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# Change in attitude toward school of selected early adolescents

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CHANGE IN ATTITUDE TOWARD SCHOOL  
OF SELECTED EARLY ADOLESCENTS.**

**Iowa State University, Ph.D., 1969  
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**CHANGE IN ATTITUDE TOWARD SCHOOL  
OF SELECTED EARLY ADOLESCENTS**

**by**

**David John Bassuener**

**A Dissertation Submitted to the  
Graduate Faculty in Partial Fulfillment of  
The Requirements for the Degree of  
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## INTRODUCTION

The attitudes that students have toward their school has been of concern to educators for many years. More explicitly, educators have been concerned about how these attitudes affect the student's academic achievement. Until recently few studies have been conducted in the area of student interests at the public school level. The studies that have become most popular have emphasized the student's attitudes toward a particular subject matter area. Charles Wethington (52) summarized the feelings of most educators about the importance of attitudes as follows:

Attitudes are important. What a person is and what he may become, whether he succeeds or fails, achieves satisfaction or not, approaches his potential or allows his talents to remain undeveloped or underdeveloped, rests not alone upon the smile of fortune - a quick intelligence, a healthy body, the knock of opportunity - but also and perhaps ultimately upon the attitudes he has acquired. Of particular interest to school people, especially teachers, is the nature of attitudes, how they are acquired, developed and modified, and, most importantly, the degree to which they are related to pupil achievement. . .

### Need for the Study

In today's highly competitive employment market, it is essential that the nation's young people prepare themselves by obtaining as much education as they are capable of mastering. If students reach the age of legal withdrawal from school with negative attitudes about school, they will usually drop out of the school environment in the hopes that

they can find more satisfying experiences in the world of work. Most of the students who take this route of early withdrawal, in effect, relegate themselves to the status of second-class citizens, seldom able to obtain and retain more than the most menial of jobs.

As a part of a national effort to determine the reasons for student dropout, the Department of Public Instruction, Des Moines, Iowa took part in a survey about dropouts, during the school year July 1, 1963 to June 30, 1964. The report that emanated from this survey was published by the Department of Public Instruction in 1965 (11). The report indicated that 7,242 students left school during the twelve month period for other reasons than graduation or enrollment in a different school system. Of this total, 30.5 percent or 2,210 students indicated "Lack of Interest in School Work" as their major reason for dropping out. If educators are willing to assume that negative attitudes lead to, and are indicated by, a lack of interest in school work, then the fact that 2,210 students dropped out of school for this reason, during one twelve month period, should be viewed with alarm. The survey listed four other categories of dropouts which might contain students with negative attitudes. Four hundred and ninety students dropped out because of "Behavioral Difficulties", 724 because of "Academic Difficulties", 334 because of "Employment", and fifty-one stated that "Lack of Appropriate Curriculum" was their major reason



for leaving school. This is a total of 3,809 students or 52.6 percent of the dropouts, in this one twelve month period, whose reason for leaving may have been closely related to the student's attitude toward school. Informal surveys taken since the 1965 report seem to indicate that while the percentages of students dropping out of school is not changing significantly, more students are now enrolled in school, therefore, the total number of dropouts is also on the increase.

If the assumption stated earlier, that negative attitudes cause a large number of students to drop out of school, is accepted, then a program with the avowed purpose of changing negative attitudes toward school is long overdue. The first problem to isolate would be what formulates attitudes. To this end the writer will refer to a statement by Sorenson (46):

If a person has a satisfactory experience, he will develop a favorable attitude toward the situation in which he had that experience. If, on the other hand, he has an unsatisfying experience, his attitude toward the situation involved in that experience will be unfavorable.

The need is to develop programs and methods of instruction that will allow students to achieve academic success and in so doing retain positive attitudes toward school or if the student has negative attitudes, change them.

### Statement of the Problem

The problem to be investigated by this study was to determine if a program of instruction and methods of instruction in language arts and social studies could be developed that would give selected students in the South Junior High School, Fort Dodge, Iowa, academic success, and in so doing, bring about a more positive set of attitudes toward school. More specifically, it was to answer the following questions and test the following hypotheses:

Question 1: Can a course of study be developed in the language arts and social studies that will effectively increase the student's knowledge and course success, when compared to the traditional methods of instruction and the traditional course of study?

Question 2: How do these experiences, with the above experimental teaching techniques, affect the student's attitude toward school?

Null Hypothesis 1: There is no significant difference in the gain in reading grade placement between students in the experimental group and the students in the control group.

Null Hypothesis 2: There is no significant difference in the gain in reading grade placement

between students because of their sex.

- Null Hypothesis 3:** There is no significant difference in the gain in reading grade placement between students of low ability and students of average ability.
- Null Hypothesis 4:** There is no significant difference in the gain in reading grade placement between students in the experimental group and students in the control group when sex is also considered as a factor.
- Null Hypothesis 5:** There is no significant difference in the gain in reading grade placement between students in the experimental group and the students in the control group when ability is also considered as a factor.
- Null Hypothesis 6:** There is no significant difference in the gain in reading grade placement between students when sex and ability are considered as factors.
- Null Hypothesis 7:** There is no significant difference in the gain in reading grade placement between the students in the experimental group and the students in the control group when sex and ability are also considered as factors.

Each of these seven hypotheses can also be investigated

in the terms of gain in grade placement in "Paragraph Meaning", "Language Arts", and "Social Studies", as measured by the Stanford Achievement Test.

Null Hypothesis 8: There is no significant difference in the post-test attitude toward South Junior High School between students in the experimental group and students in the control group.

Null Hypothesis 9: There is no significant difference in the post-test attitude toward South Junior High School between students when categorized on the basis of sex.

Null Hypothesis 10: There is no significant difference in the post-test attitude toward South Junior High School between students of low ability and students of average ability.

Null Hypothesis 11: There is no significant difference in the post-test attitude toward South Junior High School between students in the experimental group and students in the control group when sex is also considered as a factor.

Null Hypothesis 12: There is no significant difference in the post-test attitude toward South Junior High School between students in

the experimental group and students in the control group when ability is also considered as a factor.

Null Hypothesis 13: There is no significant difference in the post-test attitude toward South Junior High School when sex and ability are considered as factors.

Null Hypothesis 14: There is no significant difference in the post-test attitude toward South Junior High School between students in the experimental group and students in the control group when sex and ability are also considered as factors.

In addition to the aforementioned hypotheses, there is an additional set that can be investigated because the experimental group was given a pre and a post-test on their attitudes toward South Junior High School and the Motivational Center.

Null Hypothesis 15: There is no significant difference in pre and post-attitude scores toward South Junior High School.

Null Hypothesis 16: There is no significant difference in pre and post-attitude scores of boys toward South Junior High School.

Null Hypothesis 17: There is no significant difference in pre and post-attitude scores of girls

toward South Junior High School.

Null Hypothesis 18: There is no significant difference in pre and post-attitude scores of low ability students toward South Junior High School.

Null Hypothesis 19: There is no significant difference in pre and post-attitude scores of average ability students toward South Junior High School.

These five hypotheses will also be investigated in reference to the difference in pre and post attitude scores as they refer to the Motivational Learning Center

#### Purpose of the Study

Educators and the lay public generally agree that the quality of instruction is the most important single factor in a successful educational program. Therefore, the purpose of this study is to improve the quality of instruction. Only through quality instruction can students at all levels of achievement find success in the school environment, and in being successful retain or obtain a positive attitude toward school. The goal of this study was to find the relative effectiveness of an experimental approach to the teaching of the language arts and social studies to selected eighth and ninth grade students, as compared to the traditional methods

of instruction, and the affect this would have on the attitudes of the students toward the school environment.

In order to achieve this goal, it was necessary to develop materials of an individualized nature so that students could be given instruction in this particular technique.

Instead of the traditional approach to the teaching of the language arts and social studies with the teacher lecturing to the class along with discussion, drill and demonstration, the experimental classes were highly individualized, with a great deal of audio-visual materials and small group discussion.

#### Definitions of Terms

In order to clarify the meanings of the various terms used in this study, the following terms have been defined:

**Low Ability** - Students in the experimental and control groups with an intellectual aptitude of less than ninety as measured by the Otis Classification Test.

**Average Ability** - Students in the experimental and control groups with an intellectual aptitude of ninety or more as measured by the Otis Classification Test.

**Experimental Morning Group** - Selected eighth and ninth grade students from South Junior High School with low ability.

**Experimental Afternoon Group** - Selected eighth and ninth grade students from South Junior High School with average ability.

Motivational Learning Center - The physical location in which the experimental classes were taught. This facility was a remodelled private dwelling immediately adjacent to South Junior High School.

Brown House - The common name by which the Motivational Learning Center was known.

Reading Pre-test - A test, the Iowa Silent Reading test, elementary form, given to all students in May 1968.

Reading Post-test - A test, the Iowa Silent Reading test, elementary form, given to all students in May 1969.

Language Arts Pre-test - A test, Stanford Achievement test, language arts sub-test, Form W, given to all students in May 1968.

Language Arts Post-test - A test, Stanford Achievement test, language arts sub-test, Form W, given to all students in May 1969.

Paragraph Meaning Pre-test - A test, Stanford Achievement test, paragraph meaning sub-test, Form W, given to all students in May 1968.

Paragraph Meaning Post-test - A test, Stanford Achievement test, paragraph meaning sub-test, Form W, given to all students in May 1969.

Social Studies Pre-test - A test, Stanford Achievement test, social studies sub-test, Form W, given to all students in May 1968.

Social Studies Post-test - A test, Stanford Achievement



test, social studies sub-test, Form W, given to all students in May 1969.

Grades - The number of "D" and "E" grades the students have amassed during their junior high school tenure.

Attitude Pre-test - A test, The School Inventory, by Bell, given to all members of the experimental group in February 1969.

Attitude Post-test - A test, The School Inventory, by Bell, given to all members of the experimental and control groups in May 1969.

Intellectual Aptitude Test - A test, the Otis Classification test, Verbal form, given to all students in the seventh grade.

