ABSTRACT

AN ASSESSMENT OF STUDENT ATTITUDES AND INVOLVEMENT IN THE ENVIRONMENTAL QUALITY PROGRAM OF THE MOTT INSTITUTE-OKEMOS SECONDARY SCHOOL PROJECT

By

Louis John Esparo

Purpose of the Study

The purpose of this study was to assess the efficacy of the Environmental Quality Program of the Mott Institute-Okemos Secondary School Project in the attitudinal, impact, and action domains. Specifically, the study attempted to answer the following questions:

1. Will the students' understanding of what they want in life be enhanced during their enrollment in this course?

2. Will the students' ability to use resources be enhanced during their enrollment in this course?

3. Will there be a positive change in the students' attitudes about school during their enrollment in this course?

4. Will the students' awareness of their privileges and responsibilities as citizens and their participation in citizenship activities be increased during their enrollment in this course?

5. Will there be a positive reaction to the course from the students, their parents, and community people?

6. Will the nature of the students' activities outside of school demonstrate an increased interest and participation in community affairs?

7. Will the students' ability in handling evidence and data be increased during their enrollment in the course?

8. Will the students identify characteristics of the course which make it unique and different from other courses they have taken?

Procedure

In order to determine and measure relationships among the variables of this study, three instruments were used. The School Inventory was selected to provide a measure of the extent to which students' attitudes about school were positive or negative. The assessment of student reactions to the course, student activities in the course, and student accomplishment of course objectives was accomplished through the use of the Secondary School Project Questionnaire, written specifically for this study. The Project Interview Schedule, developed by the writer for this study, was used to assess the impact of the course on the parents of the students in the course and community people.

Four dates were arranged for the administration of the instruments. The School Inventory and the Secondary School

Project Questionnaire were administered during the first week and last week of the first term. Interviews were conducted for the duration of the term. The data gathered were analyzed by analysis of significance between means.

Major Findings

1. The students' understanding of what they want in life was shown to increase during their enrollment in the course. An overall difference between group means was significant at the .03 level.

2. The students' ability to use resources was significantly greater at the end of the term than it had been at the start. The difference between mean scores was significant at the .01 level.

3. Students' attitudes about school at the end of the term were found to have no significant difference as compared to attitudes about school at the start of the term.

4. The students' awareness of their privileges and responsibilities as citizens and their participation in citizen activities were shown to increase during the first term of the course. A difference between means, significant at the .06 level, was found. Additionally, 73 per cent of the students indicated that the course increased their citizenship awareness and participation.

5. The students' reaction to the course was shown to be strongly positive. A difference between mean scores was

significant at the .03 alpha level. Additionally, the students' appraisals of the value of the course to them indicated a range of a minimum of 52 per cent to a maximum of 100 per cent of the class reacting positively to the class, to class activities, to class objectives, and to skill development.

Reactions of parents and community people were strongly positive, also. Eighty per cent of the group indicated a positive to very positive reaction to the class and its value to students.

6. The nature of the students' activities outside of school was shown to change significantly during their enrollment in this course. An increased interest and participation in community affairs was found. The students' general outside activity revealed a difference in means which was significant at the .001 level. More important, the difference between key item activities, those directly related to course objectives, was significant at the .0002 level.

7. The relationship of the course to the students' ability to handle evidence and data is apparent. Eighty-four per cent of the students indicated the course was valuable to them in increasing their ability to handle evidence and data.

8. Eighty-six per cent of the students identified unique characteristics of the course. The characteristics were those which the planners, teachers, and administrators of

the course identify as unique characteristics of the course. Students are perceptive enough to discern characteristics of different learning models with which they are involved.

Questions for Further Study

1. What is the relationship between the length of the class period, the number of periods per week, and the duration of the course and student attitudes about the course?

2. Do student attitudes about school diminish proportionately to the number of years spent in school?

3. If parental reaction to the course were more negative than positive, what impact would it have on the students' reaction to the course?

4. If students were graded by conventional means and standards, would their attitudes about the course and the nature of their activities in the course change significantly?

5. What is the relationship between student attitudes about school and the extent to which they participate in planning their educational program?

6. Would the replication of this study within a school district of differing size, socio-economic structure, and geographical location produce significantly different results?

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CHAPTER I

THE PROBLEM

Introduction

In Greek mythology an interesting character, Procrustes, is described as the nemesis of weary travelers who ventured too close to his domain. This giant, motivated by macabre reasons known only to him, dismembered or stretched his victims to fit his bed.

An analogy can be drawn between Procrustes' activities and major curriculum trends during the past forty years. The curriculum (programs and practices) of the 1930-vintage schools was one in which the learner was forced to fit the program. The individualized, and sometimes nongraded, approach to instruction was a distinct improvement, since it attempted to shorten or lengthen the Procrustean bed to fit the child. The personalized and humanized curriculum, which Goodlad felt will reach its apex by the year 2000, is one in which the learner, with teacher guidance, is encouraged, and in fact expected, to build his own bed.

> Webster defines humanism as a way of life centered upon human interests or values. Only within a humanistic conception of education and a humanistic conception

> and conduct of the whole of schooling can a humanistic curriculum take shape; that is, a curriculum which provides a way of life centered upon human interests and values.[1]

Commenting further and clarifying his interpretation of a humanistic conception of education, Goodlad stated:

> Such a conception sets as its goal the development of each individual's potential; fosters school programs centered on man; takes teachers and teaching seriously; and values each student singly because he is a human being. The product of humanistic schooling perceives himself as valuable but is not narcissistic in this perception. He identifies with mankind--all mankind.[2]

The attempt to personalize and humanize instruction; to make school more learner-centered; to bridge the gap between what is taught and what is real; to emphasize how to learn rather than what to learn; and to create a self-identified, self-oriented, and self-directed learner is being made at all levels in the educational ladder. However, many of the more promising programs are being developed and implemented in the high school setting. Philadelphia's Parkway Program; Metro High School in Chicago; Adams High School in Portland, Oregon; The Creative Studies Institute in Washington, D. C.; The Personalized Education Program in Ypsilanti, Michigan; and the World Understanding and Comparative Cultures Program in Lansing, Michigan, to name just a few, are programs whose

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[1]John Goodlad, "Direction and Redirection for Curriculum Change," in Curriculum Change: Direction and Process, ed. by Robert Leeper (Washington, D. C.: Association for Supervision and Curriculum Development, 1966), p. 10.

[2]Ibid., p. 11.

major emphasis is the active participation of the learner in his education through living in and experiencing the real world of the present, rather than passively preparing for a life in a remote and distant future.

Recognizing the advantages accruing to the learner through such an orientation to learning and instruction, the Mott Institute for Community Improvement and students and professional personnel from the Okemos School District planned and implemented a social studies elective course for high school juniors and seniors. The course, Environmental Field Studies, has the following significant features:

1. The program is designed to offer maximum effective help to each student in his personal becoming.
2. The program is designed to go straight to the great social agenda of the present.
3. The community serves as the learning laboratory for the student. Contacts with people outside of the school, initiated by the student, are required.
4. Students, teachers, pre-student teaching students from Michigan State University, and resource people from the community and the University, all of whom work on an informal and peer basis, constitute a problem-solving team. Each team identifies a problem, devises a strategy for solving the problem, implements the strategy, and evaluates its effectiveness.

5. Students are trained in data-gathering techniques, problem-solving techniques, and evaluation techniques through simulations, academic games, independent study, and instruction with professional staff.
6. The course is designed to train students to be analysts, advocates, and mediators in relation to environmental problems in the community as a whole. Its intent is to produce social scientists, not just teach social science.

Dr. Clyde Campbell, Director of the Mott Institute for Community Improvement, expressed eloquently the main thrust of the program when he wrote:

> I feel that schools of the future have to sponsor programs that bring youth into close grips with societal problems. Young people and adults need to probe together possible solutions to dynamic social issues. Young people have the moral right to ask for this privilege. They are the ones who have the greatest vested interest in the future.[3]

Purpose of the Study

This study has three main purposes:

1. To describe the Mott Institute-Okemos Secondary School Project.

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[3]Opinion expressed by Dr. Clyde Campbell in a letter to a Curriculum Director, East Lansing, Michigan, August 3, 1970.

2. To deduce those characteristics of the Project which make it unique.
3. To evaluate the efficacy of the Project in the attitudinal, action, and impact domains.

Need for the Study

While reviewing the programs to be included in Chapter II., Review of the Literature, it was noted that very few of them have made provisions for a formal and structured evaluation of the program. If evaluations are done they are usually conducted by the administrator or curriculum director who is responsible for the program. Students taking the course, teachers working with the students, and community people who have interaction with these students and teachers provide incidental feedback to the evaluators. Most of the evaluators have had no direct participation in the execution of the program. Consequently, the evaluation of the program is done from the perspective of the evaluator whose biases, prejudices, and assumptions are not balanced or neutralized by the perceptions, feelings, and attitudes of the students, teachers, and other direct participants. Evaluations can be made more comprehensive by gathering more information on the topic or program under study. An excellent source of information is a primary source--the students, teachers, parents, administrators, and community people who are direct and active participants in the program. The input of the

information these sources provide increases the scope, accuracy, and usefulness of the evaluation.

The present study will contain this type of an evaluation and will satisfy the need for a comprehensive appraisal of the Project, which will give direction to the future development of the Environmental Field Studies course.

Daniel Roselle, editor of Social Education, the journal of the National Council for the Social Studies, indicated that evaluation of this type is needed and is mandatory because:

> Some teachers, buffeted by man-made winds of change, may conclude that it is wise (a) to accept anything branded new as highly desirable, or (b) to reject all innovations as too confusing. Both reactions would be unfortunate.[4]

Importance to Education

We live in an incredibly complex world. Our society, a microcosm of the world's problems, is in a state of emergency. Along with the comforts and pleasures we enjoy of its productivity, our technology has generated side effects that have converged upon us with bewildering speed: urban decay, resource depletion, pollution, and contamination and deterioration of air, sea, and earth. Concurrently, we are plagued by the realization that annihilation is not

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[4]Daniel Roselle, "Evaluations: A Policy Statement," Social Education, XXXIV (April, 1970), p. 381.

impossible and that we have an increasing number of people which the world seems incapable of supporting. Superimposed on this web of ills, the press for social justice, equality, and humanization is felt more urgently.

Each of these problems is massive. Every one of them commands our attention and demands resolution in an incredibly short time--or else. None of these problems, taken individually, can be solved quickly or simply. Taken collectively, as they must be taken, they constitute the most formidable and frightening agenda ever to face our society. They demand a nation of effective and dedicated problem solvers. Our schools are not producing enough of them. Social studies drone on; civic education is primarily a passive and sterile analysis of structure and of what is, rather than of what can be and what should be. We tell youngsters, not teach them; we talk to them, not with them; we mold them, not draw them out; we make them dependent and conforming, not independent and innovative. Our education system is seemingly out of touch with reality.

In the words of F. T. Wilhelms, executive secretary of the Association for Supervision and Curriculum Development:

> Only a massive effort, bringing to bear resources of mind-stretching diversity, has any chance of generating programs that can bring each youth face-to-face with his realities and teach him to help. We cannot depend forever on the political socialization of the street corner.[5]

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[5]F. T. Wilhelms, "Priorities in Change Efforts," Phi Delta Kappan, LI (March, 1970), p. 369.

The Mott Institute-Okemos Secondary School Project is an attempt to meet these needs. The present study is an attempt to answer the questions we are asking:

- How should we work with youngster?
- How do we bridge the gap between adults and youth?
- How do we relate school and education to the real world?
- How do we train youngsters to become effective and contributing members of society?
- What type of program gets the job done?
- How do we produce the problem solvers we need?

Theoretical Foundation of the Study

John Dewey, probably the most influential of all American philosophers, gained an international reputation for his pragmatic approach to philosophy, psychology, and liberal politics. In all likelihood, however, his most enduring influence is in the field of education. Believing in the unity of theory and practice, he not only wrote on the subject, but for a time participated in the laboratory school for children which is connected with the University of Chicago.

Dewey interpreted education as the scientific method with which the individual studies his world and cumulatively acquires knowledge of meanings and values. These outcomes, moreover, become data for critical study and intelligent and meaningful living.

In Democracy and Education[6] Dewey made the most comprehensive statement of his position. His philosophy, a statement of the "new education" as he perceived it, was and is an indictment of traditional education. However, he felt that neither the old (traditional) nor the new education was adequate because neither of them applies the principles of a carefully developed philosophy of experience. Yet Dewey maintained the new education was grounded in reality more than was the old.

Traditional education's main purpose or objective, as he saw it, is:

> ... to prepare the young for future responsibilities and for success in life, by means of acquisition of the organized bodies of information and prepared forms of skill which comprehend the material of instruction.[7]

Additionally, he stated:

> Since the subject-matter as well as standards of proper conduct are handed down from the past, the attitudes of pupils must, upon the whole, be one of docility, receptivity, and obedience. Books, especially textbooks, are the chief representatives of the lore and wisdom of the past.[8]

He saw the teacher's role as less than desirable. Teachers, according to Dewey:

> ... are the organs through which pupils are brought into effective connection with the material. They are the agents through which knowledge and skills are communicated and rules of conduct enforced.[9]

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[6]John Dewey, Democracy and Education (New York: The Macmillan Company, 1916).

[7]John Dewey, Experience and Education (New York: The Macmillan Company, 1938), p. 18.

[8]Ibid.

[9]Ibid.

Dewey perceived the scheme of traditional education to be one of imposition from above and from outside. Adult standards, subject matter, and methods are imposed upon those who are growing toward maturity. The gap between the mature or adult products and the experiences and abilities of the young which this scheme produces:

> ... is so wide that the very situation forbids much active participation by pupils in the development of what is taught. Theirs is to do--and learn, as it was part of the six hundred to do and die. Learning here means acquisition of what is already incorporated in books and in the heads of the elders.[10]

What is taught, then, is thought of as essentially static. It is a finished product, paying little heed to the ways in which it was built up originally or to changes that will surely occur in the future.

> It is to a large extent the cultural product of societies that assumed the future would be much like the past, and yet it is used as educational food in a society where change is the rule, not the exception.[11]

The Secondary School Project, with which this study is concerned, has its roots in the philosophy enunciated by Dewey. Its scheme is unlike that which Dewey describes as the scheme of traditional education. Yet its scheme is not an acceptance of the many adulterated forms of progressive education which were and are the products of a misunderstanding and a misuse of Dewey's ideas. The Project is not a rejection of organized subject matter; it does not proceed

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[10] Ibid., p. 19.

[11] Ibid.

as if any form of direction and guidance by adults were an invasion of individual freedom; and it does not support the idea that because education should be concerned with the present and future, acquaintance with the past has little or no role to play in education. It is, rather, a recognition of the components of Dewey's philosophy which give meaning and direction to a program which is learner-centered, learner-oriented, and dedicated to learning through meaningful experiences by participating in problem solving in the real and present world of the learner. The Secondary School Project is rooted in the following principles of the "new education," which are contrasted with the principles it rejects:

> To imposition from above is opposed expression and cultivation of individuality; to external discipline is opposed free activity; to learning from texts and teachers, learning through experience; to acquisition of isolated skills and techniques by drill, is opposed acquisition of them as means of attaining ends which make direct vital appeal; to preparation for a more or less remote future, is opposed making the most of the opportunities of present life; to static aims and materials is opposed acquaintance with a changing world.[12]

The present study, which is an attempt to ascertain the effectiveness of the Project and to discover those components of the Project which make it meaningful and useful to the learner, is motivated by an important question which Dewey posed after stating that education should emphasize the freedom of the learner:

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[12] Ibid., pp. 19-20.

> Very well. A problem is now set. What does freedom mean and what are the conditions under which it is capable of realization?[13]

Definition of Terms

Attitude--A feeling or emotion toward a fact or condition. The sum total of one's inclinations and feelings about any specific topic.[14]

Knowing what one wants in life--A condition having the following characteristics:

1. A clear idea of the direction one wants his life to take.
2. An awareness of one's important beliefs.
3. A recognition of problems in relation to one's own personal living and to society as a whole.
4. Attacking problems as a whole, and in relation to other problems, rather than one at a time.

Using resources--Identifying and working with people who can be helpful in solving a problem; using knowledge and past experience in solving problems; having familiarity with a variety of printed materials and public institutions; and using these sources for acquiring information, evidence, and further experiences.

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[13] Ibid., p. 22.

[14] L. L. Thurstone and E. J. Chave, The Measurement of Attitude (Chicago: University of Chicago Press, 1929), p. 6.

Handling evidence and data--The condition of inventorying possible causes, outcomes, and strategies in attacking a problem; of collecting facts in a systematic fashion; and of being objective in dealing with facts, opinions, and people related to a problem.

Carrying plans into action--After systematically reaching conclusions, the condition of applying these conclusions to one's daily life activities.

Citizen--A person characterized by the active and participatory exercise of his privileges, rights, and responsibilities as a free man.

Limitations of the Study

1. As is true of any study, the validity of this study is affected by the degree of frankness and sincerity of response to the instruments administered.

2. The setting for this Project is one class in Okemos High School. To insure an in-depth study and in recognition of a limiting time factor, this study is concerned with the people and setting directly related to the Project.

3. The finding of a relationship between positive changes in the attitudes and activities of the students, teacher, administrators, parents, and community members and the Secondary School Project will be viewed as correlational and not causal.

Hypotheses

Hypothesis I--There will be a positive change in the students' attitudes about school during the first term of their enrollment in this course.

Hypothesis II--The students' understanding of what they want in life will be enhanced during the first term of their enrollment in this course.

Hypothesis III--During the first term of their enrollment in this course, the students' ability to use resources will be enhanced.

Hypothesis IV--The students' ability in handling evidence and data will be increased during their enrollment in the first term of this course.

Hypothesis V--During their enrollment in the first term of this course, the students' ability to carry their plans into action will be increased.

Hypothesis VI--The students' awareness of their privileges and responsibilities as citizens and their participation in citizen activities will be increased during the first term of their enrollment in this course.

