SOME EFFECTS OF EXPERIMENTAL CLASSROOM PROCEDURES ON THE ACADEMIC ACHIEVEMENT AND ATTITUDES OF COLLEGE-BOUND TENTH GRADE STUDENTS

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ABSTRACT

SOME EFFECTS OF EXPERIMENTAL CLASSROOM PROCEDURES
ON THE ACADEMIC ACHIEVEMENT AND ATTITUDES
OF COLLEGE-BOUND TENTH GRADE STUDENTS

By

George K. Kallingal

This study describes the method the researcher followed in teaching his tenth grade American literature students. It presents their overall reactions to his classroom procedures and analyzes the changes brought about in the students' academic and affective growth in the course of this experiment.

The study examines these major questions: (1) How did the students perceive what they learned in class, the teaching method, and classroom management practices? Did they feel that they learned something relavant and useful? Did they feel that their teacher was particularly interested in their progress and was trying to help them in their growth and development? (2) Did the students make significant progress in the defined academic area? Will students learn the course content materials if the teacher is not demanding? If the consequences of failing or getting a low grade or other external sources of motivation are

removed, will the students still perform adequately? (3) Did significant changes occur in the students' attitudes? Is it possible for a teacher to stimulate changes in attitude by working with the students in the classroom? (4) As compared with the other students from the same population who were not in the researcher's classes, how did the students who were perform later on the same tests and inventories?

The researcher employed a single-group design, which involved the administration of a pre-test, measuring the dependent variable, the application of the experimental treatment to the subjects, and the administration of a post-test, measuring again the dependent variable. In this single-group design three groups were involved in order to study the consistency of change across the three groups. All these three groups were taught by the same teacher in the same manner. The study was conducted for one semester, that is, nineteen weeks.

The population for the study consisted of all the college-bound tenth-grade students of Sexton High School, Lansing, Michigan, during the 1970-1971 academic year. There were 419 students enrolled in this program. From these, a random sample of 87 students were assigned to the researcher to teach. These students had been randomly grouped by the computer into three classes taught by the researcher at three different periods.

These students were taught in a unique way. The teacher's efforts in the classroom focused primarily upon bringing about perceptual changes and only secondarily upon academic matters. Greatest emphasis was given to those activities which would encourage independence and self-motivation and accustom students to take responsibility for their own growth. Students were given much freedom to organize their own work strategies to most effectively attain their own individual objectives. External pressures were reduced to a minimum. The students were encouraged to mobilize their own internal resources of self-discipline to guide them.

Several instruments were used for the collection of data. In order to study their over-all reactions, a questionnaire was given to the students in which they were encouraged to record their reactions to any aspect of the experiment. In order to analyze the changes brought about in their academic growth, three tests from the TAP battery were used--reading, composition, and literature. Changes in the affective realm were studied by administering three inventories dealing with (1) their academic self-concept, (2) their attitudes toward school and learning, and (3) their sense of purpose and determination in life.

The major statistical tools used in the study were t tests and F tests. The criterion employed in the study was the overall change that was brought about in the groups'

mean performance. In order to study the significance of this change, t tests were thought to be most appropriate. Changes brought about in the variability of the groups were also analyzed. For this F tests were used. The decision rule was to reject the null hypothesis at p = .05 level of type 1 error. A second decision rule employed was to reject the null hypothesis if two out of three groups showed significant change. The descriptive data were given subjective interpretation based on the researcher's observation of the students.

Results showed that the majority of the students felt positively about what they learned in class. These felt that they had been motivated to learn and enjoyed what they actually learned. They felt that they learned something which they perceived as useful. There is also some indication that the students were happy about the way the teacher conducted his classes. Most of the students perceived the teacher as one who was tryping to help them in their growth and development.

Three hypotheses were generated to test the progress the students made in the areas of reading, composition, and literature. The t tests showed that the changes obtained in these areas were significant at the .05 level of type 1 error. Consequently the null hypotheses were rejected and it was concluded that the students made significant progress in the defined academic areas. Slight changes were indicated

in the groups' variability on these three tests, but the changes were not significant enough to reject the null hypotheses.

In the three areas of students' affective growth, the changes obtained were not significant at the .05 level of type 1 error. Consequently it was concluded that the experimental procedure had not brought about significant changes in these areas. The results of the follow-up showed that the students in the experimental group performed significantly better on four of the six tests than the students who were not involved. No significant changes occurred in the areas of self-concept and attitudes toward school and learning.

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CHAPTER I

INTRODUCTION

Statement of the Problem

Differences of beliefs about educational practices have given rise to different approaches to teaching in the schools. Some emphasize the academic growth of the educand; others are more concerned with the affective development of the children; still others think that schools are meant to instill the traditional norms and values into the minds of the growing generation. Nor are these positions altogether free from criticisms. These criticisms take several forms. Some critics, for example Patricia Sexton, are deeply concerned about the school's failure to discharge its commitment to opportunity and equality.[1] Culturally deprived children are unprepared to compete in schools which pursue middle-class goals and reward middle-class values. Frustration, maladjustment, and early dropouts are the inevitable outcomes. As a result, for these children none of the above-mentioned goals are met. On the other hand, Koerner

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[1]Patricia Sexton, Education and Income (New York: Viking Press, 1961).

laments that the schools fail all intellectually capable students.[2]

Others like Jules Henry, Paul Goodman, and Edgar Friedenburg are disturbed about the damage schools do to apparently successful students. Henry claims that schools are highly efficient in destroying youth's individuality and creative potential. According to him, the real offender is the society, which designs schools in the interests of its own perpetuation. Schools have considered industry's needs and not the child's.[3] ". . . I am not convinced that what is good for General Motors is good for our children. Even less am I convinced that what is good for Missile Dynamics is good for our children, or what is good for the Pentagon is good for them."[4]

Undergirding much controversy is a persistent issue: what exactly should the schools do? Should the schools attempt to produce the cultivated man or the specialist? Should students attend a liberal arts college or a professional school? Within hybrid-types of institutions, what should be the balance of academic to professional courses? Some colleges dedicate themselves to the former and others

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[2]James Koerner, The Miseducation of American Teachers (Boston: Houghton Mifflin, 1963).

[3]Jules Henry, Culture Against Man (New York: Random House, 1963).

[4]Jules Henry, "Vulnerability in Education," Teachers College Record, XLVIII, No. 2 (November, 1966), 138.

to the latter. One is tough, selective, and demanding, producing professionalized specialists; another is tender with a concern for liberal arts. A related concern and controversy is whether schools should be "Rickover-like" in rigor modeled after the British public schools, or latter day offshoots of Dewey progressivism and permissivism. Also, should the schools simply mirror the society they serve or should they attempt to effectuate social changes? Practically speaking, local school boards insist that the schools must bring about individual and personal changes by helping students imbibe society's standards and values, while most philosophers and critics insist that schools must become the pivotal agent for social amelioration and change. Thus, a lack of clear-cut philosophy of education and the impossibility of arriving at unanimity of opinion has made the problem all the more difficult to solve.

With the problem of philosophies unresolved, the issue of practices in the school as well as in the classroom still remains crucial. Just as the question "Which philosophy is the best?" the question "Which particular practices are the best for a classroom teacher?" is difficult to answer. "Best" has no significance when there are no criteria for comparison. What may be the "best" for one student might well be the "worst" for another; the "worst" for one teacher might well present the "best" for another. We are all familiar with the unquestionable fact of individual

differences: teachers differ; students differ; one class is not like another; facilities are not the same everywhere. Since we are dealing with the complex process of teaching and learning, in which individuality and personality are key factors, it is impossible to arrive at universal criteria.

However, this is no excuse for going on with outdated practices in the classroom. The tendency of teachers to resist changes in the classroom practices--if there is such a tendency--is by no means to be condoned. Practices, which are used merely because other teachers in the past have used them, should be questioned and their effectiveness should be subject to experimentation and they should be changed if necessary.

Criticisms leveled against teachers in this regard do manifest the need for change and updating. Friedenburg considers the school's success in helping adolescents to clarify values poor. According to him, administrative factors outweigh human considerations. Confidentiality of students' records is violated making it dangerous for students to deal honestly with counselors. The schools also act as if America were still a melting pot, encouraging uniformity more than individuality. Standards are fragmentary and incoherent. The lack of philosophical structure obstructs developing curricula which utilize the best cultural resources to help youth make sense out of their

lives.[5] Charles Silberman attacks school practices for similar reasons. He feels that the teachers are subservient employees whose job is to take orders and push the time clock every day. They are judged not by what and how their students learn, but by how well they control their classroom. Teachers, according to him, fail to think seriously about the purposes and consequences of what they do--about the relationship of educational means to ends--and they seldom question established practices. There is a tendency for teachers to do what teachers before them have done. Schools operate on the assumption of distrust. Teachers assume that children cannot be trusted to act in their own best interest. Administrators make the same assumption about teachers. This lack of trust produces a kind of school in which every aspect of behavior is governed by minute and petty rules. Teachers are encouraged to become disciplinarians and discipline is defined as the absence of noise and movement. The unreasonable expectation that all children will be interested in the same thing at the same time produces classroom discipline problems in the form of misbehavior and teacher baiting. It is not the children, says Silberman, that are disruptive, it is the formal setting that is disruptive of childhood itself.[6] In the context of

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[5]Edgar Z. Friedenburg, The Vanishing Adolescent (Boston: Beacon Press, 1959).

[6]Charles Silberman, Crisis in the Classroom: the Remaking of American Education (New York: Random House, 1970).

these existing problems, what can the teacher do to bring about necessary change and improvement?

Assuming that the goals and objectives of a particular course are defined by the system, teachers can still scrutinize and study, through experimental procedures, the effectiveness of particular classroom practices on particular students. Since teachers are operating with groups which are characterized by great differences, one of the questions which the teacher ought to ask constantly is this: what should I do with this particular group of students? Should I behave the same way as I did last year? What behaviors are most desirable in this situation? What should be the effects of these behaviors on the students' academic as well as on their affective growth? These are questions of vital importance for a teacher to consider. What he will be able to accomplish will depend also on how he behaves in the classroom, for, indeed, learning is an interactive process with the teacher.

Need for the Study

The teacher who wishes to follow a scientific approach to teaching must constantly gather data about his teaching practices and interpret them in order to make his teaching more effective and in order to keep pace with changing demands. In their approach to teaching and learning, teachers are often conditioned by attitudes and beliefs about education they have picked up as laymen or from

laymen--that is, from the non-professional and the non-teaching public. The layman's concept of education is likely to be a mixture of pseudoscientific information and misinformation about desirable practices in teaching and learning. Nor have many teachers developed a scientific approach to their teaching because they have not kept up with the literature available, or because they have not tried to update their methods through experimental procedures. The fact that teachers tend to have less experimental consciousness than people in other professions is demonstrated by a survey conducted by Solomon Rettig and Benjamin Passamanick[7] who found that teachers tend to be more concerned with the recognition and appreciation they might receive from other persons outside their professions, whereas people in other professions were more concerned with recognition by their colleagues and other members of their profession. The teacher who is continually looking to laymen for appreciation is the teacher who will be guided by lay conceptions of teaching and learning. The teacher, who, instead, wishes to change his methods, must have recourse to research and study.

Besides, as pointed out earlier, teachers are dealing with a complex process of human behavior: teaching and learning. Many problems confront one who ventures out on

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[7]Solomon Rettig and Benjamin Passamanick, "Status and Job Satisfaction of Public School Teachers," School and Society, LXXXVII (1959), 113-16.

this noble profession. Probably every one who has become a teacher has at times asked himself questions like these: "How can I get Frank to try harder in arithmetic?" "What did I do that made the class so interested in their work today?" "How can I get my kindergarteners to clean up after they are through with water play?" "How will students react when they get their grades on this test?" "Is there not a better method to teach spelling than the one I use?" "Why did Jim behave that way today?"

These questions can be answered, but the answers are not simple and obvious because human behavior is not simple and obvious. The answers will vary with different teachers, subjects, classes, and schools. "The usefulness or validity of the answers will depend on whether they are based on principles that are consistent with the way in which people can be expected to behave under certain circumstances."[8] Through experimental procedures, this consistency can be found not with absolute but with hypothetical certainty. Given the situations, we can always find out the way students react to particular teacher behaviors.

Historical Approach to the Solution of the Problem

In the past, the problem was not recognized. Learning was considered primarily as a process of accumulating information. This concept was reflected in the idea that

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[8]Henry C. Lindgren, Educational Psychology in the Classroom (New York: John Wiley and Sons, Inc., 1967), p. 3.

the "mind is a storehouse for facts." Teaching was a process of filling the "storehouse" with facts and learning was the process of acquiring or absorbing facts. The more facts, the more learning. Great stress was laid on memorization because the best way to learn facts, presumably, was to memorize them. Learning was thus seen largely as a passive process--it was the learner's task to be receptive, and the teacher's task was to see that the learner got filled with learning. The teacher's role was thus definitely spelled out and since there was no alternative, the question as to what teacher behaviors are desirable was not raised.

Another traditional belief was that things "properly" taught are retained indefinitely. If the mind is a "storehouse," all that has been stored is supposed to be retained indefinitely. What the teacher had really to see to was that he taught everything "properly" and "properly" meant that every one memorized the facts and information the teacher had disseminated in class. It did not matter whether what was given in class served the student's needs or not. The question was not to be raised at all. Learning is supposed to be a kind of mental toughening process that has a value in and of itself. The assumption is that the mind is a kind of muscle that can be strengthened by vigorous exercise. They seemed to believe that the more difficult, frustrating, and unpleasant the subject is the greater is its value to the student.

A third popular traditional belief was that learning results from being told; students learn because they are told. It assumes that learning must start somewhere outside the learner, that someone else must set the wheels that finally result in learning in motion. It also assumes that "what is learned" is the thing that is told, that this thing is somehow added to the store of knowledge already in the learner's head, just as we would add a brick to a pile of bricks already in a storeroom. This theory is basic to such educational practices as giving lectures and having students read textbooks. The idea is that learning is outside the student--in the lecture or in the textbook--and somehow he has to get it inside him. To accomplish this was the true task of the teacher.

Lack of Conceptual Framework for These Theories

Educational psychologists today view teaching and learning from three standpoints: from that of the learner, that of the learning process, and that of the learning situation. All of these are very important elements in learning. Of course, when learning takes place, these do not operate as disintegrated parts; all human behavior, including learning, occurs as an integrated whole. However, traditionally, the learning process was emphasized almost to the exclusion of the other two.

Although the "additive theory of learning" has deep cultural roots and is popular with traditionalists in

civilized and primitive cultures throughout the world, it is a fallacious theory. It is true that people learn facts and information, but they do so by fitting them into their previous experience. They are useful only in as much as they serve the student's need. In other words, facts and information are learned in relation to something--other facts, skills, needs, concepts, etc.--something that is already a part of the life and experience of the learner. Unless what we learn becomes a necessary or useful part of our functioning as individuals, we quickly forget it. We may remember an isolated bit of information for a short time in order to pass a test and thus escape the punishment of a failing grade or avoid disappointing a teacher we like and respect; but once the grade has been assigned and the teacher pleased, the useless material passes into the limbo of forgetfulness.

Today we are less likely to put faith in the theory that learning is a sort of mental toughening process. But sometimes we are uneasy when it appears that children are having too much fun in the classroom. Joseph Meyer Rice encountered much opposition at the end of the nineteenth century when he conducted research into the relationship between the amount of time spent in spelling drill and the competence in spelling. When he reported that children who spent half an hour a day in spelling drill could spell no better than those who spent ten minutes a day at this task,

the educators and laymen of the day felt he had missed the point: the chief purpose of spelling drill was to discipline the mind, not to teach spelling.[9]

Although most teachers no longer believe that children should study solely for the purpose of mental discipline, they still tend to associate success in learning with the amount of time spent in studying a subject, even though researchers following in Rice's footsteps have been unable to find any substantial evidence to support the idea. For instance, a study of academic achievement among freshmen at the University of Wisconsin found no relationship between academic grades and the number of hours spent in study.[10]

Sometimes we do find evidence that students have gained much from hearing a lecture or reading a book, and this discovery appears to confirm the theory that learning results from being told. However, such successes do not come about because of what was said in the lecture or printed in the book. Any learning that occurs will depend on a variety of factors: the interest of the student, the extent to which he sees himself involved in the subject at hand, the way in which the material is presented, and so forth.

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[9]Joseph Meyer Rice, "The Futility of the Spelling Grind," Forum, XXIII (1897), 163-72.

[10]J. P. McQuary, "Some Relationships Between Non-intellectual Characteristics and Academic Achievement," Journal of Educational Psychology, XLIV (1953), 215-18.

We know that there is very little change in behavior when people are merely told something.[11] Actually telling is one of the more difficult means of conveying information that is to be remembered. Clifford Froehlich and W. Moser[12] were interested in finding out whether persons who had been counseled remembered the test scores that had been discussed with them. They found that the counselees could remember the highest score but not the others. If students cannot remember anything as important to them personally as the scores they make on tests, how can we expect that they will remember information in which they are less involved?

Earl Kelley, an educational philosopher who has been outspoken in his criticism of misconceptions in every day educational practices has this to say about the belief that education consists in amassing facts:

> Teachers and parents generally consider knowledge to be something which has existed in its own right for a long time, and that the learner needs only to reach out and acquire it. If all of a certain class reach out and acquire the same knowledge then they will all know the same things. This notion has of course governed our ways of operation, our school buildings, our textbooks and more important our attitudes toward our children. Since knowledge is assumed to exist in its own right before learning begins anybody who is willing can reach and acquire it. Those who do not do so are therefore perverse. Since perverseness of the learner

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[11]Kurt K. Lewin, "Group Decision and Social Change," in Readings in Social Psychology, ed. by E. E. Maccoly et al. (3rd ed.; New York: Holt, 1958).

[12]Clifford P. Froelich and W. E. Moser, "Do Counselees Remember Test Scores?" Journal of Counseling Psychology, I (1954), 149-52.

> is all that stands between us and success, we seek to coerce the learner. A whole pattern of authoritarian coercion is set up by this line of reasoning. Since we now know that children cannot learn that for which they lack experience and purpose (or if you like readiness) some of them simply cannot learn the things we set out for them. Perverseness has nothing to do with it, although the child, when put in a position of being required to do that which he cannot, may look and act as though he is perverse.[13]

The theory that things once learned are retained indefinitely is altogether baseless. There is nothing unusual or abnormal about forgetting that takes place after classroom learning. A number of studies show that the amount of information retained by students several months after the end of the course is disappointingly small. For example, a study of the retention of the American history revealed that after a lapse of eighteen months, junior high students had forgotten one-third of the facts they had learned.[14] A study by Glenn Durflinger[15] of sophomores and juniors at the University of California at Santa Barbara showed that although students retained reading skills very well, most of them were unable to function adequately in mathematics, and a large percentage

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[13]Earl Kelley, "What are Children Learning?" Childhood Education, XXXI (1954), 10.

[14]F. D. Brooks and S. J. Basset, "The Retention of American History in the Junior High School," Journal of Educational Research, XVIII (1928), 44-51.

[15]Glenn Durflinger, "The Fundamentals Forgotten by College Students," Journal of Educational Research, XLIX (1956), 571-79.

were unable to recognize parts of speech. Albert Kitzhaber[16] conducted a survey of compositions and other papers written by Dartmouth College students and found that the number of errors in their writing declined during the freshman year, when they were taking courses in English composition, but increased during the subsequent years. What is involved here is not merely ignorance of the rules of grammar, but an absence of supporting reinforcement from English teachers during the last three years of college. Because instructors in other fields did not apparently care whether students' papers were in good grammatical form, students naturally paid less and less attention to the formal aspects of their writing. What is needed to maintain an attained level of adequacy is not therefore merely practice, but some kind of assurance that what is learned has functional value.

Perhaps this is the basis for learning that endures: it is perceived by the individual as somehow important to him. This may, in some instances, be more important than whether a skill is practiced or not. We all have had the experience of remembering information, concepts, and even skills that we acquired long ago and have not had practical reason to remember. But we do remember them because somehow they seem important to us. Thus there does seem to be some validity in the theory that things "properly" learned are

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[16]Albert Kitzhaber, Themes, Theories and Therapy: The Teaching of Writing in College (New York: McGraw-Hill, 1963).

remembered, although this holds true only if "properly" learned means that they have acquired some personal meaning for us. If this personal meaning is not acquired, they are forgotten rapidly.

Purpose of the Study

The purpose of the study is to investigate the overall reactions of the college-bound tenth grade students of Sexton High School, Lansing, of the year 1970-71, toward changes in the classroom teacher behaviors and to analyze the possible impact thereby brought about on the students in their academic and affective growth effected during the time period of this research. The specific aims are to consider if it made any significant difference at all as to what method the teacher followed in class. Did the changes motivate the students to perform better, or were they altogether indifferent about them? Did they manifest any change in their perception and in their behavior? These points can be investigated scientifically only if there is a criterion for comparison. This would necessitate the need for a strict statistical design, employing a control and experimental group procedure. The experimenter was not able to execute such a design due to the fact that many unavoidable limitations were imposed upon him. However, the study does look into the changes manifested during the time period of the research and analyze them in the best possible way. For this, a single group design, employing a pre-test and a

post-test procedure, is made use of, and limited generalizations are made based on the evidence of the data.