#### Sources of Data

Data pertinent to this study were collected by administering four tests to each student in the control and experimental groups. The Iowa Silent Reading test provided a pre and post score, stated in terms of grade placement. The Stanford Achievement Test provided pre and post scores, stated in terms of grade placement, in three areas, language arts, paragraph meaning, and social studies. The Otis Classification test provided scores of intellectual aptitude. The Bell School Inventory was given to each student in the experimental group four times. In February 1969, each member of the experimental group was given the test and told

to react as to his individual attitude toward South Junior High School. Two days later the members in the experimental group took the same test and were instructed to indicate their attitude toward the Brown House. In May 1969, the experimental group repeated these same tests. At this time, the members of the control group took the test in reference to South Junior High School.

#### Delimitations of the Study

The scope of this investigation was confined to selected eighth and ninth grade students from South Junior High School, Fort Dodge, Iowa, during the 1968-1969 school year. The students involved in the study were divided into two groups: one group of forty-two students with an intellectual aptitude of less than ninety and a second group of thirty-four students with an intellectual aptitude of ninety or more. Each group was subdivided into two equal groups, one becoming the experimental group and the other the control group. From the morning experimental group three boys were suspended from school and another moved to a different town. From the morning control group two boys dropped out of school and one girl was moved to the afternoon control group when it was determined that her original intellectual aptitude score had been misrecorded.

The afternoon experimental group also lost two boys who were suspended from school. In the afternoon control

group one girl and six boys did not complete the program. This reduced the populations of all of the groups but it most drastically affected the afternoon control group.

The course of study offered in the Brown House constituted a complete year of language arts and social studies. The students reported to the Learning Center in one-half day sessions. During this time they studied materials for group discussion, used individualized programs, took field trips and listened to talks by members of the community at large. During the half day that the students in the experimental group were assigned to South Junior High School, they were enrolled in the same academic programs as the students in the control group, with the exception of language arts and social studies.

Three instructors worked with the students in the Brown House. They did not divide the students in permanent subgroups but worked with the students individually and in small groups. These groups were comprised of members of the larger group who were at approximately the same level of competence within the subject being studied. Students were allowed to come to the Brown House during their study hall periods and before and after school.

The dimensions of the study were restricted by the limited enrollment and that the attitude pre-test was not administered to the experimental group until February, at which time these students had been in the program for five

months. A second limiting factor was that there was no pre-test, on attitudes, given to the members of the control group.

### Organization of the Study

The material for this study has been divided into five chapters. The first chapter includes a background of the events, the statement of the problem, definitions of terms, sources of data, delimitations of the study, and the organization of the study. The second chapter contains a summarization and analysis of related literature and research.

Methodology and procedures for the study are discussed in the third chapter. The fourth chapter is a review of the findings of the data collected during the study. The fifth and final chapter of the study presents a summary of the findings, conclusions, and recommendations for further study.

## REVIEW OF LITERATURE

In reviewing the literature one finds that man's interest in attitudes is as old as the first philosophers. Formal research, however, has become most extensive in the past forty years. Psychologists were the first major group to carry on extensive and controlled research, and because most of these experimenters were found on the college and university campus, the majority of the studies use college students as the subjects.

Whatever the cost and values of attitude formation may be, it is clear that the understanding of attitudes is one of the central problems of social psychology (29). Educators have also found that an understanding of attitudes, their formation, measurement and the manner of change is equally important to them, if not paramount to successful teaching. Brecklin and Brecklin (3) have summarized this sentiment as follows:

We consider healthy self-confidence (positive attitudes) to be more "important" insofar as learning is concerned than the particular study methods used. If self-confidence is poor, study "habits" would be of little use.

While research has begun to permeate into the elementary school, the majority of research and information is at the college level. The statement made by Lichtenstein (31) in 1934 is still germane:

It is important to note, after an extensive review of literature, that in all the work only one or two studies of an experimental nature went below the

junior high school level, a surprizing situation in view of the fact that there is fairly general agreement that children come into the seventh grade with a rather completely made up set of attitudes.

With this fact in hand, the writer reviewed the literature and will attempt to select the information that is available and relate this literature to the following categories which seem to be the most relevant: (1) Attitude: definitions, examples from research, testing (scales), and change; (2) Motivation: achievement motivation and teacher influence; (3) On-going experiments.

## Attitude

### Attitude definitions

The psychological and educational concept of "attitude" has many meanings and because of this many prominent people in both fields have tried to define the term.

Allport (1) sees attitude as a mental neural state of readiness, organized through experience, exerting a directive and dynamic influence upon the individual's response to all objects and situations with which it is related.

Oppenheim (36) also sees attitude as a state of readiness and has developed the following definition:

An attitude is a state of readiness, a tendency to act or react in a certain manner when confronted with certain stimuli. Attitudes are reinforced by beliefs (the cognitive component) and often attract strong feelings (the emotional component) that will lead to particular forms of behavior (the action component). Attitudes, like many other components of behavior are abstractions - though they are real to the individual who holds them.

Oppenheim (36) thought it most important to realize that attitudes are only very rarely the product of logical conclusions based on a thorough appraisal of the facts. Attitudes are acquired, modified and discarded because of the reactions of others to the attitudes in question. Attitudes, because of this, are highly emotional and will arouse in the holder strong defense mechanisms to preserve them and resist any change.

Thurstone (51) used a very broad definition of attitude when he stated that:

. . . attitude was the sum total of a man's inclinations and feelings, prejudices or bias, preconceived notions, ideas, fears, threats and convictions about any specific topic.

Sherif and Sherif (43) indicate in their definition that attitudes may be either of positive affect or negative affect when they wrote:

Operationally, an attitude may be defined as the individual's set of categories for evaluating a stimulus domain, which he has established as he learns about that domain in interaction with other persons and which relate him to various subsets within the domain with varying degrees of positive and negative affect.

Sherif, Sherif and Nebergall (44) have expanded the definition above and added examples to illustrate their point:

Attitudes refer to the stands the individual upholds and cherishes about objects, issues, persons, groups, or institutions. The referents of a person's attitudes may be a "way of life"; economic, political, or religious institutions; family, school or government. We are speaking of the individual's attitudes when we refer to his holding in high esteem his own family, his own school, his own party, his own religion, with all the emotional and affective overtones these terms imply.

Thorndike and Hagen (50) felt that attitudes relate to the acceptance and rejection patterns people hold in regard to the particular groups of individuals, ideas and institutions with which they are in contact.

To illustrate that the definition of attitudes may return to the same definition as used by the early experimenters like Allport, Insko (23) said that the most common definition as used today, is that:

. . . attitude is a relatively stable affective response, or disposition used to evaluate objects or contact in a predetermined way.

Krech, Crutchfield, and Ballachey (29) in their 1962 text gave a definition of attitudes that includes a brief rationale for attitude formation:

As man in his finite world is repeatedly forced to cope with the same object, the repeatedly evoked cognitions, feelings and response dispositions become organized into a unified and enduring system - for man is an organized and conserving animal. This entire "package" of particular beliefs, feelings, and response tendencies is henceforth always there, on the ready, whenever the individual is confronted by the appropriate object. In other words, he now has an attitude toward the object.

Attitudes are important to the people that hold them and because of this they are also important to the people with whom the individual interacts. Regardless of the definition a researcher selects, he must realize that he is dealing with an established part of his subject and that in order to change an attitude it will require time, effort,



truth and the knowledge that emotions will be deeply involved.

Attitude examples from research

Sherif, Sherif and Nebergall (44) have made a disturbing statement about the research of today.

The findings of research in the near past has given conflicting and confusing evidence on several issues. Therefore, regardless of the stand that a person wishes to take on what attitudes can be changed, how they are changed and how much they can be changed is open for discussion. With the researcher finding adequate historical data to substantiate his claim.

Robinson and Spaight (39) agree with Lichtenstein when they said that there is considerable support among psychologists for the thesis that prejudice attitudes are learned early from significant others and that society reinforces these attitudes. The significant others were defined as parents, relatives, teachers and friends. Therefore changes in attitudes can apparently be most successful when the subject is young.

The New Zealand study has been hailed as a landmark in attitudinal research. While the conclusion agrees with the prevalent common sense opinion, Fitt (15) reported that after controlled testing, generally speaking girls like school more than boys. At least there are more boys that display negative attitudes toward school, as illustrated when Yamamoto, Thomas and Karns (54) reported:

When boys and girls were compared it was observed that on all three factors (student grade, student sex, and

concept) girls tended to be more lenient than boys to classmates and teachers (both members of a secondary group), while girls were less lenient toward parents and self (both in the primary group).

Johnson and Ferreira (26) found that girls in special classes were much more negative toward school than boys. So as an experimenter reads the literature and reports of research, he must be sure that the group that is being described is similar to the group that is under study, or the conclusions may not reinforce each other.

Sharples (42) says that it has been shown that older children hold less favorable attitudes toward school activities and have a markedly lower attitude toward literary activities in particular. Neale and Proshek (35) seem to concur with Sharples' observation when they wrote:

. . . reported that 350 children in fourth, fifth and sixth grade, a systematic change in school-related attitudes occurred so as to make their evaluations of such concepts as "my teacher", "my classroom", "me", "my school books", "following rules", "talking in front of the class", or "having to keep quiet", increasingly negative as grade in school increases.

Terman and Oden (49) in comparing the attitudes toward particular school subjects, found no significant difference in preference between gifted and normal children. The difference that they did find was in the intensity of the preferences stated. Blair (2) used bright and dull junior and senior high school students and found the same results as reported by Terman and Oden.

Behavior is a means of observing attitudes in operation.

Negative attitudes and retardation in academic subjects are usually found within the same student. As reported in Dorney (10), Healy, Salisbury and others have shown that a close relationship exists between reading retardation and the delinquent behavior of boys. Kurtzman (30) found that there is a trend in the direction of a negative relationship between creativity and a favorable attitude toward school. Therefore, from these two studies it would appear that both academically retarded students and creative students might have attitudinal problems.

Stinchcombe (47) sees behavior as the actions of attitudes when he wrote:

. . . much high school misbehavior as symptomatic of "expressive alienation", and the alienation which is so expressed is seen as stemming from a lack of articulation between the curriculum and the realistic occupational expectations of some students. The anomalies induced by the school denying certain students any realistic hope of achieving status through educational channels and so they tend to make direct claim for adult symbols, e.g. cars, smoking, etc. Such symbols are denied them by the schools and this denial leads to rebellious behavior.

. . . therefore, we can depict high school rebellion as "part of a complex of attitudes" toward psychologically present authority, characterized by non-utilitarian negativism, short-run hedonism, and emphasis of group autonomy.