Hypothesis VII--During the first term of this course there will be a positive reaction to the course from the students themselves, the parents of the students, and community members.

Hypothesis VIII--After the first term, students will identify characteristics of the course which they feel make

it unique and different from other courses they have taken.

Hypothesis IX--During their enrollment in the first term of this course, the nature of the students' activities outside of school will demonstrate an increased interest and participation in community affairs.

Overview

It has been the intent of Chapter I to describe the purpose of the study and to explain why there is a need for programs such as the Secondary School Project, and evaluations of these programs. It was essential that the theoretical basis upon which the Project and this study were devised be explained in some detail. Significant features of the Mott Institute-Okemos Secondary School Project were listed. Concepts vital to the understanding of the Project and this study were explained, followed by a statement of nine hypotheses to be investigated.

In Chapter II, a review of the following programs will be given:

1. The Philadelphia Parkway Program
2. The John Adams High School Program
3. The Creative Studies Institute in Washington, D. C.
4. The Personalized Education Program of the Ypsilanti Public Schools, Ypsilanti, Michigan
5. A High School Social Studies Curriculum for Able Students, Carnegie-Mellon University

6. Harvard Social Studies Project--Public Issues Series
7. High School Geography Project, University of Colorado
8. The SRSS Program (Sociological Resources for the Social Studies)

The significant features of these programs will be summarized in the final section of the chapter.

The design of the study will be described in Chapter III, including a description of the Okemos School District and the nature of the sample used. The Mott Institute-Okemos Secondary School Project will be described also. Additionally, the chapter will include a description of the instruments used in the study. A discussion of methods of administration of the instruments and their scoring will be followed by a statement of the statistical methodology to be used.

Chapter IV will be devoted to an analysis of the data gathered in this study. Findings will be given in the same order as were the hypotheses presented in Chapter I.

The last chapter will contain a summary of the study and the conclusions reached. Concluding this chapter will be implications and a list of recommendations for further study.

Having presented the purpose of this study, its need, its hypotheses, and its theoretical base, it is now essential that a review of the programs listed above be undertaken.

CHAPTER II

REVIEW OF THE LITERATURE

A review of the literature for this study will consist of a description of eight programs which have gained national attention. These programs will be described in two distinct sections of this chapter.

The first section will include a description and analysis of those programs variously described as schools without walls, alternative schools, learner-centered programs, anti-dropout programs, and the like. The one common characteristic of the four programs in this section is an expression of dissatisfaction with traditional methods of instruction, traditional organizational structure, and traditional subject matter. Each of them has a personalized and humanized orientation to high school education.

During this decade a new phenomenon appeared in social studies education in the form of the national social studies projects. These projects commanded an abundance and quality of resources not formerly available for curriculum development. Most were funded by the federal government or by private foundations. The majority of these projects recommend a new social studies which seeks in various ways to

remove the inadequacies of traditional social studies courses. The second section of this chapter will include a description and analysis of four of these projects.

A review of the eight programs in this manner will provide an informational background, against which the subsequent analysis of data pertaining to the efficacy of the Mott Institute-Okemos Secondary School Project can be viewed with greater clarity.

The Philadelphia Parkway Program

An interesting fact was reported by Donald W. Robinson[1] in an article he wrote; according to Harvey Haber, founder of the New Schools Exchange, over 700 independent schools have been founded during the past three years. Teachers, parents, and students are seeking alternatives to the stultifying climate which predominates in so many public schools. Two or three new "alternative" schools are born every day, and every day one dies or gives up its freedom. As the new schools appear and disappear, some in all probability will break genuinely new ground and others will simply reproduce errors of past ventures.

One which has broken new ground, and is operating in the public school setting, not an independent school setting,

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[1]Donald W. Robinson, "Alternative Schools: Challenge to Traditional Education?" Phi Delta Kappan, LI (March, 1970), p. 374.

is The Parkway Program in Philadelphia.

> It is not possible to improve the high school; it has reached the end of its development. We now need a new kind of educational institution.[2]

This announcement of the death of the high school as a viable place for learning has been made by a growing number of students, causing educators to cluck about student dissidents. But this particular obituary came from John Bremer, who directs the Parkway Program.

Bremer went to Philadelphia in August, 1968, from New York City, where he had been superintendent in one of the three decentralization districts. Prior to that he was professor at the Brooklyn Center of Long Island University and at the New School for Social Research in New York. From 1962 to 1966 he was professor at the University of Leicester, Graduate School of Education, working with prospective and practicing teachers in the Leicestershire Plan schools, developing new methods of teacher training and new approaches to learning, and publishing.

He originally came to the United States in 1951 as a Fulbright Fellow; he has graduate degrees from the University of Cambridge, the University of Leicester, St. John's College, and also has worked with the Tavistock Institute of Human Relations. In 1965, he became a member of the British School

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[2]Editors of Education U. S. A., "Schools Without Walls: No Longer a Dream," The Shape of Education for 1970-71, XII (September, 1970), p. 5.

of Archaelogy in Athens, and was elected a Fellow of the Royal Geographical Society in 1966.

Once Bremer began functioning as Director of the Parkway Program, it became obvious to observers in the school district that he was "the right man in the right place at the right time."[3] Typical of his approach was his insistence, from the earliest days of his appointment, that, contrary to popular belief, there would be no shuttle buses connecting the various Parkway institutions. Students would have to find their own way of getting from one place to another, no matter what the distance. The decision reflects a philosophy that has come to dominate the program and to determine its basic shape and style:

> Bremer is committed to individual growth, creativity and autonomy; he is an enemy of bureaucracies that tell people exactly what to do and think (or how to get to a destination); he delights in public criticism of the educational establishment.[4]

At the opening of the summer session in July, 1969, Bremer told a group of students entering the program for the first time:

> In terms of behavior and attitudes, you're going to have to unlearn everything you've learned in your public school education so far, as quickly as possible.[5]

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[3]Henry S. Resnik, "High School With No Walls," Pennsylvania Education Journal, LVI (May-June, 1970), p. 9.

[4]Ibid.

[5]Ibid., pp. 9-10.

Having presented this biographical sketch of the Parkway Program's director and providing some insights into his thinking, a description of the program is in order.

The Benjamin Franklin Parkway is the downtown area of Philadelphia, in which some of the city's great institutions and museums are located. The program, named after the Parkway, dismisses the traditional notion that learning must be acquired within four-walled boxes called classrooms, and acknowledges that life and learning are all part of the same on-going process. The city itself is the classroom, and the life of the city is the curriculum.

The program began early in 1969 with 140 students, and this year the school has 500 students. The only criterion for admission is the expressed interest of the prospective student and his or her parents. Students are selected by public lottery; the names are drawn from a hat (10,000 students volunteered for the first drawing). An equal number of selections is allowed for each school district, so that the racial and economic makeup of the student body will reflect that of the city's population. The ratio is currently 60 per cent black and 40 per cent white. A few suburban and parochial school students have been added to the mix.

Presently, 500 students, 30 faculty, and 30 university city interns constitute the Parkway community. Three basic units, called communities, comprise the organization of the school. The three communities--Alpha, Beta, and Gamma--are:

> ... small enough to make possible creative experimentation in the teaching-learning process. The lower than average faculty-student ratio of 16 to 1 is necessary in order to give faculty time to develop new skills for a new kind of teaching and for planning.[6]

Students are in all four of the regular high school grades, making possible a carry-over in the student body from this year to next that will greatly facilitate expansion of the program.

For students, one of the greatest attractions of the Parkway Program is the freedom it allows. While each unit or community has taken on a unique character of its own, certain structural elements are common to the entire program:

Tutorial Groups: These groups of about fifteen students, one teacher, and one university intern are the principal base, analogous to a family, of each student's career in the program. The tutorial, which meets for two hours four days a week, is part family, part encounter group, and part guidance service. It is also responsible for providing remedial math and reading for students, and for charting the overall curriculum. Some tutorial groups plan parties and outings, others organize informal athletic events, and others agree to study a subject of mutual interest. The tutorials are also responsible for the extensive written evaluations of both students' and teachers' work that take the place of grades.

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[6]John Bremer, The Parkway Program (Philadelphia: The Philadelphia Public Schools, 1970), p. 11.

Management Group: Each student may choose to participate in a management group. This group has three main functions: (a) to perform the functions and provide the services necessary for the Parkway's successful day-to-day operation, (b) to involve students meaningfully in determining the nature of the program, and (c) to help students develop the skills of management which are the source of power in the community.

These groups have formed around the problem areas of self-government, public relations, office management, athletics, facilities, fund raising, extracurricular activities, the printing of a Parkway newspaper, and, in conjunction with professors from Temple University, attempting a scientific analysis of the effects of the Parkway Program on its students.

The Town Meeting: The town meeting occurs once each week, and offers an opportunity for the whole community to discuss and resolve common problems. Sometimes a shouting session, sometimes an orderly public debate, the meeting has emerged as the principal form of government in each unit. Discussions range from such basic questions as what kinds of rules and philosophies the unit should adopt to such mundane matters as the filling out of forms, but the emphasis throughout is on total participatory democracy.

The Academic Curriculum: The school offers a potpourri of things to do, to explore, and to learn. The catalogue has

more than 250 offerings and 200 cooperating institutions. Institutional offerings are those courses offered, generally at the request of the student, by participating Parkway institutions. Law enforcement is taught at Police Department headquarters, English at the public library, and art history at an art museum. A jeweler teaches jewel cutting; a doctor, health services. Classes are taught by professionals, tradesmen, scholars, community people--all of them volunteering their services.

A typical student's schedule includes a pollution and survival course, a law class at the county courthouse, a Spanish course, a child development course working with preschoolers, and work experience in restaurant management--making sandwiches at a local eatery.

To meet state requirements (the requirements for graduation are the same as those of any other high school in Philadelphia), students take English, math, and social studies. However, a math course may be a computer class at the Franklin Institute; an English course may be "Multimedia Journalism"; and social studies may be a seminar on Vietnam taught by the American Friends Service Committee staff.

Conventional grading patterns are not used. Students are graded by long, written evaluations of their progress.

Each student is encouraged to participate in a program of individual study in an area of his own interest. This may be done in collaboration with one or two other students.

Additionally, students are encouraged to participate in work programs of the Parkway institutions as an extra, non-required component. This can lead to vacation jobs or to career possibilities. Also, there is the opportunity of community service in a variety of social agencies.

Faculty Selection by Committee: Most teachers in the Parkway Program are selected by committees consisting of university students, parents from the community, visiting teachers, and students and teachers from other units. After the initial interviews, a few dozen of the most promising applicants are assigned the task of deciding what process of elimination they should use in filling the limited number of vacancies, and are then observed by Bremer and key advisers as they thrash out the problem.

What may be the most important factor in the program's apparent success is the emphasis on community that has come to motivate most participants as if it were a religious force. As some observers noted:

> Parkway has about it an exciting informality. It is a place that demonstrates to students its belief that ideas and experiences are more important than order. The students seem to thrive on their new freedom. They often show a maturity, a sense of being about their own business, rarely found in people their age. "In my old school, education was something that went on inside the school but your real life was outside," a student explained. "Here, the school is your real life. That's what makes everything count."[7]

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[7]Editors of Education U. S. A., op. cit., p. 8.

The various structural elements have certainly encouraged the attitudes expressed above. But it is generally agreed that Bremer's inspiring, almost charismatic, vision is equal to or stronger than any other single factor. According to Mario Fantini, the program's liaison with its initial sponsor, the Ford Foundation, it is John Bremer who has made the program "human."

The program has a distinct practical advantage: it's a bargain. Although a $100,000 grant from the Ford Foundation helped get Parkway started, the program now operates on the standard Philadelphia public school allotment of approximately $680 per student annually. Capital costs barely exist; there's no massive plant to build or maintain. Most of the funds go toward teacher and intern salaries and other specifically educational costs.

Parkway has side benefits that any school administrator would like. Discipline and racial problems are minimal, and there has been no evidence of hard drug usage. The freedom of the school, Bremer said, "... reduces the hostility and tensions that would aggravate these situations."[8]

Some educators in the nation see the Parkway Program as applicable to their school systems. Chicago has adopted the "schools without walls" concept and opened its on-location Metropolitan High School in February, 1970. New York is

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[8] Ibid.

reportedly considering implementation of the concept, also. In September, 1970, the Washington, D. C., school board began its "school without walls" pilot project. Washington's Assistant Superintendent, George Rhodes, said the program was needed for "... students with talent who might otherwise join the growing list of dropouts due to a restlessness with our structured system."[9]

The concept is catching on. Mario Fantini, who is also one of Ford's leading educational theorists, explains why he feels this is so:

> It's founded on a new principle of what education is. The existing system isn't working. If you look at the student unrest as a symptom of the inability of the educational system, forged in another century, to be responsive to the concerns of this generation, it seems that many of those concerns would be addressed in a Parkway-like school.[10]

The concept and the Program have their critics, also. The program has been attacked as just another of the board's fancy experiments, and there have been threats to block city funding. Yet the Parkway Program costs no more than what the board would need to educate the Parkway students in regular high schools.

Some observers argue that despite his emphasis on individual initiative, Bremer has often been hypocritically, arbitrarily authoritarian. A few teachers contend, moreover,

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[9]Lawrence Feinberg, "D. C. Plans School Without Walls," The Washington Post, May 21, 1970, p. 1.

[10]Resnik, op. cit., p. 11.

that the most important advantage of the program is not its structure but the intimacy provided by a smaller teacher-student ratio--an intimacy that Bremer may have trouble maintaining as the program grows.

An observer noted this intimacy when he wrote:

> In the brief time we had to visit all three communities of Parkway, I gleaned what seemed to be a consistent positive attitude toward the openness and self-responsibility aspects of the program's operation. At a time when "humanizing the school" has become a universal but unrealized goal, Parkway may be well on the way toward achieving humanization. There is tolerance, friendliness, respect, and common purpose--all on a true people-to-people basis.[11]

Though riding the crest of a wave, Bremer appreciates what he refers to as the "messiness" of learning. He is the first to admit that the first sessions were not without their problems. Principally, too many students have not received the training in basic skills which is supposed to be a primary function of the tutorials. He is confident, however, that the problems will be solved. Solving educational problems is, after all, what the program is about.

One wonders how Parkway's college-bound students will do in college. How will they deal with the structured and regimented program? How will students accustomed to learning on the scene respond to learning only by print, through required readings, the production of papers, and required answers? It seems that Parkway's success will be measured,

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[11]James Greenberg, "A Visit to the School Without Walls," Phi Delta Kappan, LI (May, 1970), p. 481.

in part, by the questions and dilemmas its graduates pose for higher education.

John Adams High School

Having begun its second year of operation in September, 1970, the John Adams High School in Portland, Oregon, is literally the creation of its principal, Robert Schwartz. In 1967, when Schwartz was in his final year of study at the Harvard Graduate School of Education, he and six other secondary school teachers set out to develop a model for a school program. They wanted one which would make possible the achievement of many of the educational objectives that were commonly voiced by educators but had not been established in practice nor adequately tested.

What they envisioned was a clinical high school, one in which instruction of students, curriculum development, pre-service and in-service training of teachers, and research could all go on simultaneously. They believed a high school could be made to function somewhat like a teaching-hospital does in medicine.

The seven graduate students developed a detailed plan of how they believed a high school should operate. Then they sent their proposal to six metropolitan school districts. They received several replies indicating an interest in their plan, but were most impressed by what is described as an enthusiastic reply from Portland school officials and school

board members. The result was the construction of a $5.8 million high school and implementation of Schwartz' clinical high school program.

The Curriculum: The curriculum at Adams, which is split into general education, problem-solving courses and an electives program, is used as an educational means, not an educational end. It is seemingly predicated on a belief expressed by Wilhelms:

> A curriculum isn't something you teach. It's something you teach with. The side effects--what the learner has left when he has forgotten most of the content--is almost always more important than the direct effects. And we have got to learn to play for the ones we want.[12]

The general education part of the curriculum is one in which students spend about half of each school day, either the morning or the afternoon, on different teams that study ways to cope with problems such as air and water pollution, unemployment and welfare, improving student-adult understanding, keeping the automobile from destroying the metropolitan area, reducing the crime rate, and lessening race-related friction in the school and the community.

There is no ability grouping or chronological grade placement in these problem-solving sessions. Every team is a mixture of seniors, juniors, sophomores, and freshmen.

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[12]Fred T. Wilhelms, "Humanization Via the Curriculum," in Humanizing Education: The Person in the Process, ed. by Robert Leeper (Washington, D. C.: Association for Supervision and Curriculum Development, 1967), p. 26.

The problem-solving tactic also avoids the compartmentalization of subjects. Students, rather than studying English, math, social studies, and science as specific courses, deal with all of these basic subjects as parts of a study of a given real problem during the general education program.

As an example of the value of the general education approach, Schwartz refers to an incident that occurred just as Adams opened in the fall of 1969. Several Portland high schools began the year with serious race-related student problems, resulting in numerous assaults and police action. The most severe disturbances were at Adams, where the philosophy is to bring together students from all backgrounds, representing many ranges of abilities, and where the student body is 22 per cent black.

General education study teams got involved in the action and undertook to develop solutions to Adams' racial problems. In fact, race relations occupied the whole general education program for the first three weeks of school. A race relations committee held assemblies where students could talk matters out, and black and white student leaders began to take command of the situation. Since then, although trouble hasn't stopped completely, there has been no major racial flare-up at the school.

Schwartz explained the problem-solving approach:

> Students need to learn what will help them function effectively in society, regardless of what type of work or what further education they plan to go into after high school.
>
> The important thing is that students should learn the techniques of problem solving and how to adjust to change. These abilities should prove useful throughout the rest of their lives.[13]

Of the elective courses in the second part of the curriculum, some require a full school year and others are mini-courses which last approximately six weeks. The mini-courses are varied and appeal to different individual interests: computer application and technology, astrology, badminton, classical and modern music, and so on. Schwartz explains the large number of elective courses and the free time in which students can study what they wish:

> Give kids a change to try some of the things they're interested in. They must have the chance to be curious, to explore adult roles and have meaningful choices.[14]

Academic and college-bound students can use the elective periods for taking in-depth and continuous studies in math, English, physical and social sciences, history, and other college requirement courses. Additionally, for those students who are not college bound, the school offers wide-ranging, job-related programs.

