2. Man is a social animal; he cannot flourish and grow without identifying himself with some group.
   SA A D SD

3. An individual truly finds himself when he merges with a social group and joins with others in resolute and determined activity for the realization of social goals.
   SA A D SD

4. Only a person who remains aloof from social organizations and group allegiances can fully develop his potential as an individual.
   SA A D SD

5. Individuals should feel no obligation to participate in the group activities of the communities in which they happen to live or work.
   SA A D SD

6. It is just as important to work toward group goals and adhere to the established rules of the group as it is to gratify one's individual desires.
   SA A D SD

APPENDIX G

SUMMARY OF ADDITIONAL ANALYSES

Hypothesis tested with N = 82 and df = 2,76.

	Small Group	AVT	p less than
Quiz A	-	-	
Quiz B	-	-	
Quiz Z	-	-	
Quiz D	+	-	.0067
Quiz E	+	-	.0001
Quiz F	-	-	
Quiz G	+	-	.0001
Quiz H	+	-	.0001
Quiz I	+	-	.0001
Quiz J	+	-	.0001
Post-test	+	-	.0001
Satisfaction 1	-	-	
Satisfaction 2	+	-	.0001
Satisfaction 3	+	-	.0001
Internal Control	-	-	
Self-Acceptance	-	-	
Social Responsibility	-	-	
Group Goals	+	-	.0001
Group Identification	+	-	.0001
Motivation 1	-	-	
Motivation 2	+	-	.0191
Motivation 3	+	-	.0002
Motivation 4	+	-	.0002

* + Null hypothesis rejected
- Null hypothesis not rejected