Based on the theory just expressed by Stinchcombe, Renfrow (38) concluded that dropout prone boys are significantly more negative in attitudes and values and are rated by teachers as less well adjusted than non-dropout prone boys.

### Attitude testing (scales)

If attitudes are defined as the degree of negative or positive affect associated with some psychological object, then attitude scales can provide us with one means of obtaining an assessment of the degree of affect that individuals may associate with some psychological object (13). Attitudes can only be measured when the researcher can observe patterns of behavior toward the object of the attitude. This is an evaluative process. Therefore, the usual means of obtaining data are to ask the subject to respond to a number of items in questionnaire format. The responses made to these items will indicate how the subject feels about the issue, whether this is consciously known by the subject or not. Sherif, Sherif and Nebergall (44) have written:

Items relevant to an individual's attitude do not constitute a neutral continuum to be discriminated only by their intrinsic, objective differences or similarities. One item coincides with his stand on the issue. It is most acceptable to him. There are other positions he can tolerate. Still others are objectionable to him in varying degrees; some are even obnoxious. Together the acceptable and objectionable positions form the individual's reference scale for judging specific statements, objects, and events on the issue. Reaction to the items is a comparison process, whether conscious or not. Therefore, reactions to attitude-related items are products of an underlying judgement process, in which the person's stands and attachments (that is, his attitudes) operate as a determining influence. Consideration of the underlying judgment process provides basic leads for study of the functioning of attitudes and their change.

Sherif and Sherif (43) have surveyed the most common types of measurement instruments. As a result of this survey

they found that these tests have two characteristics in common:

1. They all represent the individual's attitude towards an object by a single preference score or average "most acceptable" position on a continuum or positions ranging from highly favorable to highly unfavorable.
2. In every case the individual is fully aware that his attitude on the issue in question is being measured.

Oppenheim (36) referred to response sets when he discussed the manner in which people would respond to items on an attitude inventory. He further stated that people will respond to these tests in a particular way and that the ways can be categorized into two types:

1. Social desirability which is the tendency to agree to items that the respondent believes reflect socially desirable attitudes.
2. Acquiescence which is the general tendency toward assent rather than dissent, especially when the statements are in the form of plausible generalities.

Care must be taken to be sure that the test is given under as near ideal conditions as possible. It cannot be too strongly emphasized that the reactions on an attitude test are no more meaningful than the situation in which the attitude test is given (32).

Another caution that researchers must exercise has been discussed by Krech, Crutchfield and Ballachey (29):

The number of attitudes a person holds is finite. He can have attitudes only with respect to those objects which exist in his psychological world. We cannot assume that simply because we have an attitude-measuring device, we can therefore measure the

attitudes of all men with respect to any given object. Before the attitude of an individual can meaningfully be measured, the investigator must first determine that the individual has an attitude toward the given object.

Sherif, Sherif and Nebergall (44) reported that in 1962, LaFave and Sherif presented a paper based on research that indicated that students may not reveal their true attitudes if they feel that it would be inappropriate to do so. Their example was that even students from the deep South may not show their true feelings about segregation, on a pencil and paper test. However, later under observation, they may show in words and deeds that they have a completely opposite attitude. Katz and Allport (28) reinforce this theory when they write:

Individuals seem to have two sets of attitudes on many questions, namely the opinion which they are willing to publish or make known (their public opinion) and the opinion that they will express only to their intimate friends (their private attitudes). In studies where individuals know that their questionnaires will be identified, they are probably more likely to respond with their public attitudes. Where questionnaire forms are anonymous we may expect to secure a closer approximation of their private attitudes.

Although Thorndike and Hagen (50) bring in another factor, they too agree with Katz. These writers feel that one of the major limitations of attitude tests is that they are purely verbal. The individual taking the test is not required to reinforce his stand with the appropriate actions. The authors go on to say that as long as this lack of confirming action is the case, the answers to attitude tests

will not be reliable, because the answers can be manufactured to suit the situation.

If we accept the findings of Flanders and Morrison (17), then the time of year when an attitude test is given may have a significant influence on the results. A summary of their findings indicates that in 1960-61, 3,000 Minnesota junior high school students were administered attitude inventories in October, January and May. There was a significant decrease in the attitude, as measured by the test, between October and January. There was little or no difference in the January and May scores. It was felt that the test scores, or attitudes, early in the year may indicate that the students do not yet know the teacher and the student does not want to indicate, by score, that this teacher or school situation is not all that they would hope it would be. By January, however, the students have become disenchanted and therefore their attitudes toward the teacher and the school environment have slipped significantly. This new attitudinal feeling remains rather stable for the remainder of the year because usually neither the teacher nor the school environment changes significantly.

In 1964-1965, the experiment was repeated with 800 sixth grade students in the Ann Arbor, Michigan area. The results were "nearly identical". This drop in attitude was independent of the intellectual aptitude, socio-economic status, or the performance marks as assigned the student by the teacher.

While attitude tests may be divided into a number of scales, the end result is a score which indicates the referent's position on the issue or situation under consideration. It must be remembered that an attitude is a complex affair and as such cannot be fully or wholly measured by any single numerical index (51).

For the reservations writers and experimenters have about attitude tests, Jackson (24) has written a summarizing note.

The evidence with respect to the stability and validity of the test instruments and the honesty of the students' reports is clearly not sufficient to rule out completely any of the arguments that have voiced against this type of research. Nonetheless, even with these weaknesses it is safe to conclude that the relationship between attitudes and scholastic achievement, if it exists at all, is not nearly as easy to demonstrate as common sense would lead us to believe it might be.

With the reservations that have been stated about attitude inventories, there is support for the contention that attitude tests, in order to be meaningful, should be developed by local people to test local attitudes.

#### Attitude change

Sherif and Cantril (45) have stated that attitudes tend to maintain themselves. Whether this is called rationalizing or self-reinforcement is not important; the important fact is it will not be easy to change a person's attitude. Sherif, Sherif and Nebergall (44) have expanded this thought when they wrote:



. . . change in his attitudes is not a discrete event of shifting one single item in his psychological make-up. Changing his attitude means changing him as a person, changing a part of himself as he has come to know himself relative to his social world.

The depth of the subject's attitude has a great deal to do with how readily the attitude can be changed. Hovland, Lumsdaine and Sheffield (22) said that their work clearly shows the attitudes that are the easiest to change, shape and form are those that are the least structured. Since attitudes are not innate states of readiness, inasmuch as they are formed in relation to particular objects, persons, institutions and values or norms, the individual has first to come into contact with them (45).

How does a person come in contact with objects, issues, etc.? Lichtenstein (31) made the following statement in 1934:

. . . a compilation from studies produced the following list of factors as most instrumental in the shaping of attitudes: motion pictures, books, newspapers, drama, religious training, school environment, general environment, friends, racial ancestry, early training, neuromuscular factors, sex, wealth, order of birth, race, intelligence, Sunday school teachers, attitudes toward parents, social factors, government, scholarship, religious beliefs, hearsay, acquaintances, classmates, sibling behavior, suggestibility, observation, touchiness, tough-mindedness, self-assertiveness, belief, and last but not least the school and the methods used therein.

To this list television and radio would have to be added to bring it up-to-date. The total list would seem to indicate that the school and school environment is but one small part of the attitude forming complex. If this is true

or not is not the significant fact. If the school has any influence at all, it is the responsibility of the school to do all in its power to see that the students, who pass through the school experience, have the attitudes that will best allow them to fit into, and enjoy, the general environment of society.

Krech, Crutchfield, and Ballachey (29) state that when attitudes do change it has been mostly a change in the sign of the existing attitude, from positive to negative or negative to positive. The second most common change is a decrease in the initial amount of positivity or negativity.

One of the most profitable methods of changing attitudes has been described in a study by Miller and Briggs (34). They stated that undirected group discussions about current issues could have a lasting effect on the attitudes of the participants. Their study reported changes in attitudes of fifteen-year-old American boys toward races and nationalities as a result of a group discussion concerning the subject. An attitude test given before and immediately after the discussion indicated the boys had a greater tolerance and appreciation for the different races and nationalities as a direct result of the discussion. These attitude changes remained fairly stable when a re-test was given several weeks later.

Another method for the changing of attitudes was proposed by Carlson (5) when he said:

. . . attitudes toward an object, or situation, may be changed through altering the person's perception of the significance of the object as a means for attaining valued goals.

Breer and Locke (4) use a slightly different theory:

Our theory of attitude formation and change emerges directly from reinforcement theory. It is our contention that the principles of reinforcement and generalization which are ordinarily invoked to explain the shaping of behavior can be extended to account for the formation of beliefs, values and preferences (attitudes).

Both of the above theories are practiced in the progressive classroom when learning is taking place. Storen (48) says:

If students become engaged in learning, they will not disturb others, but will respond to direction and guidance, and the teacher's discipline problems will more or less disappear. First of all it is wise to remember that all students will not respond to the same stimulus. It will take a good bit of knowledge about each pupil and considerable experimentation with different techniques to begin to overcome the negative attitudes of children.

Cohen (7) discussed the role of incentives in attitude change and stated that:

The fewer the incentives used to produce commitment, beyond those necessary to get the person to comply, the greater the dissonance and the greater the change of attitude. Thus, large rewards can always serve as a rationalization for having done something objectionable; with only small rewards, the person must find a solution internally, and one way he can rationalize his behavior is to bring his attitudes into line with his behavior so that he no longer experiences dissonance. Thus, the concept of dissonance leads to the paradoxical position that the more reward you get for engaging in a discrepant act, the less you actually change your attitudes in the direction of believing the worth of the position you took; the less reward, the more change.

Unless the reader should feel that all of the possible methods of attitude change have been discovered and are now in use, Insko (23) gives the following caution after studying twelve experimental approaches to attitude change. By an experimental approach he meant a procedure in which the experimenter manipulates the independent variable. Insko feels that none of the theories is even near perfect, but they are the beginnings. He suggests that concentration should be on attitude change following behavioral change rather than behavior change following attitude change.

As an extension of the "behavior change before attitude change" theory, Rosenberg, Hovland, McGurie, Abelson and Brehme (40) made the following statement:

It seems fairly safe to say that when a person's behavioral component disagrees with his cognitive and affective components, the latter will tend to change toward support of the behavior. It is also apparent that the stronger the discrepant behavior component, the stronger the tendency to bring the cognitive and affective components into line with it. And, if the theory of cognitive dissonance should continue to receive support, then we may say that in general, the tendency to change a cognitive and/or affective component will be a direct function of the force against engaging in the behavior compared to the force for it.