Unlike the Parkway Program, only teachers on the professional staff work with the students. However, Schwartz and

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[13]John Guernsey, "Portland's Unconventional Adams High," American Education, VI (May, 1970), p. 4.

[14]Ibid., pp. 4-5.

his staff hope eventually to encourage business, industry, and the professions to participate in the school's training program and to sponsor students in half-day, on-the-job training apprenticeships. They also plan to invite business and industrial representatives as guest lecturers and assistant teachers, and to arrange for some vocational and technical classes at outside plants during the evenings.

For students who are not attracted by the academic or vocational programs taught at the school, there is a mobile school where they spend their general education time. A bus, usually carrying thirty students, transports them on scheduled visits to industrial plants, art museums, city government operations, airports, projects of various types, and so on. The students write, tell, and dramatize their experiences when they return to school, and their teachers try to motivate them toward more concrete learning experiences.

Adams' staff, like Parkway's, believes in the educative influence of the community and its institutions. As Melby noted:

> The educative influence of the community upon the individual is apparent. This influence includes all agencies and institutions with which the individual comes into contact. The learning the individual acquires in the community may be more penetrating, more satisfying and more lasting than that which occurs in the classroom.[15]

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[15]Ernest O. Melby, The Community School and Its Administration, ed. by Clyde Campbell, III (July, 1965), p. 3.

Organization: To combat the impersonality of largeness, Adams operates as four smaller high schools in one--at least for the general education program and for administrative purposes such as counseling and disciplining. Each smaller school, known as a house, has about 400 students, mixed as to chronological class, race, and social and economic background. Two teams of teachers, about ten per team, plus a guidance counselor, work with the students in each house; the same teachers stay with the same students as much as possible for more than one academic year.

While the ultimate responsibility for the operation of the school rests with the principal, Adams is experimenting with a plan of majority-rule voting by students and teachers. With the aim of teaching students how democracy works, so they will be better qualified citizens when they reach voting age, this plan duplicates, in some respects, the functioning of the United States Federal Government.

Schwartz explained:

> The whole issue of decision-making in conventional high schools is wrong. The students and faculty members want more voice so we're experimenting with the delegation of authority.[16]

Adams has a school legislature made up of a student-elected student senate and a faculty-elected faculty senate. Joint committees representing these bodies meet on issues of curriculum, grading (grades are optional at Adams--students,

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[16]Guernsey, op. cit., p. 5.

with parental approval, choose to receive either a regular grade or a pass-fail notice), or on policies that most directly affect students and teachers.

In other cases the senates function separately. If issues involve student conduct, dress codes, and so on, the policies are made and enforced by the student senate. If cases involve working conditions and other areas of interest to teachers, they are dealt with by the faculty senate.

Schwartz and his assistants constitute the executive branch of the school government. Changes or new policies developed and approved by the senates, jointly or separately, require the principal's signature before they can become school policies. Although Schwartz has veto power, he can be overridden by a two-thirds vote of the senates.

A judicial branch of the school-governing plan is currently being planned.

In its efforts to have an impact on the teaching profession, Adams includes numerous clinical programs to influence teacher preparation, teacher enthusiasm for teaching, and community involvement. The clinical approach is felt to be one of the most important aspects of this experimental school. Challenging the traditional education concept that colleges and universities are the best settings for training teachers and conducting educational research, Schwartz contended:

> The truth is that a university is just not a very relevant setting for training teachers and doing much educational research. As it is now, a college student training to be a teacher does not get into a regular school classroom until very late in his training--the last part of the senior year. He gets far too much of his material from theory and hearsay from a professor.[17]

Adams school officials, in cooperation with officials of Reed College, Lewis and Clark College, and Oregon State University, have developed a program which permits junior year teacher trainees to receive college credit for working in Adams' classrooms. Over 100 of these trainees are teamed with the school's regular teachers in actual classroom situations.

After a shaky start, made so by expressions of apprehension about the school's experimental and novel approach to education, Adams is prospering. Fears of parents and students alike have been allayed by increasing evidence that what Adams is doing is working. As one parent observed:

> I'm all for Adams. My daughter went to another high school for two years, but this is the first time she has taken the initiative to do studies and projects on her own.[18]

The Personalized Education Program

One of the ideals educators hold sacred is that education should meet the needs, goals, interests, and abilities of the student. Individualized instruction is commonly

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[17] Ibid., pp. 5-6.

[18] Ibid., p. 3.

identified as the vehicle to realize the ideal. However, as Campbell has noted:

> The contradictions between what administrators and teachers say and what they do is like Mark Twain's comment about the weather. Educators have talked about organizing instruction to meet the needs, interests, and abilities of individuals but few have put such a system into operation.[19]

The Personalized Education Program in the Ypsilanti, Michigan, Public Schools is an exception to Campbell's observation. It evolved through need and desire. The need came from a significant and increasing number of junior high school students who demonstrated an affinity for trouble and fit the profile of the potential dropout:

> These students were so troubled and troublesome that the Ypsilanti junior highs suffered with them. Academics were foreign or frustrating for many and their attendance was lax or forced. Their attention spans were deplorably short, their attention-getting devices sometimes drastic. A few had police records and all shared school reputations of problem kids or the incorrigibles. Most displayed little respect for authority of any kind and fought verbally and physically with school personnel.[20]

The desire that developed into the program came from teachers who wanted something done about these youngsters, and from administrators seeking ways to meet the diverse needs of these students. They realized there was a great need for some special type of help for these problem-racked students. An alternate plan was needed to create a better

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[19]Clyde Campbell, The Community School and Its Administration, VIII (February, 1970), p. 2.

[20]Reuben Chapman, A Personalized Education Program" (Ypsilanti: Ypsilanti Public Schools, 1969), p. 6. (Mimeographed.)

atmosphere for them and to take the burden off the regular classroom teacher. With these thoughts in mind, Project P. E. P. (Personalized Education Program) was developed.

The Students: When the program began in January, 1969, ten students, divided equally between the two junior high schools in Ypsilanti, were admitted to the program. The number of students was determined by considering the facility housing the program (a five-room house), transportation (a seven-passenger bus is used), and the plan to keep the student-teacher ratio at five to one. The additional selection criteria are categories which are descriptive of the students for whom the program is intended. These categories are:

1. A student who regularly disrupts the entire school operation.
2. Frequently non-readers or non-performers, not necessarily due to lack of intelligence.
3. A student who is frequently angry and hostile.
4. One who has little respect for himself and others.
5. One who has a poor attendance record.
6. One whose home life is frequently not normal.
7. A student who has no interest in extracurricular activities.[21]

Students were finally selected, using information supplied by the school counselors, teachers, and parents, and achievement and aptitude tests.

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[21]Patricia Dignan, "Project P. E. P." (Ypsilanti: Ypsilanti Public Schools, 1969), p. 1. (Mimeographed.)

Program Goals: A policy advisory group, composed of administrators, teachers, program directors, and parents, evolved the main goals of the program. With the awareness that these students are potential dropouts and very hostile toward most adults, it was decided that merely giving them the opportunity for a new situation, not as threatening as a regular program, would be of value by itself. Emphasis in the program would not be on the academic program but on the attempt to help each student get along better with other people, and to look more closely at himself and his own actions. The following goals, then, were laid down and are subjected to continuous scrutiny and evaluation:

1. Increasing the individual's sensitivity to others' feelings and emotions.
2. Learning to be a leader of a small group.
3. Developing the capacity to care for others who are less fortunate than oneself.
4. Learning to utilize community resources for one's own welfare.
5. Change the student's self-image.[22]

The primary purpose, then, is to change the student's attitudes toward himself and others, while the secondary purpose is academic preparation so the student will be prepared to re-enter the regular academic program when it is appropriate to his needs, interests, and abilities.

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[22] Ibid., p. 2.

The Curriculum: The student's day in P. E. P. is approximately three hours in duration. After an orientation session, during which the two teachers spend the three-hour session in individual and small group counseling, the program evolves into a three-segment plan.

The first segment, approximately one hour, is spent on individual counseling and activities of personal choice. Students who are not involved with either teacher spend time in informal discussions, pool playing, dancing, or working at housekeeping chores.

The middle segment consists of individualized or small group instruction in math, English, spelling, social studies, and reading. Paperback books, magazines, newspapers, and a Xerox reading unit, The Way It Is, are the primary instructional materials. The Xerox unit consists of a series of records, a book for each record--the printed form of what is heard on the record, and a workbook containing questions and exercises based on the content of each record chosen for use. Each record has a theme and is selected to meet an interest or need of the student. It may be an exercise involving a fight between two teenagers. All the conditions relating to the incident are dramatized on the record. Then, the listener is guided through an analysis and evaluation of these conditions. The objective is to illustrate ways to handle these problems and how to select alternative behaviors resulting in positive rather than negative consequences.

The final segment is devoted to measurement and evaluation sessions. During this time, evaluations of the day's program are done and a plan for the next day's session is developed. Additionally, this time is used for quizzes, keeping student records, and general administrative procedures.

A popular component of P. E. P. is the opportunity afforded students to earn money. Pupils are paid to maintain the house which serves as their school. In teams of two, students are scheduled for a week's work, for which they are paid $.97 per hour. If one member of a team is absent, his team partner assumes his responsibilities and is paid accordingly. If both members of a team are absent, the work is done by other students. They are selected randomly and enjoy the chance to earn extra money.

Field trips are conducted on a regular basis; points of interest in the community are visited. Visitations to local parks for a picnic and team sports are popular with the students. People in the community are beginning to involve themselves in the P. E. P. program by serving as guest speakers and hosts for planned visits to their agency, facility, or office.

The success of P. E. P. is obvious when the entering behavior of students is compared and contrasted with subsequent behavior. An illustration of one student's change, the rule at P. E. P. not the exception, will provide some insight into the program's effectiveness.

Mary, a fourteen year old student, had been having behavior problems in her school. Her parents protected her and would not accept their daughter's culpability. When the parents were asked to enroll her in P. E. P. they refused to do so, fearing the social stigma the program might incur on their daughter. Mary, like the other students, had been approached first and wanted to enroll but couldn't because of her parents' strong feelings.

Two weeks later Mary appeared in school and was obviously intoxicated. This appearance culminated a period of skipping classes, tardiness, and disappearances from school and home. Her parents became alarmed and were eager to try anything which would help their intolerable situation. They asked that Mary be admitted to P. E. P.

Mary's attendance record in P. E. P. was excellent--90 per cent. Her performance in curricular activities and her degree of cooperation, effort, and responsibility were rated as excellent by her teachers. She was one of two students who was allowed to return to her school for afternoon sessions after her P. E. P. morning sessions.

The change in Mary's attitude and behavior was such that the administrators and staff at her school commended her publicly. She wasn't sent to the office once after her initial enrollment in P. E. P.; her teachers in the junior high described her as a "much happier girl." Her parents also indicated strong approval of the changes in their child.

Her mother stated that Mary gets along much better at home and with other people than she had before.

Here is a program which is working. The students in P. E. P. may be "below grade level" in math, reading, spelling, and the like, but those characteristics of personality and self which are so fragile and consequently cracked are being strengthened and solidified by P. E. P. What the student is and can be as a person is primary; the program is intended to help him as a person first--as a student, second.

Bettleheim expressed this priority and orientation when he stated:

> ... it liberates us to go beyond this non-question of what our children and youth should learn to the real question of what person should they be.[23]

The Institute for Creative Studies

From its beginning as a pilot project in the summer of 1967, with six students working on a government study of tuberculosis, the Institute for Creative Studies has expanded rapidly. Now a private, nonprofit educational corporation, it has approximately thirty students, ages 17-22, from twenty schools, working on research projects funded by $75,000 in government contracts. Presently, additional monetary support comes from the Meyer Foundation.

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[23]Bruno Bettelheim, "Notes on the Future of Education," University of Chicago Magazine, V (1958), p. 13.

Theodore Wang, an operations analyst, founded the Institute in 1966. However, the idea for the Institute had been germinating for ten years. At that time, Wang worked in the Operations Research Office affiliated with Johns Hopkins University, and observed bright high school students working for the summer on a study of the Civil Defense early warning system. He noticed that these students evolved a number of innovative concepts that had not been considered by the adults working in related fields. He saw that young people can do this, and that they have a role to play in today's society.

The Institute is a three-month summer program which provides experience in applying modern research techniques and scientific methods to the resolution of policy problems. Unlike many research situations in which students either observe or assist professionals, these students are responsible for executing their own research projects, for studying and devising solutions to some of society's problems that need answering. With administrative backing from the Institute, they do all the things expected of professional researchers. They develop their own methodology, draw up and maintain time charts, collect and refine data, hire consultants, and conduct interviews. From their study and findings, the Fellows formulate recommendations and prepare final reports for their sponsoring agencies.

While the idea of the Institute is not original, Dr. Wang explained that his manner of executing it is:

> We let the students run their own research projects. The only controls provided are regular quality control review sessions, a formal interim report, and a thorough review of each project by a panel of experts at the end of the summer.[24]

Although the program is intended to offer an alternative to regular school instruction for bright students, straight A's alone will not get a student admitted to the Institute. Attempts are made to find students who are not just bright by standard grades, but who are imaginative and innovative by variable standards devised by Wang and his associates.

Each candidate submits samples of original work, letters of recommendation from three of his teachers, and takes a test of creative potential. Additionally, each candidate is interviewed personally by Dr. Wang. He stated:

> I ask them a lot of questions to which I don't know the answers. If a student says he never had that in school, I personally dismiss him in my mind. We're trying to face problems we never saw before. So, we're looking for individuals who have a certain amount of confidence in their ability, people who will try things.[25]

After the Fellows are admitted to the program, they attend a one-day orientation session covering policies and guidelines for conducting an operations-research study. Then the students are divided into seven task forces, each containing three to six students, and each responsible for a research project.

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[24]Melanie Melewicz, "Don't Call Us Geniuses," American Education, V (November, 1969), p. 22.

[25]Ibid.

The word responsible is not used lightly here. Indeed, they are responsible for the project from initial conception to final presentation. One student reported that as soon as orientation was over, he was put to work writing and delivering proposals. He knew he was given the opportunity to sink or swim on his own and thought it was "great."

The idea that responsibility and self-direction are characteristics which are acquired through actual practice is recognized by those who agree with the Institute's emphasis on learning by doing. As Combs stated:

> Responsibility and self-direction are learned. They must be acquired from experience, from being given opportunities to be self-directing and responsible. You cannot learn to be self-directing if no one permits you to try. Human capacities are strengthened by use but atrophy with disuse. If young people are going to learn self-direction, then it must be through being given many opportunities to exercise such self-direction throughout the years they are in school.[26]

In the course of gathering data for their projects, the Fellows read, study, brainstorm, and travel. Students in one task force found themselves in the air and on the sea for much of the summer. With a grant from the Department of Commerce, they studied the recruitment and turnover rate in the Commissioned Officer Corps of the Environmental Science Services Administration (ESSA), which is an extension and enlargement of the former Coast and Geodetic Survey.

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[26]Arthur W. Combs, "The Person in the Process," in Humanizing Education: The Person in the Process, ed. by Robert Leeper (Washington, D. C.: Association for Supervision and Curriculum Development, 1967), p. 81.

The team visited seaports on the east and west coasts, where they interviewed as many of the Corps officers as possible. The team developed a multiple-choice questionnaire and made recommendations to lower the Corps' turnover rate and to define more clearly the role and tasks of the individual officer and the Corps as a whole.

Another team, under a grant from the Department of Commerce, attempted to assess the impact the ESSA's information service has upon school children. Extensive interviews with school-age youngsters across the nation revealed that while ESSA public information is geared to a general audience, over two-thirds of its users are young students.

In addition to making recommendations on how to reach the school-age population effectively, the group also suggested new services which ESSA could implement without excessive costs.

With funds from the Washington Urban Coalition, another team transformed a rented apartment in the heart of a Washington ghetto into a testing office. Their objectives were to identify potential creativity in black junior high school males and to prove that traditional instruments don't do the job adequately.

They translated a popular personality inventory from standard English into the black ghetto idiom. What they discovered after administering both test versions to the black youngsters and their white suburban counterparts was cultural bias in the language of the exam.

In commenting on the usefulness of the Institute's project approach to learning, Wang noted:

> These students are learning things they couldn't learn in school. They're learning the difference between the textbook problems, which have nice clean answers at the back of the book, and real-life problems, which don't all have nice clean solutions. It's a real awakening for them to have to go after data, to cut through red tape, to learn from all these failures they have to experience before they can succeed.[27]

Dr. Wang is enthusiastic about the program and the accomplishments of the Fellows. He feels this type of student research will set a nationwide trend and should become part of the standard curriculum, where students receive college credit as well as a nominal payment for their work. Fellows at the institute receive a stipend of approximately $900 for the eleven-week term. Said Wang:

> This is the modern thing for young people to do. If they are capable of being shot at when they're eighteen, they're capable of voting when they're eighteen, and they're capable of participating in policy guidance when they're eighteen. And perhaps programs of this type, which give students an opportunity to tackle some of society's problems, may even help cut back campus unrest.[28]

In the first part of this chapter the writer described instructional programs in which many of the disciplines are taught. One of the content areas, social studies (which is comprised of many disciplines), is a part of every curricular program in the senior high school. In this section of the chapter the focus will be on innovative social studies

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[27] Melewicz, op. cit., p. 25.

[28] Ibid.

projects, which, as stated earlier, are referred to as the new social studies.