Some qualitative data were collected during this time period. A questionnaire was given to the students, asking them to record their feelings about their overall experience in the class. These data are carefully analyzed and some subjective interpretations are made based on the data and the experimenter's observation of the students when the study was conducted.

The study also looks into these students' performance during the semester that followed, when these students were redistributed into other different classrooms. An attempt was made to identify these students in each class and from each of these classes an equal number of other students was randomly selected and their performance on the same tests was compared. In order to avoid the possibility of any error variance, the tests were given to all the students and the random selection was made after all the tests had been taken by all the students. This comparison is made to see if the treatment given to the students made any difference in their later performance.

In short, the study attempts to answer the following questions:

1. How did the students perform in reading during the semester?

2. What kind of progress did they make in composition?

3. Did they do well in literature?

4. Was there any change in their academic self-concept?

5. What changes were reflected in their attitudes toward school and learning?

6. Did they manifest a more determined sense of purpose and direction in their lives?

7. How did their overall performance change during the semester that followed?

It should be pointed out that it is not the intent of the researcher to establish any causal relationships based on the evidence of this study. An attempt is made merely to analyze the changes which occurred in these areas during the time period of the research. However, the study is useful in so far as it will benefit those teachers who wish to make similar changes in their classroom behaviors under comparable circumstances. The results may be used for in-service programs for the training of teachers. These results can forewarn and forearm them against eventualities.

Rationale for the Approach

Learning, as pointed out earlier, involves three focal elements: the learner, the learning process, and the learning situation. By the word "learner" we mean the pupils or students who individually or collectively comprise the classroom group--the persons on whose behalf the educational program exists and operates. A great deal of what happens

in the classroom can be explained in terms of personalities, developmental stages, and psychosocial problems of students who comprise the class. By the "learning process" we mean whatever goes on when people learn. People learn always; it is a process that goes on from the time we are born and continues in some form or other throughout our lives. But here we apply the term to whatever goes on in the "teaching-learning" situation. The term "learning situation" refers to the environment in which the learner finds himself and in which the learning process takes place. It refers to any factor or condition that affects the learner or the learning process. The teacher, the classroom setting, the effectiveness of the ventilation system, the arrangement of the seats in the classroom--all these affect the learner and the learning process.

Traditionally, as was shown above, emphasis was given to the second element, almost to the exclusion of the other two. We have already pointed out that such approaches were not backed by any conceptual or theoretical framework. Even today, there are those who believe that more emphasis should be given to the learning process and learning situation than to the learner. Whether the one is more important than the other is not the point of investigation in my study. But I do believe that of the three elements, the first is certainly the most important one, not only because people are more important than processes or situations, but when the learner is ignored it is almost comparable to teaching in a vacuum.

My belief about education is that the true goal of all education is the production of adequate personalities, people who can be counted upon to behave effectively and efficiently and to contribute freely to the welfare of all. Advocates of all systems and goals of education agree on one thing: that, to be effective, education must result in a change in the individual's behavior. If no change results, education has been unsuccessful.

Behavior is completely determined by the perceptual field at the moment of action. Therefore, the process of education is fundamentally a process of change in the perceptual field. Since behavior is determined by this field, the way to change behavior is to change perceptions. But changes in the perceptual field of any individual are directed toward the satisfaction of his needs. This reveals much to a teacher who intends to bring about changes in the behavior of particular students. By manipulating the learning process or the learning situation, the teacher may not bring about a desired change, because the learner does not see the need for it. Instead, by making the learner see the need for the change, there is greater likelihood that the teacher can help him bring about the change desired. "As long as our schools persist in attempting to direct the child into activities which do not provide him with opportunities for self-enhancement, children will show great

ingenuity in avoiding these activities."[17] The traditional school has encountered this refusal to deal with material which has no personal value by inventing the conventional system of marking and promotion. This gives the non-enhancing material an artificial self-reference through requiring its mastery as a condition for avoiding censure, or for securing a satisfactory mark. This makes the material a matter of concern to the pupils who have learned that success in school is a means of self-enhancement. However, the victim of this trickery does not allow himself to be put upon. He maintains his integrity by dropping the material from his field at the earliest moment, usually as soon as the mark has been assured. This state of affairs often results in the pupil's disregard of the subject matter entirely except as a vehicle for gaining approval or avoiding disapproval.

Some teachers have attempted to resolve the problem by designing educational practices entirely in terms of the immediate needs of the child; others have sought to solve the problem by ignoring the needs of the child and concentrating solely on "training the child for the future." Clearly, these are extremes and neither of these is likely to result in an effective and efficient educational system. Effective education is not content with the fulfillment of immediate goals alone. It should be concerned with the

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[17]Arthur Combs and Donald Syngg, Individual Behavior (rev. ed.; New York: Harper and Row Publishers, 1959), p. 370.

creation of goals. The truly great teacher should do more than tell the students what they want to know; he should inspire them to want to know what they have never dreamed of. To achieve such goals in modern education, teachers must be deeply concerned with the meanings acquired by the students.

The important thing in the determination of behavior is not the objective description of facts and objects in the phenomenal field, but the meaning that those objects and facts convey to the individual. This meaning is found in the relationship of the object to the phenomenal self, in the role which the object or fact is felt to have in the satisfaction of need. In an experiment, Norman Maier[18] asked his subjects to solve a problem involving the principle of the pendulum and gave them a piece of string and a pair of pliers. Many of his subjects were so used to pliers as pliers that it never occurred to them that they could be used as pendulum weights. They were unable to see the new meaning pliers could have because they were so fixed on the old one. It is, therefore, very important that the fact or object emerge with a meaning which will make it useful for the future satisfaction of the need.

The meaning of any object or event is the relation which it has to the self of the perceiver. It is his perception of its effect upon himself and his efforts at

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[18]Norman Maier, "Reasoning in Children," Journal of Comparative Psychology, XXI (1936), 357-66.

self-enhancement and self-maintenance. Many meanings exist at such low levels of awareness as to be unreportable. The result is that we are rarely able to communicate meanings fully and accurately. Students who are taught by verbal means alone are sure to behave as if most of the material they study is without relation to themselves, as indeed it is, until they actually experience the situations the books and teachers are talking about. In general, the problem of communicating is so difficult that it is often much more practical to help students discover the meaning of objects and events by actual experience than to try to convey them verbally. Furthermore, the meanings will have different potentialities for different people.

It seems obvious, therefore, that any system of education which concerns itself only with the formal presentation of subject matter without considering the individual student's point of view will affect different persons very differently. Subject matter and methods which have a desirable effect on the development and behavior of one student may have a very undesirable effect on the development and behavior of another. As a result, any formalized system of education whether method-centered or subject-matter-centered is too unpredictable and erratic in outcome to be safely used by a highly integrated democratic society. To be really effective, education will have to accept the task of dealing with the whole phenomenal field of the individual, of

producing changes in his perception of himself as well as in his perception of his environment. This is necessary not only because of the dominant role which the phenomenal self plays in the determination of behavior, but because of the organized and unified nature of the phenomenal field.

Changes in the phenomenal field of the self are invariably followed by changes in behavior. Lecky[19] has reported a number of pupils who, after undergoing changes of the self-concept, have made startling improvement in their level of achievement, often without tutoring. A high school student who misspelled 55 words out of 100 and who failed so many subjects that he lost credit for a full year became one of the best spellers in the school during the next year and made a general average of 91. . . . A girl who had failed four times in Latin, with marks between 20 and 50, after three weeks with the school counselor made a mark of 92 in the next test and finished with a mark of 84. She is now taking advanced Latin with grades above 80.

The following case report, written by a teacher, further illustrates the important role played by phenomenal self in behavior:

> Roger is twelve years old, almost three years older than any other child in the class. He has failed three different terms in school and was passed into the sixth grade only because of his age. Achievement and other tests showed little improvement over what he accomplished on the tests given in September. He has had

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[19] P. Lecky, Self-consistency: A Theory of Personality (New York: Island Press, 1945).

psychological tests three times: once when he was seven, again when he was nine, and once more this spring. Test results showed that he was normal in intelligence and is abnormal in no way. He has never learned to read although there is no physical or mental obstruction to his ability to learn. He is far beyond the average child in his ability to converse and shows a remarkable sense of judgment for a child of his age. He surpasses most of his class in reasoning out classroom problems not connected with school work. He has a wonderful personality and is well liked by all the other children although the boys call him a sissy. Roger firmly believes that he was born without a brain and that it is impossible for him to learn. He will not attempt to do any kind of school work which involves independent thinking and constantly attempts to foresee any challenge which might confront him before the school day even begins. Upon arriving at school he might say: "If we do examples at the board I'm not going up. I'll sit in my seat because I can't do them and only take up space at the board." When Roger started to read in the first grade, the children laughed when he made a mistake and continued to laugh at his mistakes when none of his teachers corrected the other children. This occurred in more than the first grade. Roger at first laughed with them until he suddenly refused to read aloud any more. Since then he cannot even read silently. He dislikes school and has to be practically forced to school every day. His belief that "he was born without brains" excuses him from any thinking processes and so protects him from humiliation. He is no behavior problem as far as obeying rules, etc., and he is a very cheerful boy for, naturally, having no brain excuses one from the difficult things.

Roger was an only child until he was 7 and his mother did all the difficult things for him. When his brother was born, Roger demanded even more attention from his parents, and, fearing he was jealous of the baby, the parents overworked themselves in showing their devotion. His mother tied his shoes until he was ten. I believe this dependence on someone to do all the hard things is one of Roger's problems now. Everything was made easy for him with all the difficult tasks taken over by his mother or father and now he is unable to do for himself.

He is at the reading clinic on the Hill this year and there has been a decided improvement in his reading accomplishment. . . . The psychological tests had been bad for Roger, I think. These have naturally given him the idea that he is different and that there must be something wrong with him, especially since he has had three. After his tests this spring he came to school

> and said: "Well, they gave me some more tests to see how dumb I was." His parents have never told him the results of the tests. . . .[20]

The case of Roger illustrates quite well how the phenomenal self develops and how it affects behavior. This boy was treated as an incompetent by his parents, his classmates, and his teachers. He was placed in a situation where it was easier to accept this concept of himself than to reject it. At home, as an incompetent, he was waited upon and protected. In school, he found that the concept of himself as an incompetent was one which he could maintain because it was consistent with the way he was treated.

This sketchy description of the theory of behavior gives the rationale for the approach followed by the investigator in the classroom. Its main objective was to bring about perceptual changes in the student and thereby cause changes in his behavior. The behaviors the teacher exhibited in the classroom were to help students to satisfy their needs. In the classroom he was informal with them; he reasoned with them and gave them guidance and help whenever asked for; all his attention was given to the growth and development of the individual learner; he capitalized on their interests rather than approaching them with defined programs. When the pressure of grades and fear of tests were taken away, the students were motivated to look into the mirror of self and

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[20]Arthur Combs and Donald Snygg, Individual Behavior (rev. ed.; New York: Harper and Row Publishers, 1959), pp. 375-77.

work on things which helped them to be adequate personalities.

Hypotheses in the Study

The study was not intended to prove a point through a rigorously conducted experimental research design; it did not have for its objective the establishment of any causal relationships. Practical and theoretical problems made it difficult for the researcher to execute an experimental-control type of design. However, the researcher did look into some of the changes that had been brought about in the students during the time period that the research was conducted. The researcher's main areas of interest were two: (1) changes in the students' academic growth and (2) possible changes in their affective development. In the academic field, the particular content areas the researcher planned to look into were: reading, writing, and literature. It should be pointed out that the teacher did not do anything special in the way of giving new programs in order to bring about changes in these areas. He did not even assign any specific tasks for the students to perform in class; he did not provide the traditional aids--lectures, assignments, tests, etc.--usually given in every classroom. However, students were told that it was important for them to work in these content areas at their own pace and in the manner that they considered most useful for them. The teacher did give help, individually and collectively, whenever asked for.

But for the most part, they were left to work alone or in a small group they chose to work in. Instead of limiting the tasks that could be performed in class, they were encouraged to indulge in a wide variety of activities, based on interest and talents. Other areas of interest for the investigator were mostly in the affective realm. To be specific, they were: student's self-concept of academic ability and achievement, student's attitude toward school and learning, and student's sense of purpose and determination in life. It was hoped that the teacher's stress on responsible individual work rather than on pressured servile work, teacher's friendly and informal attitude manifested through a personal dialogue with individual students during the contact time in class, and the teacher's flexible rather than fixed and stern approach to teaching would bring about some definite changes in the student's overall attitudes. In short, the researcher tested the following hypotheses:

1. These students improved significantly in reading skills.
2. These students improved significantly in writing and composition.
3. These students improved significantly in their ability to read literature.
4. These students made significant changes in their academic self-concept.

5. These students made significant changes in their attitudes toward school and learning.
6. These students made significant changes in their sense of purpose and determination in life.
7. These students performed significantly better than those students who were not exposed to the treatment.

Operational Definitions of the Terms

Some effects: The word "some" is used to convey the idea that the researcher was not looking for any predicted or preplanned changes; any change in the defined areas that was brought about during the time period of the research was considered. The term "effects" does not imply causal or mathematical changes; that is, the researcher was not concerned whether these changes took place essentially and entirely as a result of the treatment given. It was the assumption of the investigator that teacher behaviors in the classroom had some impact on the students' performance; along with this factor, there were other variables operating in the environment of the student, all contributing to bringing about changes in the students. The researcher looked at these effects, without necessarily identifying their causes. Perhaps, a better term than "effects" was "concomitants."

Experimental classroom procedures: This refers to the behaviors the teacher employed in the classroom, which were to some extent unique because these were not generally exhibited by most other teachers in the ordinary classroom. These behaviors are assumed to be unique. The researcher has not made a philosophical issue of the point whether these were unique or not.

Academic achievement: This refers to the performance of the students in three content areas: reading, writing, and literature. Achievement is defined in terms of progress as measured by the TAP, Tests of Academic Progress.

Attitudes: The researcher was interested in three areas of the student's attitude formation, which were assumed to be closely tied in with the objectives and goals of a particular school program. These three variables are:

1. Self-concept of academic ability and achievement: This refers to the picture or the image which the student has of himself to meet the academic requirements of the school and to perform adequately, that is, sufficient to meet the requirements of the passing level and possibly even better, in comparison with the rest of the students of his class or level.
2. Attitudes toward school and learning: Does the student see school as a place which can help prepare

him to meet the challenges the society offers him? Does he consider learning as a profitable activity that can benefit him as an individual and that can benefit the society? Does his overall behavior in school reflect these convictions?

3. Sense of purpose and determination in life: Does the student perceive his capability to achieve something in his life which can be of service to himself and to society? Does he manifest a sense of determination to achieve this objective or goal?

College-bound tenth grade students: The study was conducted with students in the first year of college-oriented program in the high school. No effort has been made to find out if these students remained in the program and actually went to college or not.

Scope and Limitations of the Study

The study was intended to describe the overall reactions of the students when the teacher had recourse to a new approach in teaching them. The results of the study did reveal something about student reactions to teacher behaviors in the classroom. By analyzing individual reactions to the changes in approach in classroom management, a general picture of students' expectations of teacher behaviors was obtained. This will benefit other teachers who are intending to make similar changes in comparable situations. The

results of the study may also be of value to in-service programs for new teachers.

However, the study has several limitations. The major limitation of a single-group design is that, as no control group is used, the researcher must assume that changes between the pre-test and post-test were brought about by the experimental treatment. There is always some chance, however, that one or more extraneous variables brought about all or part of the change noted between the pre-test and post-test scores. F. T. Smith[21] conducted a study with a single-group design of changes in college attitudes toward the Negro. He administered a pre-test, an attitudinal scale measuring attitudes toward the Negro, to a sample of 354 college students at Columbia University. Of this sample, he selected forty-six who were representative of the larger group tested. These students were then exposed to the experimental treatment which was a series of favorable contacts with Negroes such as having dinner with a Negro family, visiting a Negro church, and meeting leaders of the Negro community in Harlem. These contacts extended over a four-day period. Smith's hypothesis was that these contacts with Negroes would change the attitudes of his research subjects in a favorable direction. Ten days after the planned contact with Negroes, Smith post-tested his

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[21]F. T. Smith, "An Experiment in Modifying the Attitudes Toward the Negro," Teachers' College Contributions, DCCCVII (1943).

group using the same attitude measure and found that the mean attitude had changed significantly in favor of Negroes. Then after waiting ten months, Smith administered still another post-test to determine how much of the favorable attitudes change had persisted. Here, it is impossible to determine how exactly the change was brought about. The variables operating are too many and therefore it is hazardous to identify particular cuases. Similarly, this study, too, is packed with many confounding variables.

The study assumes much. It is difficult to find situations where all these assumptions can be held valid. Thus, the study has only a very limited hypothetical value. What a teacher can do for the students in one hour a day is negligible compared to the multitude of other stimuli that influence them. Anything that goes on in the environment can contribute to the changes that are obtained. What other teachers do in their classrooms can have either positive or negative or neutralizing effects. This being the case, the analysis of the data does not necessarily reveal anything at all from a statistical point of view. However, considering the fact that the study is purely a description of what happened during the time when the teacher taught them in a special way, some of these criticisms of statistical procedures can perhaps be held in abeyance.

Summary

The researcher followed a flexible approach in teaching his students in the classroom. He was interested in analyzing and studying possible changes that were brought about in the students and in their overall performance during this time period. He was also interested in comparing the subsequent performance of these students with other students who did not get the treatment. The method is discussed and the results are analyzed, so that any one interested in using the approach in similar situations can be aware in advance what kinds of results to expect, or what reactions to encounter.

CHAPTER II

REVIEW OF THE LITERATURE

Introduction

The present study, while not a replication of any previous research, has nevertheless evolved from the experiences of earlier researchers concerned with the problem of teaching and learning in general, and specifically from the experiences of those concerned with the classroom teacher behaviors.

This review of past research experiences relating to methods of approach to teaching and learning has four parts. The first provides a sketch of some of the systems and theories that have motivated people to take up these researches. The second part is a short overview of the different positions on the issue. The third is a review of reactions to these various positions, and the fourth focuses on the complexity of the problem and therefore the need to keep on researching into this area.

Systems and Theories

Philosophers, educational theorists, and educational psychologists have had their impact on teacher behaviors in

the classroom in that they have led teachers and others concerned about education to re-examine both purposes and methods and to experiment with new techniques. Some of the questions raised by philosophers, such as John Dewey and Alfred North Whitehead, some of the new theories expounded by educational psychologists such as Skinner, Bruner, Combs, Snygg, and others have led to the introduction of new methods and changes in curriculum, which have in turn kept teachers and educational psychologists busy comparing the new with the old.

Probably, the greatest contribution to the formulation of theories about teaching and learning has been made by teachers themselves, for it is they who provide the impetus and stimulus that are the beginning of many a research project. Teachers question methodology, they improvise and innovate, they experiment with new methods and new curricular materials, they start chains of questioning which motivate themselves or others to study, survey, speculate, and experiment. For instance, the demand for smaller classes has resulted in much research on the relationship of class size to effectiveness of education, but Newell's[22] as well as Spitzer's[23] findings so far fail to

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[22]C. A. Newell, "Class Size and Adaptability," Teachers College Record, XLIV (1944). 556-57.

[23]H. F. Spitzer, "Class Size and Pupil Achievement in Elementary Schools," Elementary School Journal, LV (1954) 82-86.

give evidence that smaller classes are more efficient. Nevertheless research continues on this and other problems raised by teachers and administrators with the result that our understanding of teaching and learning continues to be increased and enhanced.

The expansion of the behavioral sciences and the increasing momentum of the mental hygiene movement during the last generation have produced a wealth of ideas, concepts, and research that have helped broaden the scope of teaching. Lee Cronbach[24] has this to say about the teaching emphasis in educational psychology. Traditionally educational psychology was oriented toward increasing the efficiency of formal education. But since learning takes place everywhere, all the social influences impinging on the child are educational forces. In view of this, the task of guiding development is seen to be exceedingly complex, and efficiency becomes almost indefinable.

Educational psychologists who regard themselves as laboratory-oriented scientists have made their contribution by working in collaboration with teachers not only on problems relating to educational measurement and learning efficiency, but also on problems in such fields as mental health, group relations, classroom communication and parent-teacher relations. Although the broader scope of

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[24]L. J. Cronbach, Educational Psychology, Vol. I, Annual Review of Psychology, ed. by C. P. Stone and D. W. Taylor (Stanford: Annual Reviews, 1950).

teaching today has made it far more complex, the development of possibilities and resources as a result of study and research have afforded great potential to the teacher.

A Short Overview

Skinner maintains that all learning takes place through the reinforcement of responses. He bases his conclusion on evidence obtained from researches conducted in the area of operant conditioning. Research with operant conditioning makes use of the simple observation that living organisms tend to repeat behavior that is satisfying and to avoid behavior that is not. The experimenter can thus manipulate and shape the behavior of experimental subjects by presenting stimuli that have satisfying effects whenever the subjects show any behavior that is of the type he is seeking. The presentation of such stimuli is said to reinforce the behavior in question. Skinner has, for example, taught pigeons to play table tennis and to serve as the directional systems for guided missiles. According to Skinner, operant conditioning is also of interest to the teacher because it provides some clues to the reasons for success or failure in the classroom. Teaching success occurs when desired behavior has been adequately reinforced. Teaching failure occurs when undesirable behaviors have been reinforced. Teachers apparently can control learning by providing reinforcement when the student makes a move in the desired direction. Teachers can sabotage their own

efforts by inadvertently reinforcing when the student engages in behavior that leads away from the teacher's goals.