To further explore the realm of cognitive dissonance, the writer will refer to Cohen (7):

When a person possesses a cognition about his behavior that follows from the obverse of the belief he holds, dissonance results. As dissonance is psychologically uncomfortable, we should expect these people to experience some psychological tension. This uncomfortable psychological tension will motivate them to reduce the tension - to reduce the dissonance so as to

achieve consonance. We should therefore expect all of the people mentioned to engage in some cognitive modification aimed at reducing the dissonance between their attitudes and their behavior. It is this push to reduce dissonance that results in attitude change in situations of enforced discrepant behavior.

A final statement relative to the order of change, behavior before attitudes, will draw from an article by Harth (21) in which he studied failing students and their reactions to role playing as a means of changing attitudes. Harth indicated that attitudes toward school did not change significantly but that there was a change in behavior which would lead to attitude change. The significance of these last remarks should cause the experimenter to pause and determine if it might not be better to work on behavioral change; behavior is so often the outward indications of attitudes.

## Motivation

### Achievement motivation

According to Frey, Shimabukuro and Woodruff (18) the problem of motivation for classroom learning is perhaps the most persistent problem of formal education. For until a student is motivated, the teacher will be wasting a great deal of effort and accomplishing very little. Carter (6) says:

Students learn what they want to learn and are ready to learn. To want to "know" students must have their curiosity and interest aroused, see a purpose for learning that makes sense to them, and have their feelings and emotions involved.

Writing about the place of interest and effort in education, John Dewey (9) theorized that interest marks the annihilation of the distance between the person and the materials and results of his learning action; it is the instrument which effects their organic union. This position was also taken by Getzels when he wrote:

The critical difference between what he learns and what he does not learn in the classroom will in most cases, be more a function of his interests than his intelligence.

Duffy (12) contends that the concept of motivation incorporates a description of both the direction taken by behavior (selectivity of response) and the intensity or "drive level" of behavior.

Motivation and self concept are joined as one force in Fine's text of 1967 (14). He states that:

Students can be divided into two groups; the encouragement group, that is usually confident, and the discouragement group which is usually frightened, nervous, unsure, and temporarily conditioned to anticipate failure.

This anticipation of failure is perhaps the most poignant aspect of underachievement. To expect to fail in life is almost to assure oneself of experiencing it incessantly: at home as at school, in friendships as well as in relationships with teachers and parents, in high school as in grade school.

In an article in the Instructor, Harris (20) contends that over-expecting parents, sibling rivalry, low self-esteem, poor school experiences, or rejection by parents or peers may cause a student to be an under-achiever. She also states that underachieving students possess the seeds of ability

and as teachers we must nourish these seeds and help them to grow. She feels this can be done if teachers will make sure the following statements refer to their classrooms.

1. The climate of the classroom should be relaxed, yet the standards should not be lowered.
2. The child should be accepted and respected for what he can do, so he can learn to respect himself.
3. Exaggerated praise blocks and embarrasses. Honest evaluation is constructive; encouragement is the spur.
4. The student should be told in concrete verbal terms that the teacher is aware of his sincere efforts.
5. Acknowledgement is a type of reward.
6. The child's goals must be raised even as his present achievements are accepted.
7. Pressure must be applied, but the amount and direction should be geared to the student.
8. Improvement in the physical aspects of the child's work - penmanship, cleanness, neatness - will occur more quickly than changes in thought patterns.
9. Humor is one of the teacher's most effective tools.

In a classroom in which the aforementioned criteria are met, the students will learn and attitudes will improve for the student will not have to become a behavior problem in order to get the recognition that he wants and needs.

### Teacher influence

Regardless of the materials of instruction, the teacher is still the most important variable in the classroom. Devine (8) conducted a study concerning the importance of the teacher in the classroom as it pertained to mathematics. The conclusion, however, is applicable to all teachers in any classroom.

Since attitudes toward mathematics appear to be more dependent upon the teacher than on the teaching

procedure used, care should be exercised in the assignment of teachers. . .

Unfortunately too many classrooms of today fit into the model of a dull school as described by Santayana (41):

Each room had four windows, but the street and the courts at the side and rear were narrow, and overshadowed by houses and office-buildings. No blackboard was black, all were indelibly clouded with ingrained layers of old chalk; the more you rubbed out, the more you rubbed in. Every desk was stained with generations of ink-spots, cut deeply with initials and scratched drawings. What idle thoughts had been wandering for years through all those empty heads in all those tedious school hours! In the best schools, almost all schooltime is wasted. Now and then something is learned that sticks fast; for the rest of the boys are merely given time to grow and are kept from too much mischief.

Add to the above description a dull and uninteresting teacher and you have the ideal situation for negative attitudes to develop and grow. Flanders (16) in his study of losses of esteem for school found that the greater losses appeared when there was a low incidence of teacher praise and encouragement. He also found that the students who lost the most in attitudes were those who tended to blame their failures and successes on outside influences rather than anything they did or did not do in the class.

In today's world of the "teaching machine", there is a tendency to say that if the teacher is poor or cannot reach a particular student, let the machine do the teaching. However, Frey, Shimabukuro, and Woodruff (18) found that:

The continued intensive use of programmed materials over an extended period of time without relief through other modes of instruction is not recommended. While unique,



this approach to instruction has its saturation point, insofar as student use is concerned, just as do the more traditional approaches.

Therefore, it might be concluded that variety in teaching, as in all areas of society, adds the spice. Flanders (16) noted that the students who achieved the most and who had significantly higher scores on the attitude inventory were in classes exposed to the most flexible patterns of teacher influence (teaching method).

Sister Josephina (27) theorized that the personality of the teacher plays an important part in the subject preference of the students. Further she believes:

. . . that the teacher's knowledge of the subject matter, her techniques used in presenting it, her enthusiasm or indifference for what she teaches, and her excellent or poor presentation of the daily lesson significantly influences the pupils liking or disliking a specific subject. These likes and dislikes build positive and negative attitudes toward the subject and school in general.

The manner in which a teacher handles a group of students can also have a significant influence on their attitude formation and attitude change. Jenness (25) made a study in which the members of a group, as individuals, expressed their views on selected topics. The whole group was brought together and informed of the majority opinion, which was not the true majority opinion. Following this, the individuals were again asked for their opinions. Usually the individual changed his views to conform to the opinion of the majority. Public opinion is powerful, and it serves as critic and

tensor of all other attitudes, individual and collective. This conditioning of the attitudes of members of groups produces collective attitudes which may become almost universal. Therefore, teachers must exercise a great deal of care in what they tell students for fear they may do them more harm than good, attitudinally.

Basically all educators would like to have the type of teacher described by Wolfe (53):

During the years Mrs. Robinson taught me she exercised an influence that is inestimable on almost every particular of my life and thoughts. With the other boys my age I know she did the same. We turned instinctively to this lady for her advise and direction and we trusted to it unfalteringly. I think that kind of relation is one of the profoundest experiences of anyone's life, - I put the relation of a fine teacher to a student just below the relation of a mother to her son and I don't think I could say more than this.

#### On-going Experiments

Four Title III E.S.E.A. projects will be reported as they have much in common with the problem under investigation. The first is in Salinas, California City School District. Basically, the project is an educational and teacher training program and is designed to develop the self-concepts and self-expectations of elementary students. Primary attention is given to helping students communicate effectively.

The program is based on the premise that self-concept is a product of interaction and that the major means of interaction is communication, both verbal and nonverbal.

In a five-week summer school, 325 children, half members of an ethnic minority are placed into the program. Activities include: field trips, role-playing, choral speaking, and various types of writing. Video tapes are made to evaluate and improve teacher behavior in the affective realms. The program requires that teachers be aware of their predispositions toward children, that they recognize the effects of their classroom behavior, and that they be skilled in techniques of promoting interaction. The program is transferred to schools in several districts with the summer school staff employed as consultants.

The second program is underway in the Denver, Colorado Public Schools. An ethnic heritage program emphasizing cultural understanding is instituted to improve self-concepts and to raise the aspirations of minority group students. The efforts of the school and the community agencies are organized to provide optimum effectiveness in helping students understand various cultures. Such understanding brings about improved self-image and puts into perspective one's place in the world about him.

Weekly educational television programs are written and presented to fifth grade students. The programs deal with the historical, cultural and sociological contributions of Asian Americans, Hispanic Americans, American Negroes and American Indians, and are rebroadcast in the evenings for the benefit of parents and other lay citizens. Exchange of

students from varying backgrounds are made between schools. Community field trips and activities in drama, art, dance, history and music are conducted on an inter-school exchange basis. All participants are given pre and post attitudinal testing.

The third project is in the Neenah Joint School District, Neenah, Wisconsin. A diversified program attempts to improve reading skill and school adjustment of deprived students at all grade levels. Small group instruction and enrichment activities provide intensive remediation and experiences which improve attitudes toward school.

Reading centers are established in the elementary and secondary schools for small group instruction during the academic year and the summer. A post-kindergarten summer class prepares low achieving children for first grade. Pre-reading skills and favorable attitudes toward school are fostered. Each teacher is assisted in classroom activities and field trips by a volunteer high school girl. A summer session for junior high school boys encourages a wholesome self-image and perception of a worthy place in the community. Field trips and guest speakers supply information on employment possibilities, vocations and needed services. A social studies resource center is organized in the high school in an endeavor to improve classroom performance through better understanding of academic materials.

The final project to be reported in this paper is being

conducted in the Winthrop High School, Winthrop, Maine. The program has been designed for students who appear to be receiving very little profit from the normal classroom curriculum, structure and teaching method. These students are handicapped by cultural deprivation, low mental ability, and poor reading skills, and display the basic characteristics of potential dropouts.

Repeated histories of failure in the normal school situation, significant deficiencies in the most basic academic skills, limited experiential backgrounds, and underdeveloped social skills not only foster their rejection of school, but also preclude any reasonable benefit from their present program. The broad objectives of the program are to:

1. Have the students remain in high school and utilize its educational opportunities.
2. Substantially raise the level of their communication skills.
3. Elevate their image of themselves and of their personal worth.
4. Prepare them for practical, productive living.