In spite of widespread endorsement of the new social studies, there are reasons for close scrutiny and caution in adopting the new programs. Voices of caution are heard even from the ranks of the projects themselves. Edmund Traverso, who is Materials Supervisor for the Committee on the Study of History, recently wrote:

> New social studies and history materials are diverse in subject and content but have one thing in common. They all invite students to inquire into a body of evidence in much the same way as a scholar working in the discipline does. Yet with increasing frequency the feedback I get from teachers who are using these materials in their classes is that a noticeable portion of students are turning the invitation down cold or are at best reluctant guests at the banquet tables of inquiry and discovery.[29]

The same author noted later in the article:

> The increased use of media in new social studies and history materials is not in and of itself a solution. Students quickly perceive that it is there for the same reasons as printed documents, and they turn off.[30]

Another source of caution about the new social studies comes from educational research. In a chapter examining the methodology of research on discovery, Wittrock observed:

> Many strong claims for learning by discovery are made in educational psychology. But almost none of

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[29]Edmund Traverso, "Education in the Age of Aquarius," Bulletin of the Amherst Project, III (Fall, 1969), p. 1.

[30]Ibid., p. 2.

> these claims have been empirically substantiated or even clearly tested in an experiment.[31]

These expressions of caution temper the widespread, uncritical acclaim for the new projects. With a more balanced perspective, then, a description of four national social studies projects will now be given.

The Carnegie-Mellon University Social Studies Curriculum for Able High School Students

This project, headed by Edwin Fenton of Carnegie-Mellon University in Pittsburgh, Pennsylvania, was funded by the Cooperative Research Branch of the United States Office of Education. It was conducted by the Carnegie Social Studies Development Center, in close cooperation with Pittsburgh Public Schools. In 1963 the Center began development of a sequential, cumulative curriculum for able students in grades nine through twelve. The staff of the Center wrote most of the materials, and taught, revised, and evaluated the courses. Pittsburgh high school teachers helped write materials during the summer and tried the courses during the school year. The courses were tried with experimental classes of students having IQ's of at least 115.

The curriculum developed by the Center is one which is not based on narrative texts; it uses varied media as

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[31]M. C. Wittrock, "The Learning by Discovery Hypothesis," in Learning by Discovery: A Critical Appraisal, ed. by Lee Shulman and Evan Keislar (Chicago: Rand McNally and Company, 1968), p. 33.

integral parts of the courses. It attempts to link learning experiences from year to year and to include the latest ideas from the disciplines. The project accepts Bruner's hypotheses that students learn best through discovery and that students can better probe social problems and handle new information if they learn the structure of the disciplines. Defining structure as an integration of concepts and the process of inquiry by which the concepts are developed, the Center staff decided that:

> Concepts would not be taught as ends in themselves, but as terms which could suggest a number of analytical questions that students could put to data.[32]

The program defines four major types of objectives: attitudes, values, inquiry skills, and knowledge. Some of the attitudes which are promoted through the way classes are handled are willingness to listen to all sides of an argument, willingness to make decisions based on proof, and wanting to continue to learn. Students are expected to learn to identify values and are to develop their own value systems.

Inquiry skill objectives are defined as being able to use nineteen "analytical concepts" to ask analytical questions about social studies data, and being able to use a six-step inquiry method.

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[32]Edwin Fenton, et al., "Final Report: Project Numbers HS-041 and H-292, Contract Numbers OE 3-10-103, OE 6-10-130. A High School Social Studies Curriculum for Able Students. An Audio-Visual Component to a High School Social Studies Curriculum for Able Students" (Pittsburgh: Social Studies Curriculum Center, Carnegie-Mellon University, 1969), p. 4. (Mimeographed.)

Knowledge objectives are defined in terms of learning content that suits students' needs to pass the College Board Exams and to live a good life, that relates to current social problems and present and past cultures, and that helps develop the analytical concepts.

Student texts consist almost entirely of readings, each of which is intended for a day's discussion. The readings contain a variety of resource materials--historical accounts, excerpts of essays and speeches, documents, magazine and journal articles, memoirs, pieces of fiction, and poetry. Each reading is preceded by a short introduction and by several study questions.

The following are some examples of study questions used. They precede the reading, "Three Renaissance Writers," in the tenth grade text, The Shaping of Western Society. The reading consists of a sonnet by Petrarch, an excerpt from Castiglione's The Book of the Courtier, and a translated excerpt from Machiavelli's The Prince.

1. What is Petrarch's attitude toward women? How would you describe Castiglione's ideal of the well-rounded man?

2. Would men of the Middle Ages have agreed with Machiavelli about the major concern of a prince?

3. Using these selections what hypothesis would you make about the Renaissance? How would you describe the changes in European attitudes since the Middle Ages?

4. Are any of your values the same as those of Petrarch, Castiglione, and Machiavelli?[33]

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[33]John M. Good, The Shaping of Western Society, An Inquiry Approach (New York: Holt, Rinehart and Winston, Inc., 1968), p. 91.

The teacher's guide for the course provides lesson plans to accompany each reading in the student texts. The plans are not prescriptive, but rather are intended as suggestions. They list objectives, suggest additional discussion questions and activities, and provide notes on procedures and possible student responses. The following are a knowledge objective and an inquiry skill objective from the lesson plans for the "Three Renaissance Writers":

> To know the values and concerns of three Renaissance writers--namely their delight in worldly pleasures, their desire to develop all human potentials, and their focus on secular matters.
>
> Given the passages from three Renaissance writers and the hypotheses about Renaissance attitudes and values developed in the two previous lessons, to be able to select passages from reading sixteen that either support or invalidate these hypotheses.[34]

These two discussion questions are suggested in the same lesson plan:

> What hypotheses have you formed about Renaissance attitudes and values from the previous two readings?
>
> Do you think the evidence in this reading supports your hypothesis?[35]

In addition to readings, some lessons use film strips, picture cards, recordings, and transparencies from audiovisual kits provided for each course. The audiovisual materials are intended to be integral parts of the course

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[34]John M. Good, Teachers Guide for the Shaping of Western Society, An Inquiry Approach (New York: Holt, Rinehart and Winston, Inc., 1968), p. 54.

[35]Ibid.

rather than supplementary illustrations in the texts; most of the audiovisual materials are used in conjunction with readings.

Teacher-directed discussion of the readings and audio-visual materials comprise the basic teaching strategy in the program. The strategy is defined as: "... techniques in which the teacher leads students through data toward generalizations by the kinds of questions he asks."[36] It amounts to teacher use of the study questions for the readings, the suggested questions in the lesson plans, and/or his own questions as cues to lead students toward knowledge, inquiry skill, and value objectives.

This lack of variety in instructional strategies is one of the weaknesses of the program. Each lesson in each course at the four grade levels uses the directed discussion technique. This modified "discovery-through-discussion" approach becomes just as boring with repetition as too much exposition.

Harvard Social Studies Project--
Public Issues Series

The focus of this project, as intended by its directors, is on problems of society, not on problems of the social science disciplines.

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[36]Fenton et al., op. cit., p. 37.

Fifteen pamphlets, with a four-page flyer of teaching instructions for each, constitute the instructional materials. Each booklet contains a selection of readings on one or more public issues or problems which have persistent historical interest as well as contemporary significance.

The booklets, from forty-seven to sixty-three pages in length, have a few pictures and most contain multiple readings. The variety of readings in a single pamphlet[37] is illustrated in the brief description of the selections from Negro Views of America:

1. A famous Negro tells what it means to be a slave.
2. In the 1930's an ex-slave recalls his days of slavery.
3. A Negro youth faces oppression in the South during the 1920's.
4. A Negro family faces the problem of buying a house in a white community.
5. A young Negro tells United States Senators how he made the leap from the ghetto of Watts to Harvard.
6. Three theories that attempt to explain racial differences.
7. Radical views of contemporary Negro leaders.[38]

The teachers' guide, Cases and Controversy, which establishes the rationale for instruction, lists the main

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[37]Craig Pearson and David Sparks, Negro Views of America (Middletown, Connecticut: American Education Publications, 1967), p. 63.

[38]John Marchak et al., Cases and Controversy: Guide to Teaching (Middletown, Connecticut: American Education Publications, 1967), p. 14.

questions for the unit:

> Are Negroes basically different from whites? Should Negroes in urban ghettoes be expected to pull themselves up by their bootstraps? Do Negroes tend to feel inferior? Who should take responsibility for solving problems in race relations? Is racial integration or "black power" the more effective response to the Negro's problems?[39]

After each student reading there are several "warm-up" questions under the heading of "Facts in the Case," in which the students are to show that they have assimilated the basic information. Under the title "Persisting Questions of History" or "Persisting Questions of Modern Life" another kind of question, which calls for a variety of kinds of thinking, is included. One feature of these questions is that they are sufficiently elaborative so that average and below-average students have a better chance to participate. The following is a good example:

> Joe Johnson is 35 years old. He's lived in the city all his life. At 16, he dropped out of school--just thought it was too boring. He worked at several different unskilled jobs--janitor, busboy, elevator operator, truck loader--but never seemed interested enough to stick with one job more than a year. He married Sally at the age of 20 and now has six children. They live in a four-room flat. Joe has never been in trouble with the law; he's happy-go-lucky, kind, and considerate, but just doesn't make enough money to provide for his family comfortably. The children never have enough warm clothes during the winter; their diet is inadequate, and they're always a little hungry. There's no money left over for entertainment and recreation. The house is so crowded that there's not much opportunity for privacy or quiet study. Joe floats from job to job, but never seems to get anywhere.

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[39]David Oliver and Fred Newmann, Guide to Teaching/ Negro Views of America (Middletown, Connecticut: American Education Publications, 1967), p. 1.

> Is it right that his children be deprived of adequate food, clothing, and health care because of Joe's low ambition? What if anything, do you think society or the government should do about this problem? Here are some possibilities: punish people like Joe (imprisonment or some other method); leave them alone; give them what they need in the way of food, clothes, shelter, and health care; increase their ambition by requiring them to take courses that improve their drive to achieve. Discuss your preferred policy.[40]

Obviously, a question like this is more likely to stimulate a thoughtful discussion than one which is more direct and without as many details.

A student booklet to introduce the series is called Taking a Stand. It presents an analysis of the elements of discussion and argumentation. For example, it defines three types of discussions as (1) persuasion/winning, (2) unloading feeling, and (3) problem solving and clarification of opposing points of view.

Students practice classifying discussions under these headings. "Sensitivity," "stating the issue," "pursuing issues with continuity," "clear transitions," and "relevance" are elements of discussion. Students are urged to judge their discussions on two levels: one in terms of the quality of the discussion, and the other in terms of the issue at hand. The discussion issues are "moral or value issues,"

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[40]Pearson and Sparks, op. cit., p. 55.

[41]Craig Pearson and David Sparks, Taking a Stand (Middletown, Connecticut: American Education Publications, 1967), pp. 4-5.

"issues of definition," "issues of fact and explanation," "legal issues," or "frame of reference issues." Many examples are given of discussions which students are to classify under one or more headings.

The last part of each student booklet is called "Review, Reflection, Research," in which various activities to carry the issue further are suggested. The authors urge the teachers to refrain from overusing the case history approach by dwelling on it too consistently.

High School Geography Project, University of Colorado

This project, sponsored by the Association of American Geographers, and financed originally by the Ford Foundation in 1961 and later by the National Science Foundation, developed a secondary school course comprised of six units of study: "Geography of Cities," "Manufacturing and Agriculture," "Cultural Geography," "Political Geography," "Habitat and Resources," and "Japan." Although this course is labeled geography, it includes history, political science, anthropology, and economics.

A teachers' guide, expendable student's manual, and a book of readings for students make up each unit. Additionally, slides, transparencies, and several kinds of maps and games are included in each unit.

A noteworthy part of the course is the use of behavioral objectives and matched evaluation. The following is a sample

objective and matching evaluation from an activity in one of the units:

> At the conclusion of this activity, the student should be better able to:
>
> 1. Discuss the importance of least cost and maximum profit considerations as influences on manufacturing location decisions.
>
> For example when given a reading on the location of the steel industry in the United States and asked to defend the choice Gary, Indiana over Tucson, Arizona as the site for a new steel-making plant, the student does so. In his answer, the student mentions that a factory located in Gary will probably produce steel more cheaply than one in Tucson because of its relative nearness to large quantities of coal, iron ore, limestone, and water. If the factory in Gary could also market steel at a cost equal to or lower than the one in Tucson, then it would show a greater margin of profit.[42]

Recognizing the impracticality of attempting a description of all six units which make up this course, the writer will describe one unit in some detail.

The Manufacturing and Agriculture unit begins with descriptions of four kinds of manufacturing in the United States, but with no indication of the locations. The students are then presented six unlabeled maps, each showing the location and relative size of an industry. Students, working in pairs, must pick out which of the four industries described is depicted by each map and be ready to defend their choices.

After this the students study a variety of data about a metal fabricating company and then, in teams of role players,

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[42]High School Geography Project, Manufacturing and Agriculture, Teacher's Guide (Boulder, Colorado: High School Geography Project, 1968), p. 22.

decide on a good location for the factory. In the same problem of industry, location is transferred to the U. S. S. R. to show political and economic contrasts.

The section on agriculture is introduced with a reading on the population explosion and hunger. Students are divided into groups of six and one member of each group is assigned to study one of these commodities: rice, corn, cotton, hogs, cattle, and wheat. Maps, charts, and other information are in a student resource book, along with questions they are to answer. A sample question on wheat is:

> What climatic features tend to make wheat a better producer of calories than rice in northern China as against southern China?[43]

Each group's responsibility is to prepare a written report or an oral presentation on each commodity.

Pages of interviews with farmers make up the raw data for a problem in which students discover the conditions that determine the decisions of farmers in the world as to what they will grow. This information is a necessary prelude to the final exercise in the form of a game, "Farming," which is very popular with students. Working alone or in teams, students assume the role of farmer in Kansas at three periods in history. They make decisions on how to run the farm and then learn what would happen if their decisions were followed.

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[43] Ibid., p. 53.

This project, though demanding on teachers' time and skill in class management, provides something for all students in heterogeneous classes. It focuses on important concepts, presents opportunities for many kinds of thinking, and has a wealth of good lessons worked out in detail. It contains a variety of fresh classroom procedures and instructional materials.

Sociological Resources for the Social Studies

4. Suppose that many members of your school hang out at a drive-in restaurant at night and on week-ends. On one particular Saturday, a group of students from another school show up at the drive-in. They begin to insult the girls from your school and call the boys "chicken." Which student would be most likely to defend the honor of your school by confronting the boys from the other school?

(1) _____
(2) _____
(3) _____

5. Suppose that your school decides to raise money to buy and distribute baskets to needy families before Thanksgiving. This task would be quite involved. The coordination of fund raising, the selection and purchasing of food, the preparation of a timetable, and arrangements for delivery, would have to be carefully worked out. Which student can best coordinate these activities?

(1) _____
(2) _____
(3) _____[44]

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[44]James Fendrich et al., Instructor's Guide, Leadership in American Society: A Case Study of Black Leadership. Episodes in Social Inquiry Series (Boston: Allyn and Bacon, Inc., 1969), Handout 1.

These two questions are included in a questionnaire to which students respond in their first experience with an SRSS "episode," Leadership in American Society: A Case Study in Black Leadership. Questionnaire responses are tabulated and discussed to demonstrate that different kinds of leaders are looked to in different situations and to develop interest in the nature of leadership. Study of basic concepts of leadership and how leadership is studied by sociologists follows the discussion.

A modified content-analysis method, in which a diagram is used to organize data on situational factors, action plans, group objectives, and leadership behavior, is then introduced. Students use the diagrams to compare black leadership in two series of readings about historical and modern black leaders. Working in small groups, students analyze different readings and compare their data with those of other study groups. The study centers on hypotheses about the relationship of long- and short-term situational factors, group goals, and group tactics to leadership behavior.

The episode is one of forty being developed by SRSS. They are defined as sets "of instructional materials designed to provide a brief but dramatic and enlightening firsthand encounter with social data."[45] The episodes are based on the assumption that students learn better if they actively

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[45] Ibid., p. 1.

participate in gathering and analyzing data to reach conclusions. They seek to involve students in using sociological concepts and methods.

All the episodes are short units requiring no more than two weeks of class time; they are intended for inclusion in high school government, history, and problems of democracy courses. The units differ in sociological content and methods, and the initiation, development, and conclusion procedures of the study.

One episode being developed by SRSS is the Incidence and Effects of Poverty in the United States, which presents statistics, case studies, and readings on poverty. Formation and influence of stereotypes are analyzed in Images of People. Testing for Truth: A Study of Hypothesis Formation employs the concepts of probability and sampling in testing sociological hypotheses. Other episodes deal with religion as a social institution, the social organization of science and the relationship of science to society, the causes of delinquency and the rehabilitation of delinquents, and so on.

Student pamphlets containing readings, diagrams, statistical tables, and pictures are printed for each episode. Teachers' guides, also printed for each episode, provide teachers with background information on sociological content and methods, detailed teaching suggestions, and bibliographies.

The organization developing the episodes is sponsored by the American Sociological Association and funded by the

National Science Foundation. Sociologists and social studies teachers write the episodes and revise them after field testing in schools representative of various types of schools in different regions of the United States. The material is evaluated by the teams of sociologists and teachers through the use of questionnaires, tests, observation, and personal interviews.

The episodes are an interesting way to involve students in sociological study. Sociology is presented as a method for seeking answers to questions about social phenomena; the episodes make it quite clear, however, that many of the questions cannot be answered clearly and finally.

Summary

It was the intent of the first part of this chapter to illustrate some alternatives to traditional secondary education with a description of four programs which have gained national attention.

Although each program is different from the others, all of them share one basic characteristic: a personalized and humanized orientation to instruction and learning. This characteristic and other unique features of the programs which were described and discussed in this chapter's first section are summarized in the list which follows:

1. Each program has a philosophical undergirding that is pervasive and essential to it. It is the emphasis-goal of the student's becoming self-reliant, self-defining, and self-directed--a responsible individual and worthwhile member of a dynamic social group.

2. Interaction and participation on the part of the students are predominant. The learner is taken into partnership and his own human qualities are respected and encouraged. Students are given opportunities for more self-direction and responsibility.