There are some who believe that learning should proceed deductively. Basically, this is the idea that students should understand the theory of what they are about to do before they actually try it. The idea that learning should take place deductively from the general to the particular is one that is part of the European cultural heritage. In the older European tradition, scholars are men of ideas, not of action, and their particular contribution is that of providing the theories or generalizations that explain experiences.

The idea that learning should be fun is in part related to the assumption that educational experiences are good experiences. The idea that learning can be fun is one that gets much support from teachers who like to see children happy or who themselves enjoy learning and therefore want to share their pleasure with others. No modern educator would have any quarrel with this point of view; indeed, it is desirable that all teachers enjoy seeing children happy and enthusiastic about learning. The idea that learning should be enjoyable has considerable support in research.

The field theorists stress the concept of social climate as seen or perceived by the individual. The theory

holds that changes in the psychological field will produce changes in behavior. It explains human behavior in terms of the way in which an individual responds to the forces in his environment, particularly his social environment. The attitudes, expectations, feelings, and needs of the individual determine to a large degree the power of the forces present in his psychological field.

Dewey was much concerned with what went on in the classroom. He produced no formal researches; instead, he analyzed, probed, and theorized. He did not try out his theories in the laboratory, although he did test them out in the classroom in a practical way. According to Louis Thorpe and Allen Schmuller,[25] Dewey's great theoretical contribution was his view of learning as problem solving--a refinement of the processes whereby the individuals adjust to their environment. Dewey's[26] statement regarding the development of the power of judgment in children reveals his point of view on the matter. The child cannot get power of judgment excepting as he is continually exercised in forming and testing judgment. He must have an opportunity to select for himself and then to attempt to put his own selections into execution that he may submit them to the only final test, that of action. Only thus can he

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[25]Louis P. Thorpe and Allen M. Schmuller, Contemporary Theories of Learning (New York: Ronald, 1954).

[26]John Dewey, Ethical Principles Underlying Education (Chicago: University of Chicago Press, 1903).

learn to discriminate that which promises success from that which promises failure; only thus can he form the habit of relating his otherwise isolated ideas to the conditions which determine their value.

A more recent exponent of the problem solving approach in education is Jerome Bruner,[27] an experimental psychologist, who has been interested in practical problems involving mathematical skills. Discovery is an important aspect of effective problem solving, according to Bruner. He says that knowledge of results should come at the point in a problem solving episode when the person is comparing the results of his tryout with some criterion of what he seeks to achieve. Knowledge of results given before this point either cannot be understood or must be carried as extra freight in immediate memory. If information is to be used selectively, it must be translated into the learner's way of attempting to solve the problem. If such translatability is not present, then information is simply useless. Telling a neophyte skier to shift to his uphill edges when he cannot distinguish on which edges he is traveling provides no help; simply telling him to lean into the hill may succeed. Instruction is a provisional state that has as its object to make the learner or problem solver

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[27]Jerome S. Bruner, "Some Theorems on Instruction Illustrated in Reference to Mathematics," Theories of Learning and Instruction, Sixty-third Yearbook of the National Society for the Study of Education, Part I (Chicago: University of Chicago Press, 1964).

self-sufficient. Any regimen of correction carries the danger that the learner may become permanently dependent upon the tutor's correction. The tutor must correct the learner in a fashion that eventually makes it possible for the learner to take over the corrective function himself. Otherwise the result of instruction is to create a form of mastery that is contingent upon the perpetual presence of a teacher.

The phenomenologists who have the most to say about education are Arthur Combs and Donald Snygg. According to Combs and Snygg,[28] learning is a natural and normal process for children: it is an important dimension of normal growth and development. The task of schools is not to make people grow. By their very nature, they are bound to grow and the task of schools is only to help them grow in socially desirable directions. Many of the difficulties teachers encounter stem from their continued attempt to feed students with facts and information that have no meaning or relation to the latter's life. One of the primary reasons for ineffectiveness of our formal methods of teaching is that facts exist in the phenomenal field of an individual only if they have personal meaning for him. Facts that have no relation to him or his life task do not emerge into awareness, or cease to exist in the field as their irrelevance has been discovered.

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[28]Combs and Snygg, Individual Behavior, pp. 365-80.

Review of Reactions and Comments

In the theory that all learning takes place through the reinforcement of responses, there is both fallacy and truth, just as there is in most traditional and popular beliefs about learning. It is true that people will normally try to behave in ways that are rewarding and satisfying, but rewards often do not reinforce learning at all, as when there is a long delay between the appearance of the behavior that is to be learned and the presentation of the reward. There is no doubt that the coupling of reward and punishment often "get results" with the students, but all too often the results are not in the direction of positive learning--that is, intellectual growth. What often results is a kind of blind obedience, an obedience that is conditioned by the presence of the authority of the teacher.

Personality patterns complicate the value of rewards and punishments. In exploring the responses of sixth graders to various learning situations, Gloria Grace[29] found that some children showed greater gains in learning when they were praised, others learned better when they were criticized, and still others learned better when only neutral statements were uttered. Children who responded best to negative statements tended to be of two types: one,

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[29]Gloria L. Grace, "The Relation of Personality Characteristics and Response to Verbal Approval in a Learning Task," Genetic Psychology Monograph, XXXVII (1948), 73-103.

the well-adjusted but overly conscientious child who tries to please persons in authority, and the other, the poorly adjusted child with many emotional problems who has very strong needs for social approval and acceptance. Children who responded best to neutral statements also tended to be poorly adjusted, but not as much as the type of child who responded well to criticism. Hani van de Riet[30] found that praise resulted in slower learning among a group of very slow learners and low achievers in grades five, six, and seven, but in faster learning with a group of normal achievers from the same grades. The low achievers responded somewhat better to reproof than to praise. These studies suggest that before teachers decide whether to use praise or reproof, they must know about the student, about his particular personality patterns.

Ellis Batten Page[31] conducted an interesting piece of research that provides some evidence about the principle of reinforcement as advocated by Skinner. He asked seventy-four school teachers to perform the following experiment. After they had administered, scored, and graded whatever objective test they happened to be using at the moment in

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[30]Hani van de Riet, "Effects of Praise and Reproof on Paired-associate Learning in Educationally Retarded Children," Journal of Educational Psychology, LV (1964), 139-43.

[31]Ellis B. Page, "Teacher Comments and Student Performance: A Seventy-four Classroom Experiment in School Motivation," Journal of Educational Psychology, XLIX (1958), 173-81.

their classes, they randomly divided the tests into three piles. The "no comment" pile received no marks other than those used for scoring and grading. On the test papers in the "free comment" pile, they wrote whatever thoughts were appropriate for the particular students and their performance on the tests. The "specified comment" pile received certain uniform comments which Page had prepared beforehand for all similar letter grades and which were considered to be generally encouraging. The effect of this treatment as revealed in the very next tests the students took was consistent with operant learning theory. Students whose papers had been in the "free comment" and the "specified comment" piles showed improvement in their scores with the "free comment" group showing greater improvement. There was no improvement on the part of the "no comment" group. Incidentally, Page had asked the teachers to predict the effects the comments would have on student performance and most of them had said that the better students would be more responsive than the poorer ones. The results showed, however, that good and poor students alike responded favorably to the comments.

In order to give feedback in teaching, Skinner introduced programmed learning, in the form of what was called the "teaching machine." The first attempts to investigate the results of the introduction of automated machines, in which students were presented with a series of questions

one at a time, were conducted by Sidney Pressey.[32] Each question was followed by several possible answers and the students pressed a button to indicate the choice that he thought was correct. Such machines did not attract a great deal of attention until Skinner developed models and programs that incorporated operant learning principles. Although the past few years have seen the development of a rich variety of programmed materials, research studies have not been able to show conclusively that Skinner's approach to programmed learning has any advantage over Pressey's. Shirley Curran Lublin,[33] for example, tried various ways to reinforce learning in a programmed course and found that no reinforcement gave the best results. Students with strong needs to indulge in indpependent thinking did very poorly, which led the researcher to wonder whether error-free programs, such as Skinner's, are actually too easy to be interesting. Negative findings have also been reported by other researchers, Roth,[34] Roe, Case, and Roe,[35]

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[32]Sidney L. Pressey, "A Simple Device for Teaching, Testing and Research in Learning," School and Society, XXIII (1938), 373-76.

[33]Shirley C. Lublin, "Reinforcement Schedules, Scholastic Aptitude, Autonomy Need and Achievement in a Programmed Course," Journal of Educational Psychology, LVI (1965), 295-302.

[34]H. R. Roth, "Student Reactions to Programmed Learning," Phi Delta Kappan, XLIV (1963), 278-81.

[35]K. V. Roe, H. W. Case, and Roe, "Scrambled Versus Ordered Sequence in Autoinstructional Programs," Journal of Educational Psychology, LIII (1962), 101-04.

Welsh, Antoinetti, and Thayer.[36]

In the middle 1950's, some of the leading people in the field of learning, for example, Ernest Hilgard,[37] were quite dubious about the advisability of translating and applying laboratory findings to classroom practice. In a paper analyzing problems in the field of educational psychology, Ernest Haggard[38] made this comment on the failure of laboratory psychologists to amke any major contributions to our understanding of the teaching-learning process. Most learning theorists still seem to think of their subjects as physicalistic machines which should display an invariant relation between input (Stimulus) and output (Response) variables. In such schemes, learning tends to be thought of as a function of what the experimenter does, rather than what the subject already knows, or is interested in, or thinks and feels about the learning experience or the material to be learned. Consequently learning has usually been defined as the modification of the relations between rather discreet stimuli and responses, or as the modification of

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[36]P. Welsh, J. A. Antoinetti, and P. W. Thayer, "An Industrywide Study of Programmed Instruction," Journal of Applied Psychology, XLIX (1965), 61-73.

[37]E. R. Hilgard, Theories of Learning and Instruction, Sixty-third Yearbook of the National Society for the Study of Learning, Part I (Chicago: University of Chicago Press, 1964).

[38]Ernest Haggard, "The Proper Concern of Educational Psychologists," American Psychologist, IX (1954), 539-43.

response systems resulting from after-the-fact events (rewards or punishments), which usually determine such modification.

In regard to the belief that learning should proceed deductively, a study was conducted by Bert Kersh[39] who gave a series of tasks involving arithmetical and geometrical relationships to three groups of college students. One group was given instructional aids to help them in solving the problems, but was given no other direction; a second group received no help in solving the problems; a third group was given the rules that applied to the problems. When the students were tested four to six weeks later, those who had been given instructional aids made the best record, followed by those who received no help, with those who had been given the rules making the poorest record. Students who had received no help had the highest motivation to continue learning on their own. One of the "no-help" students reported that he had become so intrigued by his success in discovering the rules that he told his friends about his experience and tried the problems out on them. Another "no-help" student went so far as to look up the appropriate algebraic rule in the library. On the other hand, one of the students in the "rule-given" group complained that he had forgotten the rules, because no one had told him to

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[39]Bert Y. Kersh, "The Adequacy of 'Meaning' As an Explanation for the Superiority of Learning by Independent Discovery," Journal of Educational Psychology, XLIX (1958), 282-92.

remember them. Kersh[40] subsequently conducted another experiment, the results of which tended to confirm the findings of the earlier study in that students who had been allowed to discover the principles applicable to a set of problems did better than a group who had been instructed in the use of the principles. One of the applications of these studies is that the inductive method of proceeding from experience to theory seems to be more efficient when it comes to learning to solve problems. Colville,[41] whose results are consistent with those of Kersh's work, found that the learning of simple physical skills such as rolling a billiard ball or catching a ball on a tennis racket was not aided by a study of the physical principles involved.

The idea that learning should be fun has considerable research backing. The study by Hurlock[42] showed that generally better results were obtained by positive rather than negative comment, and there is no question but the results of learning must be satisfying. But it should be pointed out that "learning must be fun" can be carried to

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[40]Bert Y. Kersh, "The Motivating Effect of Learning by Directed Discovery," Journal of Educational Psychology, LIII (1962), 65-71.

[41]F. M. Colville, "The Learning of Motor Skills as Influenced by Knowledge of Mechanical Principles," Journal of Educational Psychology, XLVIII (1967), 321-27.

[42]Elizabeth Hurlock, "Evaluation of Certain Incentives Used in School Work," Journal of Educational Psychology, XVI (1925), 145-59.

the point where it may actually interfere with intellectual growth. Life for both children and adults contains countless incidents of failure and we must all learn how to cope with them. As Alma Bingham[43] says, we must allow children failures. We quell many problem-solving opportunities and give them limited experience by making sure that they won't fail. After reviewing research in six areas of mental development, Ralph Tyler[44] came to the conclusion that mental development is actually facilitated by situations containing some element of conflict or frustration: "In order that effective integration may take place in the child's mental development, conflicting drives, impulses, external demands, and ideas must be balanced, not eliminated."

The field theorists' position too has support in research. One of the classic experiments in the area of psychology was conducted by Kurt Lewin, Ronald Lippit, and Ralph White.[45] Four small groups of eleven-year-olds were organized for the ostensible purpose of engaging in activities of recreational nature. Each club was supervised by

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[43]Alma Bingham, Improving Children's Facility in Problem Solving (New York: Bureau of Publications,Teachers College, Columbia University, 1958).

[44]Ralph W. Tyler, "Cooperation and Conflict in the Mental Development of the Child," Mental Hygiene, XXXII (1948), 255.

[45]Kurt Lewin, Ronald Lippit, and Ralph White, "Patterns of Aggressive Behavior in Experimentally Created 'Social Climates,'" Journal of Educational Psychology, X (1939), 271-99.

an adult leader for seven weeks, whereupon a different leader took over. Over a period of twenty-one weeks, each club was supervised by three different leaders. Leaders had been coached by the experimenters to play a different kind of role and thus create a different kind of social climate with each club they supervised. With one club they were supposed to be autocratic, with another they were supposed to be democratic, and with the third they were to be laissez faire. The experiment was organized in such a way that each club had the experience of being directed by each of the three kinds of leadership. The theory that changes in the psychological field will produce changes in behavior appears to have been borne out by the experiment, inasmuch as the groups demonstrated a different kind of behavior with each of the three different kinds of leaders. When the psychological field was influenced by leaders playing democratic roles, the groups were characterized by greater interest and personal involvement in club matters. They took the responsibility for initiating and completing tasks. When the leadership was of a laissez faire nature, the behavior of the members was characterized by frustration, discontent, and poor morale. Under autocratic leaders boys were either apathetic or even actively hostile.

John Dewey's task of analyzing and understanding learning from a problem-solving viewpoint deserves special mention. In Dewey's approach, the concern was with the kind

of learning that goes on in classrooms, whereas the conditioning and reinforcement psychologists were primarily concerned with laboratory experimentation. Many educational psychologists have ignored Dewey's work, even though he was one of the first presidents of the American Psychological Association. The audience for Dewey's writings consisted of the educational, rather than the psychological, profession because he communicated directly to the people who taught in the classrooms and administered the schools. The educational psychologists of Dewey's day were more likely to take their cues from Thorndike, who not only developed theories of learning along conditioning lines but also produced prodigious quantities of research data. However, the theories of Dewey were constructed on a large scale. They were concerned with the whole child in a total situation, rather than with the precise analysis of minute processes of the learning process. His theories were therefore difficult to test, using the research methods that were available to the psychologists of the day. However, in recent years, research workers have developed methods to put Dewey's theories to the test. Of particular interest are the studies that attempt to test Dewey's theories concerning democratic methods.

John Dewey is often portrayed by traditionalists as a kind of impractical visionary, who led American educators astray. What such critics overlook, however, is that

Dewey's criticism of traditional education was based on the most practical kinds of considerations. He felt that education which does not develop the thinking processes of children and which does not improve their ability to solve problems outside the classroom as well as in it is largely a waste of time. He was skeptical regarding the unfounded assumptions that traditionalists in education make all too readily--the assumption, for instance, that students automatically transfer the abstract concepts learned in the traditional classroom to the problems of everyday life.

Hermann Ebbinghaus,[46] a pioneer psychologist who experimented with the learning of various kinds of materials, some of which had meaning and some of which did not, found that the learning of non-sense material took approximately ten times more effort and furthermore was forgotten more rapidly. Another related point brought out by Combs and Snygg is their observation that children are not able to solve problems they do not have--that is, questions or assignments they do not perceive or experience as problems--because such problems have no relation to their every-day life or experience. These points of view find support in a variety of studies of classroom learning. Haselrud and

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[46]Hermann Ebbinhaus, Memory: A Contribution to Experimental Psychology, trans. by H. A. Ruger and C. E. Bussenius (New York: Teachers College, Columbia University, 1913).

Meyers[47] had students work on two sets of problems. The subjects were given principles which helped them solve the problems in the first set, but had to derive the principles themselves in order to work the second set. When they were tested a week later, they were able to do better in solving the kinds of problems for which they had to derive principles, than they were in solving problems for which principles had been given them. The point is that something we have learned "on our own" has more meaning and usefulness for us than something that is merely assigned or given to us, because it is more personalized, has more meaning for us, and is thus likely to be remembered. Miriam Howell[48] conducted a six-month survey of spelling activities in a second grade classroom. She noted that children studying spelling tended to learn more effectively and to display more favorable attitudes when they used vocabularies based on their own experience, than when they used vocabularies of words that were assigned by the teacher. H. E. Moser[49] taught a group of second graders the use of fractions,

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[47]G. M. Haselrud and Shirley Meyers, "The Transfer Value of Given and Individually Derived Principles," Journal of Educational Psychology, XLIX (1957), 293-98.

[48]Miriam Howell, "Spelling Through Written Expression," Elementary School Journal, LII (1951), 207-14.

[49]H. E. Moser, "Concept of Arithmetic Readiness: An Investigation of the Second Grade Level" (unpublished Ph.D. dissertation, Duke University, 1947).

basing his instruction on their own experience. They did much better than another group of second graders who were taught the same material by drill methods.

Snygg and Combs have three recommendations for schools that want to facilitate learning by making use of the experience children bring to school with them. First, they say, schools must provide opportunities for students to think of themselves as responsible and contributing members of society. A student must be given broad opportunities to identify with and be accepted by the society, desirable individuals, and groups he admires. The student who identifies himself with society will not attack it as delinquent. Snygg and Combs feel that such an approach implies a democratic classroom, a classroom where students are helped to develop a sense of personal worth, are encouraged to participate freely in group activities, and are permitted to express opinions and feelings as freely and openly as any adult. Second, students must have opportunities for success and appreciation based on productive and positive achievement. Students should feel safe enough from humiliation to face their deficiencies and inadequacies and deal with them objectively. This freedom implies that each student will have opportunities to develop his own educational program and set his own pace. Snygg and Combs say that in a democratic classroom, we do not have to worry about children selecting tasks that are too easy for them,

because children do not choose such tasks unless they are afraid of criticism and failure. If they have no reason to fear humiliation they will deliberately try themselves out on tasks of appropriate difficulty. Thirdly, schools must take advantage of the drive that is universal in all human beings, adults and children alike, to achieve their best potentialities and to develop efficiently and adequately. If schools could achieve the goals that are natural objectives of this drive, they would not have to rely on the artificial stimulation of competition and traditional marking systems.

Complexity of the Problem

The vastness of the researches carried out in the area of teaching and learning clearly indicates that this problem is indeed complex and that there is no one absolute method or approach which can be labeled as the "best." Many of the evidences quoted earlier have only hypothetical value; many of the researches were carried out in situations that were ideal for research purposes and therefore if we translate them to other situations, we find that their practicability is very limited. This is, therefore, an indication that the evidence based on one research or several researches is not sufficient to motivate us to make drastic changes in educational policies and practices. As administrators, as teachers, and as anyone concerned with the task of educating children, we should keep in mind that

we are constantly dealing with situations that are different; therefore, we cannot establish patterns that can operate in all situations; we need to experiment, and we need to innovate and change.

CHAPTER III

METHODOLOGY

This chapter consists of the descriptions of the purpose of the study, of the research design employed in the study, of the population and the samples, statistical hypotheses, instrumentation and criteria and statistical procedures used in the analysis of the data.

Purpose of the Study

The researcher followed a non-traditional approach in teaching his students. He will describe the particular method he employed in teaching and in investigating the overall reactions of these studens toward the more permissive classroom teacher behaviors. He will analyze the possible impact thereof on the students in their academic and affective growth during the period of the research. The specific aims were to determine if the teacher's procedure made any significant difference. How did the students feel about the total experience they had in the classroom? Did the freer classroom atmosphere motivate the students to perform better, or were they unaffected

by it? Did they manifest any change in their perception and in their attitudes and aspirations?

No attempt is made to establish causes for any of the changes that occurred. Yet learning is, probably at least partially, the result of an interactive process with the teacher. Consequently it was assumed that what the teacher did in the classroom had some impact on the students. The study only describes the method and the changes brought about during the period of the study without attributing the changes to any specific causes.