The program to meet the above objectives will involve parents, employers, workers and students, as well as educators, in curriculum planning. There will be careful diagnosis of each student's present ability and needs which will be used to develop an individual curriculum. The program will also provide for practical academic, social and occupational experiences. These experiences will hopefully be successful and concurrent with the abilities of each student.

In summary of the review of literature and on-going experiments, while the definition of attitudes may vary according to the author of the article, they all basically refer to the subject's method of interfacing with society through a judgmental process. The methodology of testing and the interpretations of the results of these tests must be viewed with caution, to insure that the test truly represents the attitudes in question and that near ideal testing situations prevail.

As attitudes tend to maintain themselves, researchers and teachers alike must realize that it will take a great deal of effort and the task will not be easy, when the goal is to change attitude. The modification of behavior, as a first step, may be one of the better methods of producing the psychological tensions necessary to initiate the desired attitudinal change.

The recent efforts in attitudinal research, at the public school level, can be attributed to the funding of the federal government. This has allowed local schools to try new methods without having to raise funds locally, which would be difficult in today's financial world.

## METHODS AND PROCEDURES

The problem of this investigation was to determine if the attitudes toward school of selected eighth and ninth grade students could be improved. The improvement was to be brought about because of academic successes in an experimental program of instruction in the language arts and social studies. The gain or loss in positive attitudes of the experimental group, as measured by the Bell School Inventory, was to be compared with the gain or loss in the control group.

This chapter describes the methods and procedures that were used to gather and analyze the required data for the study. This chapter has been divided into six parts:

- 1) Submission of a project for Title III funding,
- 2) Selection of the population for the study,
- 3) Preparation of the materials,
- 4) Class management and experiment execution,
- 5) Testing,
- 6) Treatment of the data.

#### Submission of a Project for Title III Funding

During the fall of 1967, members of the administrative staff of the Fort Dodge Community School District completed a needs study to determine in what area they could best begin an innovative program. Noting that a number of students were dropping out of school, because in part of negative attitudes toward school, it was decided to develop a program

that would remedy this situation. To this end proposal #68-05551-0 was submitted and approved on February 15, 1968. Initial funding for the first year was \$96,316.00, for the second year \$37,436.00 and for the final year \$28,000.00, making a total three-year funding, from Title III funds of \$161,746.00. The South Junior High School was chosen as the site of the experiment based on the local needs study which indicated that the highest proportion of drop outs emanated from this school. To house the Center, the school district purchased a private dwelling immediately adjacent to South Junior High School and remodelled the interior in order to make maximum use of the physical space for educational purposes. The basement area was converted into a media center. In this area was located all of the "teaching machines"; film strip projectors, slides, calculators, etc. The first floor contained the teacher's office, a kitchen and a private conference room. In addition, the central entrance area was used as an informal reception area and tables for use in small group discussion. The second floor was used for study and discussion groups.

The main objective of the Motivational Learning Center was to develop more positive attitudes toward school on the part of the selected students in the program.



### Selection of the Population

The local needs survey indicated that students were underachieving for a number of reasons; negative attitude toward school, poor self-concepts, poor reading and communications skills, poor grades, and frequent behavioral problems. Using this broad result of the survey as a statement of need, the staff of the Motivational Center organized a committee to determine the procedures and criteria.

During June 1968, the members of the staff of the Motivational Center were hired. To direct the project and act as the teacher chairman was Mr. J. David Turner who had taught four years at Boone Junior High School, Boone, Iowa. Two other instructors were also employed. Mrs. Lorraine Johnson had been an elementary teacher for sixteen years and her last previous teaching experience was as a fourth grade teacher in the laboratory school of the University of Wyoming. Miss Marcia Sweeney had two years of teaching experience at the junior high school level and her last teaching position had been in the Algona, Iowa high school. Mr. Turner reported to the project in June 1968, while the other staff members reported on the fifteenth of July 1968.

During June 1968, Mr. Turner, project director; Mr. H. Ray Miller, principal of South Junior High School; Mr. Leon Shortenhaus, counselor at South Junior High School; and Dr. Anton J. Netusil, professor of educational statistics at

Iowa State University met to determine the acceptance criteria for selection of the student population. At this time the measures of academic achievement were also selected.

The following criteria were agreed upon as the bases on which students would be selected as members of the total population:

1. Behavioral problems - The teachers, counselors, and the principal of South Junior High selected those students who had habitually been involved in situations that required some form of reprimand.
2. Negative attitudes - Attitudes were determined to be negative if the students anecdotal records contained statements from teachers, counselors, and the administration indicating that the student seemed to have negative attitudes about teachers, school, law and government, home and family and life in general.
3. Intellectual aptitude - The Otis Classification Test, Verbal, is given to all students in the seventh grade. It was determined that students with a score of less than ninety would be placed in one group and that those students with a score of ninety or more would be placed in a second group.

The following tests were selected to provide information about attitudinal and academic growth:

1. Iowa Silent Reading Test, Elementary form - Scores

in terms of grade placement would indicate growth in reading ability.

2. Stanford Achievement Test, Form W - Scores in terms of grade placement would indicate growth in three areas: language arts, paragraph meaning, and social studies.

Another factor that was observed but used only as a confirming factor of negative attitudes, and poor self-concepts was the number of "D" and "E" (fail) grades that each student had received while a student at South Junior High School.

At this time it was also decided, by the committee that the classes should have about twenty students per section. After examining the records of all eighth and ninth grade students, those who met the terms of the criteria were arranged alphabetically into two lists. One containing those of low ability and the other, those of average ability. The lists were numbered consecutively and selection became a matter of assigning the odd numbered students to the experimental group and the even numbered students to the control group.

Once the students for the experimental group had been selected, the project director and the junior high school counselor personally visited the homes of these students, explaining the program to the students and their parents, and encouraged the students to take part in the experiment. The final decision was with the family and not the school.

During the month of August 1968, form letters were sent to each of the students in the experimental group, which stipulated that the school must have the signatures of the student and the parent before the student could be considered enrolled in the program. Only two of the students originally contacted, as possible members of the experimental group, did not choose to take part.

The morning section, those with an intellectual aptitude score of less than ninety, had twenty-one in both the control and experimental groups. The afternoon section, those with an intellectual aptitude score of ninety or more, had seventeen students. The corresponding control groups were of equal size.

#### Preparation of the Materials

Once the decision had been reached about who was to comprise the enrollment and what areas of the curriculum would be incorporated into the experimental program, it became necessary to develop the materials of instruction to reach the program's stated objectives. The director and staff of the Motivational Center were employed during the summer of 1968 to prepare the needed materials.

It was the opinion of the staff that most of the academic and testing difficulties experienced by the students were due to a limited reading ability. Therefore, most of the material that was designed or purchased was for the

purpose of improving the student's reading level. Many types of "teaching machines" e.g. the Craig Reader, the Hoffman Reader, the Controlled Reader, etc., were combined with programmed learning materials, that would allow the students to progress as individuals from their entrance level to their ability level, at their own pace. Much of the material used in the language arts program was teacher generated as they discovered the needs of individual students. A partial listing of the materials that were purchased to augment the language arts program would include:

1. Craig reader program - Programs A, B, and C were obtained. Each of these programs has from seven to twenty-four slides, student books, and student workbooks. Program C is primarily for the remedial reader at the junior and senior high school level. Program B is a developmental program for the average junior high school student. Program A is for average and above average readers. The language skills involved are capitalization, punctuation, writing sentences, and alphabetizing.
2. The Hoffman programs - This is an individualized reading program which can be used in small groups. The materials at fourth, fifth and sixth grade were obtained. The program was the one best received by the students apparently because of the uniqueness of the presentations and the interest in the materials.

3. The Listen and Think series - This program is designed to improve listening comprehension and to develop specific thinking skills necessary for good listening. Each lesson consists of a tape recording and an integrated workbook exercise.
4. Macmillan Gateway English - Selections are geared to the immediate interest of the junior high school student and lend themselves well to group discussions. The teacher's manual offers many practical suggestions for helping students apply what has been learned.
5. The letter writing kit - Techniques for the writing of friendly and business letters are developed in a step by step process. This material works better with the slow student than the average student.
6. The Controlled Reader - These materials were used in small group discussions. The materials were too difficult for the very slow-learners but worked well as the student more nearly approached his actual grade level, in reading proficiency.
7. Crossword Puzzles - Provide an opportunity to work with synonyms and antonyms. The students worked in pairs.
8. Classics Illustrated - Consists of approximately 175 classical writings in comic book format. This material was available to all students, but no definite

program was structured. The boys seemed to accept this material better than the girls.

Several other materials were available to the students and each was used to varying degrees, as dictated by the interests of the individual student.

The social studies field was organized in much the same manner as described for the language arts program. In social studies, however, more emphasis was placed on materials prepared by the teachers. A partial listing of the purchased materials follows:

1. Map and Globe Skills Kit - Skill cards are used individually by the students and helped develop skills in map and globe reading and interpretation.
2. Know your World - This weekly newspaper is a low level vocabulary approach to current events. The center section of the paper contains exercises pertaining to the articles.
3. Holt's Impact Series - The materials were used in small group discussions. Four areas were used: family, urban living, courage, and folklore.
4. You and Your World - This weekly newspaper is another low level approach to current events.

Conferences were held with the chairman of the Junior High School English department. The result of the conferences was that the program in the Motivational Center would be primarily remedial in nature and would not try to conform

to the program offered to the students in the control group.

The Coordinator of Social studies and the director of the Motivational Center decided that the traditional social studies offering, of world history was not appropriate for students in the experimental sections. The major effort would be to inform the students of the problems in today's world and their place in solving those problems.

Part of the rationale for deviating from the traditional program was that the students had not had success within that program and the experimental program would give the students a chance to find a different methodology that would stimulate them to better learning and achieving situations. Little or no concern was expressed by either the chairman of the English department or the Coordinator of Social Studies that the experimental programs and the traditional programs did not parallel. It was felt that if the students progressed with the experimental method, they would be in a better position to achieve in their return to the traditional program.

#### Classroom Management and Experiment Execution

The experimental groups were brought to the Motivational Center for one-half day sessions. The low ability, low achievement group spent the morning at the Brown House and during the afternoon they were scheduled into the traditional program of South Junior High School. The classes at



South Junior High School, however, did not include classes in language arts and social studies, the emphasis for instruction in the Motivational Center. During the afternoon the second experimental group, those with average ability and underachievement, studied language arts and social studies in the Brown House, after being enrolled in the traditional program at South Junior High School in the morning.