3. The goals of the programs call for a quite different model for the teacher. Being concerned with change in personal meaning and behavior, the role calls for people who are helpers, facilitators, aides, assisters, and ministers to a process of becoming.

   When concerned with change in personal meanings or growth of the student's self, it is the student who knows and the teacher who does not and that is the exact reverse of the model we have been used to.

4. An intensive and extensive process of pre-service and in-service training of teachers is practiced.

5. The responsibility of helping youngsters to grow up and live in the world is practiced by using the world of the present as the learning laboratory.

Students have been liberated from the walls of a school building and from a restrictive structure and regimentation of instruction and are out in the community--using it, learning about it, living in it, and improving it.

6. The curriculum is used as a means of instruction, not an end in itself. It is a tool which is implemented to cultivate the individual learner.

   The curriculum content is not unilaterally imposed on the learner by the school. Administrators, teachers, and students cooperatively plan the curricular offerings of the program. That subject matter which is agreed on as having the greatest potential as a medium for human growth is included in the program.

7. In general, the reactions of students, teachers, administrators, parents, and educators to the programs are very positive. The descriptive literature reveals a preponderance of positivism and a minimum of negativism in relation to the efficacy of the programs.

In part two of this chapter four national social studies projects were described. Although the projects are diverse in materials, style, theory, goals, and procedures, a number of general trends and shared characteristics can be seen in the projects.

1. A great variety of materials have been developed. Booklets and pamphlets for each unit of study have replaced the single, hardcovered textbook. When used, single texts are primarily collections of readings and resources, rather than narrative material.

2. Considerable attention is given to teacher preparation and guidance. The project materials include background readings for teachers and detailed lesson plans.

3. Each project claims to use discovery or inquiry teaching strategies. Some projects formalize inquiry into patterns like problem solving, the scientific method, inductive thinking, or deductive thinking.

4. There is a concern for training students in inquiry skills. Skills like classifying data, formulating and testing hypotheses, judging sources, deductive reasoning, and formulating models are stressed.

5. A concern for values is present in the projects. Attempts are made to teach students to identify and analyze values in context. Increasing the students' awareness of their own values is also stressed.

6. Social realism and conflict are included in the curriculum. The projects announce the intention of

describing life more realistically and relating education to the daily experiences of students. Previously closed areas such as violence, profanity, social class and status, sex, and personal-social conflicts are treated more openly.

7. The patterns of thinking required of students are creative, subjective, and divergent. Students are asked to make their own value judgments, hypotheses, plans, or analyses. Although most activities still lead to closure, increasing numbers do not.

8. Extensive studies of selected topics rather than general surveys are favored to teach about periods of history, geographic areas, or subjects in various disciplines. Interpretation of primary sources is favored over secondary description for doing in-depth studies.

CHAPTER III

DESIGN OF THE STUDY

In order to evaluate the efficacy of the Mott Institute-Okemos Secondary School Project, it was determined that measurements would be made in the attitudinal, action, and impact domains.

The School Inventory instrument was selected to provide a measure of the extent to which the students' attitudes about school were positive or negative. To measure student reactions to the course, student activities in the course, and student accomplishment of course objectives, an instrument specifically for these purposes was developed, the Secondary School Project Questionnaire. This instrument is described in greater detail later in this chapter. An informal, open-ended interview technique was used to assess the impact of the course on teachers, administrators, parents, and community people by soliciting their reactions to the course. Additional data were provided by anecdotal records of the class activities which were kept by the students, teacher, and writer, and by evaluations of the course which were written by the students and teacher.

An analysis of the data obtained from the administration of these instruments and an assessment of the "reaction-to-the-course" data was expected to provide information needed to test the proposed hypotheses.

The Setting

Okemos, Michigan, is a residential community with very little industrial base and only the beginning of a significant commercial development.

The educational level of adult residents of the school community is well above the state average, and according to 1960 data,* ranges by census tracts from 11.8 to 13.3 years of formal school experience. One area of Okemos has the highest educational level in the township. The income levels follow in direct relation, and based upon 1965 data, median ranges are from $7,500 to $12,300 per family.

Median household size in the school district through primary census areas is from 3.15 to 3.77. The township median is 3.67, well above the tri-county median of 3.45 persons per family.

Growth in the community of the Okemos schools has been rapid. Nearly 81 per cent of the new units built in Meridian Township between 1965 and 1968 were in the district.

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*These statistics are not indicative of the 1970 population. The statistics used to describe the sample in the study (see page 74), are current and more indicative.

Future growth at the present rate or even an accelerated rate appears certain for the school district. The desirable residential areas with proximity to the capital and Michigan State University, as well as growing small business, research, and other vocational and professional opportunities, will continue to make Okemos an area of growth.

The people of the community are supportive of the schools. The most objective evidence of this is found in the current tax rate representing 26.7 mills of extra voted resources for operation. This is, of course, in addition to allocated funds and debt retirement. Citizen participation in school projects, committees, and programs is a further indication that the people are concerned about good education and are willing to support it with time and money.

The schools enroll approximately 3200 students in a K-12 program housed in four elementary schools, one middle school, and one high school. The district covers twenty-six square miles and is contiguous to Michigan State University and East Lansing on the west, Haslett on the north, Williamston on the east, and Mason on the south.

The district is providing generally good services to students. A tax rate of over 43.7 mills for operation and debt retirement represents public support and makes possible a fine school program.

Okemos has one of the lowest pupil-teacher ratios in mid-Michigan (under 20 to 1), as well as elementary

counselors, elementary instructional materials centers, elementary consultants in physical education, music, a narrative student progress report system, and a K-12 curriculum coordinator working with teachers in implementing or developing coordinated programs in all areas.

The middle school offerings are particularly noteworthy--a new facility including labs, flexible rooms, large instructional materials center, pool, cafeteria, divisible auditorium, large gymnasium, shops, and special education rooms.

The curriculum is varied and ranges from the traditional to the experimental. Team teaching is used in some subjects, and closed circuit television and courses in speech and dramatics and media are representative of what is available.

The high school of more than 1,000 students is housed in a campus-style complex of buildings including adequate classroom space, a fine arts center, instructional materials center, pool, ten tennis courts, school farm, and outdoor education area. The school is well staffed and the teachers are highly interested in the development of new programs.

One-third of the teachers of the district have master's degrees or beyond, and many are presently pursuing advanced degrees.

The master contract is considered "professional" by the teachers, administration, and the board of education, and provides for such things as a two-week, pre-school,

in-service session; evening meetings between parents and teachers; teacher involvement in curriculum development; and the selection of teachers. There is also a professional conduct committee of teachers to deal with any activity or attitude on the part of teachers or administrators which is not in keeping with "professionalism."

Characteristics of the Sample

When the Environmental Field Studies class appeared in the Okemos High School list of courses in the spring of 1970 as an elective course for juniors and seniors, being offered in the 1970-71 academic year, more than 200 students made initial enrollment in the class. The teacher and the principal had not anticipated such a response. The class, to be a pilot project for one year, would be limited to twenty-four students. After much discussion and many disappointments, the teacher of the class and the principal selected the twenty-four students who would constitute the class. Selection criteria employed were:

1. Since more seniors and males sought enrollment than did juniors and females, the students selected for the class reflected these proportions--60 per cent seniors, 40 percent juniors; two-thirds male, one-third female.
2. The student's grade point average.
3. The academic major of the student.
4. Extent of participation in problem-centered, student-oriented, independent study type classes.

5. Subjective judgments about the student's level of maturity, perserverance, needs, and response to the nature and direction of the class.

The class, composed of ten juniors and fourteen seniors, has an average age of sixteen and one-half years. The sixteen males and eight females come from families which average five members per family. The average number of communities in which the families represented in the class have lived is 3.7.

The fathers of the students have an educational experience range from a minimum of one year in college to a maximum of a doctorate degree. The students' mothers range in educational experience from a high school diploma as a minimum, to master's degrees as the maximum educational level attained. The average income of these families is $24,344 annually per family.

The grade point average of the class ranges from a low of 2.0 to a high of 4.0 on a four-point scale. The average grade point average of the class as of September, 1970, was 3.15.

The School Inventory Instrument

The School Inventory seeks to describe quantitatively the attitude of students toward their high school. According to Bell,[1] students who make low scores tend to be well

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[1]Hugh M. Bell, Manual for the School Inventory (Stanford, California: Stanford University Press, 1963), p. 1.

adapted to the school environment: they like their teachers, enjoy their fellow students, and feel that school is interesting, useful, and conducted systematically and fairly. Students who make high scores tend to be poorly adapted to the school environment.

The interpretation of individual scores is made more meaningful by reference to a distribution of scores for a group. The present scores were secured from high schools varying in size from 120 to 1,200 students. Inasmuch as there was not a statistically significant difference between the average scores for boys and girls, separate norms for the two sexes are not necessary. The average score for boys was 21.50, with a standard error of .90; for girls the average was 21.40, with a standard error of .93.[2]

In Table 3.1, tentative norms are given for high school students. The scores were obtained from California high schools located at Chico, Yreka, Oroville, and Durham. The group was composed of an approximately equal number of freshmen, sophomores, juniors, and seniors. The average for the 391 students is 21.45. The standard deviation is 12.90 and the standard error of the mean is .65. The area of the curve of distribution included in plus one and minus one P. E. is designated as "Average." The area included between plus one and plus two P. E. is designated "Good." The area

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[2] Ibid., p. 2.

between minus one and minus two P. E. is designated "Unsatisfactory." The area above plus two P. E. is "Excellent," and below minus two P. E. is "Very unsatisfactory."

TABLE 3.1

NORMS FOR HIGH SCHOOL STUDENTS ON THE SCHOOL INVENTORY (N = 391)*

Description	Score Range
Excellent	0-3
Good	4-12
Average	13-30
Unsatisfactory	31-39
Very unsatisfactory	Above 39

*Hugh M. Bell, Manual for the School Inventory (Stanford, California: Stanford University Press, 1963).

Bell reports the reliability coefficient for the School Inventory as .94, with a probable error of .004.

The Secondary School Project Questionnaire Instrument

The desire for a "quick and convenient measure of attitudes that could be used with groups"[3] has led to the

[3]Allen E. Edwards, Techniques of Attitude Scale Construction (New York: Appleton-Century-Crofts, Inc., 1957), p. 9.

development of attitude scales. This study will use almost exclusively the Likert-type scales, wherein numerous statements are given, to which the respondent reacts along a continuum from positive to negative. Writing in 1932, Likert indicated the advantages of this method to be as follows:

> First, the method does away with the use of raters or judges and the errors arising therefrom; second, it is less laborious to construct an attitude scale by this method; and third, the method yields the same reliability with fewer items.[4]

He found that scores based upon the relatively simple assignment of integral weights correlated .99 with the more complicated normal deviate systems of weights commonly used at that time.[5]

The unique contribution of attitude surveys was summed up well by Davis when he stated:

> Whereas the typical opinion survey only counts and classifies answers, the attitude survey assigns scores to the answers and mathematically analyzes them.[6]

A review of the literature revealed no instrument designed to assess student attitudes concerning the efficacy of the Mott Institute-Okemos Secondary School Project. Therefore, a questionnaire for students was constructed.

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[4]Rensis Likert, "A Technique for the Measurement of Attitudes," Archives of Psychology, CXL (June, 1932), p. 42.

[5]Edwards, op. cit., p. 151.

[6]Keith Davis, Human Relations At Work (New York: McGraw-Hill Book Company, 1962), p. 83.

Borg's following recommendations were used as a guide to the general approach taken:

> In many cases the research worker wishes to measure an attitude for which no scale is available. The author, for example, recently found it necessary to develop a scale to measure teachers' attitudes toward ability grouping. Satisfactory attitude scales can be developed by the research worker if he follows closely the procedures outlined in textbooks on psychological testing. The Likert technique is usually the easiest method for developing scales needed in research projects.[7]

The first step in the writing of the Secondary School Project Questionnaire was the development of a list of factors considered important by educational leaders and students relative to new courses and innovative classes. Factors related to the objectives of the course were also listed. In addition, factors revealed from an extensive review of appropriate literature were added to this list. At this point duplications were eliminated. A list was then compiled, using the following fourteen suggestions offered by Edwards:

1. Avoid statements that refer to the past rather than to the present.
2. Avoid statements that are factual or capable of being interpreted as factual.
3. Avoid statements that may be interpreted in more than one way.
4. Avoid statements that are irrelevant to the psychological object under consideration.

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[7]Walter Borg, Educational Research: An Introduction (New York: David McKay Company, Inc., 1963), p. 110.

5. Avoid statements that are likely to be endorsed by almost everyone or by almost no one.

6. Select statements that are believed to cover the entire range of the affective scale of interest.

7. Keep the language of the statements simple, clear, and direct.

8. Statements should be short, rarely exceeding twenty words.

9. Each statement should contain only one complete thought.

10. Statements containing universals such as "all, always, none" and "never" often introduce ambiguity and should be avoided.

11. Words such as "only, just, merely" and others of a similar nature should be used with care and moderation in writing statements.

12. Whenever possible, statements should be in the form of simple sentences rather than in the form of compound or complex sentences.

13. Avoid the use of words that may not be understood by those who are to be given the completed scale.

14. Avoid the use of double negatives.[8]

A five-part pretest questionnaire and a seven-part post-test questionnaire were developed (see Appendixes A and B), and pretested with a class having characteristics very similar to the class in the study.

The respondents' comments concerning the field test administration of the instruments were evaluated. Each item response was checked to see if the item was misinterpreted by some of the subjects.

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[8]Edwards, op. cit., pp. 13-14.

With the assistance and co-operation of the Research Services Bureau of the College of Education, Michigan State University, some changes in wording and format were executed. The instrument which was used in the study was approved by the research department of the College of Education. The questions and statements comprising the pretest questionnaire are in five parts:

Part One. This section of the questionnaire is designed to establish the student's reasons for enrolling in the course and his expectations of the course.

Part Two. This section assesses the student's perception of knowing what he wants in life, his ability to use resources and handle evidence and data, his tendency to carry plans into action, and his assessment of his citizenship privileges and responsibilities. (See page 12, Definition of Terms.)

Part Three. This section measures the areas and degree of the respondent's participation in activities outside of the school.

Part Four. This section assesses the student's ability in problem analysis.

Part Five. This section measures the degree of the student's satisfaction with his personal development in a variety of areas related to the objectives of the course and the Project.

The questions and statements comprising the post-test questionnaire are in seven parts:

Part One. This section is designed to measure the student's evaluation of the course in reference to his original statement of his expectations of the course.

Part Two. This section assesses the student's evaluation of the impact of the course on him, according to the criteria listed in part two of the pretest. It is identical to part two of the pretest, with the exception noted in Table 3.2. The question follows each set of statements in the five sections of part two.

TABLE 3.2

STUDENT EVALUATION OF COURSE IMPACT

In terms of knowing what you want in life, this course (check one)
___ 1. Contributed a great deal to my development. It is very strong in this respect.
___ 2. Did a good, but not exceptional job.
___ 3. Was of some help to me, but in general was rather poor.
___ 4. Contributed very little to my development in this respect.

Parts three, four, and five are identical to parts three, four, and five of the pretest instrument.

Part Six. This section measures the student's reaction to the course and his evaluation of its worth to him.

Part Seven. This section yields the student's assessment of unique characteristics of the course and his suggestions for improving the course.

Mechanics of Survey Administration

As it was essential that frank and honest expressions of attitude be obtained from the students, the preservation of anonymity became quite important. Therefore, each student's Questionnaire was not numbered or coded in any way.

Working cooperatively with the teacher of the class, four dates and times were arranged for the administration of the instruments. The School Inventory and the Secondary School Project Questionnaire were administered during the first week of the class session. The same two instruments (with exceptions noted on pp. 80-82) were administered during the last week of the first term of the class session.

An open-end interview schedule was used with parents, teachers, students, and community people on an informal basis and on a flexible schedule. When activities related to the class were conducted throughout the term, these people were contacted and engaged in conversation. Questions intended to motivate a response to the program's efficacy were posed.

Table 3.3 is illustrative of the questions which were asked in the informal interview sessions.

TABLE 3.3

INTERVIEW QUESTIONS

1. What is the nature of your relationship to this class?
2. What has been the frequency of contact between you and the class or class member?
3. Who has initiated these contacts?
4. What was the purpose of the meeting between you and the student(s)?
5. How would you describe the manner in which the student(s) conducted himself/themselves?
6. How would you describe him/them according to:
   a. knowledge of the topic discussed?
   b. validity of the argument?
   c. soundness of the suggested plan?
   d. follow-through on the plan or project?
7. What is your opinion of this type of course for high school students?
8. What impact on the student do you feel this course has made?
9. What changes, if any, have you noticed in the student's attitude about school, society, people in the school and community, and the environment?*
10. To what extent do you feel that this course contributed to these changes?

*This question was asked of those who had many contacts with the students throughout the term.

Treatment of Data

The scores obtained on the Secondary School Project Questionnaire and the School Inventory were averaged and the mean ($\bar{X}$) used as a basis for the determination of the typical level of student attitudes about school and about the Environmental Field Studies course. Mean scores obtained from the pretest and post-test administrations were compared through use of a statistical test of significance.

Data obtained through interviews, observations, and anecdotal records were analyzed and used as supplementary and supportive information in the discussion of some hypotheses.

The Mott Institute-Okemos Secondary School Project

Before a description of the Project is undertaken, a brief description of the Mott Institute for Community Improvement is in order.

The Mott Institute focuses its efforts to improve education by carrying out experimental projects in the communities of Flint, Detroit, Lansing, and Okemos, Michigan. The Institute was established in August, 1965, when the Charles Stewart Mott Foundation of Flint awarded a ten-year grant of funds to Michigan State University.