The study also looked into these students' performance during the semester that followed, when they were redistributed into other classrooms. These students were identified in each class and from each of these classes an equal number of other students was randomly selected and their performance on the same six tests was compared. In order to avoid the possibility of any error variance, the tests were given to all the students and the random selection was made after all the tests had been taken by all the students. This comparison was made to see if the treatment given to the students made any difference in their later performance.

The Research Design

In order to analyze the changes mentioned earlier, the researcher employed a single-group design. A single-group design involves three steps. The first step is the

administration of a pre-test, measuring the dependent variable. The second step is the application of the experimental treatment to the subjects. The final step is the administration of the post-test measuring again the dependent variable. Differences due to the application of the treatment and due to other variables operating in the situation are then determined by the pre-test and post-test scores using the t test for analysis. Differences in the variability of the scores are also determined by the pre-test and post-test scores, using the F test for analysis.

The single-group design made it possible to study the consistency of change across all three groups. The decision-rule followed was to reject the null hypothesis at $\alpha = .05$ level of type 1 error; a second decision-rule was to reject the null hypothesis if two out of three groups showed significant change. Similarly F tests were employed to study the signigicance of change in the variability of the scores in the different groups. The decision-rule was to reject the null hypothesis at $\alpha = .05$ level of type 1 error.

In the follow-up, the students in the experimental and comparative group were post-tested in the same six variables and the group's mean scores were compared. Again t tests were run to study the significance of the difference, and the decision-rule employed was to reject the null hypothesis at $\alpha = .05$ level of type 1 error.

Population and the Samples

The study population consisted of all the college-bound tenth-grade students who registered in Sexton High School, Lansing, Michigan, in the fall of 1970. The official list showed that there were 789 tenth-graders registered in the school, of whom 419 were enrolled in the college-bound program. The school is racially mixed with approximately seventy-six percent white, twenty-one percent black, and three percent other. Essentially the same mix was found in the population of our study. Most of the college-bound students in the study population came from families that place a high value on a college education. Consequently, with encouragement from their parents, these students tended to be achievement oriented.

The random selection was made by the computer. In the secondary schools in Lansing the procedure for grouping is as follows: before the close of the academic year, students graduating from the junior high schools report to their counselors who help them work out tentative programs of study for their first year of high school. These programs are sent to the central data processing center where they are fed into the computer. When the students for each building and for each program are identified, they are randomly assigned by the computer to the various teachers teaching the same subject.

The study was conducted in an American Literature course. Since the investigator was assigned to teach this

course, and since all the college-bound students were required to take it, the American Literature course seemed to be a judicious choice. Out of the total of fifteen American Literature classes, the researcher was assigned three. Of the 419 college-bound tenth-graders, he had about ninety, grouped into three classes of about thirty students each.

To supplement the quantitative data, an effort was made to collect some descriptive data at the end of the first semester. All the students in the three study groups were given a questionnaire dealing with the practices of teaching and learning and classroom management; they were asked to report whatever feelings they had about their experience in the class. In order to insure that those who returned questionnaires had responded conscientiously, returning the questionnaire was made optional. Those who volunteered were asked to be forthright in their statements. About sixty percent of the students returned the completed questionnaire. Since it was impossible to record all that these students had to say about the class, a random sample of thirteen was selected--five from group one and four each from groups two and three. Their responses are recorded in the next chapter.

The students who took part in the study were followed up during the second semester when they were redistributed into other classes. These classes were taught by five American literature teachers who had different views

concerning the teacher's role in the classroom. The researcher's purpose in this follow-up was to see how the performance of students from the experimental classes compared with that of other students. It must be pointed out here that the researcher was not able to get all the students who took part in the study for the follow-up. During the second semester, other courses were offered, which, if the student so wished, could be substituted in the required college-bound program. Nearly forty of these students who were in the study took these optional courses instead of American Literature; consequently it was not possible for the researcher to get all the eighty-seven students for the follow-up.

Statistical Hypotheses

For purposes of statistical tests of significance, the following null hypotheses were formulated:

1a. There is no difference between the two mean scores obtained on the reading test.

1b. There is no difference between the two variance scores obtained on the reading test.

2a. There is no difference between the two mean scores obtained on the composition test.

2b. There is no difference between the two variance scores obtained on the composition test.

3a. There is no difference between the two mean scores obtained on the literature test.

3b. There is no difference between the two variance scores obtained on the literature test.

4. There is no difference between the two mean scores obtained on the self-concept inventory.

5. There is no difference between the two mean scores obtained on the attitude inventory.

6. There is no difference between the two mean scores obtained on the inventory on sense of purpose and determination in life.

7. There is no difference between the two mean scores obtained on the three tests and on the three inventories.

Instruments

The Tests of Academic Progress, TAP, were used to provide an efficient and comprehensive appraisal of student progress in the areas of reading, composition, and literature. Each of these tests is designed to measure the extent to which the objectives of a basic area of high school instruction have been achieved. The tests were constructed according to specifications reflecting currently accepted curriculum practices and were then reviewed by subject matter specialists to assure a thorough and accurate translation of test plans into specific test exercises.

The Scholastic Inventory was used to measure changes in the affective growth of the students. This inventory was developed by the researcher to measure changes in three areas of students' affective realm, viz., student's self-concept of academic ability and achievement, student's attitudes toward school and learning, and student's sense of purpose and determination in life. The response-pattern is based on a five-point continuum, ranging from "strongly agree" to "strongly disagree." The purpose of the inventory is to discover the student's self-rating on each one of the items, that is, how the student perceives himself on this imaginary continuum. Depending on his perception, he rates and places himself on a point on this continuum. If the student's self-perception is in perfect agreement with the item, he places himself at one end of the continuum by responding "strongly agree"; if, on the contrary, the student perceives his position as altogether disagreeing with it, he places himself at the other end of the continuum by responding "strongly disagree"; if the student is neutral in his position, he places himself at the "don't know" point on the continuum; if there is a slight swing either to the left or right of this position, he responds "disagree" or "agree."

Criteria

The criteria employed in the study are the overall change in performance in the academic areas and change in

perception as manifested by the pre-test and post-test. An attempt was made to analyze the change and study its significance statistically. The change looked for was not necessarily one that was effected by the treatment, but any change that had been brought about during the period of the research was analyzed. Whether the change was positive or negative, it might be attributed, at least in part, to the teacher's behavior in the classroom, for the student's performance in the classroom is likely to be influenced at least to some extent by the behavior of the teacher.

The descriptive data were interpreted subjectively by the researcher. Interpretation was based on a close study of the student's responses and the teacher's observation. Available background information was also used before drawing any conclusions about the particular variable tested in the study, viz., the impact of teacher behaviors in the classroom on the students.

Pre-Test

The pre-test, then, covered six areas; of these, three were in the academic and three were in the affective realm. In the academic field, the tests administered were the one, taken from the TAP battery, on reading, composition, and literature. The Scholastic Inventory was used to get preliminary measures on student's self-concept of academic ability and achievement, student's attitudes

toward school and learning, and student's sense of purpose and determination in life.

These tests were administered during the first week of school in the fall of 1970 and again at the end of the first semester in January, 1971. The students were given a class period of fifty-five minutes for each test. To conserve maximum working time for the test exercises themselves, the students were asked to write only their names on their answer sheets, then to go directly to the questions; the rest of the preparation of each answer sheet for data processing was done by the teacher. Also for the Scholastic Inventory they were given an entire class period. To ensure that all the students would do a thorough job on their tests, the teacher insisted that they utilize all the time allotted. They were told that careless performance may result in their being asked to do remedial work in the areas of weakness. This admonition was felt necessary to ensure that students would not take the tests lightly and thus contribute to error variance. By insisting on the importance of taking the tests seriously, it was hoped that each student would be stimulated to do his best.

For their responses on the Scholastic Inventory, the students were given specific directions. They were asked to respond to each item considering their overall experience up to that point of time. They were told that there were no right or wrong answers to the questions put forth and

therefore they did not have to take an undue amount of time to respond to each item. They were asked to respond according to their first impressions.

The Treatment

The term "treatment" was applied to the particular classroom procedure the teacher followed in teaching the three groups. Unique in the treatment was that the teacher's behaviors in the classroom were directed to bring about perceptual rather than academic changes in the students. In order to bring about these changes, the researcher had recourse to the following:

Definition of Goals and Objectives For the Course

The goals and objectives for this course were different from the traditional ones and therefore it was necessary for the researcher to take the required time to explain them. They were simply explained to the students, collectively and individually. The students were told that the main objective of the course was to bring about perceptual changes in them, that is, change in their total outlook. The rationale for this change from the ordinary classroom objective was also explained to them. They were told that it was the teacher's belief that bringing about perceptual changes in them was real learning. It was pointed out that when students learn only for the sake of passing examinations or earning grades or to shine out in

competition, their learning does not actually satisfy their personal needs, except perhaps their need to play this sort of game in the classroom. Learning should involve more than this; it should contribute to the attainment of the individual's immediate and long-range goals.

Programs to Accommodate Individual Needs

In order to achieve the goals and objectives delineated above, it was necessary to have recourse to various programs that would satisfy individual needs rather than a single program. The individualized programs were not designed by the teacher; each student was asked to draw up a plan of the work he wished to do. The plans, they were told, should reflect their interest in developing their own personal talents and aptitudes. The teacher did give them help in drawing up their plans, but the rationale for this approach was explained to them. When the teacher works out a single program, it may serve only the needs of some students; others who feel that the program does not fit them may not be highly motivated to work. They may work half-heartedly to please the teacher or to earn at least a passing grade. If, instead, each student comes to class with a program that he has designed and which is meaningful to him, his motivation to work on it will likely be high and he will make the best use of his class time.

Freedom and Responsibility

In order to encourage self-motivated work and study, the students were given a lot of freedom in the class. They were told that they could work on their particular interests. With this freedom they were also given the encouragement and exhortation to think and find out their particular interests and talents and were asked to develop them as they felt would be in their best interest. They were given lectures occasionally on freedom and responsibility.

Elimination of all External Pressures

In order to give the students a sense of awareness and responsibility, external pressures were minimized. The students were encouraged to engage in a variety of activities in the classroom. There were no required assignments, projects, papers, and so on. There were no exams given for the sake of grading. Letters of threat and warning were not sent out to parents. All the students were told that they would be encouraged to do responsible work and that they would be given the grade they felt they deserved. Thus, the classroom atmosphere was marked, not by anxiety and fear, but by freedom and responsibility.

Introduction of Self-Discipline

From time to time the teacher explained the need for self-discipline in a system that operates on democratic principles. He explained to them that while externally

imposed physical conditioning can discipline the body, the mind does not readily respond to it. Manipulation of external stimuli may facilitate order and control but does not necessarily discipline the mind. Since people are rational beings, they can be reasoned with to act in their own best interest, as well as for the interest of the group. For instance, the need for controlling oneself for the sake of group operation was shown to them. They were encouraged to modify or restrain their individual behavior for the sake of the group whenever that was needed. They were encouraged to mobilize their internal resources rather than to depend on an externally imposed regimen as a guide to action.

Dialogue with the Students

In order to explain the goals and ideals and procedures more effectively to the students, the teacher conducted a friendly and personal type of dialogue with every student in the class. This was done in the classroom when the students were working either on individual or group projects. These conferences were generally conducted at the teacher's desk. The conversation was generally informal and words of praise and encouragement were frequently used. Even when some aspects of a student's work did not merit commendation, certain details that could be regarded as praiseworthy were indicated to serve as a basis for reinforcement. The students were shown that the teacher was

interested in their progress. He asked them personal questions and gave them whatever help he could.

Experiences for Enrichment

In order to achieve the many goals set by individual students in the classroom, they were given a variety of experiences. Speakers from different walks of life were brought in to hold discussions with the students. The students had an opportunity to interact with school administrators, psychologists, sociologists, custodians, and other students to learn about their ideals, goals, and aspirations or career satisfactions. The rationale for providing this type of experience was explained to the students. The purpose was to help them look into themselves introspectively so that they might possibly discover latent talents lying dormant in the depths of their inner selves. The encouragement given to them by such speakers did help them get a better self-understanding by affording an opportunity for reflection.

A Relaxed Classroom Atmosphere

The classroom atmosphere was very relaxed. Tables and chairs were not arranged in rows and columns; no formal seating chart was prepared. The students were told that the classroom would be a kind of workshop where each one could invest time on anything that he thought was useful for him. Students who were interested in working with

groups sat together and worked on their projects. Others studied independently on things they found useful to them. On days when they were not in a mood to study, they were encouraged to take up light activities which did not require strain and concentration. When all these activities were going on in the classroom, the teacher went from group to group, giving whatever help he could. When, however, certain students tended to waste time or to take up repeatedly useless activities, he reasoned with them and encouraged them to spend their time more usefully.

Academic Objectives

Greater emphasis was given to affective than to academic objectives. However, these latter were not ignored. The goals and objectives of an American literature class were explained to the students and their importance for them as college-bound students was discussed. But the teacher did not insist on tasks which had to be done by all in the class. Suggestions were given to the students to work individually or in groups or with the teacher in order to achieve the academic objectives of the course. Materials were given to the students who wanted them; help was given whenever asked for; lectures and explanations were given to those who were interested in them. The reason for not forcing all the students to work on common academic goals was explained to them. It was shown that a common program to achieve particular academic goals would only alienate

students who cared less about it. They would not have the motivation to work on it ; they would be bored and no learning would be achieved. If, instead, the students, by choice, engaged in the different activities suggested, they would work with more interest and thereby achieve the goals of the course.

Self-Evaluation Techniques

For grading purposes it was necessary to have recourse to some form of evaluation; but no single test would be sensitive enough to search into areas where change was expected to be brought about. Standardized tests or teacher-made tests were thought to be inappropriate. Since the sought-for changes were mostly in the student's perception, a self-evaluation technique was considered to be most appropriate. However, other tests of more objective nature were used to evaluate the progress. This type of evaluation was explained to the students at the beginning of the semester. In order to get them to work for their own self-development and not for grades or for the sake of competition, they were told that the teacher had no plans to give them exams for grading purposes; instead, at the end of the semester, they would be given the grade which they sincerely thought they deserved. In order to help them in their self-evaluation, they were given a questionnaire and they were asked to suggest a grade for themselves. Each student was given the grade he said he deserved. If the teacher had

some question about the grade an individual suggested, a private conference was held to attempt to resolve the difference.

Post-Test

At the close of the semester, the students were given the same tests administered to them at the beginning. The reason for giving the tests was explained to them. They were told individually and collectively that the teacher was interested in finding out the effects that may have been brought about during the time-period in which the teacher taught them. They were also told that the test results would not be used for purposes of grading. However, they were encouraged to do their best.

For these tests, they were given the same time as on the pre-tests. For their responses to the items on the Scholastic Inventory the students were told in a special way to mark each item considering their experience in this class only. They were reminded that there were no right or wrong answers, but that they should look at their overall experience in this classroom when they responded to each item. They were asked to give priority to their first impressions. On the TAP tests, the students were told to answer the questions with whatever knowledge they had obtained from the class as a result of the different projects they did.

Follow-Up

The researcher followed up the students who were in the study during the second semester. As many of these students as were available were identified in the different American Literature classes and their performance taken as a group was compared to an equal number of students randomly selected from all the students who were not in the study, but were in the same program. The random selection was done after all the tests had been taken by all the students. The tests were given at the end of the second semester. From the data collected, group means were computed and t tests were run to determine the significance of the difference. The decision-rule was to reject the null hypothesis at .05 level of type 1 error.

Statistical Analysis

The main point of investigation in this study was the change that was brought about in the group after the pre-tests had been given. For analyzing this change, group means were computed for each test in the pre-test and post-test. The change brought about in each group on each test was analyzed and t tests were conducted to study the significance of the change.

Similarly, the change in the groups' variability on the tests of academic progress was analyzed and tested to see if a significant change had taken place.

Experimenter Analysis

Since all the data collected were not quantitative, the researcher was forced to have recourse to an analysis other than statistical. The descriptive data were scrutinized and studied in the light of a subjective analysis. Based on the researcher's observation of the students and using other available background information, each student's responses were carefully analyzed and some interpretation made.

CHAPTER IV

RESEARCH FINDINGS

Introduction

The major purpose of this study is to describe the particular method the teacher followed in teaching his classes and to analyze the effects that were brought about in the students during the time of this research. In other words, the purpose is merely to describe the effects and not to identify the causes of these effects.

The dependent variables tested in this study were these: (1) student's performance in reading, composition, and literature; (2) attitudinal change toward school and learning; (3) change in the students' sense of purpose and determination in life; and (4) change in their self-concept of academic ability and achievement. The students who took part in this study were pre-tested and post-tested in these variables and the results were analyzed statistically.

An attempt was made to follow up these students in their performance during the subsequent semester. In each class, these students were identified and an equal number

was randomly selected from among the other students who did not take part in the study. All these students who took part in the study were grouped together and the other students randomly selected constituted another group for purposes of comparison. The mean score on each test was computed for each group and tests of significance were run to study the differences. The data collected were of two kinds: descriptive and quantitative. The descriptive data were collected by giving the students a questionnaire and asking them to respond to each question by making subjective statements about the total experience they had in the classroom. These questions dealt with the different aspects of classroom learning and classroom management. These data were carefully scrutinized and, based on the teacher's observation of these students, some generalizations were made. From the quantitative data, group means were computed and t tests were run to study the significance of the changes. Similarly, changes in the group variability were analyzed and tested for significance.

Descriptive Data

In order to get an idea how the students felt about what they got out of the class and about the over-all experience they had in the class, the students were given a questionnaire at the end of the semester. They were asked to be candid and open in what they had to say about the class. They were assured that there would be no

reprisal for anything they stated. For the purpose of scrutinizing these responses, a random sample was selected from each group. Five students were selected from Group 1 and four students each from Groups 2 and 3. Following are the responses given by these selected students:

What were your attitudes toward learning in this class?

Student A: Somedays I should have been more alert, but what I did learn I will remember and know it was worth learning.

Student B: I wanted to learn unlike several other students in class.

Student C: About the same as the rest of the majority of the class.

Student D: I really tried to learn something in class.

Student E: I wanted to get out of it as much as I could. Some days I really wanted to work, but other days I should have stayed in bed.

Student F: I wanted to learn in this class. I like English.

Student G: It was more of a "do it if you want to." I don't think I tried hard enough to learn something useful.

Student H: My attitudes toward learning in this class were ones of wanting to learn because I want to make something of myself.

Student I: Indifferent. But as the semester went on I was a little more eager to learn.

Student J: Always positive. I came into the class to learn and the teacher put interest into the class.

Student K: I wanted to learn because like they say, "we understand the present in the light of the past." So if I am going to go into some sort of writing, I should know something about American Literature.

Student L: Very good I believe. I learned a lot and enjoyed learning in this way. Its a lot more fun teaching in this way than going through the book.

Student M: If there was something worth learning I learned it. If it was something that was useful for me in the future, I learned it.

What would you say about what you have learned in this class?

Student A: Creative writing, plays, art, skits, pantomimes and literature.

Student B: I learned some things that will help me later in life. Some of the things I have learned are useful even now.

Student C: You will remember it a lot longer.

Student D: It will be very helpful to me during the future years.

Student E: I learned that I had to take things into my own hand, that I couldn't always depend on the teacher to tell me now to work, etc.

Student F: I feel I learned a lot. My grades were good. So I must have learned something. I feel I can use what I have learned just almost every day. I like to teach English one day and I like to use this method.

Student G: I don't think I learned as much as I could have if I had been forced to do homework and so on.

Student H: What I learned in this class was about the different types of American authors and poets and different ideas each one had on America, etc.

Student I: I learned quite a bit. Some of it I already knew before, but most of it was new to me.

Student J: I learned quite a lot in the class and by studying on my own I gained a lot.

Student K: I wish I could have stuck to the book more and study the authors and their works. But the class continuously voted it down and so I was forced to learn it on my own. I needed a teacher to teach it to me.

Student L: I learned a lot probably because it was fun and I felt no pressure in learning which helped me a great deal. I felt, by working I was helping myself and no one else.

Student M: If I get a chance to learn more about what I learned, I will take it because it will help me get a greater outlook on life.

Were you happy to come to this class?

Student A: Yes. I even got a transfer to be in here.

Student B: I enjoyed coming to this class, even on days I would have preferred staying home.

Student C: I didn't know really what to expect; it was a change.

Student D: Not really, but I guess it has been fun being in this class.

Student E: I like the class and the people in it. If I didn't, I would have skipped classes.

Student F: I wanted to come to this class. I enjoyed it. There are classes I hate going to, this year.

Student G: I didn't mind it but it was more or less like a study hall or a free period.

Student H: I felt happy to come to this class because I figured there was something to learn whether new or old.

Student I: Yes, I guess I was. I thought it would be interesting and it was in many ways.

Student J: Yes, it was an enjoyable class.

Student K: I didn't mind coming when there was something definitely scheduled to do, but when we had free days, if I had nothing to do, it got boring. Then people would waste time and you would yell at us.

Student L: It was a lot of fun and I really liked coming to this class. It was interesting. The teacher was not some kind of monster. It was nice to go to class and do what you wanted to.

Student M: At first it seemed like it would be a welcome change, since the other teachers' classes were boring. All I did in their classes was to write about personal experiences. Then it turned into a nightmare with those long essay tests.

Were you able to get a better self-understanding as a result of taking this class?

Student A: Yes.