Enrollment in the program was for the entire 1968-1969 school year. The control groups were enrolled in all traditional classes at South Junior High School. The Motivational Center was used as both a diagnostic center and an instructional center. Through referrals from the project staff or the counselors, students in the experimental groups were given special attention by counselors or school psychologists.

The educational climate of the Brown House can best be described as permissive. Their definition of permissiveness can be equated to a statement attributed to Dr. Samuel Hayakawa of San Francisco State College:

. . . permissiveness does not mean, and no one has ever meant it to mean, allowing children to break up the furniture or to pour hot soup on their sisters. Permissiveness means permitting children to do what they want, up to the point of not creating disturbances for others, not hurting others.

. . . An important component of permissiveness is that children should feel free to express their deepest feelings. Whether they do anything about them or not, they should feel free to express them.

The main goal of the project was to change the attitudes of these underachievers. As previously stated, attitudes

are formed through the experiences that a child has in a given situation. If this assumption is excepted, then if this experiment is to change attitudes, it must be a positive situation filled with success.

Classes at South Junior High School are traditional with fifty-five minutes per period. All members of the control group and the classes attended by the experimental group were of this length and taught by the traditional method. Classes at the Motivational Center were less structured and more flexible. The usual method was to introduce a subject with a twenty minute small group discussion and then allow the students to work as individuals. Assignments for the use of the "teaching machines" were made over a period of time and the students could work on these lessons at their own pace and for what ever length of time their individual interest capacities would allow.

In light of the permissive atmosphere no indications of failure were used. If the student successfully completed a portion of subject matter, he was rewarded with praise, recognition or privilege. These rewards often took the form of allowing the students to get bottles of pop from the refrigerator in the kitchen.

If the work, that the student performed, was not at an acceptable level of completeness or correctness, then the teacher would indicate that "while he had progressed", it was necessary for a little better level of work to be

accomplished. There was no admonishment for work completed regardless of caliber.

While all students received letter grades for the subjects in which they were enrolled in South Junior High School, the Motivational Center sent home reports which indicated the amount of work that had been accomplished within the various programs. There was no indication of success or failure, only credit. The reports were in the form of color coded graphs. Each color indicated a different grading period. The segments of the graph were divided into the number of sub-programs needed to complete the series and in this manner the parents and the students were aware of the amount of work that had been accomplished and what was still unfinished. It was further understood by the students and the parents that all of the students would, hopefully, complete as many of the segments of the programs as possible. However, there was no overt pressure to insure that all of the students completed all of the work or that they would feel that they were failing if they completed less than the others in their sections.

The discussion sessions dealt, whether in social studies or language arts mostly with student problems. Topics for discussion included, study habits, problems of society in general, specific local civic problems, the need for education, home and family, and other topic areas as the interests of the students dictated.

## Testing

Testing was in four phases. An intellectual aptitude test is given to all students during the seventh grade. During May 1968 all students in the experimental and control groups were administered the Stanford Achievement Tests as a pre-test for measurement of academic achievement. Also in May of 1968 the Iowa Silent Reading Test was given as a pre-test to measure gain in reading ability. In February 1969, the experimental groups were given the Bell School Inventory as a pre-test for the measurement of attitude toward school. In May 1969, the experimental and control groups were given the Bell School Inventory as a measure of attitudes at the end of the experiment.

## Treatment of Data

The primary goal of all instruction is to present materials in such a manner that the student can learn to his capacity. In light of this statement, the first section of this study was to investigate the difference in gain in reading, language arts, paragraph meaning and social studies as measured by the Stanford Achievement test, between students in the experimental group and students in the control group. It was also to investigate whether the effectiveness of the two methods differed by two classifications of the students: (1) sex of the student, and (2) the ability of the

student.

Table 1 indicates the number of students contained in the three-way classification, group (experimental and control), by sex of the student, and by ability of the student (low, less than ninety intellectual aptitude and, average, intellectual aptitude of ninety or more).

Table 1. Students by group, sex of students, and ability of students

Group	Low ability		Average ability		Total
	Male	Female	Male	Female	
Experimental	11	6	9	6	32
Control	13	5	10	1	29
Total	24	11	19	7	61

The analysis for this portion of the experiment can be defined as a multifactor analysis of variance. The main effects of this experiment consist of group, sex of the students, and ability of the students. The measure of gain was the difference between a pre and post-test of reading, language arts, paragraph meaning and social studies, as expressed in terms of grade placement.

The basic model including the effects and the sources of variability isolated in the experiment was:

$$Y_{ijkl} = M + G_i + S_j + A_k + GS_{ij} + GA_{ik} + SA_{jk} + GSA_{ijk} + e_{ijkl}$$

where:

- $Y_{ijkl}$  = Difference in achievement score between pre and post-test (in terms of grade placement)
- $M$  = Over all grand mean
- $G_i$  = Effect of group,  $i = 1$  for experimental, 2 for control
- $S_j$  = Effect of sex of the student,  $j = 1$  for male, 2 for female
- $A_k$  = Effect of ability of the student,  $k = 1$  for low, 2 for average
- $GS_{ij}$  = Interaction effect of the  $i$ th group with the  $j$ th sex of the student
- $GA_{ik}$  = Interaction effect of the  $i$ th group with the  $k$ th ability of the student
- $SA_{jk}$  = Interaction effect of the  $j$ th sex of the student with the  $k$ th ability of the student
- $GSA_{ijk}$  = Interaction of the  $i$ th group with the  $j$ th sex of the student and the  $k$ th ability of the student
- $e_{ijkl}$  = Random error associated with the  $l$ th observation of the  $ijk$  treatment combination

The raw data relevant to this model were placed on code sheets and then punched and verified in IBM cards. The facilities of the Iowa State University Computation Center were used to analyze all the data on the 360/40 IBM computer. For a description of the procedure applicable to the model used, see Chapter 13 in Popham (37).

The second portion of the investigation was to determine if there was a significant difference in attitude toward South Junior High School between students in the experimental group and students in the control group. The post-test

scores of attitude, as measured by the Bell School Inventory, were compared using the same model of analysis of variance as used to determine academic achievement gain.

The third portion of the investigation was to determine if there had been a significant change in attitude on the part of the students in the experimental group.

The analysis of the third portion of the study can be defined as a correlated "t" test, which is the analysis of mean difference in the attitudes of the students toward South Junior High School and the Motivational Learning Center.

The basic model is as follows:

$$t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2} - 2r\left(\frac{s_1}{\sqrt{n_1}}\right)\left(\frac{s_2}{\sqrt{n_2}}\right)}}$$

t = The value by which the statistical significance of the mean difference will be judged

$\bar{X}_1$  = The mean of group 1

$\bar{X}_2$  = The mean of group 2

$s_1^2$  = The variance of group 1

$s_2^2$  = The variance of group 2

$n_1$  = The number of observations in group 1

$n_2$  = The number of observations in group 2

$r$  = Correlation between the two groups

For a description of the procedures applicable to the model used, see Chapter 9, in Popham (37).



## FINDINGS

### Introduction

The findings of this study are based upon the results obtained by testing sixty-one students in the eighth and ninth grades of South Junior High School, Fort Dodge, Iowa.

In the findings related to this study, two areas are discernible: (1) analysis of achievement gains and (2) analysis of attitudes. The second area has been divided further into two sub-areas: (1) analysis of the difference in attitude toward South Junior High School between students in the experimental and control groups, and (2) change in attitude toward South Junior High School and the Motivational Learning Center, on the part of students in the experimental group. Consequently, these divisions will be used to discuss the findings.

### Analysis of Achievement Gains

Twenty-eight hypotheses were to be tested as set forth in Chapter One under the statement of the problem. Two questions were also to be considered. The questions, which call for conclusions, will be discussed in the final chapter. Information relevant to these questions has been obtained through the examination of the statistical findings and the judgments of the writer.

The experiment was to compare groups of students

exposed to two different teaching techniques. Initial individual differences between the groups were determined to be non-significant by "t" tests, so analysis of variance was utilized. The mean gain in grade placement was determined. Table 2 reports these mean scores. In addition, Table 2 reports the mean score of the attitudinal post-test, which will be discussed in the next section of this chapter.

Table 2. Mean grade placement gains and post attitudinal test scores by group, sex, ability and their interactions

Classifi- cation	Iowa Silent Reading	Stanford Achievement			Bell Inventory
		para- graph meaning	social studies	lan- guage arts	post atti- tude
Low ability	0.520	0.746	0.717	0.603	27.743
Average ability	0.231	1.742	0.892	0.619	25.923
Experimental group	0.531	1.306	0.844	0.588	25.188
Control group	0.248	1.021	0.734	0.634	28.931
Boys	0.291	1.019	0.867	0.767	30.279
Girls	0.650	1.533	0.611	0.233	19.056
Low ability- experimental	0.812	1.041	0.570	0.835	27.882
Low ability- control	0.244	0.467	0.856	0.383	27.611
Average ability- experimental	0.213	1.607	1.153	0.307	22.133

Table 2. (Continued)

Classifi- cation	Iowa Silent Reading	Stanford Achievement			Bell Inventory
		para- graph meaning	social studies	lan- guage arts	post atti- tude
Average ability- control	0.254	1.927	0.536	1.045	31.091
Low ability- boys	0.450	0.492	0.854	0.762	31.792
Low ability- girls	0.673	1.300	0.418	0.254	18.909
Average ability- boys	0.089	1.684	0.884	0.774	28.368
Average ability- girls	0.614	1.900	0.914	0.200	19.286
Experimental- boys	0.210	1.000	1.095	0.975	28.750
Experimental- girls	1.067	1.817	0.425	-0.058	19.250
Control- boys	0.361	1.035	0.670	0.587	31.609
Control- girls	-0.183	0.967	0.983	0.817	18.667
Low ability- boys- experimental	0.436	0.782	0.754	1.327	33.182
Low ability- girls- experimental	1.500	1.517	0.233	-0.067	18.167
Low ability- boys- control	0.462	0.246	0.938	0.285	30.615

Table 2. (Continued)

Classifi- cation	Iowa Silent Reading	Stanford Achievement			Bell Inventory post atti- tude
		para- graph meaning	social studies	lan- guage arts	
Low ability- girls- control	-0.320	1.040	0.640	0.640	19.800
Average ability- boys- experimental	-0.067	1.267	1.511	0.544	23.333
Average ability- girls- experimental	0.633	2.117	0.617	-0.050	20.333
Average ability- boys- control	0.230	2.060	0.320	0.980	32.900
Average ability- girls- control	0.500	0.600	2.700	1.700	13.000

An examination of Table 2 would seem to indicate that the most progress was recorded in the area of paragraph meaning. Sixteen of the twenty-three classifications showed an increase of more than one year while in the other seven classifications, progress was less than one year. The area of least progress was in terms of reading, where only two groups made more than one year's progress. Six areas indicate a negative gain. There is doubt, in the mind of the

writer, about the possibility that students can regress in achievement; however, due to the small size of the sample, it is possible that the guessing factor may have caused higher pre-test scores.