According to Campbell,[9] the Institute's main purpose is to prepare school personnel to function in schools and communities using the community school approach to aid educationally disadvantaged students. More specifically, the objectives are to:

- Develop an innovative preparation program for teachers of the educationally deprived which will utilize community, university, and local resources.
- Develop methods and materials for teachers of educationally deprived.
- Explore ways of using university students and lay personnel to serve as educational enrichment tutors for underachieving youngsters.
- Initiate university curriculum changes which point out ways and means of using community resources to further the learning process of young and old.[10]

Projects to which the Institute has given major attention to date are:

The Early Elementary Education Project

Differentiated Staffing Project

Teacher Education

Community Service Program

Career Guidance Program

The Secondary School Project is the newest of the Institute's projects.

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[9]Clyde M. Campbell, "Programs for Change in Education" (East Lansing, Michigan: Michigan State University, 1969), p. 1. (Pamphlet.)

[10]Ibid.

In the spring of 1970, personnel from the Institute and school personnel from the Okemos School District assembled to discuss an idea presented by the Institute at an earlier meeting. The gist of the idea was to create a class of high school students which would do battle with those factors, conditions, and people which are contributing to the deterioration of the environment.

The class of twenty-four juniors and seniors was created, and is now operating on a pilot basis for the 1970-71 school year. The class meets five days per week for a two-hour period.

Essentially, the objectives of the program are both pedagogic and social: to capture the interest of students by making use of their own perceptions and experiences and to channel this interest into constructive learning patterns, while at the same time stimulating a more sensitive awareness of the environment. Additionally, it is believed that education should be organized around the goal of teaching young people how to be effective agents for change so that they, in turn, may participate in the social processes which shape their community and their lives.

The program uses an approach which embraces new kinds of learning experiences. These experiences are selected to involve students in the critical analysis of, among other things, the social values and interactions that underlie environmental degradation. A high priority is placed on the

processes of inquiry, problem solving, and evaluation, but the focus is outward into the community and on actual problems affecting the lives of the students.

Operating on a peer basis with the teacher of the class and eight teaching interns from Michigan State University, the students have set themselves a strong program of reading and learning about pollution, effective presentation of their ideas, and influencing action on pollution problems within the county.

A program of speakers, books, films, seminars, university lectures, and independent study constitutes the core of the course. The activities of the class include study of selection of valid data, evaluation and organization of any data obtained, effective interviewing and debating, presentation of statistics gathered, and effective influence on public opinion.

Additionally, the class studies the policies of the mass media, community organization, legislative processes, obtaining effective research into laws on the subject of pollution, and general economics. Their studies on pollution itself include general concepts of ecology, functions of the present anti-pollution groups, laws currently proposed on pollution, and problems in Ingham County, in which Okemos is located.

Groups of five students and one university intern comprise a problem-solving team. Each team identifies a pollution problem, researches the problem, prepares an attack

plan, evolves a strategy for solving the problem, implements the strategy, and then evaluates the effectiveness of the strategy.

The students select representatives from their ranks to attend and record two lectures per week given at Michigan State University. The class, "Man: The Endangered Species--What Kind of Life Do We Want? What Kind of Life Can We Have?" explores the constraints on man and his problems as a social being and the possible solution to these problems.

Teaching the course are various members of the Michigan State University faculty interested in the human environment. Professors from many disciplines are represented, including agriculture; engineering; theology; humanities; and the physical, biological, social, economic, and political sciences, giving the students access to a cross-section of the university's best minds on the environment.

Table 3.4 contains those behavioral objectives of the program which are representative and illustrative of the program's main purposes.

In the process of identifying, attacking, and solving a problem, the students have contact and must cooperate with adults in the community. The students, as dreamers, bring enthusiasm, energy, and spirit to a problem, while adults, as practitioners, bring the frustrations, facts, and obstacles which they face in attempting to solve the problem. This condition tempers the emotion of the youngsters, yet inspires and rejuvenates the adults. Both groups

TABLE 3.4

REPRESENTATIVE BEHAVIORAL OBJECTIVES OF THE PROJECT

1. Each student will list at least five strategies for changing public opinion and awareness.

   They will critically evaluate the appropriateness of at least five strategies for changing public opinion and awareness on a given issue with no errors. His critical evaluation will include:

   a. A description of conditions before implementing the strategy.

   b. A description of conditions after the strategy has been applied to the issue.

   c. A description of negative results produced by implementation of the strategy.

   d. A listing and description of factors extraneous to the implemented strategy which had an effect on the conditions which changed.

   e. Recommendations for continued use of this strategy.

2. The group will plan and carry out at least one appeal monthly to the public (through local or school newspapers, radio, or television) on environmental pollution and solutions. All students must participate in helping meet this objective.

3. Each student will critically evaluate (in report form) at least two non-written presentations (i.e., movie, T.V., lecture, interview, commercials) each term. One must be a personal interview initiated by the student; the other must be from some form of the other presentation.

   The criteria of evaluation will include:

   a. Comprehensive summary.

   b. The major strength of the presentation.

   c. A statement of counter position to the position given in the presentation.

continued

Table 3.4--continued

d. A statement of the presentation's bias.

e. An interpretation of the interest of the presentation for the student's life.

4. Each student will attend at least one session of the State Legislature, local council, or community meeting and write a summary evaluation of his visit. The summary evaluation will include the following:

   a. A summary.

   b. A statement, if any, of the ties to ecological problems.

   c. A listing of the major issues, with an attempt to identify the speakers and their positions.

   d. A statement of the implications of the discussion for the student's life.

   e. A statement of the implications of the positions for future action.

   All five of the above components must be included in the report for the report to be accepted as satisfactory.

5. Each student will be able to identify at least five areas of our environment which are currently undergoing deterioration at an unnatural rate.

   Each student will be able to identify at least three factors contributing to the deterioration of each environmental area listed in response to the above.

6. After taking a programmed text or classroom instruction in ecological vocabulary, concepts, or problem-solving techniques, the student will:

   a. Match the vocabulary word or concept to the appropriate definition with no more than 20 per cent error.

   b. Apply the vocabulary, concepts, and problem-solving techniques to mini-problems with no more than 20 per cent error.

continued

Table 3.4--continued

c. Apply the vocabulary, concepts, and problem-solving techniques to his extra-classroom attempt to effect solutions of real problems in the community.

7. As a group, the students will conduct a demonstration project on environmental problems for their school or community. All students must participate to meet this objective. The class will draw up a definition of what constitutes participation.

8. After taking special instruction in interview analysis, use of ratings or check lists, and case study analysis, the student will apply his skill to a sample incident making no more than 20 per cent errors.

9. Given a list of various types of resources, the student will list at least two strengths and two biases for each source. He will do this with only one error for the four required for each resource.

10. The student will critically evaluate at least three articles on ecology each week.

    The criteria of evaluation will include:

    a. The major strength in the article.

    b. A statement of counter position to the author's position.

    c. A statement of the author's bias.

    d. An interpretation of the interest of the article for the student's life.

    No errors will be permitted in including the above four components in the evaluation.

recognize that each is concerned and needs cooperatively to plan and execute a solution which will benefit all. This appears to be a big first step toward open and effective

communication between the adult "establishment" and the "new youth."

It is hoped that this condition of cooperation between youth and adults will serve as a model which will help to negate Kelley's observation:

> The conflict between age and youth is one of the saddest aspects of our culture. And the saddest fact of all is that age always strikes the first blow. Hostile attitudes on the part of the elders are quickly sensed by youth whose response in many instances is hostility and aggression.[11]

The following entries are representative of the activities of the class which, as stated earlier, operates as a single unit and as a collection of task-force teams.

It should be noted that the activities which occurred during September involved the class as a single unit. The October activities involved the operation of the task-force teams. When the class began, each day was a structured one; there was a scheduled activity involving the whole class. This schedule was what the students wanted and felt they needed. As the term progressed they wanted fewer structured class sessions and more semi-structured, task force team sessions. Initially, then, from Monday through Friday, the class met as a unit. At mid-term, late October, the class met as a unit on Tuesday and Thursday and as task force teams on Monday, Wednesday and Friday.

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[11]Earl C. Kelley, In Defense of Youth (Englewood Cliffs, New Jersey: Prentice-Hall, 1962), p. 7.

Monday, September 21, 1970

During a planning session the previous week, the students, who wanted information on data-gathering techniques, on synthesis and categorization of raw data, and on presentation of data in concise and meaningful forms, asked for the writer's assistance in securing the services of a research scholar. Dr. William Farquhar, Professor of Education, Michigan State University, consented to work with the group and make a presentation on the desired topic. Follow-up exercises on data gathering, data synthesis, and reporting were conducted by the students and the teacher for that week and part of the next.

Tuesday, September 22, 1970

A planning session was conducted, concerning who would attend two upcoming environmental conferences in the state, and what their responsibilities would be.

The class discussed policies relating to speakers--whether they should be shared with other classes and/or with the entire school, how to make maximum use of their materials and time, and related topics.

Two students presented background information on the two speakers who were to meet with the class that week.

Wednesday, September 23, 1970

Mr. Richard Sode, Ingham County Drain Commissioner, was the speaker. He was invited by the class to discuss the

manner in which a state appropriation for water quality projects was being spent.

Class members still work with Mr. Sode on projects to inform communities in Ingham County on drainage problems and water pollution.

Thursday, September 24, 1970

Mr. Len Stuttman, a candidate for a Senate seat in the Michigan Legislature, was the speaker. Mr. Stuttman, who was running as an ecology-minded candidate, expressed his views, concerns, and program plans through use of two original movies and a lecture. The students, who had prepared questions in advance, participated in the seminar discussion which followed.

Friday, September 25, 1970

The first part of the class session was used to discuss the Sode and Stuttman presentations. Extinction: The Game of Ecology, a board game for two to four players, was used to illustrate certain principles of ecology which had been presented by the speakers. The game deals with some of the key processes by which species survive and evolve or become extinct.

The game is played on the imaginary island of Darwinia, which is divided into six different habitats. Players' species compete for occupancy of these habitats. The population of a species is represented by a series of colored

population cubes. The number of cubes a player has on the board depends on how abundant his population is at that moment.

The game illustrates the complex and sometimes devastating chain reactions which may be started by changes in the environment, particularly those caused by man.

Monday, October 19, 1970

Twelve students spent the day attending a national conference in Ann Arbor, Michigan. The Environmental Forum was sponsored by the Michigan Natural Resources Committee.

Students who remained at school spent the afternoon developing an order of books for classroom use. Some students catalogued and filed materials which had been collected, e.g., magazine reprints, newsletters, pamphlets, project proposals, and reports. Other students worked on developing personal behavioral objectives, which had been the topic of two class sessions the previous week.

Tuesday, October 20, 1970

The Suburban Planning Team met with Meridian Township officials. The team and the officials are creating plans for programs which will insure an ecologically sound area in which to live.

Members of the Recycling Team attended Michigan State University for an interview-discussion with Dr. Howard Tanner, Director of the Water Quality Management Plan at Michigan State University.

Members of the Legislative Team went to the Capitol to collect copies of environmental bills and names and addresses of legislators and commission heads. A letter-writing campaign urging support or non-support of bills, policies, and measures with which the students were concerned was to follow.

One student attended the "Man: The Endangered Species" class at Michigan State University to record the session for use of the class and the task force teams.

Wednesday, October 21, 1970

A presentation was given by the twelve students who attended the Environmental Forum in Ann Arbor. They distributed materials they had collected at the conference; these materials were analyzed, summarized, and evaluated by the class.

A member of the Recycling Team summarized the group's meeting with Dr. Tanner; also, she presented a filmstrip-lecture on water treatment facilities.

Thursday, October 22, 1970

Class discussion of the task force teams' problems and frustrations was held.

The Suburban Planning Team went to the Meridian Mall Shopping Center to distribute copies of a leaflet which had been collected at the Environmental Forum. The leaflet contained environmental action ideas and suggestions about organizing a community awareness action program.

The Education Team met with the Okemos Superintendent of Schools. They presented their plan to work with the principal and teachers of one of Okemos' elementary schools on a program of environmental education for elementary school youngsters. The superintendent gave his support to the project and urged the cooperation of all involved.

The Recycling Team attended a follow-up meeting with Dr. Tanner.

Friday, October 23, 1970

The movie, Our Poisoned World: Pesticides, was shown; discussion followed the film. The discussion led to a presentation given by the teacher, dealing with the equilibrium of an ecosystem and illustrating the impact of DDT introduction into the ecosystem.

Summary

The purpose of this chapter has been to explain the procedures and instrumentation used to fulfill the objectives of this study and to describe the Mott Institute-Okemos Secondary School Project.

A description of the instrument, The School Inventory, which was selected to measure student attitudes about school, was given, as was information concerning this instrument's validity and reliability. The basic rationale of the attitude survey technique, the need for the construction of a new

instrument, and the manner in which it was developed and field tested were explained in some detail. A description of the resultant Secondary School Project Questionnaire, pretest and post-test forms, was given.

The community of Okemos, Michigan, the setting for the study, was described. The community as a school district and related statistical data were described in some detail. Characteristics of the students who make up the class used in this study were listed and discussed.

An explanation of the mechanics of test administration used in this study was given, stressing the need to maintain anonymity among the students in order to attain the highest possible level of frank and honest expressions of attitude from the group. A brief explanation of how the data would be treated was also given.

The final section of this chapter was devoted to a description of the Mott Institute for Community Improvement and its purposes. The major part of this section, however, contained a detailed description of the Secondary School Project, including a listing of its major objectives and examples of class and task force team activities.

The following chapter will be devoted to the analysis of the data gathered in this study.

CHAPTER IV

ANALYSIS OF THE DATA

It has been the purpose of this study to evaluate the efficacy of the Mott Institute-Okemos Environmental Quality Program in the attitudinal, action, and impact domains. Nine hypotheses were presented in Chapter I, around which this study has been developed. Each of these hypotheses has been analyzed separately, and the data obtained and appropriate explanation will be presented in this chapter.

Null Hypothesis 1

There will not be a positive change in the students' attitudes about school during the first term of their enrollment in this course.

The analysis of this hypothesis necessitated the assessment of each student's attitudes about school during the first week of his enrollment in the class and during the last week of the first term of his enrollment in the class. To accomplish this, the students were administered the School Inventory at both of these times. Each student's pretest and post-test score was computed, as was a mean score for the group.

As was indicated in the description of the School Inventory in Chapter III, scores on the Inventory indicated a more positive attitude toward school. Table 4.1 shows lower minimum and maximum scores and a lower mean score on the post-test than on the pretest.

TABLE 4.1

MINIMUM AND MAXIMUM VALUES, MEANS, AND STANDARD DEVIATIONS OF STUDENTS' SCORES ON ATTITUDES ABOUT SCHOOL

	Minimum Value	Maximum Value	Mean	Standard Deviation
Pretest	18.00	58.00	36.26	11.11
Post-test	14.00	56.00	35.26	13.07

To determine the significance of the difference between mean scores on the pretest and post-test, a test of significance was executed and the "T" statistic was computed. The "T" of the mean which exists between the variables was determined to be .4676, which is significant at the .328 level.

As shown in Table 4.2 on the following page, a "T" statistic of only .4676 was revealed, which has little significance. Null Hypothesis 1 could not, therefore, be rejected.

TABLE 4.2

ANALYSIS OF SIGNIFICANCE OF DIFFERENCE BETWEEN MEAN SCORES ON THE SCHOOL INVENTORY

Sum of Squares	Sum of Squared Deviations from the Mean	Standard Error	"T"	Significance Level
2337	2314	2.13	.4676	.328*

*Not significant.

One should guard against drawing the conclusion, however, that a condition of no difference between the students at the beginning and end of the term exists. As stated by Farquhar, "You do not prove equality by failing to reject the null hypothesis. All you know is that there is not a statistical difference."[1]

Null Hypothesis 2

The students' understanding of what they want in life will not be enhanced during the first term of their enrollment in this course.

Data for analysis of this hypothesis were obtained from the Secondary School Project Questionnaire. As in Hypothesis 1, the scores students received on the pretest and post-test were used to compute a group mean score for both administrations. Table 4.3 allows a comparison of pretest and post-test values.

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[1]Farquhar, op. cit., p. 14.

TABLE 4.3

MINIMUM AND MAXIMUM VALUES, MEANS, AND STANDARD DEVIATIONS OF KNOWING WHAT STUDENTS WANT IN LIFE SCORES

	Minimum Value	Maximum Value	Mean	Standard Deviation
Pretest	2.00	3.75	2.86	.41
Post-test	2.25	4.00	2.99	.38
Difference	+.25	+.25	+.13	-.03

Although differences between the items in the above table seem slight, the gains are substantial when analyzed on a four-point scale, which is the scale value of this section of the Questionnaire.

A statistical test of significance between pretest and post-test means was performed to ascertain the extent to which the means differed and at what level the difference was significant. Computation of the "T" statistic revealed a significant difference between the means, at the .03 alpha level. Table 4.4, on the following page, illustrates this.

Additional data were gathered through that section of the Questionnaire in which the students indicated of what value the course was to them in enhancing their understanding of what they want in life. Sixty-one per cent of the students indicated that the course enhanced their understanding of what they want in life.

TABLE 4.4

ANALYSIS OF SIGNIFICANCE OF DIFFERENCE BETWEEN KNOWING WHAT STUDENTS WANT IN LIFE MEAN SCORES

Sum of Squares	Sum of Squared Deviations from the Mean	Standard Error	"T"	Significance Level
2.41	2.08	.06	1.88	.03

Therefore, Null Hypothesis 2 was rejected and the following hypothesis accepted:

The students' understanding of what they want in life will be significantly enhanced during the first term of their enrollment in this course.

Null Hypothesis 3

During the first term of their enrollment in this course, the students' ability to use resources will not be enhanced.

Data for analysis of this hypothesis were obtained from the Questionnaire. Methods identical to those used in Hypothesis 2 were employed. An analysis of difference between pretest and post-test means was completed after student scores were determined and used in the computation of those means.

TABLE 4.5

MINIMUM AND MAXIMUM VALUES, MEANS, AND STANDARD DEVIATIONS OF USING RESOURCES SCORES

	Minimum Value	Maximum Value	Mean	Standard Deviation
Pretest	2.00	3.40	2.74	.33
Post-test	1.80	4.00	2.99	.44
Difference	-.20	+.60	+.25	+.11

These computations revealed a significant difference between the means, at the .01 alpha level. Table 4.6 summarizes these results.