Student B: I feel I understand myself better now than before.

Student C: Yes.

Student D: Yes.

Student E: Yes, I started out very bad. I didn't like it and I didn't try. But after a while, being aware of the people around me I got to know myself better.

Student F: Yes, I realized that I would like to teach English.

Student G: Not really.

Student H: Yes I would say that I was able to get a better self-understanding because I was made to think and that helped me.

Student I: No, not really.

Student J: Some of the things we studied helped; some of the talks given by the speakers helped too.

Student K: Yes I think so. Certain things that the teacher lectured about gave me a new outlook on things and a better self-understanding. A lot of the literature that we read and the study of the authors made me stop and think about things. I learned to be more open-minded and creative.

Student L: Yes, now I don't think that learning is hard and I believe most people can learn without pressure. I realize fully that I cannot be a writer or an actor. Knowing one's limits can be very useful at times, especially when it is time to look for a job. Now I know what not to try and become.

Student M: Yes I did. But it depended on your own interest.

How would you describe your overall experience in this class?

Student A: Very different and exciting. You were never in the same routine; there was always something new to do. The kids got along real well with each other and with the teacher.

Student B: I think that the total experience in the class that I had was on the whole pleasant, but I didn't think that I learned all that I could have in the semester.

Student C: It was different than other classes. You could learn if you wanted to, or you didn't have to learn at all, and for people preparing for college this is a good course.

Student D: I think I have learned quite a bit in this class and I really have enjoyed it.

Student E: It was very refreshing.

Student F: I enjoyed the class. I never used to read much. Last semester you had us read for a few weeks and I enjoyed it. You taught the grammar we needed.

Student G: Very different. The whole relationship between the teacher and student was more relaxed.

Student H: I would describe my overall experience in this class as one of satisfaction in what I was learning, old and new, and happy in the way I was learning.

Student I: Pretty good, different, relaxing and I found it an independent class.

Student J: Interesting experiences with free time.

Student K: Besides learning about the basics of American Literature, I learned a little about people, their minds and how to get along with them. I would say that it was a different experience mainly because the teacher was interesting and was interested in using new techniques of learning to benefit the students. I think I learned more about psychology than American Literature, but at any rate I think I can say that I learned something.

Student L: Very enlightening. It pointed the way to my reading on American older writers. And it also showed me that English can be a fun course and not boring. It was interesting.

Student M: In few words, it was very rewarding. It taught me more things I wanted to know than things I didn't want to know but had to know.

What would you say about the roles the teacher played in the classroom?

Student A: He played the roles of different things. Like if we acted out plays, he played the role of an actor, or if we wrote stories, he was the publisher, or collage, he was the artist.

Student B: The roles the teacher played, to me, were those of a babysitter and an aid for those who wanted to learn.

Student C: I think you did a fairly good job in keeping your cool during this new type of course, which most kids didn't understand.

Student D: I guess they were all right.

Student E: He let us on our own as much as possible which was good. It made us more aware of ourselves.

Student F: You did a good job of teaching us. You taught grammar and poetry and got us to read.

Student G: It was not the role of high and mighty teacher but more of a person on our own level.

Student H: I would say that the roles of the teacher in the classroom were ones in which if someone didn't want to learn it, it was their problem, not anybody else's.

Student I: He was a good teacher and I got the feeling that he was very interested in helping us out, and someone we could talk to.

Student J: As a guide, very good, always trying to encourage work to be done to student's ability.

Student K: I liked the new method of teaching he was using but I don't think too many people knew how to use this freedom and therefore spoiled it for themselves by not learning anything. The class needed to be disciplined at all times and the work laid out before them, before they could learn anything which, unfortunately, the teacher did do sometimes. Sometimes I found that I had no time to do any other homework because we had such an extreme assignment. But that was the only time I learned.

Student L: He was more like a pointer, not teaching, but letting us learn by ourselves. It is a better way of teaching; it makes you feel like you are not in kindergarten. I think by being an advisor, the teacher's role is easier and it allows the slower student more time with the teacher to be advised what to do.

Student M: I think the teacher was trying to promote group interaction and participation in the classroom. He, in my opinion, was seeing how effectively this could come about by using different methods of teaching.

What were the teacher's attitudes toward you as an individual?

Student A: He treated us all equal and fair. I don't believe he ever let any one down.

Student B: I believe that I was recognized as an individual and therefore treated as one.

Student C: They were all right in some ways.

Student D: I guess all right.

Student E: His attitude toward me at first was very different than toward the end, I felt at the end he didn't approve of some of the things I did and said.

Student F: I think you liked me. You have always been nice to me. You helped me answer my questions. You seem to enjoy the rest of the kids. You joke with them and play cards sometimes.

Student G: He treated me as an individual and with respect.

Student H: I would describe the teacher's attitudes toward me as an individual as one of kindness and generosity.

Student I: Very good and fair.

Student J: He was interested in my success as a student. He respected me as a student and listened to criticism--was understanding.

Student K: He seemed very understanding and quick to help if asked to. He seemed interested in getting to know you personally and your interests in American Literature. A very interesting person too, I must add, but he must teach Psychology.

Student L: Very good. I think he liked me a little and it is not like other classes where the teacher considers you just as one in thirty or so. It was more of a personal approach and made learning more of fun.

Student M: It was sort of a free and easy type of an attitude toward me, but I think he was a little more strict with other members of the class.

Did the teacher attempt to promote group interaction?

Student A: Yes, I believe he did. We had the choice to sit in small groups of our own choice and get to work and thereby get to know each other better.

Student B: Group interaction is fine when all are willing to participate and student interaction can be helpful in learning.

Student C: It was a good idea and it seemed to work pretty good.

Student D: I guess it was all right.

Student E: It made it more interesting and not so boring.

Student F: You tried to get us to work in groups and I know it's good, but I don't like to work in groups too much. Maybe that's why other kids didn't try too hard in groups.

Student G: I think he tried to promote group interaction and was somewhat successful.

Student H: The teacher's attempt to promote group interaction was very good, but sometimes it was the students' fault that it failed because they were not willing to cooperate. The teacher's attempt was still a good one.

Student I: Yes. Tried to get the students to communicate to each other, discuss and take their own ideas--I believe in it--fight for what they believe, in discussions.

Student J: Always trying to get his students to participate in group discussions and panels.

Student K: His attempt was very good. You should't say attempt, you did achieve this, quite a few times. I can say that we can have group discussions but they can be good only when everyone in the group wants to discuss and listen.

Student L: I think the attempt succeeded because people who wanted to express their opinion were able to do so.

Student M: I feel it was not a successful attempt because many weren't responsive.

How did you feel about the teacher-student dialogue in the classroom?

Student A: They were very close and understanding with each other.

Student B: I felt that the conversations were more relaxed in this class than any other class I had before.

Student C: It was real good; most students could express their feelings toward the subject and the teacher.

Student D: I think we learned a lot in the teacher-student dialogue.

Student E: I liked it; it gave us a chance to tell you things I didn't want to tell you in front of the whole class.

Student F: Its okay. We discussed things, could argue a point if we disagreed.

Student G: He talked more on our level than on his.

Student H: I feel that the teacher-student dialogue in this class was the same as in other classes.

Student I: Pretty good.

Student J: A little more free than most classes I have enrolled in.

Student K: I thought they were good. The teacher had respect for the ideas and opinions of the students just as the students had for the teacher.

Student L: It made it easier to get opinion across.

Student M: It was basically contradictory. Since whatever he did to change our class participation in class came about all of a sudden.

What would you say about the teacher's grading practices?

Student A: Very lenient; no one would ever want to complain. There's not too many teachers like him.

Student B: I believe that self-grading made quite a few students do anything except American Literature, because they knew they could get at least a B for a grade.

Student C: It was all right.

Student D: I think they are pretty good.

Student E: I liked it. It gave the teacher a better chance to see how the student rated himself.

Student F: They were all right. You downgraded us if we didn't do what we were supposed to do and you gave us good grades for the work we did well.

Student G: I didn't like them. I think the teacher was too lenient.

Student H: The teacher's grading practices were very fair because he had to figure out what the student was saying on a test or a quiz and see if it was on the general idea of the question.

Student I: Average, but fair.

Student J: Liberal but fair.

Student K: They were fair. He gave the person what they earned, plus taking into consideration what the student felt he learned and deserved, which is important. The student knows better than anybody if he is learning and working up to his full capability. He believed that when you learn you compete with yourself, not with your neighbor. He always gave me A's. Keep grading that way; talk with the student beforehand and see if you both agree on the grade. Never wait until the student sees the report card and then it is too late to change.

Student L: May be a little relaxed; let's face the facts. It was very easy to make A's. I say this because if you worked up to your ability you get an A and I feel this is the way grading should be.

Student M: Simple. I didn't know any. You gave A's to people who worked and everything else to the people who didn't.

Analysis of the Descriptive Data

The students were not given any special pattern for responding to these questions. They were asked to put down whatever feelings they had about the class. However, a pattern seems to have evolved in the way they responded. The responses were grouped into piles and the percentages below give an idea of the variability of the students' responses.

Question 1: What were your attitudes toward learning in this class?

Nine students felt that they were interested in learning and were well disposed toward it; three students reported that they were somewhat indifferent about learning in this class; one student thought that his attitudes were like those of other students.

Question 2: What would you say about what you have learned in this class?

The responses to this question were somewhat varied. Six students reported that they learned a great deal; three students felt that they learned a lot for the future; one reported that what he learned helped him to be independent; one thought that he did not learn enough; one reported that the teacher should have stuck to the

text more; one mentioned that he learned things only if they were useful.

Question 3. Were you happy to come to this class?

Ten students reported that they enjoyed coming to this class; one thought that it was a welcome change in the beginning but not toward the end; one said that he did not mind it--it was like study hall; one student reported that he was somewhat confused and did not know what to expect.

Question 4: Were you able to get a better self-understanding as a result of taking this course?

Ten students responded positively--they thought they were able to get a better self-understanding as a result of taking this course; two students thought that the course did not really help achieve this goal; one student reported that some of the things done in the class helped in achieving this goal.

Question 5. How would you describe your overall experience in this class?

In answering this question, the students made use of such words as rewarding, interesting, enlightening, different, relaxing, enjoyable, pleasant, exciting, etc.

Grouping the responses into some sort of patterns, we find that nine students felt that their experience in this class was good. They stressed the idea that they learned what they really wanted to learn. The other four students reported that their overall experience in this class was different from that in other classes. It was more relaxing.

Question 6: What would you say about the roles the teacher played in the classroom?

Five students perceived the teacher as one who tried to foster independent study by giving the students a great deal of freedom and latitude in making their own decisions; four students perceived the teacher as a helper; one reported that the teacher was a person who talked to students at their own level; one thought that the teacher was a baby-sitter; one responded to the question by stating that the teacher did a good job.

Question 7: What were the teacher's attitudes toward you as an individual?

Seven students perceived the teacher as one who treated them as individuals and showed them respect and kindness; two thought that the teacher treated all equally and fairly; one felt that the teacher was too easy; one student reported that the teacher was not very

understanding toward him in the end; two students responded to the question by stating "all right."

Question 9. How did you feel about the teacher-student dialogue in the classroom?

Eight students thought that it helped bring about better communication between the teacher and the students; two thought that it was a good idea; two students reported that it was "all right"; one thought it was contradictory.

Question 10. What would you say about the teacher's grading practices?

Six students reported that the grading practices of the teacher were fair; two students thought that it was pretty good; four students reported that they did not like it because some students took advantage of it; one did not have any special comment on it.

Quantitative Data

Tests of Academic Progress (TAP) were used to pre-test and post-test the students in the academic areas of reading, composition, and literature. The Scholastic Inventory was used to collect pre-test and post-test measures on the student's self-concept of academic ability and achievement, their attitudes toward school and learning, and their sense of purpose and determination in life. The researcher was mainly interested in the group's

average performance on these tests and their mean scores on the inventories. These scores with their means and standard deviations and the tests of significance are reported in the following tables.

TABLE 4-1. Reading Test Statistics.

Statistic		Group 1 (Am.Lit)	Group 2 (Am.Lit)	Group 3 (Am.Lit)
Pre-test Mean		32.656	31.964	33.148
Pre-test Standard Deviation		12.386	10.136	10.33
Post-test Mean		38.00	36.57	38.556
Post-test Standard Deivation		10.909	11.17	11.12
Correlation		.812	.794	.722
t test		3.83	2.28	2.618
Degrees of Freedom		62	54	52
Significance	.05			
	.01	*	*	*

*Significant at .01 level.

TABLE 4-2. The Reading Test: Analysis of Variance.

Group	Variance	F .975 (N-1) (N-2)	F .025 (N-1) (N-2)	F Value	Significance
Pre-test					
1 (Am.Lit)	153.51	F .975 (31) (31)	F .025 (31) (31)	1.29	
Post-test	119.03	2.07	0.482		
Pre-test					
2 (Am.Lit)	102.82	F .975 (27) (27)	F .025 (27) (27)	0.82	
Post-test	124.77	2.14	0.475		
Pre-test					
3 (Am.Lit)	106.71	F .975 (26) (26)	F .025 (26) (26)	0.86	
Post-test	123.65	2.21	0.468		

TABLE 4-3. Composition Test Statistics.

Statistics	Group 1 (Am.Lit)	Group 2 (Am.Lit)	Group 3 (Am.Lit)
Pre-test Mean	35.656	36.43	36.296
Pre-test Standard Deviation	10.02	10.68	11.04
Post-test Mean	41.031	40.03	40.00
Post-test Standard Deviation	8.865	9.252	10.635
Correlation	.868	.893	.789
t Test	3.21	1.91	1.75
Degrees of Freedom	62	54	52
Significance .05		**	**
Significance .01	*		

*Significant at .01 level.

**Significant at .05 level.

TABLE 4-4. The Composition Test: Analysis of Variance.

Group	Variance	F .975(N-1)(N-1)	F .025(N-1)(N-1)	F Value	Significance
Pre-test					
1 (Am.Lit)	100.40	F .975(31)(31)	F .025(31)(31)	1.28	
Post-test	78.68	2.07	0.482		
Pre-test					
2 (Am.Lit)	114.06	F .975(27)(27)	F .025(27)(27)	1.33	
Post-test	85.56	2.14	0.475		
Pre-test					
3 (Am.Lit)	121.88	F .975(26)(26)	F .025(26)(26)	1.07	
Post-test	113.21	2.21	0.468		

TABLE 4-5. Literature Test Statistics.

Statistic		Group 1 (Am.Lit)	Group 2 (Am.Lit)	Group 3 (Am.Lit)
Pre-test Mean		33.375	31.429	33.926
Pre-test Standard Deviation		7.778	9.147	8.82
Post-test Mean		38.156	36.964	36.222
Post-test Standard Deviation		7.525	9.084	8.417
Correlation		.804	.679	.814
t Test		3.53	3.213	1.38
Degrees of Freedom		62	54	52
Significance	.05			
	.01	*	*	

*Significant at .01 level.

TABLE 4-6. The Literature Test: Analysis of Variance.

Group	Variance	F .975(N-1)(N-1)	F .025(N-1)(N-1)	F Value	Significance
Pre-test					
1 (Am.Lit)	60.52	F .975(31)(31)	F .025(31)(31)	1.07	
Post-test	56.70	2.07	0.482		
Pre-test					
2 (Am.Lit)	83.72	F .975(27)(27)	F .025(27)(27)	1.02	
Post-test	82.45	2.14	0.475		
Pre-test					
3 (Am.Lit)	77.79	F .975(26)(26)	F .025(26)(26)	1.10	
Post-test	70.90	2.21	0.468		

TABLE 4-7. The Inventory on Self-Concept: Statistics.

Statistic		Group 1 (Am.Lit)	Group 2 (Am.Lit)	Group 3 (Am.Lit)
Pre-test Mean		23.406	25.107	23.815
Pre-test Standard Deviation		12.316	13.914	14.857
Post-test Mean		28.00	26.143	26.704
Post-test Standard Deviation		11.211	15.770	13.668
Correlation		.482	.742	.657
t Test		2.207	0.368	1.052
Degrees of Freedom		62	54	52
Significance	.05			
	.01	*		

*Significant at .01 level.

TABLE 4-8. The Inventory on Attitudes Toward School and Learning: Statistics.

Statistic	Group 1 (Am.Lit)	Group 2 (Am.Lit)	Group 3 (Am.Lit)
Pre-test Mean	20.282	25.00	25.333
Pre-test Standard Deviation	13.73	11.168	15.341
Post-test Mean	26.00	28.393	25.333
Post-test Standard Deviation	13.048	14.649	13.222
Correlation	.704	.609	.713
t Test	2.415	1.378	0.00
Degrees of Freedom	62	54	52
Significance .05			
Significance .01	*		

*Significant at .01 level.

TABLE 4-9. The inventory on Sense of Purpose and Determination in Life: Statistics.

Statistic	Group 1 (Am.Lit)	Group 2 (Am.Lit)	Group 3 (Am.Lit)
Pre-test Mean	9.093	11.53	7.481
Pre-test Standard Deviation	11.04	10.95	10.30
Post-test Mean	8.00	13.25	10.407
Post-test Standard Deviation	9.95	8.907	9.50
Correlation	.364	.633	.658
t Test	-0.589	0.909	1.538
Degrees of Freedom	62	54	52
Significance .05			
Significance .01			

TABLE 4-10. The Follow-up Statistics.

Statistic	Reading	Comp.	Lit.	Inv. 1	Inv. 2	Inv. 3
Exp. Group Mean	34.40	41.32	37.02	22.702	23.574	12.128
Exp. Group Standard Deviation	13.866	9.242	9.52	16.503	13.454	9.446
Comp. Group Mean	30.62	36.92	29.96	22.255	22.532	7.574
Comp. Group Standard Deviation	10.564	10.35	10.536	18.602	14.367	10.231
t Test	2.168	3.171	5.803	-0.174	-0.514	3.18
Degrees of Freedom	98	98	98	92	92	92
Significance .05						
Significance .01	*	*	*			*

*Significant at .01 level.

Note: Inv. 1.--Self-concept of academic ability and achievement; Inv. 2.--Attitudes toward school and learning; Inv. 3.--Sense of purpose and determination in life.

Analysis of the Quantitative Data

In this study, we were interested in the changes that were brought about during the period of the research in the group performance on the defined tests and their mean scores on the given inventories. For purposes of statistical tests of significance, several hypotheses were generated; the results are analyzed below:

Hypothesis 1a. There is no difference in the two mean scores obtained on the reading test.

TABLE 4-11. Test of Hypothesis 1a.

		Group 1	Group 2	Group 3
Pre-test Mean		32.656	31.964	33.148
Post-test Mean		38.00	36.57	38.556
Significance	.05			
	.01	*	*	*

*Significant at .01 level of type 1 error.

The test of this hypothesis involved computing the mean scores and the variance on the two tests, and correlation between the two tests. The tests were administered to the same subjects and therefore the data had to be treated as correlated. These statistics are reported in the Table on page 97. The t test run on the data showed that the value obtained was significant at the .01 level. Consequently, the null hypothesis was rejected. The data

also indicated that there was consistency across all three groups. The data, it was concluded, provided evidence for a significant difference in the groups' mean performance across all three groups.

Hypothesis 1b. There is no difference in the two variance scores obtained on the reading test.

TABLE 4-12. Test of Hypothesis 1b.

	Group 1	Group 2	Group 3
Pre-test Variance	153.51	102.82	106.65
Post-test Variance	119.03	124.82	123.65
Significance .05			
Significance .01			

The F test conducted on the data gave too small values to indicate significance on the tests. These values are reported in the Table on page 98. The decision rule was to reject the null hypothesis at the .05 level of type 1 error. Since significance was not obtained in the tests, the null hypothesis was not rejected. It was concluded, therefore, that there was no significant difference in the variance scores obtained. The data also indicated that there was no consistency across all three groups.

Hypothesis 2a. There is no difference in the two mean scores obtained on the composition test.

TABLE 4-13. Test of Hypothesis 2a.

		Group 1	Group 2	Group 3
Pre-test Mean		35.656	36.43	36.296
Post-test Mean		41.031	40.03	40.00
Significance	.05		**	**
	.01	*		

*Significant at .01 level of type 1 error.

** Significant at .05 level.

The value of the test statistic was significant at the .05 level. Consequently the null hypothesis was rejected and it was concluded that there was significant difference in the two mean scores obtained. The data also indicated that there was significance across all groups. In group 1, there was significance at the .01 level of type 1 error.

Hypothesis 2b. There is no difference in the two variance scores obtained on the composition test.

The obtained value of the test statistic F was not significant at the .05 level and therefore the null hypothesis was not rejected and it was concluded that there was no significant difference in the two variance

TABLE 4-14. Test of Hypothesis 2b.

	Group 1	Group 2	Group 3
Pre-test Variance	100.40	114.06	121.88
Post-test Variance	78.68	85.56	113.21
Significance .05			
Significance .01			

scores obtained. The data also indicated that there was consistency across all three groups.

Hypothesis 3a. There is no difference in the two mean scores obtained on the literature test.

TABLE 4-15. Test of Hypothesis 3a.

	Group 1	Group 2	Group 3
Pre-test Mean	33.375	31.429	33.926
Post-test Mean	38.156	36.964	36.222
Significance .05			
Significance .01	*	*	

*Significant at .01 level of type 1 error.