Since the number of students within the group-sex-ability classifications were unequal, an approximating technique was used in the analysis. To determine the sums of squares, the procedure involved fitting dummy variables, representing the classifications, against the gain in grade placement and the post-attitudinal test scores for all sixty-one students and utilizing the multiple regression technique. The sums of squares were used to determine the mean squares from which the "F" values were calculated, which would indicate significant differences, if they were present. Table 3 indicates the summary of the "F" values determined by the analysis of variance. The complete analysis of variance tables can be found in Appendices A and B.

The analysis failed to reject any of the null hypotheses about grade placement gain in the four areas tested. These hypotheses were: there is no significant difference in the gain in grade placement between students in the experimental group and students in the control group; there is no significant difference in the gain in grade placement between students because of their sex; there is no significant difference in the gain in grade placement between students of low ability and students of average ability; there is no

significant difference in the gain in grade placement between students in the experimental group and students in the control group when sex is also considered as a factor; there is no significant difference in the gain in grade placement between students in the experimental group and the control group when ability is also considered as a factor; there is no significant difference in the gain in grade placement between students when sex and ability are considered as factors; and, there will be no significant difference in gain in grade placement between students in the experimental group and the control group when sex and ability are also considered as factors. These results suggest that in this particular experiment, there is little difference in the gain in grade placement in reading, paragraph meaning, social science, and language arts between the students when classified by group - experimental and control, by sex - male and female, and by intellectual aptitude - low ability and average ability.

#### Analysis of Post-Attitudinal Differences

Examination of Table 2 indicates that seven of the twenty-three classifications have attitudes that rank as unsatisfactory. Six of the seven unsatisfactory rankings had boys as a common factor and the seventh is the average ability control group (unsatisfactory = 30.001 or more).

Table 3 shows the "F" values for the post-attitudinal

Table 3. Summary of the analysis of variance "F" values on achievement gain and the post attitude toward South Junior High School

Classification	Main effects			Interactions			
	Ability	Group	Sex	Ability- group	Ability- sex	Group- sex	Ability- group- sex
Reading	0.111	0.482	0.284	0.695	0.086	0.938	0.363
Paragraph meaning	1.712	0.853	0.239	0.024	1.295	1.435	1.589
Social studies	1.865	0.615	0.124	0.022	1.487	3.423	2.607
Language arts	0.406	1.419	0.346	2.638	0.562	3.895	0.078
Post attitude	0.385	0.004	6.141*	0.026	0.022	0.417	1.151

	level	"F" value
*Book $F_{1,53}$	.05	4.025.
	.01	7.140.

test as classified by group, sex, ability and their interactions. The same seven hypotheses as investigated for gain in grade placement were used to examine the students' post-treatment attitude toward South Junior High School. Only null hypothesis number nine was rejected. This hypothesis was: there is no significant difference in the post-test attitude toward South Junior High School between students when categorized on the basis of sex. The theoretical "F" values for one and fifty-three degrees of freedom are: at the .05 level, 4.025, and at the .01 level, 7.140. Table 3 indicates that the "F" value for post attitude score main effect sex is 6.141 which shows a significant difference. In this experiment, girls have a significantly better attitude toward South Junior High School than do the boys. None of the other main effects, nor the interactions were found to be significant.

#### Change in Attitude Toward School

The experimental group was the only group that took both a pre and post-attitudinal test. Therefore, it is only in the experimental group that change in attitude can be investigated. The means of the pre-test scores and the post-test scores were computed and reported in Table 4. For the understanding of the reader the norming scale is inserted here:



Score	Rating
0 - 3	Excellent attitude
4 - 12	Good attitude
13 - 30	Average attitude
31 - 39	Unsatisfactory
40 and above	Very unsatisfactory

As the scale indicates, the lower the score the better the student's attitude. This understanding is also necessary to properly interpret the computed "t" values. The "t" values are negative because the post-test score was subtracted from the pre-test score.

Table 4. Pre and post-test mean attitude scores

Classification	South Junior High School		Motivational Learning Center	
	Pre-test	Post-test	Pre-test	Post-test
All students (experimental)	35.219	25.188	12.844	6.125
Girls	31.500	19.250	5.917	4.083
Boys	37.450	28.750	17.000	7.350
Low ability	35.647	27.882	16.941	9.588
Average ability	34.733	22.133	8.200	2.200

A brief look at Table 4 shows that while all of the groups had negative attitudes toward South Junior High School at pre-test time, the post-test scores are all within the average attitude range. The inexpedient timing of the pre-test can best be shown in the pre-test scores toward

the Motivational Center. All of the pre-test scores are in the average to good attitude range, however, it must be remembered that the students had been enrolled in the program five months prior to pre-testing. Progress was registered, in attitude toward the Motivational Learning Center, with all of the post-test scores falling in the good to excellent range of attitudes.

Table 5. Summary of "t" test values of attitude change

School	Pre-post	Boys	Girls	Low ability	Average ability
South Junior High School	-3.693**	-2.4801*	-2.7881**	-2.1281*	-3.0813**
Motivational Learning Center	-4.470**	-4.6331**	-1.8219	-4.1844**	-2.3355*

\*Theoretical "t"<sub>31</sub> .05 level = 2.040.

\*\*Theoretical "t"<sub>31</sub> .01 level = 2.745.

The theoretical "t" for thirty-one degrees of freedom is, at the .05 level 2.040 and at the .01 level 2.745. A quick scan of Table 5 indicates that six of the null hypotheses have been rejected with a significance beyond the .01 level, three null hypotheses have been rejected at the .05 level, and only one null hypothesis was not rejected.

The null hypotheses that were rejected at the .01 level

were: there is no significant difference in the pre and post-attitude scores toward South Junior High School; there is no significant difference in pre and post-attitude scores toward the Motivational Learning Center; there is no significant difference in pre and post-attitude scores of boys toward the Motivational Learning Center; there is no significant difference in pre and post-attitude scores of girls toward South Junior High School; there is no significant difference in pre and post-attitude scores of low ability students toward the Motivational Learning Center; and there is no significant difference in pre and post-attitude scores of average ability students toward South Junior High School.

The null hypotheses that were rejected at the .05 level were: there is no significant difference in the pre and post-attitude scores of boys toward South Junior High School; there is no significant difference in pre and post-attitude scores of low ability students toward South Junior High School; and, there is no significant difference in pre and post-attitude scores in average ability students toward the Motivational Learning Center.

The only null hypothesis that was not rejected was: there is no significant difference in pre and post-attitude scores of girls toward the Motivational Learning Center. The reason for this finding seems to be that this group had a very high attitudinal score on pre-test and while there was improvement, it was not enough to be significant.

## SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

## Summary

The problem of this investigation was to determine if materials and a course of study could be developed that would give students academic success and in so doing change the student's attitude toward school.

As previously stated, this study was composed of two related parts. The first was by the use of statistical treatment of data to test if there was any significant difference in the gain in grade placement between students in the experimental group and students in the control group in the areas of reading, paragraph meaning, social studies and language arts. These gains were to be analyzed in relation to the following null hypotheses: there is no significant difference in gain in grade placement between students in the experimental group and students in the control group; there is no significant difference in the gain in grade placement between students because of their sex; there is no significant difference in the gain in grade placement between students of low ability and students of average ability; there is no significant difference in gain in grade placement between students in the experimental group and students in the control group when sex is also considered as a factor; there is no significant difference in gain in grade placement between students in the experimental group and

students in the control group when ability is also considered as a factor; there is no significant difference in the gain in grade placement between students when sex and ability are considered as factors; there is no significant difference in the gain in grade placement between the students in the experimental group and the students in the control group when sex and ability are also considered as factors. The second portion of the study, and its major objective, was to determine the attitude, toward school, of the students in the experimental and control groups, utilizing the same main effects and interactions as the first portion of the study. A subsection of this study, of attitude, was to measure and analyze the change in attitude within the experimental group. This subsection had the following null hypotheses: there is no significant difference in pre and post-attitude scores toward South Junior High School; there is no significant difference in pre and post-attitude scores of boys toward South Junior High School; there is no significant difference in pre and post-attitude scores of girls toward South Junior High School; there is no significant difference in pre and post-attitude scores of low ability students toward South Junior High School; there is no significant difference in pre and post-attitude scores of average ability students toward South Junior High School. These same five hypotheses were investigated concerning the Motivational Learning Center.

The study sample consisted of sixty-one students (32 in the experimental group, 29 in the control group) enrolled in the eighth and ninth grades of South Junior High School, Fort Dodge, Iowa during the 1968-1969 school year. The control group was taught in the "typical" classroom as that pertains to teacher-pupil ratio, physical facility and methods of instruction. The experimental group was divided into subgroups with a small teacher-pupil ratio, a separate and specially modified facility and a remedial-individualized curriculum approach to language arts and social studies, the areas of the curriculum involved in the experiment.

In these academic areas, pre and post-tests were administered to measure the growth over time. In the attitudinal portion of the study both the experimental and control groups were given a post-test on attitude, but only the experimental group was administered a pre-test.

The statistical technique, multifactor analysis of variance, allowed a study of the comparative performance of the students. This technique was employed in the academic areas as well as the post-attitudinal scores of the two groups. To investigate the possible change in attitudes, found in the experimental group, a correlated "t" test was utilized.