TABLE 4.6

ANALYSIS OF SIGNIFICANCE OF DIFFERENCE BETWEEN USING RESOURCES SCORES

Sum of Squares	Sum of Squared Deviations from the Mean	Standard Error	"T"	Significance Level
6.48	5.11	.10	2.42	.01

The null hypothesis, that the students' ability to use resources would not be enhanced in this course, was rejected.

It became apparent, therefore, that a significant difference between these two variables does, in fact, exist.

For this reason, the following hypothesis was upheld and shown to be significant:

During the first term of their enrollment in this course, the students' ability to use resources will be enhanced.

Additionally, data gathered with that section of the Questionnaire in which the students show their assessment of the value the course has for them, revealed that 65 per cent of the students indicated the course enhanced their ability to use resources.

It is interesting to note a relationship between this variable, using resources score, and the problem solving score variable. A correlation of .499 exists between these variables. Using a table of significance levels for standard correlations, this correlation, .499, is significant at the .05 alpha level.

Such an observation would indicate that experiences and training in identification and use of resources and problem solving are reciprocally beneficial.

Null Hypothesis 4

The students' ability in handling evidence and data will not be increased during their enrollment in the first term of this course.

Data for this hypothesis were gathered by using the Secondary School Project Questionnaire to ascertain a pretest mean score and a post-test mean score.

The pretest mean score (2.86) was then compared to the post-test mean score (2.83), revealing a difference of -.03 points.

As shown in Table 4.7, a "T" statistic of only .4509 was revealed. As no "T" ratio less than 1.0 can have significance, no further analysis was undertaken. Null Hypothesis 4 could not, therefore, be rejected.

TABLE 4.7

ANALYSIS OF SIGNIFICANCE OF DIFFERENCE BETWEEN HANDLING EVIDENCE AND DATA MEAN SCORES

Sum of Squares	Sum of Squared Deviations from the Mean	Standard Error	"T"	Significance Level
1.33	1.32	.05	.4509	.328*

*Not significant.

However, even though further statistical analysis was precluded by the less than one "T" ratio, it is interesting to note that the students in the class felt differently than the preceding data revealed. In response to the section of the post-test described in Table 3.2, wherein they indicated the extent to which the class had value to them in terms of handling evidence and data, 22 per cent of the students felt the course contributed a great deal to their development. Additionally, they indicated the course was very strong in that respect. Sixty-two per cent of the students

indicated they felt the course did a good job in enhancing handling of evidence and data. Four per cent felt the course was of some help, and the remaining 12 per cent of the students in the class felt the course contributed very little to their development in this skill.

Therefore, even though the difference between mean scores on this variable was not significant statistically, 84 per cent of the students felt the class enhanced their development in this skill, whereas only 16 per cent indicated it had little or no effect on their ability to handle evidence and data.

Null Hypothesis 5

During their enrollment in the first term of this course, the students' ability to carry their plans into action will not be increased.

As in Hypothesis 4, the Questionnaire was used to gather data to test this hypothesis. The method used was identical to that which was used in testing Hypotheses 2, 3 and 4. Mean scores were computed and subjected to an analysis of significance.

The average minimum and maximum values for this variable on the pretest and post-test were identical--minimum value, 2.16; maximum value, 3.5. Additionally, the difference between group mean scores for this variable was .004. The computation of the "T" statistic revealed no significant

difference between these mean scores. Table 4.8 summarizes the relevant data.

TABLE 4.8

ANALYSIS OF SIGNIFICANCE OF DIFFERENCE BETWEEN CARRYING PLANS INTO ACTION MEAN SCORES

Sum of Squares	Sum of Squared Deviations from the Mean	Standard Error	"T"	Significance Level
3.38960	3.38916	.08	.0531	.479

As the "T" statistic reported in the preceding table was not sufficiently large to reject the null hypothesis, Null Hypothesis 5 could not be rejected.

Additional related data were gathered through that section of the post-test in which the students indicated of what value the course was to them in increasing their ability to carry plans into action. Fifty-six per cent of the students indicated the course increased their ability to carry their plans into action. Forty-four per cent indicated the course contributed little or nothing to their development in this respect.

Null Hypothesis 6

The students' awareness of their privileges and responsibilities as citizens and their participation in citizen

activities will not be increased during the first term of their enrollment in this course.

Data for analysis of this hypothesis were obtained from the Secondary School Project Questionnaire. An analysis of significance between pretest and post-test means was completed after student scores were determined and used in the computation of those means.

TABLE 4.9

MINIMUM AND MAXIMUM VALUES, MEANS, AND STANDARD DEVIATIONS OF CITIZENSHIP SCORES

	Minimum Value	Maximum Value	Mean	Standard Deviation
Pretest	2.25	4.00	2.77	.47
Post-test	1.88	4.00	2.91	.57
Difference	-.37	-	+.14	+.07

These computations revealed a significant difference between the pretest and post-test means, at the .06 alpha level. Table 4.10, on the following page, summarizes these results.

The students' assessment of the value the course had for them in terms of increasing their citizenship awareness and participation indicated a positive attitude. Seventy-three per cent of the students felt the course increased their citizenship awareness and participation, whereas only

TABLE 4.10

ANALYSIS OF SIGNIFICANCE OF DIFFERENCE
BETWEEN CITIZENSHIP SCORES

Sum of Squares	Sum of Squared Deviations from the Mean	Standard Error	"T"	Significance Level
4.19	3.77	.08	1.55	.06

27 per cent indicated the course was of little help to them in this respect.

The null hypothesis, that the students' awareness of their privileges and responsibilities as citizens and their participation in citizen activities will not be increased during the first term of this course, was rejected.

It became apparent, therefore, that a significant difference between these two variables does, in fact, exist. For this reason, the following hypothesis was upheld and shown to be signigicant:

The students' awareness of their privileges and responsibilities as citizens and their participation in citizen activities will be significantly increased during the first term of their enrollment in this course.

Null Hypothesis 7

During the first term of this course there will not be a positive reaction to the course from the students, their

parents, and community people.

An analysis of this hypothesis necessitated two methods for collecting the data. The Secondary School Project Questionnaire was used with the students, and interviews with the students' parents and community people were conducted.

Students were asked to indicate the extent to which they were satisfied or dissatisfied with their development in skills and characteristics related to this course. Examples of these abilities follow:

Self-reliance
Knowing how to attack a problem
Ability to get along with adults
Knowing where to get the facts of an issue
Ability to distinguish fact from opinion
Knowing how to get involved in community activities

Student responses, given on a four-point scale, were computed and used in ascertaining a group mean score for the pretest and post-test. An analysis of significance between pretest means was completed. The computation of the "T" statistic revealed that a significant difference exists between the means, at the .03 alpha level.

On another section of the Questionnaire, students' reactions to the course were measured.

1. One hundred per cent of the students indicated their experience in the course had been a good one.

2. Seventy-nine per cent of the students indicated the course offered them a good range and variety of interesting activities.

3. Seventy-nine per cent of the students indicated the course offered useful knowledge and developed useful skills.

4. Ninety-five per cent of them indicated the course helped them to understand people better.

5. Sixty-six per cent of the students indicated this course was the best they were taking this year.

6. Fifty-two per cent of the group indicated this was the best course they had had in high school.

7. Seventy-eight per cent of them felt this course tended to make students more practical and realistic.

8. Fifty-six per cent of the class indicated that because of this course they were more involved in the activities of groups and agencies in the community.

9. Fifty-two per cent of the class felt that people in positions of authority don't listen to young people.

10. Ninety-six per cent of the students in this class planned to continue the fight against environmental decay when the course ends in June.

Additionally, students were asked to respond to the question: "In what ways has this course changed you?" The following statements are representative of the majority of student responses:

1. "It's shown me how lazy I can get and how I need someone to belt me with a club, but I'm changing. I'm finally doing things on my own."

2. "I have become more open with people."

3. "I think I now understand and can communicate with people who I consider opposite (as far as personality, etc.) better than I could before."

4. "It is a great experience in learning and living. I think that after eleven years of classroom situations, it is good to be exposed to a different (opposite) type of educational setup."

5. "The contact with new people has gotten me out of my old clique. I've discovered that people I think are different aren't necessarily bad."

6. "Many! My whole life's philosophy has been overhauled, and my ability to look at myself honestly has increased. I've learned to throw away inhibitions and most of the time I can eliminate the façade I've carried around with me for so long."

In addition to responses to the interview questions (see Table 3.3), parents were asked to indicate their reaction to the class by selecting one of the following labels which they felt was most descriptive of their position: Very Positive, Positive, Neutral, Negative, Very Negative.

Thirty per cent of the parents were very positive, 50 per cent were positive, and 20 per cent were negative. None of the parents used Neutral or Very Negative as descriptive of their reaction to the class.

It was interesting that in the majority of cases, parental reaction to the course, both pro and con, was centered on the amount of "structure" the class had. Ninety per cent of the parents commented on the structure of the class. They wondered if the pattern of a teacher directing the activities of the class might be better than the students' deciding for themselves. Yet, somewhat paradoxically, they felt the "unstructured approach" fostered independence and a sense of responsibility in their youngsters.

Reactions of those who had contact with the class as a whole or with individual students were equally positive. Len Stuttman, once a candidate for the Michigan Senate, remarked: "It's essential that we get kids interested in and acting upon the issues we keep talking about. I think this type of class is part of the answer. I share their desire to do something about the important issue of environmental quality."

Richard Sode, Ingham County Drain Commissioner, in an interview with the writer stated: "What is most interesting about this class to me is that it deals with a current problem. When I went to school you learned from books--and books only. These kids learn from people, books, agencies, and personal experience. I haven't been out of high school too long but we had nothing like this class. This is great."

Additionally, two feature articles appeared in the Lansing State Journal, a daily newspaper; a feature article

and an editorial praising the concept of the class appeared in the Ingham County News, a weekly newspaper; and students from the class appeared on an interview show on WJIM-TV in Lansing, Michigan.

Therefore, based on all the preceding evidence, Null Hypothesis 7, which states that there will not be a positive reaction to the course from the students, their parents, and community people, was rejected. The following hypothesis was upheld and shown to be significant:

During the first term of this course there will be a significantly positive reaction to the course from the students, their parents, and community people.

Null Hypothesis 8

After the first term, students will not identify characteristics of the course which they feel make it unique and different from other courses they have taken.

Data for analysis of this hypothesis were gathered from a section on the post-test form of the Questionnaire. The students were confronted with the following task:

> Please list the characteristics of this course which in your opinion make it unique and different from other courses you have taken or are taking.

Eighty-three per cent of the students in the class listed at least two characteristics, and approximately one-half of those comprising the 83 per cent listed five or more characteristics. The remaining 17 per cent of the group

either listed characteristics which carried little meaning, such as "it's different," or wrote nothing at all.

The following statements are representative of the characteristics listed by the students in the class. The list contains unique characteristics of the class, while it reveals also the relative appeal of the characteristic to the student:

1. "I like it because we make the course. We don't simply enroll into a specific course."
2. "Intrinsic more than extrinsic motivation."
3. "I know and like most everyone in this class. It is unstructured. People don't tell you what to do--you decide yourself."
4. "Breakdown of fixed teacher-student atmosphere."
5. "Personal fulfillment."
6. "Chance to relate as a human being with the teacher."
7. "Working in real society rather than the pseudo-society of school."
8. "Learning your own pitfalls."
9. "It provides unlimited resources."
10. "Kids can be themselves."
11. "It is much more versatile in structure and content."
12. "Not worrying about grades and how to get them."

Null Hypothesis 8, therefore, was rejected and the following hypothesis was upheld:

After the first term, students will identify characteristics of the course which they feel make it unique and different from other courses they have taken.

Null Hypothesis 9

During their enrollment in the first term of this course the nature of the students' activities outside of school will not demonstrate an increased interest and participation in community affairs.

Data for analysis of this hypothesis were gathered with Part Three of the Questionnaire. Containing a list of thirty-six activities, part three measures the extent to which each student spends free time outside of school on each activity.

Within this list of thirty-six activities, sixteen were designated as key items which would be scored separately. These key items are activities that are directly descriptive of community interest and participation as it relates to this course. (See items 3, 4, 5, 7, 9, 11, 15, 17, 21, 24, 26, 27, 28, 29, 31, and 34.)

Individual student scores were determined and were used in computing mean scores for the pretest and post-test. The general activity mean scores and the key item activity mean scores were analyzed. A statistical test of significance between means was performed to ascertain the extent to which the means differed and at what level the difference was significant. Computation of the "T" statistic revealed a

significant difference between the general outside activity means at the .001 level. The difference between key item activity means was highly significant at the .0002 alpha level. Table 4.11 summarizes the pertinent data.

TABLE 4.11

ANALYSIS OF SIGNIFICANCE OF DIFFERENCE BETWEEN OUTSIDE ACTIVITY MEAN SCORES

	Sum of Squares	Sum of Squared Deviations from Mean	Standard Error	"T"	Significance Level
General	4.27	2.69	.07	3.5964	.001
Key Item	8.52	4.64	.09	4.2911	.0002

Therefore, Null Hypothesis 9 was rejected and the following hypothesis accepted:

During their enrollment in the first term of this course the nature of the students' activities outside of school will demonstrate a significantly increased interest and participation in community affairs.

Summary

In this chapter the hypotheses stated in Chapter I were stated in their null form and analyzed. Those which could be rejected in the null form were restated as directional, or delta, hypotheses. For purposes of summarization,

the nine hypotheses will now be stated in question form and answered on the basis of the data gathered.

Question 1--Will there be a positive change in the students' attitudes about school during the first term of their enrollment in this course?

No significant difference between group mean scores was found. The impact of this course on student attitudes about school in general had no observable effect.

Question 2--Will the students' understanding of what they want in life be enhanced during the first term of their enrollment in this course?

A "T" statistic of 1.88, significant at the .03 alpha level, indicated a definite enhancement of the students' understanding of what they want in life had occurred during the first term of this course.

Additionally, it was revealed that 61 per cent of the students in the class indicated that in terms of knowing what they want in life, this course contributed significantly to their development.

Question 3--Will the students' ability to use resources be enhanced during the first term of their enrollment in this course?

An analysis of significance between pretest and post-test means was applied to the data of this question,

revealing a significant difference between these two variables. The "T" statistic generated was tested and found to be significant at the .01 alpha level.

Also, it was revealed that 65 per cent of the students in the class indicated that in terms of using resources this course contributed significantly to their development.

In addition to this basic analysis, it was noted that a relationship between the using resources variable and the problem solving score variable exists. A correlation coefficient of .499, significant at the .05 level, established a definite relationship between the variables of using resources and of problem solving.

Question 4--Will the students' ability in handling evidence and data be increased during their enrollment in the first term of this course?

No significant difference between group mean scores was found. However, it was noted that the students in the class felt differently than the statistical data indicated. In response to the section of the post-test Questionnaire wherein they indicated the extent to which the class had value to them in terms of handling evidence and data, 84 per cent of the students felt the class had enhanced significantly their development in this skill.

Question 5--Will the students' ability to carry their plans into action be increased during their enrollment in the first term of this course?

No significant difference between group mean scores was found. However, 56 per cent of the students indicated the course increased their ability to carry their plans into action. This indication was made on the reaction section of the post-test Secondary School Project Questionnaire.

Question 6--Will the students' awareness of their privileges and responsibilities as citizens and their participation in citizen activities be increased during the first term of their enrollment in this course?

An analysis of data related to this question revealed that a significant difference exists between pretest and post-test means. As was done with two of the preceding hypotheses, the null hypothesis was rejected as a result of a generated "T" statistic of 1.55, significant at the .06 alpha level.

Also, the students' assessment of the value the course had for them in increasing their citizenship awareness and participation indicated a positive attitude. Seventy-three per cent of the students felt the course significantly increased their citizenship awareness and participation. On the basis of these data, it can be assumed that a strong relationship exists between the course and the students' citizenship awareness and participation.

Question 7--Will there be a positive reaction to the course from the students, their parents, and community people during the first term of this course?

An analysis of this hypothesis necessitated two methods for collecting the data. The Questionnaire and interview were employed.

Student scores on the Questionnaire were computed and used in ascertaining a group mean score for the pretest and post-test. An analysis of significance between mean scores was completed. The computation of the "T" statistic revealed that a significant difference exists between these two variables, at the .03 alpha level.

On another section of the Questionnaire students' appraisals of the value of the course were indicated. Some of the significant results follow:

1. One hundred per cent of the students indicated their experience in the course had been a good one.
2. Seventy-nine per cent of the students indicated the course offered useful knowledge and developed useful skills.
3. Ninety-five per cent of the students indicated the course helped them to understand people better.
4. Sixty-six per cent of the students indicated that this was the best course they were taking this year.
5. Fifty-two per cent of the group indicated that this was the best course they had had in high school.

In addition to responses to the interview questions, parents were asked to indicate their reaction to the class by selecting one of the following labels as most descriptive of their position: very positive, positive, neutral, negative, and very negative.

Thirty per cent of the parents were very positive, 50 per cent were positive, and 20 per cent were negative. None of the parents selected neutral or very negative as descriptive of their reaction to the class.

Statements made by people from the community were cited and shown to be positive. Additionally, it was noted that the class had been the subject of newspaper articles, editorials, and television programs, all of which indicated a positive reaction to the class and its objectives.

Question 8--Will the students identify characteristics of the course which they feel make it unique and different from other courses they have taken?

Eighty-three per cent of the students in the class listed at least two characteristics; one-half of those listed five or more characteristics. The following are some of the characteristics which were listed by the students. The list contains unique characteristics of the class, while it reveals also the relative appeal of the characteristics to the student:

1. Chance to relate as a human being with teacher.
2. Working in real society rather than the pseudo-society of school.
3. Learning your own pitfalls.
4. Kids can be themselves.
5. Breakdown of "fixed" teacher-student atmosphere.