The test of significance performed on the difference in the mean scores for the two groups showed that there was significance at the .05 level in two groups. The third group did not indicate significant changes and therefore the null hypothesis for this group was not

rejected. However, since two out of three groups showed significant changes, the null hypothesis was rejected and it was concluded that there was significant difference in the two mean scores.

Hypothesis 3b. There is no difference in the two variance scores obtained on the Literature test.

TABLE 4-16. Test of Hypothesis 3b.

	Group 1	Group 2	Group 3
Pre-test Variance	60.52	83.72	77.79
Post-test Variance	56.70	82.45	70.90
Significance .05 .01			

The F test gave values that were not significant at the .05 level and therefore the null hypothesis was not rejected and the conclusion was that there was no significant difference in the two variance scores obtained. Consistency across all three groups was also indicated by the data.

Hypothesis 4. There is no difference in the two mean scores obtained on the self-concept inventory.

The t test run on the data showed that there was significance at the .01 level in group 1. The null hypothesis for this group was rejected. However,

TABLE 4-17. Test of Hypothesis 4.

		Group 1	Group 2	Group 3
Pre-test Mean		23.406	25.107	23.815
Post-test Mean		28.00	26.143	26.704
Significance	.05			
	.01	*		

*Significant at .01 level of type 1 error.

significance at the .05 level was not obtained for the other two groups and since two out of three groups did not manifest significant change, the null hypothesis was not rejected and therefore it was concluded that there was no difference in the two mean scores obtained.

Hypothesis 5. There is no difference in the two mean scores obtained on attitudes toward school and learning.

TABLE 4-18. Test of Hypothesis 5.

		Group 1	Group 2	Group 3
Pre-test Mean		20.282	25.00	25.333
Post-test Mean		26.00	28.393	25.333
Significance	.05			
	.01	*		

*Significant at .01 level of type 1 error.

The results of the test showed that there was significance at the .01 level in group 1, but the other two groups did not show significance at the .05 level. Since two out of three groups did not give significant changes, the null hypothesis was not rejected.

Hypothesis 6. There is no difference in the two mean scores obtained on the inventory on sense of purpose and determination in life.

TABLE 4-19. Test of Hypothesis 6.

	Group 1	Group 2	Group 3
Pre-test Mean	9.093	11.53	7.481
Post-test Mean	8.00	13.25	10.407
Significance .05			
Significance .01			

The tests failed to give significance at the .05 level and consequently the null hypothesis was not rejected. It was concluded that there was no difference in the two mean scores obtained. The results also indicated that there was no consistency across groups. There were negative results in group 1.

Hypothesis 7. There is no difference in the mean scores obtained across all six tests.

TABLE 4-20. Test of Hypothesis 7.

	Test 1	Test 2	Test 3	Test 4	Test 5	Test 6
Exp. Group Mean	34.40	41.32	37.02	22.702	23.574	12.128
Comp. Group Mean	30.62	36.92	29.96	22.255	22.532	7.574
Significance .05	*	*	*			*
.05						

The value of the test statistic t was significant at the .01 level for the three tests in the academic area, viz., reading, composition, and literature; significance was obtained also in the inventory on students' sense of purpose and determination in life.

Significance was not obtained on the other two inventories, viz., self-concept and attitudes toward school and learning. Since four out of six groups showed significance, the null hypothesis was rejected and it was concluded that there was significant difference in the mean scores obtained for the two groups.

Summary

This chapter has presented the data collected at the close of the experiment. Two kinds of data were collected: descriptive and quantitative. The descriptive data were analyzed by grouping the responses into patterns and giving the percentages of the various response

patterns. Tests of statistical significance were performed on the quantitative data and thereby the results were analyzed. The null hypotheses and their tests have been reported in this chapter. The next chapter will deal with the discussion and interpretation of the results.

CHAPTER V

SUMMARY AND CONCLUSIONS

This chapter presents a review of the research reported. It discusses the results and makes suggestions for further research.

Review

This study describes the particular method the researcher followed in teaching his high school students, assesses the overall reactions of the students to his particular classroom practices and management, and analyzes the changes that were brought about in the students' academic and affective growth.

The researcher employed a single-group design, which involved administering a pre-test, measuring the dependent variable, applying the experimental treatment to the subjects, and administering a post-test, measuring again the dependent variable. In this single-group design, a total of three groups were involved in order to study the consistency of change across the three groups. All three groups were taught by the same teacher in the same manner.

The study population consisted of all the college-bound tenth-graders of Sexton High School, Lansing, Michigan, during the school year 1970-71. There were 419 students enrolled in this program. From these a random sample of eighty-seven students were assigned to the researcher to teach. These students had been randomly enrolled in three sections and taught at three different time periods during the day.

These students were taught in a particular way. Unique to this procedure was that the teacher's behaviors in the classroom were primarily oriented toward bringing about perceptual in addition to academic changes in the students. The researcher emphasized such changes in the classroom as would encourage more independent and self-motivated activities, thereby affording students the opportunity to use freedom with responsibility rather than work under external pressure and demand. Students were given a considerable amount of freedom in choosing and organizing their strategy. All elements of external pressure were removed and students were encouraged to mobilize and rely upon their own inner resources instead.

In order to study their overall reactions to this particular approach, the students were given a questionnaire in which they were asked to respond to each question by recording whatever feelings they had about the class. In order to analyze the changes brought about in their academic

growth, they were given three tests from the TAP battery--a reading test, a composition test, and a literature test. Changes in the affective realm were investigated by administering three inventories--(1) an inventory on academic self-concept, (2) one on attitudes toward school and learning, and (3) one on the student's sense of purpose and determination in life.

The study explored these major questions: (1) How did the students perceive what they learned in the class, the particular method of teaching, and the teacher's classroom management practices? Did they feel that they learned something that was relevant--something that was useful to them? Did they feel that the teacher was interested in their progress and was trying to help them in their growth and development? (2) Did the students make significant progress in the defined academic areas? Is it possible for students to change in these areas, if the teacher does not make demands on them? If the consequences of failing or getting a low grade or other sources of external motivation are removed, will the students still perform adequately? (3) Did these procedures help bring about significant changes in the defined areas of the student's affective growth? Is it possible to bring about significant changes in these areas by drastically restructuring the classroom atmosphere? (4) As compared with the students from the same population who were not in the

researcher's sections, how did the students in the experimental sections perform later on these same tests and inventories?

The major statistical tools used in the study were t tests and F tests. The criterion employed in the study was the overall change brought about in the group's mean performance. In order to study the significance of this change, t tests were thought to be most appropriate. Changes brought about in the variability of the groups were also analyzed; for this F tests were employed. The decision rule was to reject the null hypothesis at $\alpha = .05$ level of type 1 error; a second decision rule employed was to reject the null hypothesis if two out of three groups showed significant change. The descriptive data were given subjective interpretation based on the researcher's observation of the students.

Discussion of the Results

The first question the study attempted to answer was: how did the students perceive what they learned in class, the particular method of teaching, and the teacher's classroom management practices? Did they feel that they learned something that was relevant--something that was useful to them? Did they feel that the teacher was interested in their progress and was trying to help them in their growth and development?

This question has two parts: one dealt with the students' perception of the efforts they made in order to learn something in class; the other dealt with the students' perception of the particular roles the teacher played in the classroom. The questionnaire had five questions dealing with the first part, and five questions dealing with the second part. The responses given by the students throw some light on the points of our enquiry.

Question 1a: What Were Your Attitudes Toward Learning in this Class?

About seventy-five per cent of the students thought that they were interested in learning and that they were well-disposed toward it. The other twenty-five per cent did not seem to find anything particularly stimulating in this class. From the responses, it is more than evident that the majority of the students in the class had favorable attitudes toward learning. Many students indicated that they were self-motivated to take up activities which they thought would help them and which they thought they would enjoy doing. The opportunities given to the students to make their own decisions, the flexibility of the approach, the absence of tenseness in the learning situation, the familiarity of the teacher-student relationships--all these seem to have contributed to form favorable attitudes in the students toward learning. Those students who were not enthusiastic about learning in this class seemed to have

felt that they had too much freedom and not enough direction. They felt that they learn better when someone tells them what they should do and how they should do it.

Question 1b: What Would You Say About What You Actually Learned in Class?

About eighty per cent of the students thought they learned much in this class. Some of them mentioned that they learned much for the future; some felt that what they learned helped them to be more independent. The rest of the students complained that they did not learn enough from the textbook. It seems quite clear that some of the students were able to grasp the meaning of learning which the researcher was trying to convey to them. Many said that they learned much in class. They made it clear that what they learned was something that helped them in their life, something that helped them to grow up to be independent and self-motivated individuals. The remaining twenty per cent of the students apparently did not understand the type of learning which the teacher was trying to stress or had not accepted it. They said they should have learned more from the textbook.

Question 1c: Were You Happy To Come to This Class?

About seventy-five per cent of the students reported that they were happy to come to this class. They felt that they did not have to go through the boredom they experienced

in other classes; they were happy that they did not have to undergo the anxiety experienced in other classes. The rest of the students did not seem to have enjoyed their experience that much. It is evident that the majority of the students felt that their needs were served in this classroom. These were probably students who have learned to function in situations where they are given much freedom and where they know how to use this freedom with self-control. The other students were probably of the type that needs considerable amount of guidance and direction. They do well when somebody leads them and tells them what to do. These students must have felt that they did not get much out of the class, or they were not motivated to do anything because they did not get the direction and leadership they needed. Probably these students have always been exposed to situations in which they exhibited mostly conditioned responses rather than a self-motivated behavior.

Question 1d: Were You Able to Get A Better Self-Understanding as a Result of Taking this Course?

About seventy-five per cent of the students responded in the positive--they thought that they were able to get a better self-understanding as a result of taking this course. The rest of the students felt that they had not achieved this goal. There is further evidence to indicate that the majority of the students felt they had

accommodated to the flexible type of learning situation. These are students who, when left to themselves, act in their best interest and engage in activities that help them in some way. These students said that they had been led to thinking and reflecting about their interests, their talents, and aptitudes and had been motivated to work for their development. The other students apparently were not able to grasp what was actually going on in the class. Their conception of learning was apparently different and they did not seem to have accepted the new concept of learning put forth by the researcher.

Question 1e: How Would You Describe Your Overall Experience In This Class?

Again about seventy-five per cent of the students thought that their experience in this class was very enjoyable. They described their experience in such words as rewarding, interesting, enlightening, different, relaxing, pleasant, exciting, etc. All of them stressed the idea that they learned what they wanted to learn, what they perceived would be useful to them. The other twenty-five per cent of the students felt that their experience in this class was different from other classes, but they thought that they did not learn what they should have learned.

The students' responses to the five questions shed considerable light on the points of our investigation. The point of inquiry was to find out how the students felt

about what they learned in class: did they feel that they learned something that was useful to them? There is evidence to indicate that the majority of the students felt positively about what they learned in class. They were motivated to learn and they seemed to have enjoyed what they actually learned. Their responses clearly indicate that they felt they were learning something which they perceived as useful. However, it must be kept in mind that this was true of only about seventy-five per cent of the students. The other students, even though they did not have negative feelings about what they learned in class, did not feel that they were learning the "right thing" or that they learned enough. They said that they sould have learned more from the textbooks; they seemed to feel that the objectives of the course should have been more academic than affective.

Why did these students perceive their experience in this way? The question is open to speculation. We do not know the real reason for this discrepancy in their perception. One's perception is based on one's needs. If something helps a person to satisfy his needs, he perceives that thing as good and useful for him; if it does not, he may build up negative feelings toward it. This might partially explain why the students perceived differently what they learned in class. Some students felt that their needs were satisfied in this class; consequently

they had positive feelings about what they did in class. The other students felt somewhat negative about it because they felt their needs were not being fulfilled. Perception also depends on previous experiences. Students who have been exposed to situations which are structured find it easier to operate in similar situations and thereby satisfy their needs. Conversely, students who feel the need for independence and self-motivated activities perform better in situations where they are given much freedom and where they make their own decisions.

What conclusions can we draw from these findings that may have implications for subsequent educational procedures? No one questions the fact that students are different and therefore insistence that all be provided with similar experiences and treatment would only do them an injustice. Therefore, it is vitally important that students be given options. How can schools and teachers in the classrooms provide these options? Studies are being conducted to inquire into these possibilities. Experiments have been conducted and changes are beginning to take place in this direction. The concept of "a school within a school" is becoming popular. This operates within a framework where the students are given as many options as are needed. Resource centers are provided in schools where the students can go and get what they feel is important for them; other places are also provided where they

can go and carry out the type of activities they like to engage in. These facilities are intended to meet the various needs of the different students.

Teachers can also make such provisions in their classrooms. They can provide classrooms within a classroom. Students could be given the option of selecting the program of study that interests them and the teacher can act as a resource person to those who ask for help and guidance. Considerable progress is beginning to be made in this direction. Some schools are beginning to provide opportunities for students to work independently, where the students draw up a program of interest to them and work independently with the teacher of their choice. The teacher gives only the help and guidance the students seek.

An often-heard criticism leveled against this approach is that the students are not prepared to handle this much freedom. Critics argue that the students will misuse their time. This criticism does not appear to be well-founded. How can we expect students to be independent and use freedom well, if they are never allowed any freedom? It takes time to adjust to a new situation. This is true of adults, and it is all the more true of young people.

Children do not use their freedom well. This is a weak argument for not attempting new approaches in education. We need to keep in mind that many of the students are already conditioned to a pattern of behaving by the

time they enter the high school. Whenever a new situation arises, they tend to behave in the way to which they have become accustomed. This is because human beings have a "retroactive tendency," that is, they tend to continue a previously learned pattern of behavior. Many of our schools are highly structured. When someone tries out a new system which is characterized by flexibility, some students are likely to continue to be totally dependent upon the teacher to set every task to be performed; they are totally dependent for guidance and direction regarding every detail. While they may be slow to adjust, other students are able to make a quick adjustment. This might partially explain why some students in our study were not able to use to advantage the new type of classroom experience the researcher was trying to provide them, while at the same time, others were able to make significant progress in the more permissive classroom situation.

We need also to keep in mind that much frustration has been built up in many students during the many years of schooling they have had. Students have always been told what they should and should not do; they have never had the opportunity to make a decision of their own. The dictatorial attitudes of many teachers have caused considerable dissatisfaction in many students. When someone gives them a little bit of freedom, they tend to misuse it and they go out of control. This is because they feel

the need to give vent to some of their pent-up frustrations. A slow and gradual transition to more permissiveness may have to be made if we are going to witness their ultimate development into responsible citizens. As is clear from the evidence we have, most students are likely to modify their behavior pattern eventually if they are given freedom and responsibility.

The second part of the question deal with the student's perception of the roles the teacher played in the classroom. The question was: how did they feel about the roles the teacher played in the classroom? Did they feel that he was interested in their progress and was trying to help them in their growth and development? Five questions, dealing with they points of our inquiry, were given to the students. Their responses, though varied, reveal their perception of the different roles the teacher played.

Question 2a: What Would You Say About the Roles the Teacher Played in the Classroom?

More than seventy-five per cent of the students perceived the teacher as one who tried to foster independent study and as one who was trying to help the students in their growth and development. They indicated that the teacher gave them plenty of free time and encouraged them to utilize it in their best interest. Some thought that the teacher was a person who came down to the level of the

students and talked to them at their level. Other students, too, had favorable feelings about what the teacher did in class. But one student thought that he was more of a baby-sitter than a teacher.

From their responses, it is more than evident that most of the students were very pleased with what the teacher was trying to do in the class. The behaviors the teacher exhibited in class must have been conducive to bringing about a learning situation in the classroom, or a situation where they felt they could satisfy their needs. There is evidence that some students did not perceive the teacher as one who did much for them. The reason for this is clear from what was pointed out earlier. Some students probably looked for structure and direction, and since the teacher did not give it unless it was asked for, they must have built up somewhat negative feelings about the different things the teacher did in the class.

Question 2b: What Were the Teacher's Attitudes Toward You as an Individual?

About seventy-five per cent of the students had very positive feelings about the teacher's attitudes toward them. They felt that the teacher treated the students as individuals and showed them respect and kindness; some thought that the teacher gave all equal and fair treatment. Some, however, felt that the teacher was too easy

and consequently a few students abused their privilege. Some said that the teacher was very understanding in the beginning, but that later he changed.

There is further evidence to indicate that the majority of the students could operate in the type of classroom atmosphere that the researcher was trying to create. They found the situation satisfying and rewarding. The rest of the students apparently could not operate well in such a setting. They might have been much better off in a structured situation.

Question 2c: What Would You Say About The Teacher's Attempt to Promote Group Interaction?

All the students felt that the teacher was trying to promote group interaction; but only seventy-five per cent of the students thought that he was successful. Some of the rest of the students felt that he failed in his attempts. However, they explained that the failure was caused by the students; they complained that some students were not prepared for this type of teaching and because of their indifference they spoiled everything.

Question 2d: How Did You Feel About The Teacher-Student Dialogue In the Classroom?

Almost all the students were very happy about it. They thought that it was a good way to bring about better communication between the teacher and the students. They

seemed to have grasped the reason for introducing such a practice into the classroom. One student complained that it was "contradictory." I am not sure what he meant by it. It may be that he did not understand what the question was referring to; or, possibly, he was bothered about the informal relationship between the teacher and the students. His background probably led him to expect the teacher to be a lecturer, an evaluator, and a disciplinarian.

Question 2e: What Would You Say About the Teacher's Grading Practices?

About sixty per cent of the students reported that it was fair and good. Thirty per cent of the students thought that it was bad because they thought some students took advantage of the situation and did not work hard to earn the grades they received. The rest of the students had no comments on grading.

The responses to these questions reveal much about what students expect. From the data, it is clear that most of the students were happy about the permissive classroom procedure and grading practices. They felt they were able to accomplish something in the classroom. But we must keep in mind that the particular behaviors the researcher exhibited in the classroom will not be the best for all the students. Just as some students in our sample did not feel positively about the informal way the teacher behaved

in the classroom, so we are likely to find in any population some who will be enthusiastic about this approach and some who will be indifferent about it.

These findings suggest something about the direction schools might take in bringing about changes in classroom procedures to permit more student self-direction and perhaps greater self-discipline. All the students are not the same; they have individual differences. This being the case, assigning students to a teacher without any choice on their part is probably not the best practice. Whenever feasible, students should be given the option of selecting the teachers they wish to work with. Some need teachers whose classroom procedures are very structured; others need teachers who permit them to work individually. The data do not tell us what is ideal. Since we are dealing with different types of individuals, it is altogether impossible to speak in terms of the ideal. There are as many needs as there are different types of personalities, and therefore we need as many different approaches as possible.

Discussion of the Results

This description of the sample is not based on any objective data collected; it is based on observation of the students by the researcher during the period of the research. The researcher is fully aware of the subjective element in this observation.

Student A:

A very responsible student, who can do excellent work when he is properly directed and is given the right type of positive reinforcement. He does not perform well in a strictly controlled structure; he would tend to be disruptive. He is sensitive to criticism, but very responsive to positive reinforcement. He performs well when he is allowed to work independently.

Student B:

An achievement-oriented student who does well in a structured situation which is characterized by rigorous competition. He is a capable student and it is likely that he would win in every competition. He does a good work if it is systematically organized and planned for him. He does not like to see others doing different things. He prefers that all do the same things and compete with each other.

Student C:

A somewhat indifferent type of student who does not mind what actually goes on in the classroom. He is satisfied if he gets an average grade. But he does well if someone reasons with him and tries to motivate him to study harder.

Student D:

A conscientous student who makes any adjustment asked for. He also does well if left alone and given some help by the teacher. He gives up if forced to work in a structure and compete with other students.

Student E:

A capable student who does well when left to himself and given a definite direction. But he cannot function in a controlled situation; he might even drop out of school.

Student F:

An industrious student who does his best work when left to himself and given some general directions. He does not function well when he works with small groups. He is well motivated, but works well only if left to work by himself.

Student G:

A capable student who works best if everything is well planned and organized. He cannot function well in a flexible situation. If told to do certain things, he does an excellent job; if not told, he wastes time.

Student H: A responsible student who does excellent work when he is given a considerable amount of freedom and positive reinforcement for what he does. He is sensitive to negative criticism. While he does not

mind competition in the class, nevertheless he believes that everyone should have a chance to compete with himself.

Student I:
A well motivated student who does not mind how the teacher teaches. He can adjust to any situation. He does well both when freedom is permitted or when the situation is highly structured.

Student J: An excellent student who works best when he is given the needed direction and given the freedom to work by himself. When forced to work with others, he does not function as well.

Student K: A capable student who adjusts to any type of situation; but he works better under structured conditions. When he is given specific directions and positive reinforcements for the work done, he does very well. He generally needs guidance and a degree of external control.

Student L: A conscientious student who does well in a flexible type of situation. He cannot operate in a structured situation; he would be disruptive in it. When given freedom, he utilizes it to his best interest. He exercises self-control when left to himself and engages in activities useful to him.

Student M: A responsible student who can make adjustment to any situation, but works better in a situation where everything is clearly laid out for him. He works better when positive reinforcements are given for the work done.