All of the computed "F" values in the analysis of the measurement of gain in grade placement, in the four academic areas studied, were insignificant at both the .01 or the .05 level of significance. Therefore, none of the twenty-eight

hypotheses pertaining to the main effects or their interactions could be rejected.

The statistical examination of the post-attitude scores found only one hypothesis could be rejected at the .05 level of significance. The hypothesis rejected was: there is no significant difference in the post-test attitude toward South Junior High School between students when categorized on the basis of sex. This study indicated that girls had a significantly better attitude toward South Junior High School than did the boys. All of the other hypotheses about post-attitude scores were found to be insignificant.

#### Limitations

This study was limited to sixty-one students in the eighth and ninth grades in South Junior High School, Fort Dodge, Iowa. These students were adjudged, by the administration and faculty of South Junior High School, to possess negative attitudes toward school. Therefore, any conclusions drawn from this study must be limited to like groups.

The experimental portion of the curriculum was limited to language arts and social studies. No conclusions can be drawn to other subject areas, either academic or non-academic.

Different staff members taught the experimental and control groups, in the two areas of the curriculum within the scope of this investigation. This teacher variable was not considered in the analysis of the data. In addition, the

facility in which the experimental group was taught was not the "typical" classroom atmosphere, as was the case with the control group. This may have produced a "Hawthorne effect" which was not taken into consideration in the analysis of the data.

The teacher-pupil ratio in the experimental group was approximately seven-to-one. In the control group the teacher-pupil ratio was about twenty-two-to-one. This discrepancy in teacher-pupil ratio may have an effect on achievement gain and was not considered as a variable.

There were several limitations in connection with the attitude testing. First, the control group was not given a pre-test of attitudes. Therefore, the only conclusions that can be drawn must refer to differences in post-test scores. Second, the attitude tests were not anonymous as each student signed his test. According to Katz and Allport (28) this might alter the answers that a student would give on the questionnaire. Hence, this might challenge the validity of those answers. Third, the post-test was not administered at the same time nor by the same person. While the difference in time was only one week, the project director administered the tests to the experimental group and the junior high school principal administered the test to the control group. Because the tests were signed, the students may have answered the test in the manner they believed the administrator of the test wanted them to answer.



Finally, the attitude pre-test was not given to the experimental group until they had been enrolled in the program for five months. According to Flanders and Morrison (17) this may have worked to the advantage of the program, as they contend that true attitudes are not usually shown early in the school year. However, the writer believes that it would have been more beneficial to have had a pre-test at the beginning of the experiment, to more accurately measure the effects of the treatment.

No retention test was given, after the post-test. If there had been a test given, this might have determined if there was a latent attitudinal difference between the two groups.

Due to the number of withdrawals from school, the number of students in the difference cells became grossly unequal, which made accurate interpretation from the data more difficult.

### Conclusions

As stated previously, the problem of this study was to answer two questions and test forty-five hypotheses. The first question was: Can a course of study be developed in the language arts and social studies that will effectively increase the student's knowledge and course success, when compared to the traditional methods of instruction and the traditional course of study? The results of the study

indicate that the remedial-individualized method of instruction was as effective as the traditional methods of instruction, with the following advantages: (1) There was more teacher-student contact. (2) The students were able to work at their own rate within the assigned units of work. (3) If a student finished the assigned work early, there was time to do supplemental work. (4) Students could review concepts which were difficult for them as often as needed.

The students were asked, by the writer, how they liked the method of instruction and all those queried indicated they felt they were learning more and enjoyed the system of instruction. This would seem to indicate that it is possible to develop an effective method of instruction that will give some degree of success and have the additional benefits listed above.

The second question was: How do these experiences, with the above experimental teaching techniques, affect the student's attitude toward school? The statistical inferences that were drawn from the pre and post-attitude tests given to the experimental group seem to indicate that there is a change in attitude related with this type of instructional technique. As could be expected, via the "Hawthorne effect", all of the students had strong positive attitudes toward the Motivational Learning Center. The more important development, in the writer's opinion, was that all of the

groups had a more positive attitude toward school, as represented by South Junior High School.

The forty-five null hypotheses were related to three factors (group, sex of student and ability of the student) and their interactions. On the basis of the findings in this investigation related to the null hypotheses, the following conclusions appear evident:

1. The remedial-individualized method of instruction for students did not result in a significant increase in achievement as measured by the Iowa Silent Reading and Stanford Achievement tests.
2. Girls have a significantly more positive attitude toward school than boys.
3. Attitude toward school can be affected in a positive manner, by the remedial-individualized method of instruction.
4. Additional research is needed to verify these conclusions in light of the limitations previously mentioned.

#### Recommendations

On the basis of this study and the experimental techniques suggested in the literature, the following recommendations are made for the Motivational Learning Center of the Fort Dodge Community Schools:

1. The Motivational Learning Center should be

continued.

2. This approach to remedial teaching in the areas of language arts and social studies should also be moved to the fourth grade, in order to combat the problems earlier in the student's tenure in the system and before extremes in negative attitudes have a chance to solidify.
3. All the teachers in the grades effected by the program should be involved in the preparations of materials and coordination of programs.
4. Several in-service meetings should be held between the teachers of the experimental group and the teachers in the rest of the school system for the purposes of discussing new techniques of instruction and common problems.
5. The experimental program should be expanded to include mathematics and science.
6. An additional staff member, preferably male, should be employed to assist in the teaching of the experimental group, thus allowing the director more time for program coordination and public relations activities with the staff and the community.
7. An attitude pre-test should be given to all students in both the experimental and control groups the first week of school.
8. All attitude testing should have student anonymity

- to increase the validity of the student's answers.
9. The attitude tests should be administered to the experimental and control groups at the same time. The administrator of the tests should not be from either the project staff or from the school from which the students are drawn.
  10. A more comprehensive attitude questionnaire should be developed in order to make a more accurate determination of the student's attitudes toward school and the experimental situation.
  11. The control group should be large enough in number so that it can serve as a pool from which replacements can be drawn if students drop out of school.
  12. A retention test should be given to those students who have finished the treatment program to determine if the "change in attitude" is of lasting quality.
  13. The school should initiate a special follow-up program that will keep close account of those students in the program to see if they complete school and have fewer behavioral problems.

#### Recommendations for Further Research

This experiment could be replicated in an attempt to validate the findings. However, the writer believes that the following changes in the experiment would make it more

significant and of greater research value:

1. Increase the size of the experimental group and the control group to allow for natural attrition caused by student dropout.
2. Give an intellectual aptitude test in the spring, at the same time the academic pre-tests are given, in order to have a more accurate and timely test measure for the division of students into groups.
3. Give attitudinal pre-tests the first week of school to both groups.
4. If the sex of the student is to be a variable in the treatment of the data, insure that there are near equal numbers, of each sex, in each of the cells.
5. Change the reading test from the Iowa Silent Reading, elementary form, to the Iowa Silent Reading, secondary form. The elementary form does not accurately measure the post-test level of these students.
6. Coordinate the contents of the experimental and control groups' social studies offerings. Without this type of coordination, the pre and post-tests are not valid as they are testing different materials.
7. Have the teachers of language arts and social studies, in the experimental program, also teach

the same subjects to the control group, in the same facility. This would remove both the teacher variable and the facility variable.

8. Give a retention test on attitude the first week of school, in the fall, following completion of the treatment to determine the retention of attitudes.

A second use of this study would be to replicate at the fourth grade level. At this level academic achievement begins to lag, and this is one of the major causes for the formation of negative attitudes. The conditions as established in Chapter III and as modified above should be employed.

Investigation should be conducted into the same type of program in which mathematics and science have been added to the experimental program. If this type of program is significant for language arts and social studies, this expanded investigation would help to determine its use throughout the academic curriculum and would be educationally profitable.

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## APPENDIX A

Table 6. Analysis of variance of gain in grade placement in reading

Source	df	Sums of squares	Mean squares	F
Ability	1	31.916	31.916	0.1106
Group	1	139.194	139.194	0.4825
Sex	1	81.983	81.983	0.2842
Ability x group	1	200.514	200.514	0.6950
Ability x sex	1	24.746	24.746	0.0858
Group x sex	1	270.694	270.694	0.9383
Ability x group x sex	1	104.730	104.730	0.3630
Error	53	15,289.856	288.487	

Table 7. Analysis of variance of gain in grade placement in paragraph meaning

Source	df	Sums of squares	Mean squares	F
Ability	1	316.125	316.125	1.7121
Group	1	157.536	157.536	0.8532
Sex	1	44.136	44.136	0.2390
Ability x group	1	4.368	4.368	0.0236
Ability x sex	1	239.192	239.192	1.2954
Group x sex	1	264.973	264.973	1.4350
Ability x group x sex	1	293.480	293.480	1.5894
Error	53	9,786.134	184.644	

Table 8. Analysis of variance of gain in grade placement in social studies

Source	df	Sums of squares	Mean squares	F
Ability	1	348.476	348.476	1.8653
Group	1	114.979	114.979	0.6154
Sex	1	23.187	23.187	0.1241
Ability x group	1	4.187	4.187	0.0224
Ability x sex	1	277.893	277.893	1.4875
Group x sex	1	639.571	639.571	3.4234
Ability x group x sex	1	487.002	487.002	2.6067
Error	53	9,901.660	186.824	

Table 9. Analysis of variance of gain in grade placement in language arts

Source	df	Sums of squares	Mean squares	F
Ability	1	51.173	51.173	0.4060
Group	1	178.891	178.891	1.4194
Sex	1	43.590	43.590	0.3459
Ability x group	1	332.493	332.493	2.6382
Ability x sex	1	70.866	70.866	0.5623
Group x sex	1	490.864	490.864	3.8947
Ability x group x sex	1	9.890	9.890	0.0785
Error	53	6,679.730	126.033	

## APPENDIX B

Table 10. Analysis of variance of post attitudinal scores

Source	df	Sums of squares	Mean squares	F
Ability	1	77.798	77.798	0.3848
Group	1	0.884	0.884	0.0044
Sex	1	1,241.800	1,241.800	6.1414*
Ability x group	1	5.243	5.243	0.0259
Ability x sex	1	4.491	4.491	0.0221
Group x sex	1	84.348	84.348	0.4172
Ability x group x sex	1	232.812	232.812	1.1514
Error	53	10,716.580	202.200	

  

	level	"F" value
*Book $F_{1,53}$	.05	4.025.
	.01	7.140.