The above description gives us an idea of the differences in the various individuals and their preferences. Three of these students perform better in a strictly controlled type of situation; three can work in any type of situation, but perhaps they work better if someone understands them and gives them specific directions. Seven of these students perform best in a flexible type of situation, where they are given the opportunity to make their own decisions and freedom to work independently. Since this sample was drawn randomly from all the students who returned their responses, we have reason to believe that this sample does represent the population fairly well.

The second question to which the study addressed itself was: did the students make significant progress in the defined academic areas? Is it possible for students to bring about changes in these areas if the teacher does not make demands on them? If the consequences of failing or getting a low grade are removed, will the students perform adequately? How will they perform as a group?

Three hypotheses were generated to test whether the students made significant progress in the areas of

reading, composition, and literature. The tests conducted on the data show that the changes obtained in these areas were significant at the .05 level of type 1 error. Consequently the null hypotheses were rejected and it was concluded that the changes obtained on all the tests were significant. For the reading test, significance was obtained at the .01 level of type 1 error; there was consistency across all the three groups. In the composition test, Group 1 showed significance at the .01 level of type 1 error, and the other two groups showed significance at the .05 level of type 1 error. In the literature test, Group 1 and Group 2 showed significance at the .01 level of type 1 error, but Group 3 did not show significance even at the .05 level of type 1 error.

There is clear evidence from the data that the students did make some significant progress in their academic growth. Significance was obtained on all the tests across all the three groups. What were the factors that were responsible for bringing about these changes? Can we conclude that the changes were due to the experiment? We do not know the answer to this question. We can only speculate and arrive at possible reasons. It should be kept in mind that the teacher did not provide anything special in the way of new programs or aids in order to bring about changes. He did not assign specific tasks for the students to perform in class; he did not

even provide the usual aids given in the ordinary classrooms--lectures, assignments, tests, etc. However, students were told several times during the course of the semester individually and collectively that since they were college-bound students it was important for them to bring about changes in these academic areas. This idea was instilled into them by reasoning with them and thereby getting them to see the need for it. They were encouraged to work at their own pace and in the manner they considered most useful for themselves. The teacher did give help individually and collectively whenever he was asked. But in most instances, they were left to work alone or in small groups--whichever they felt was more secure and profitable. Thus instead of limiting the tasks that could be performed, the teacher encouraged them to indulge in a wide variety of activities, based on interest and talents.

From the data there is evidence that the students did a desirable amount of work in these areas in order to improve. The obtained significance cannot be explained unless we accept the fact that they worked in these areas. Any incidental learning that could have occurred through reading or other studying cannot explain the significance we have obtained. These tests are rigorous, and, consequently, any casual learning cannot bring about significant improvement in performance on them. It must be inferred that the students, feeling the need to achieve, worked

diligently, either independently or in groups they elected to work with. Even though the teacher did not teach any special skills for improving their reading, they were encouraged to read in class whatever they decided to read; plenty of time was given in class for recreational readings as well as other readings which require more concentration and abstraction. Similarly, it is not easy to obtain knowledge of literary skills by just any type of reading. Unless one makes the effort to study these skills, it is impossible for one to attain them. The fact that they did make significant improvement in performance on the literature test clearly indicates that the students did make sincere effort to study diligently. Likewise, the improvement they made in writing can be explained partially at least by accepting the fact that they got some practice in this area. Knowledge of the mechanics of the language is not something that can be obtained by just any type of incidental reading. It is probably true that over a period of time extensive reading can help one improve his knowledge of the mechanics of the language. But it requires purposive reading for a prolonged period of time. If significant changes were brought about within the period of a semester, it may be inferred that the students made at least some of the improvements as a result of class activities.

We do not know why one of the groups did not show significant change in the literature test, when the other two groups did. Since this particular group was the last class taught in the afternoon, the time of day could be a factor. Being the last class, exhaustion could, perhaps, partially account for the lack of significance in the changes brought about. Due to the teacher's exhaustion as well as of the students, it may not have been possible for both to engage in the type of interaction that would be conducive to intensive study. The data seem to indicate a sort of decreasing effect on all the the tests. The group that was taught during the first hour seems to have made the greatest gains followed by the second group which was taught during the fourth hour, while the late afternoon group showed the least gains.

Since the teacher did not provide special programs which could explain these changes, we have reason to believe that they were actually brought about by self-motivated and independent study. The teacher did spend a considerable amount of time working with individual students, reasoning with them, and attempting to get them to recognize the need for study in these areas. He was extremely informal with them; he talked with them at their level, he listened sympathetically to their problems, he was flexible in approach to accommodate individual needs, he gave them the reinforcements they needed, he showed

them personal interest in their growth and development. All these may have contributed to create a situation in which the students were motivated to work diligently for their own self-improvement.

What conclusions can we draw from these findings? Can we conclude that all students will make progress in their academic growth if the teacher does not demand work from them or if the teacher does not assign work for them to do, but tries to motivate them to practice self-discipline? From this study, it is difficult to make broad generalizations; the study was not intended for that. However, we can infer that it is possible to bring about changes in certain students' academic growth by focusing attention on the self of the learner. But we cannot conclude that we can do this with all learners. Some students are better motivated when the teacher tries to manipulate the learning process and the learning situation; some work only when the teacher gives personal and individual attention. As is clear from the data all the students were not motivated to work by the particular method the teacher followed. Some students indicated that they felt that they did not learn enough. These students may have learned more if the teacher had paid more attention to the learning situation rather than to the individual learner. But we do know that the majority of the students felt positively about this particular approach and that their progress was

significant. We may possibly conclude at this point of time that certain approaches can work well only if the students feel that they can operate securely in them and that their needs can be satisfied. There is no universal approach which can be used with equal success with all the students.

A third question we may ask is this: if the teacher is not demanding, will students perform adequately as a group? If the teacher organizes group activities and the students work as a group, changes in the groups' variability are likely to be reflected. Were there significant changes in the groups' variability? Three hypotheses were generated to test this. The F tests conducted showed that there was no significant change in variability on any test in any group. On the reading test, in Group 1 there was a slight decrease in variance; but the change was not large enough to be significant. Groups 2 and 3 showed slight increase in variance; however, the increase was not significant. In the composition test, all the groups showed a decrease in variance. Group 1 showed the greatest, followed by Group 2 and then Group 3. The changes were not large enough to be significant at the .05 level of type 1 error. In the literature test, too, all the groups had shown a decrease in variance; but since the decrease was slight, significance was not obtained at the .05 level of type 1 error; consequently the null hypothesis was not

rejected, and it was concluded that there was no significant change in the groups' variability.

The changes in variability were not significant. However, the teacher did try to promote group interaction and encourage students to work in small groups. What is the reason for not getting significant changes in variability? The data showed that there was a slight decrease in variance in nearly all of the groups. Only two groups had shown slight increase in variance. This indication seems to tell us that if the groups had had more time and had the opportunity to get to know each other, they might have worked more as a group and significant changes might have been brought about. We ought to keep in mind that, since the teacher had not demanded group work, the idea of working in groups had to come spontaneously from the students. It takes a considerable amount of time for students to come to this realization; often this realization is achieved after they have had a chance to come to know the other students better. If they had had more time, probably they would have taken the initiative to come to know each other and subsequently to work in groups. It was actually pointed out by some students that, at the start, they were not willing to work in groups, but, as they got to know each other better, they worked in groups and that this helped them.

The third question the study sought to investigate was this: did the students make significant changes in the defined areas of their affective growth? The specific questions asked were: (1) Did the students manifest significant changes in their self-concept of academic ability and achievement? (2) Were there clear indications of change in their attitudes toward school and learning? (3) Did they manifest a more determined sense of purpose and direction in their life?

Three hypotheses were generated to test the changes brought about in these areas. To determine the significance of the change, t tests were run on the data. The tests showed that there were changes brought about in all the groups, but that these changes were not large enough to be significant. On the self-concept inventory, Group 1 showed changes that were significant at the .01 level of type 1 error. Groups 2 and 3 showed some changes, but they were not significant at the .05 level of type 1 error. Consequently, the null hypothesis of no difference was not rejected for this test, and it was concluded that there was no significant change in the groups' progress. The tests on the self-concept inventory data, too, failed to give significance at the .05 level of type 1 error; therefore, the null hypothesis was not rejected. However, Group 1 showed significant changes at the .01 level of type 1 error; the second group showed slight changes, but

they were not large enough to be significant; the third group showed no changes at all. The tests conducted on the results of the third inventory showed that there was no consistency across the three groups; the results were not consistent with the results obtained on other tests. The first group, which showed significant changes on the other two inventories, showed negative changes. But they were not large enough to be significant. Groups 2 and 3 showed some positive changes but they, too, were not significant at the .05 level of type 1 error. Therefore, the null hypothesis of no difference was not rejected.

The lack of consistency indicated in the data makes it impossible to make generalizations based on the evidence of the data. Group 1 did show significant changes on the self-concept and attitude inventory, but there were small negative changes on the third inventory. The students in this group seem to have obtained a better self-concept of academic ability and achievement and their attitudes toward school and learning improved; but in their sense of purpose and determination in life, they seem to have regressed slightly. It is difficult to identify the causes for these changes. It is possible that some of the changes were brought about by the experiment. The students were asked to respond to the various items on these inventories with reference to their experience in class. We have reason to assume that they did respond to all the items with reference

to their experience in class. If this is so, we conclude that the experience they had in the class made some contribution in bringing about these changes.

What is the reason for this lack of significance, especially since the teacher's care and attention were directed to bring about changes in these areas? First and foremost changes in the affective realm may come about more slowly than changes in the academic realm. It takes a long time to form one's self-concept of academic ability and achievement, or one's attitudes toward school and learning, or one's sense of purpose and determination in life. What attitudes students have are the result of many years' accumulation of experiences. In order to bring about changes more concentrated work for a prolonged period of time is required; it would also seem necessary to isolate the students from other injurious influences. This experiment was not able to manipulate these two factors. However, the fact that students showed slight changes in the positive direction is a good indication. Possibly, they would have shown significant positive changes if the study was conducted over a longer period of time, and if the teacher had more time to work with them each day. The impact that the teacher provided may have been too slight compared with what they were getting in other classes or from their home environment. If students are exposed to other teachers who behaved the way the researcher behaved

for a prolonged period of time, significant changes may possibly be brought about in these areas.

The lack of significance could perhaps be also explained by the particular type of response pattern that was followed. The response pattern was based on a five-point continuum, running from the response "strongly agree" to "strongly disagree." The change from one position to the next on this continuum is comparatively large. If the students perceive that the change is not sufficient to take them to the next point on the contiuum, they tend to place themselves on the same point. If the pattern had permitted them to take into account smaller changes, the data may have been different. This is clear from the fact that the descriptive data clearly showed that the students perceived that they were aware of changes in themselves.

The fourth question of interest for the investigator was this: as compared with the students who took the regular sections, how did the researcher's students perform on the same tests and inventories subsequently? The researcher's purpose was to see if his approach had some negative effects on his students in their later performance. It was feared that these students would not be able to adjust to other classroom situations which were somewhat structured. Yet it was hypothesized that these students would perform as well as other students on all the tests and inventories. The t tests conducted on the

test results showed that in the three academic areas the students in the experimental groups did better than the comparative groups. The changes indicated were significant at the .01 level of type 1 error. The null hypothesis was rejected and it was concluded that the students in the experimental groups performed significantly better than the students in the comparative groups. In the affective realm, the students in the experimental group rated much better on the inventory on sense of purpose and determination in life. The differences were significant at the .01 level of type 1 error. On the other two inventories, there were slight changes, but they were not large enough to be significant. Thus on four tests out of six the students in the experimental groups scored higher than the students in the comparative groups. The differences were significant at the .05 level of type 1 error and so the null hypothesis of no difference was rejected and it was concluded that the students in the experimental groups did better than the students in the comparative groups.

What conclusions can we draw from these findings? Did the students in the experimental groups perform better because they were exposed to the tests before? These students were exposed to the tests twice before; the other students took the test for the first time. The significant changes cannot be explained merely by previous exposure

to these tests because the results were not discussed with the students. Secondly, these tests are demanding and consequently it is not possible for students to bring about significant changes merely because of previous exposure. Neither can it be said that they did better because they were in the experimental classes. The study does not reveal enough to establish this conclusion. The study merely inquires if these students performed as well as others taught more conventionally. There is enough evidence from the data to state that the performance of these students was better than that of the students in the comparative groups.

The data seem to reveal that the students in the experiment did not make as much progress in the second semester as in the first. Their mean scores were slightly lower than the ones they had at the close of the first semester. It is difficult to say whether the decrease was due to the teaching they got during the second semester. It could have been because of the changed conditions in the classroom; but we have no reason to believe this. From the study it is very clear that the special approach the students were exposed to during the first semester did not have injurious effects on them. If it had any influence on them at all, it was definitely positive.

Suggestions for Further Study

While the data reveal much, it is difficult to make broad generalizations. The researcher, however, wishes to make the following suggestions for those who might be interested in conducting a similar study: (1) It would be more useful to have both experimental and control groups. More certain conclusions could then be drawn. (2) The conclusions would be more valid if several other teachers were also involved in the study. Teachers with similar beliefs about teaching methods could be identified. Those teachers committed to the flexible method could be assigned the various groups in the experimental treatment, while other teachers who have a strong committment to the structured method could be assigned the groups in the control treatment. (3) This type of study can be most effectively conducted only if the researcher has the freedom to schedule and conduct the classes the way he thinks is most desirable. (4) If one wishes to get the best results from this type of study, it should be conducted in situations where there are ample instructional facilites. With limited reference and audio-visual resources, it is difficult for the students to invest time on things of interest to them and thereby to develop their talents and to bring about significant changes. (5) If the researcher wishes to work on the affective growth of the students, it is desirable that he

spend a considerable period of time each day with the students, paying attention to their individual needs and thereby creating a situation that is conducive to their affective growth and development.

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APPENDICES

APPENDIX A

THE CITY OF LANSING

APPENDIX A

THE CITY OF LANSING

Lansing, centrally located in the "palm" of Michigan's mittenshaped lower peninsula, serves as the economic and social center of an extensive region of central Michigan. Economically and functionally, Lansing is a part of the midwestern industrial "heartland" of the nation. It serves as a manufacturing center, a governmental center, and a cultural and educational center. Lansing's past population and economic growth trends generally parallel trends in other metropolitan areas in the midwest region and in the nation.

Lansing, with a population of about 134,000 in 1968 and a tributary area population of about 350,000, is clearly subordinate to the Detroit metropolitan area, about ninety miles southeast, which serves 4,000,000 persons, and to Grand Rapids, about sixty miles northwest, which serves nearly 500,000 persons. Other urban centers comparable in size to Lansing--Flint, Saginaw, Jackson, Battle Creek--lie in a circular pattern around Lansing and effectively constrict Lansing's sphere of regional influence. Lansing,

however, is a key focal point in the new interstate highway network connecting these large urban centers and thus has a singular opportunity to develop new region-serving economic activities in the future.

As a state capital and site of a major university, Metropolitan Lansing serves politically and culturally an extended multi-state region. It also commands national recognition as a manufacturing center of specialized consumer and industrial products.

Effectively linked to the national transportation and communication networks, Metropolitan Lansing is one of the key regional centers in the nation. It has the opportunity to play an expanding role in national affairs as the opoulation becomes increasingly more urbanized.

Growth and Development

Lansing's population has increased rapidly from 1960 to the present with the exception of "depression decade," 1930-40, when the population remained virtually constant, increasing only about one-half of one per cent. In the following two decades--1940-60--population increased at a steady rate, slightly faster than the nation during the 1940's but slightly lower during the 1950's. The 1950-65 population trends in Metropolitan Lansing generally followed the same trends common to most regional

centers during the period. These trends are illustrated as follows:

1. Metropolitan area increased more rapidly than the nation, 22 per cent compared with 18.5 per cent during the 1950-60 decade.

2. Central city population increased only 17 per cent during the same period. Nearly 70 per cent of the metropolitan population gain occurred in the adjacent suburban fringe.

3. Suburban population consists of middle and higher income white families, both in-migrants and those moving out of the central city.

4. Non-white population in the central city more than doubled during the 1950-60 decade as a result of high birth rates and in-migration. Non-whites comprised 6.5 per cent of the city's population in 1960 compared with 3.3 per cent in 1950. By 1965, non-whites comprised 9.0 per cent of the city's population. In 1970 the total white population was 118,248; the Negro population totalled 12,294.

Economic Base

Manufacturing, distribution, government, and education are the major components of Lansing's economy. These activities provide the main economic support for the

area's population, generating a little more than half of the employment and most of the "basic" income in the metropolitan area.

The city is a major regional job center. About 84,000 jobs are located within the city boundaries, of which 30,000 are held by in-commuters living outside the city limits. It is the largest source of payrolls in the local economy. Manufacturing, employing 36,000 in 1965, provides about thirty per cent of metropolitan area jobs and about thirty-three per cent of the city's total employment. Auto-manufacturing, a high-wage industry, provides nearly seventy per cent of the total manufacturing jobs in the metropolitan area.

Government is the second largest employer in the metropolitan area. State government alone employed about 18,000 in 1965, including Michigan State University employees. In the city, government and retail trade are equal in employment size, each employing about one-third the number in manufacturing.

The labor force is drawn from a wide area. About thirty-nine per cent of the jobs are held by in-commuters to the city. Resident employment gains have been mostly in services, government, and professional occupations. Most of the manufacturing jobs gained have been filled by in-commuters; resident employment in manufacturing has declined in recent years. Generally, city resident

employment gains have lagged behind city population growth, indicating that non-participants in the labor force are concentrating in the city. Resident employment gains have been greatest in the traditionally lower-wage activities, while in-commuters fill new jobs in higher-wage activities, reflecting the tendency of the more affluent to move to the suburbs.

APPENDIX B

SEXTON COMMUNITY

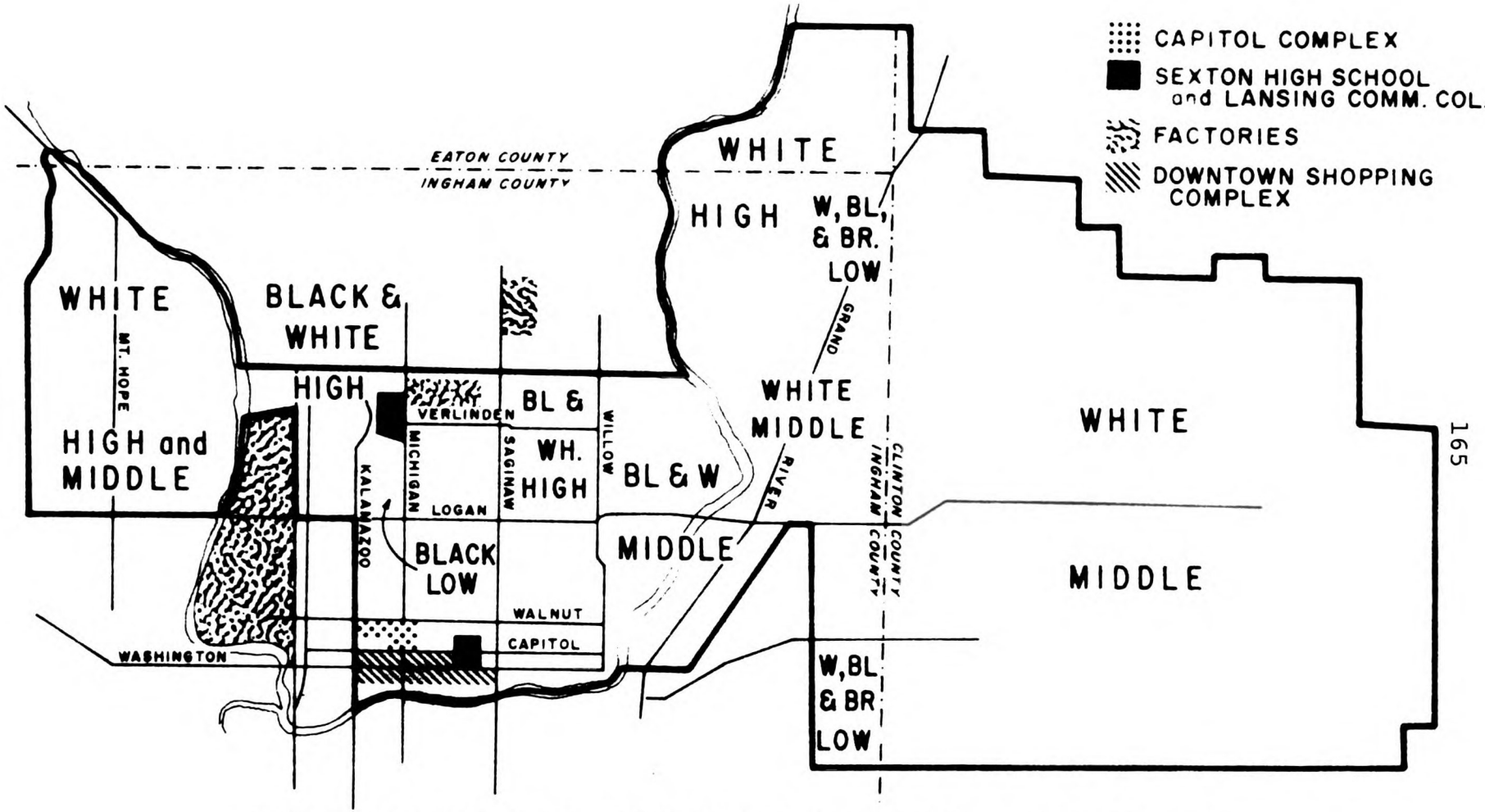
APPENDIX B

SEXTON COMMUNITY

Sexton High School serves a large community of 1,947 families. The school community is highly heterogeneous, with people belonging to different races and various walks of life living in it. The school files show that of the 1,947 families, 1,474 are Caucasian, 422 Negro, 46 Spanish, and 5 are of other origin. The percentages of these families in the school community are 76 per cent, 21 per cent, 2 per cent, and 1 per cent, respectively. The files in the Information Office of the Lansing School Board of Education give the following data regarding the socio-economic background of the families living in the Sexton community. These data were collected during the school year 1969-70:

1. Percentage of parents with education beyond high school 25
2. Percentage of parents with a high school diploma only 43
3. Percentage of parents without a high school diploma 31
4. Percentage of working parents with professional or managerial jobs 20

These data give us a fairly clear picture of the type of community Sexton High School serves. Not only is it racially mixed, it has the highest racial mixture in town. It is also widely mixed in its socio-economic backgrounds. There are many people living in the Sexton community who belong to one of the professions; but there are also some on welfare. The bulk of the people is middle class, having a high school education and clerical or sales jobs.



COMPOSITION of SEXTON HIGH SCHOOL DISTRICT

APPENDIX C

SEXTON HIGH SCHOOL

APPENDIX C

SEXTON HIGH SCHOOL

Founded in 1865 as Lansing High School, the J. W. Sexton High School came into existence in 1945 when the Central High School was transferred to the new building located on a thirty-eight-acre tract of land south of Michigan Avenue and west of McPherson Avenue. Over the years, Sexton has been outstanding in several areas of performance. The school is particularly well-known for its academic excellence and athletic renown.

The program of study that Sexton offers is devised to provide every student with the kind of training that best suits his individual needs. The curricula are based upon the following two broad objectives: (1) Providing an educational program that is terminal with emphasis upon preparation for living in our democratic society; (2) Providing pre-vocational and vocational training for specific occupations or for additional formal education. The school program contains required and elective courses. The general courses which are required of all students include five semesters of English, three semesters of

Social Studies, and four semesters of Physical Education. Twenty-eight credits are required for graduation from school and are obtained as follows:

Required courses: 5 semesters of English; 3 of Social Studies; 4 of Physical Education.

Additional recommended courses: 6 semesters of a major sequence; 4 semesters of a minor sequence.

Electives: 6 semesters.

The student body of Sexton High School is characterized by heterogeneity in racial mixture and in socio-economic backgrounds. The racial mixture of the student body is as follows: 76 per cent White, 21 per cent Black, and 3 per cent other. Sexton has students that spring from families of the top echelon as well as of the lower social groups.

APPENDIX D

INSTRUMENTS

APPENDIX D

INSTRUMENTS

The Tests of Academic Progress, TAP, and the Scholastic Inventory were used for the purpose of collecting the data. The TAP tests were prepared under the direction of Dale P. Scanner, Professor of Education and Associate Dean of the Graduate School of the University of Kansas, in cooperation with the following subject matter specialists.

Composition and Literature: Oscar M. Haugh, Professor of Education and Supervisor of Student Teaching in Language Arts of the University of Kansas; he is the co-author of a high school English textbook series and trustee of the Research Foundation of the National Council of Teachers of English.

Reading: Henry Smith, Professor of Education, University of Kansas; author of Psychology in Teaching and co-author of Psychology in Teaching Reading.

The authors of these tests spent considerable time reviewing the textbooks most commonly used in these areas, as well as courses of study, recommendations of national curriculum organizations, opinion of curriculum and subject-matter specialists and experts. Test specifications were developed which reflected the most common and important goals and content of the areas under consideration. The tables of specifications provided the blueprints for the subsequent developments of the tests and test items. The characteristics of the items which were developed were studied in several experimental programs. Pilot studies were conducted to determine whether the test formats were appropriate for the educational level of the group to be tested and to obtain an estimate of appropriate test length for given administration times.

Data from these try-out tests were analyzed to obtain for each item the difficulty level and indices of discrimination. The try-out data provided important information for the selection of items and their placement on the final test. After editorial revisions and re-try-out, items were selected for each level of the test. To be selected, each item had to meet the twin criteria of appropriate difficulty and adequate discrimination for the grade levels which would take the item in the final test.

Reading Test

The reading test is designed to test student competency in reading. Each item has five options in its response pattern; there are sixty-six items in all. The reading passages cover such areas as home living, biography, logical reasoning, personal hygiene, geography, geology, botany, agriculture, cultural history, general science, nature, history, and human relationships. Most of the items require the student to discover meanings rather than simply locate information. Many questions require the student to coordinate information in order to see relationships among facts and arrive at valid conclusions. The items can be classified into four broad categories: identification of explicitly stated facts, details, and relationships; comprehension of information which has been identified; application of information in drawing conclusions and forming inferences; and evaluation of the theme or purpose of the writer.

Composition Test

This test attempts to approximate as closely as possible in a multiple choice format the problems encountered in the production of a finished piece of writing. There are seventy items in all. The test contains six compositions of varying types which are followed by items which relate to the passages. The compositions

cover such areas as simple paragraph, simple narrative, book report, theme of several paragraphs, business letter, friendly letter, narrative of several paragraphs, etc. The skills measured are essential to clear and accurate writing. The items can be classified into five broad categories: capitalization, punctuation, grammar and usage, organization and spelling.

Literature Test

The purpose of this test is to determine how well a student can read and interpret the six types of literature: short story, novel, essay, narrative poem, lyric poem, and drama. Each type of literature is represented by one passage, taken from a selection of recognized literary merit. There are sixty-two items and they can be classified into four general categories which reflect the major goals of the teaching of literature: understanding meanings in context; understanding the content of literary selection; understanding literary devices; and, using literary background.

Statistical Validity

Since these are recent tests, the authors have not had the opportunity to collect comprehensive evidence of concurrent or predictive validity. However, preliminary findings suggest that TAP will yield correlation coefficients which are at least as high as the coefficients yielded by similar achievement test batteries.

There are also reasons to believe that statistical evidence may not be the most appropriate description of a test's validity. Correlation coefficients merely reflect the extent to which two sets of scores for the same individuals tend to agree. If two tests are equally poor, they may correlate highly with each other. If one provided a good measure and the other a poor one, the two scores probably will not correlate highly. If the correlation between a test and a second type of measure is to be accepted as a form of validity, one would have to accept the second measure as being more valid than the test. Obviously, this is unlikely because the most valid measure available will be from the test itself.

Reliability of the Test Scores

The reliability of a test score is the extent to which the score accurately and consistently represents the trait which the test measures. Reliability is the most important statistical characteristic of a carefully developed and comprehensively standardized test of achievement. The reliability of a test is usually described in two ways. One is the reliability coefficient, a correlation coefficient which shows the extent to which the test correlates with itself. The other is the standard error of measurement, an index reflecting the variability of test scores due to random and temporary factors associated with the test, the examinee, the administration of the test, etc.

Reliability coefficients can assume values from .00 to .99 and usually fall between .70 and .95. The more closely the index approaches the upper limit, the more consistent are the test scores. Even though reliability coefficients are numerical values, absolute meaning cannot be attached to a single index by itself. To determine how satisfactory the value is, the coefficient for the test must be compared with those for other tests which are equally valid and practical.

The standard error of measurement is the standard deviation of a distribution of scores obtained by measuring the same individual a large number of times with the same test or equivalent tests. It must be assumed that an individual is unchanged throughout the administration of the tests. Obviously, the distribution is hypothetical, but even so, the error of measurement concept is well established in theory and is very important to test score interpretation. If a student took a series of tests which are equivalent, he would not earn the same score each time. The scores would differ because of the factors associated with the administration of the test, with differences on specific items on the tests, and with characteristics of the examinee. The best estimate of the student's "true score" would be the average of all scores he obtained. Most of his scores would be close to the "true score" but some would deviate rather markedly. The less susceptible

the test is to the factors noted above, the less the scores would vary from each other. The standard error of measure- describes the extent of such variability.

When a student takes a test, the score he receives is not necessarily the one he would receive on an equivalent one administered the next day or next week. In fact, the score is actually one of the scores in the distribution described in the previous paragraph. We can never know a student's "true score," or how close one particular score is to the "true score." However, using the standard error of measurement, we can establish intervals which most likely would include his "true score." An interval formed by adding one standard error to the obtained score and subtracting one standard error from the obtained score should contain the "true score" for two out of three students. Similarly, an interval formed by adding or subtracting two standard errors should contain the "true score" 95 times out of 100.

Standard error of measurement and reliability coefficients for the three tests of TAP battery are given in Table D-1. Standard deviations of student scores and standard errors of measurement are presented in both raw scores and standard score units. The reliability data presented here were obtained by a split test procedure and are based on representative samples, ranging in size from 1,699 students to 2,530 students selected from the complete

standardization sample. The data presented were obtained during the fall of 1963.

TABLE D-1.--Standard Deviations, Standard Error of Measurement, and Reliability Coefficients of TAP.

Test	Standard Deviation		Standard Error of Measurement		Reliability Coefficient
	Raw Score	Standard Score	Raw Score	Standard Score	
Reading	11.91	9.81	3.33	2.75	.92
Composition	11.74	10.70	3.71	3.38	.90
Literature	10.07	10.48	3.32	3.46	.89

The Scholastic Inventory was a special scale devised and developed by the investigator for the purpose of measuring some of the changes brought about in the affective realm of the students. Many of the items on this scale were adapted from Michigan State University Orientation test, which the researcher had given to another group of students at Sexton some time prior to this study for the sake of collecting some background information on those students. At that time, no effort was made to analyze the data statistically. However, some analysis was made and subsequently some items were revised and some eliminated.

Many new items were also written. Before writing these new items, the researcher had the constructs broken into their factors and each factor was loaded with a particular number of items, depending on how highly the factor was assumed to correlate with the construct. If a particular factor was assumed to correlate very highly with the construct, more items were loaded under that factor; similarly, if another factor was assumed to correlate only very slightly, only very few items were loaded under that factor. The table of specifications given on the next page indicates the various constructs used in the inventory, their various factors, and the number of items loaded in each of these factors.

Self-Concept of Student's Academic Ability and Achievement

A study conducted by Dr. Brookover[50] and his associates has given the evidence that a student's self-concept of his academic ability and achievement is positively correlated with what the student thinks about himself, with what the parents think and expect, with what the teachers think and expect, and with what one's close friends think. In devising this instrument, the procedure followed was to load each of these factors with

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[50]Wilbur B. Brookover, A. Patterson, and S. Thomas, Self-Concept of Ability and School Achievement, U.S. Office of Education Cooperative Research Project No. 845 (East Lansing: Bureau of Research and Publications, Michigan State University, 1962).

TABLE D-2.--Table of Specifications for the Scholastic Inventory.

Construct	Factors	Items in Each Factor	Total No. of Items
Self-concept of academic ability and achievement	1. What the student thinks about himself	13	26
	2. What the parents think and expect	6	
	3. What the teachers think and expect	5	
	4. What one's close friends think	2	
Attitude toward school and learning	Disposition toward:		30
	1. Going to school in general	4	
	2. Learning	7	
	3. Conducting oneself well in school	4	
	Disposition in his relationship with:		
	4. Teachers	7	
	5. Other students	4	
	6. Parents	4	
Sense of purpose and determination in life	Personal interest in:		30
	1. One's family and parents	4	
	2. One's government	3	
	3. Environmental cleanliness	2	
	4. One's social goals	7	
	5. One's vocational goals	7	
	6. One's educational goals	7	

a particular number of items depending on how highly the factor was assumed to correlate with the main construct. Thus this scale has twenty-six items in all; of these thirteen items were loaded in the first factor, which is assumed to have the highest correlation with the main construct; there are six items in the second, five items in the third, and two items in the last factor. On each one of these items, the student was asked to rate himself on a five-point continuum. It was assumed that the composite picture obtained from this inventory gave a rough idea of the student's self-concept of his academic ability and achievement.

Attitudes Toward School and Learning

For the purpose of this study, the researcher made the assumption that a "good" student will have favorable--as decided by adult standards--dispositions toward (1) going to school in general; (2) learning; (3) conducting oneself "well" in school--that is, as is expected of him--and in his relationship with (4) teachers; (5) other students; and (6) parents, especially when they inquire about his performance in school.

In this scale, there are thirty items; of these, four items were loaded in the first factor, seven in the second, four in the third, seven in the fourth, and four each in the fifth and sixth. The response-pattern is

again based on a five-point continuum, asking students to rate their perception as to where they stood on this continuum.

Student's Sense of Purpose and Determination in Life

In drawing up a scale for measuring this particular variable, the researcher made the assumption that a student having a sense of purpose and determination in life will show interest in the following: (1) his family and parents, (2) his government, (3) environmental cleanliness, (4) his social goals, (5) his vocational goals, and (6) his educational goals.

There are thirty items in this scale. In each of the factors just mentioned a certain number of items were loaded. In the first factor, there are four items, in the second factor three items, in the third factor two items, and in the fourth, fifth, and sixth factors there are seven items each. The response pattern was the same as was given before.

Validity and Reliability

No attempt was made to study and analyze the validity of the Scholastic Inventory (this includes all the three scales) through a statistical procedure. These instruments were not correlated with similar other instruments having high validity indices. Lack of time and convenience prevented the researcher from doing this

desirable thing. However, some effort was made to achieve factorial validity. The inventory was devised to measure changes in three variables. Each of these variables was broken into their major factors and each of these factors was loaded with a certain number of items depending on how highly these factors were assumed to correlate with the main construct. The researcher was well aware of the fact that in making these decisions, he was making many assumptions, viz., assumption of correlationship between factors and construct, assumption of high or low correlationship among factors, etc. The study has value only in as far as these assumptions are valid. The researcher is cognizant of this fact and therefore the importance he attaches to this study is only hypothetical and not absolute. Secondly, these scales were given to several experts in the field of educational measurement for their scrutiny. The items passed the scrutiny and study of Dr. Nelson, Dr. Olson, Dr. Eberly, Dr. Juola, and other specialists of the Office of Evaluation Services at Michigan State University. Since all the changes suggested were incorporated, it could perhaps be assumed that the researcher made some genuine effort to make the instrument valid. Thirdly, by definition, the student's rating of himself on a defined scale is absolutely bound to have validity; what he rates is his self-perception. Whether his self-perception is too high or too low from another's point of view is not the

point of our consideration; we are interested in knowing how the student perceives himself and rates himself on the given items. What he rates about himself is absolutely bound to be true for himself. Therefore, by definition, the instrument has validity. Of course, we need to make the assumption that the student is really rating his own self-perception and not rating himself blindly.

Reliability

The split-half method was used to get an index of reliability. This is a procedure in which a given test or inventory for each individual is split into two halves. This is usually done by counting the number of odd-numbered items answered correctly and the number of even-numbered items answered correctly and a Pearson product-moment correlation coefficient is computed between the two sets of scores. Sometimes other splits are made, such as items 1 and 2 go into the first score, 3 and 4 into the second score, and 5 and 6 into the first score. Here the split used was between the odd and even-numbered items. The pre-test measures were used to get this index of reliability. The pre-test was thought to be more appropriate for this analysis, because if the instrument is not reliable, its further use for the post-test could not be justifiable. It should be kept in mind that the reliability of a test is directly related to the length of the

test. When we scored our test on an odd-even basis, we actually cut the length of the original test in half. The reliability coefficient which we have computed then is one equivalent to the half test. For this effect a correction is made by using the Spearman-Brown formula:

$$r_{tt} = \frac{2\ r_{oe}}{1+r_{oe}}$$

The values we have obtained for our test are: $r_{oe} = .80$. The reliability coefficient is: $r_{tt} = .89$.

The Questionnaire

In order to collect some descriptive data, the following questionnaire was given to the students, and they were asked to record whatever feelings they had about their overall experience in the class. The questionnaire dealt with aspects of teaching, learning, and practices of classroom management.

1. What were your attitudes toward learning in this class?
2. What would you say about what you have learned in this class?
3. Were you happy to come to this class?
4. Were you able to get a better self-understanding as a result of taking this class?

5. How would you describe your overall experience in this class?

6. What would you say about the roles the teacher played in the classroom?

7. What were the teacher's attitudes toward you as an individual?

8. Did the teacher attempt to promote group interaction?

9. How did you feel about the teacher-student dialogue in the classroom?

10. What would you say about the teacher's grading practices?

The Scholastic Inventory

Self-Concept of Academic Ability And Achievement

1. Being well read gives me a sense of satisfaction.
2. I am a fast reader.
3. My parents don't care if I quit school before graduating.
4. Most of my teachers think that I am a good reader.
5. My close friends think that I am one of the best students in my class.
6. I am capable of helping other students in my class who have difficulty with this subject.
7. My parents want me to graduate from high school but do not encourage me to consider any further education.

8. My Social Studies teacher thinks that I am an outstanding student.

9. I am a good student.

10. My parents expect me to get a college education.

11. My math teacher thinks that I am not working up to my full capacity.

12. I am likely to be selected for a scholarship to go to college.

13. My close friends think that I am capable of getting a college scholarship.

14. When a test is given I can usually finish the test before most of the other students in the class.

15. My parents expect me to do graduate work or to pursue professional studies beyond college.

16. I can prepare for a test without putting in long hours of studying.

17. I should earn higher grades than I actually do.

18. I deserve higher grades than I usually get.

19. My grades usually reflect by ability fairly accurately.

20. My parents expect me to get high grades in my courses.

21. My English teacher thinks that I should major in English.

22. My parents expect me to spend sufficient time on my studies.

23. I have little or no difficulty with the mechanics of English composition.

24. My teachers expect me to be a model to other students in learning.

25. Changes that I make on examination questions seldom raise my score.

26. I usually have a good idea what is going to be stressed on examination.

Attitudes Toward School and Learning

1. If I had my choice, I would drop out of school.
2. Most of my teachers are competent.
3. I like most of my classmates.
4. Students are justified in presenting complaints about time schedules, subjects, teachers, and other things to the Principal.
5. My parents expect me to conduct myself properly in school.
6. In general, I like school.
7. Most of my teachers are easy to talk to.
8. Most of my classmates like me.
9. I spend sufficient time on each of my subjects.
10. To give vent to their frustrations, students are justified in breaking windows, throwing paint, or destroying things.
11. My parents are justified in expecting me to study diligently in school.
12. School is intellectually stimulating.
13. Most of my teachers are dedicated to their work.
14. School affords me a chance to make new friends.
15. I get my written assignments in on time.
16. More often than not I do what my teachers expect me to do.
17. My parents are justified in checking on my conduct and performance in school.
18. My counselor is very helpful.
19. Students who study diligently are to be admired.
20. I usually find something of interest in just about every course I take.
21. Most of the time, school is very boring.

22. A student should do more than the barest minimum required to pass a course.

23. A student ought to thank his counselor for helping him solve a difficult personal problem.

24. I feel sorry for those students who are planning to quit school before they graduate.

25. School is helping me to understand myself better.

26. I try to apply science principles whenever an opportunity presents itself.

27. Even though school is not always pleasant, I want to attend school every day if I possibly can.

28. School is at its best when it is intellectually challenging.

29. Teachers do not understand students' problems.

30. On the whole my teachers wear authority gracefully.

Sense of Purpose and Determination in Life

1. On the whole, I am trying to be a good student.

2. Going to school will help me in my future career.

3. My parents should have the final say about my activities.

4. I would like to work in government foreign service.

5. I would like to get involved in cleaning up the environment.

6. One should help others who are in difficulty.

7. It is important to maintain a good grade point average.

8. I would like to become an outstanding writer.

9. I like to do things that make my parents feel proud of me.

10. I hope to become a leader in my community.

11. Most movements for environmental cleanliness lack sincerity.

12. I choose friends irrespective of color, creed, or nationality.

13. I hope to enter one of the professions.

14. I prepare my assignments thoroughly.

15. Members of my family are close to each other.

16. I would like to become a social worker.

17. I am rapidly becoming independent of my family.

18. People are justified in destroying public property to show their disapproval of their government.

19. I am a fast walker.

20. One should be expected to help his family in case of need.

21. I would like to become influential in public affairs.

22. I would like to continue improving my reading rate.

23. When I face an unpleasant task I do it promptly.

24. I have a definite place for each of my things.

25. I like to think about what I will be doing ten years from now.

26. As a rule my clothes are neat and clean.

27. I usually do what I promise I will do.

28. Students should get more involved in decision-making at school.

29. Studying is a tedious but essential part of education.

30. Violence against the government should not be permitted.

The Response-Pattern

1. Strongly agree.
2. Agree.
3. Don't know.
4. Disagree.
5. Strongly disagree.

Scoring

Since the response pattern is based on a five-point continuum, ranging from one extreme point to another, for the purpose of analyzing the data, a weighted scoring device was followed. The points given for the various responses were as follows: +3, +1, 0, -1, and -3. The best response to each item, as decided by the researcher, was given +3 points; likewise the worst response was given -3 points. For each student, the plus points were added together and the minus points were subtracted in order to get a score on each test. The tests of significance were then conducted on the differences between the pre-test scores and the post-test scores.