Question 9--Will the nature of the students' activities outside of school demonstrate an increased interest and participation in community affairs?

An analysis of data related to this question revealed that a significant difference exists between general outside activity mean scores. Computation of the "T" statistic revealed a significant difference between these two variables, at the .001 alpha level.

More significant is the difference between mean scores on key item activities which are most directly related to the objectives of the course. Computation of the "T" statistic revealed a significant difference between these two variables, at the .0002 alpha level.

The final chapter will be devoted to a concise summary of the research, conclusions, implications, and suggestions for further study.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

This final chapter will be devoted to a summary of the study, followed by a discussion of the conclusions generated from the analysis of the data, and concluded with recommendations for further research.

Summary

Purposes of the Study

1. The basic purpose of this study was to determine the relationship between the Environmental Field Studies course and student attitudes about school, themselves, and the course.

2. Closely allied with this purpose was the desire to ascertain the relationship between the course and the students' academic skills and activities.

3. The study additionally sought to determine what reaction the parents and community people would have to the Environmental Field Studies course.

4. To explore the relationship between a problem-centered and action-oriented program and student involvement

in out-of-school activities was a further purpose of this study.

5. The study's final purpose was to deduce those characteristics of the course which make it unique and different.

In order to explore these five related yet distinctly different purposes, nine hypotheses were developed. They will be discussed later in this chapter under Conclusions.

Limitations of the Study

1. As is true of any study, the validity of this study is affected by the degree of frankness and sincerity of response to the instruments administered.

2. The setting for this Project is one class in Okemos High School. To insure an in-depth analysis, this study is concerned with the people and setting directly related to the Project.

3. The finding of a relationship between positive changes in the attitudes and activities of the students, their parents, and community people, and the Environmental Field Studies class were considered correlational only, not causal.

Review of the Literature

A review of the literature for this study consisted of a description and analysis of innovative high school programs and of national social studies projects. Although each

program and project is different from the others, all of them share a common characteristic: a personalized and humanized orientation to instruction and learning.

Major characteristics of these programs and projects which were particularly significant were as follows:

1. Student self-reliance, self-definition, and self-direction is the emphasis-goal.
2. The programs help the student to be a responsible individual and worthwhile member of a dynamic social group.
3. Interaction and participation on the part of the student are predominant.
4. The model for the teacher is different. Being concerned with change in personal meaning and behavior, the role calls for people who are helpers, facilitators, aides, assisters, and ministers to a process of becoming.
5. The responsibility of helping students to grow up and live in the world is practiced by using the world of the present as the learning laboratory.
6. The curriculum is used as a means of instruction, not an end in itself. It is a tool which is implemented to cultivate the individual learner.
7. Skills such as classifying data, formulating and testing hypotheses, judging sources, using deductive reasoning, and formulating models are stressed.
8. Attempts are made to teach students to identify and analyze values in context.
9. The patterns of thinking required of students are creative, subjective, and divergent.
10. Social realism is stressed. The intent is to describe life more realistically and relate education to the daily experiences of students.

Design of the Study

In order to determine and measure relationships among the variables of this study, three instruments were used. The School Inventory was selected to provide a measure of the extent to which students' attitudes about school were positive or negative. The assessment of student reactions to the course, student activities in the course, and student accomplishment of course objectives was accomplished through the use of the Secondary School Project Questionnaire, written specifically for this study. The Project Interview Schedule, developed by the writer for this study, was used to assess the impact of the course on the parents of the students in the class and community people who had contacts with the class.

Working cooperatively with the teacher of the class, four dates and times were arranged for the administration of the instruments. The School Inventory and the Secondary School Project Questionnaire were administered during the first week and last week of the first term.

The Project Interview Schedule was used with parents and community people for the duration of the first term.

Data from the administration of the study's three instruments were punched on computer data cards and submitted to the Michigan State University CDC 3600 computer for computational purposes.

Conclusions

Hypothesis 1: There will be a positive change in the students' attitudes about school during the first term of their enrollment in this course.

An analysis of significance of difference between group means failed to reveal any significant difference. Although the null form of this hypothesis could not be rejected, it was noted that one should guard against drawing the conclusion that a condition of no difference exists between the students at the beginning and at the end of the term. It was shown that failure to reject the null hypothesis does not prove equality. All one can know is that there is not a statistical difference.

Hypothesis 2: The students' understanding of what they want in life will be enhanced during the first term of their enrollment in this course.

Using analysis of significance of difference to determine if a significant difference existed in mean scores, the generated "T" statistic of 1.88 was demonstrated to be significant at the .03 level, or well beyond the .05 alpha level. Additionally, 61 per cent of the students in the class indicated that the course enhanced their understanding of what they want in life.

It is fair to conclude, therefore, that the student's understanding of what he wants in life will be enhanced during his enrollment in the Environment Field Studies class.

Hypothesis 3: During the first term of their enrollment in this course the students' ability to use resources will be enhanced.

The analysis of significance of difference technique was used to investigate this hypothesis, as once again the study was concerned with the examination of signigicant differences, if any, between group means. A "T" statistic of 2.42 was generated, significant at the .01 alpha level. In the acceptance of this hypothesis it can be concluded that the students' ability to use resources will be enhanced during their enrollment in this class. Of further interest is the fact that 67 per cent of the students indicated the course enhanced their ability to use resources.

Although not required for analysis within this hypothesis, it was interesting to note, however, a relationship between the using resources mean and the problem solving variable. A correlation coefficient of .499, significant at the .05 level, exists between these two variables. Such a fact would indicate that experience and training in identification and use of resources and in problem solving are reciprocally beneficial.

Hypothesis 4: The students' ability in handling evidence and data will be increased during their enrollment in the first term of this course.

The analysis of data pertinent to this hypothesis, when tested for differences between means, was not found to be significant. A "T" statistic of .4509 was revealed. As no "T" ratio less than 1.0 can have significance, the null hypothesis could not be rejected.

Somewhat paradoxically, however, 84 per cent of the students in the class indicated that the course enhanced their development in this skill.

Although statistical nonsignificance exists, it appears that those who are enrolled in the Environmental Field Studies class feel their enrollment increases their ability to handle evidence and data. The writer concludes, therefore, that the 84 per cent statistic is more descriptive of the fact than is the "T" statistic.

Hypothesis 5: During their enrollment in the first term of this course, the students' ability to carry their plans into action will be increased.

The analysis of data pertinent to this hypothesis, when tested for difference between means, was not found to be significant. As the difference between means was less than .01 of a point, it can be concluded, contrary to the hypothesis, that the students' ability to carry their plans into action will not be increased during their enrollment in this class.

Hypothesis 6: The students' awareness of their privileges and responsibilities as citizens and their participation in citizen activities will be increased during the first term of their enrollment in this course.

Using analysis of significance of difference once again to determine if a significant difference exists between pretest and post-test mean scores, a "T" statistic of 1.55, significant at the .06 level, was revealed.

Additionally, the students' assessment of the value the course has for them in terms of increasing their citizenship awareness and participation is significant. Seventy-three per cent of the students indicated the course increased their citizenship awareness and participation.

It is fair to conclude, therefore, that the students' awareness of their privileges and responsibilities as citizens and their participation in citizen activities will be increased during their enrollment in the Environmental Field Studies course.

Hypothesis 7: During the first term of this course, there will be a positive reaction to the course from the students, their parents, and community people.

The extent to which the students' reaction to the course is positive was revealed to be quite strong. Using an analysis of significance of the difference between mean

scores technique again, computation of the "T" statistic revealed that a significant difference between mean scores exists, at the .03 alpha level.

Additionally, the students' appraisals of the value of the course indicated a range from a minimum of 52 per cent to a maximum of 100 per cent of the class reacting positively to the class, to class activities, to class objectives, and to individual skill development.

The parents' reaction to the course was equally positive. Thirty per cent of the parents defined their reaction to the class as very positive, 50 per cent as positive, and only 20 per cent indicated a negative reaction to the class.

Positive reactions of community people were revealed in the form of positive statements from those who had had contact with the class, and in the form of feature newspaper articles, newspaper editorials, and T.V. coverage.

The data showed, without muqh doubt, that students, parents, and community people reacted positively to the students themselves, the class learning model, the activities of the class, and the objectives of the class.

Hypothesis 8: After the first term, students will identify characteristics of the course which they feel make it unique and different from other courses they have taken.

Eighty-six per cent of the students in the class listed at least two unique characteristics of the class; one-half of that group listed five or more characteristics.

The characteristics which they listed are, in fact, those which the planners, teachers, and administrators of the course identify as unique characteristics of the Environmental Field Studies course.

The basic conclusion one must draw from the data which is pertinent to the hypothesis is that the students are perceptive enough to discern characteristics of different learning models with which they are involved. Most important, as their statements revealed, they can make value judgments about the models based on the security, identification, challenge, reality, and relevance accruing to them from these different models.

Hypothesis 9: During their enrollment in the first term of this course the nature of the students' activities outside of school will demonstrate an increased interest and participation in community affairs.

The analysis of significance technique was used to investigate this hypothesis, as once again the study was concerned with the examination of significant differences, if any, between group means. Concerning general outside activity means, a "T" statistic of 2.5964 was generated, significant at the .001 alpha level. More important, the

difference between key item activities, those most directly related to course objectives, was even more significant. A "T" statistic of 4.2911 was generated, significant at the .0002 alpha level. Therefore, in the acceptance of this hypothesis it can be concluded that the nature of the students' activities outside of school will demonstrate an increased interest and participation in community affairs during their enrollment in this class.

Implications

The implications which can be drawn from this study, although basic in nature and modest in scope, are, nonetheless, significantly important to all students, teachers, parents, administrators, and those involved in curriculum innovation. If the knowledge explosion precludes the possibility of our schools teaching all that youth needs to know; if critical thinkers and problem solvers are prerequisite to the survival of society; if social injustice, contamination of our environment, urban decay, and dehumanization demand action, involvement, and commitment; then a massive effort must be made to generate programs that teach youth how to learn and that can bring each youngster face-to-face with that which is real to him.

This study has pointed out the high correlation between a student-centered, problem-solving learning model and the enhancement, refinement, and development of essential

learning skills such as self-direction, using resources, handling evidence and data, and problem-solving techniques. This condition clearly implies that it is desirable for programs to approximate the philosophy, objectives, and program of the Environmental Field Studies model if a positive student response, a positive parent response, and essential learning skills are to be enhanced.

Additionally, this study pointed out the high correlation between the Environmental Field Studies course and the nature and the frequency of the students' outside-of-school activities. An assessment of student activities at the end of the first term revealed a significant change in the nature and frequency of these activities, as compared to those at the beginning of the term. More students were spending more of their free time in community affairs. Clearly, this fact implies that if high school students' interest in and contributions to the community are to be enhanced, school programs need to increase the opportunities for student participation in the community.

An admonition to the reader is in order. Anyone who concludes that the adoption of the Environmental Field Studies model is a panacea for education maladies would be falsely assuming a cause-and-effect relationship to exist between the Environmental Field Studies course and student attitudes, student skills, and student behavior. As stated previously, none of the nine hypotheses examined attempted to establish such a concrete relationship.

Three hypotheses, dealing with student attitudes about school is Hypothesis 1, handling evidence and data in Hypothesis 4, and carrying plans into action in Hypothesis 5, failed to be rejected. One should guard against drawing the conclusion, however, that a condition of no differences between groups exists. As stated by Farquhar, "You do not prove equality by failing to reject the null hypothesis. All you know is that there is not a statistical difference."[1]

Questions for Further Study

1. What single factor contributes most to the very positive student reaction to the Environmental Field Studies course?

2. If parental reaction to the course were more negative than positive, what impact would it have on the students' reaction to the course?

3. To what extent would the Environmental Field Studies course model be successful in the junior high school?

4. What is the relationship between the length of the class period, the number of periods per week, and the duration of the course and student attitudes about the course?

5. If students were graded by conventional means and conventional standards would their attitudes about the course and the nature of their activities in the course change significantly?

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[1]Farquhar, loc. cit.

6. Do student attitudes about school in general diminish proportionately to the number of years spent in the school?

7. What is the relationship between student attitudes about school and the extent to which they participate in planning their educational program?

8. Would the replication of this study within a school district of differing size, socio-economic structure, and geographical location produce significantly different results?

Reflections

Although this study affirmed several of the writer's untested beliefs which had formerly been based upon speculative thinking, one of the study's findings was of an unexpected nature. It had been assumed, as expressed in Hypothesis 5, that the students' ability to carry their plans into action would be increased during their enrollment in this course. This seemed a logical assumption since the course is an action-oriented one. Yet, students appeared to spend an inordinate amount of time in the planning stage of a project. In most instances if the execution stage was ever reached it was a floundering and superficial execution of a well-formed plan. However, when the teacher or the writer sat with the group and helped to direct the execution phase of the project, culmination of the project was attained.

We, as educators, cannot expect students who, for eleven or twelve years, have been conditioned to passive

roles as learners, to adjust immediately to new and different, active roles as learners. For years we have been helping them to prepare for meaningful living and not allowing them to live and learn a real, meaningful life. We have told youngsters, not taught them; we have talked to them, not with them; we have molded them, and have not drawn them out, we have made them dependent and passive, not independent and active. In light of these conditions, the outcome of Hypothesis 5 is not unexpected.

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Interviews

Mr. Edward Bukovinsky
Okemos, Michigan

Mr. Paul Chase
Okemos, Michigan

Mrs. Sally Davidson
Okemos, Michigan

Mr. William Dean
Okemos, Michigan

Mr. Myles Delano
Okemos, Michigan

Mr. and Mrs. Glenn Engle
Okemos, Michigan

Mrs. Patricia French
Okemos, Michigan

Mr. and Mrs. James Fairley
Okemos, Michigan

Mr. Donald Gordon
Okemos, Michigan

Mr. and Mrs. Donald Griese
Okemos, Michigan

Mr. and Mrs. Frederick Gross
Okemos, Michigan

Mrs. Harold Hart
Okemos, Michigan

Mrs. Herbert Jackson
Okemos, Michigan

Mrs. Donald Montgomery
Okemos, Michigan

Mr. Robert Perry
Okemos, Michigan

Mrs. Robert Ringer
Okemos, Michigan

Mr. Arnold Schuiteman
Okemos, Michigan

Mr. Harold Schultz
Okemos, Michigan

Mrs. Richard Shaull
Okemos, Michigan

Mr. Richard Sode
Lansing, Michigan

Mrs. Leslie Steen
Okemos, Michigan

Mr. Leonard Stuttman
East Lansing, Michigan

Mrs. Joseph Varner
Okemos, Michigan

Mr. Thomas Well
Okemos, Michigan

Mrs. Alfred Wood
Okemos, Michigan

Mr. Earl Zetterholm
Okemos, Michigan

APPENDIXES

APPENDIX A

Secondary School Project Questionnaire

Pretest Form

Secondary School Project Questionnaire

Form PRE

Dear Student:

The purpose of this questionnaire is to determine how you feel about this course and all the activities associated with it and related to it. There are no right or wrong answers to the questions. We want to know how you feel and what you think.

Your response will be treated anonymously. It is very important that you complete the questionnaire individually and not in cooperation with anyone else.

Read the directions before each section and proceed until you complete the entire questionnaire. Please begin.

PART ONE

1. How did you hear about this course? (If you need more space, use back of this sheet.)

2. Why did you decide to enroll in this course?

3. Did you make the decision to enroll in this course by yourself? If not, with whom did you consult? How much influence did this person or persons have on your decision to enroll?

4. What do you expect this course to be like?

5. In what ways do you expect this course to change you?

PART TWO

Read each statement carefully. Then indicate, as accurately as you can, on the scale which appears to the right of each statement, the response you judge to be most descriptive of your position.

If you strongly disagree with the statement, circle SD . . . . . (SD) D A SA

If you disagree with the statement, circle D. . . . . SD (D) A SA

If you agree with the statement, circle A. . . . . SD D (A) SA

If you strongly agree with the statement, circle SA . . . . . SD D A (SA)

1. Knowing what you want in life:

   a. I have a clear idea of the direction I want my life to take. . . . . SD D A SA

   b. I am aware of most of my important beliefs . . . . . SD D A SA

   c. I recognize problems in relation both to my own personal living and to the larger society. . . . . SD D A SA

   d. I attack problems as a whole, and in relation to other problems, rather than one at a time or in a hit or miss fashion . . . . . SD D A SA

2. Using Resources:

a. I know a number of people to whom I can go for effective help on solving a problem. . . . . SD D A SA

b. I approach and use these people and yet do not take advantage of them or lean too heavily upon them. . . . . SD D A SA

c. I am effective in bringing knowledge and past experience to bear upon new problems SD D A SA

d. I am familiar with a variety of useful local resources such as libraries, museums, social agencies, government bureaus, forums, etc . . . . . SD D A SA

e. I use local resources for materials, evidence, and further experiences. . . . SD D A SA

3. Handling evidence and data:

a. In attacking a problem, I take the time and effort to inventory possible causes, outcomes, and methods of solving the problem. . . . . SD D A SA

b. I consider the consequences of my solution to a problem. . . . . SD D A SA

c. I have an experimental attitude in attacking problems . . . . . SD D A SA

d. I seek all possible evidence related to a problem. . . . . SD D A SA

e. I collect facts in a systematic fashion. . SD D A SA

f. I tend to be objective in dealing with facts related to a problem . . . . . SD D A SA

g. I am careful to distinguish between fact and opinion. . . . . SD D A SA

h. In a discussion I am insistent upon fairness on the part of all members participating, including myself . . . . . SD D A SA

4. Carrying plans into action:

a. I act upon conclusions arrived at through the use of the thinking process. . . . . SD D A SA

b. I face the effects of my conclusions . . . SD D A SA

c. I tend to leave my conclusions on an intellectual level rather than apply them to my daily life activities. . . . . SD D A SA

d. I use action as the test of my plans and conclusions. . . . . SD D A SA

e. I revise my plans in light of additional evidence . . . . . SD D A SA

f. I can be depended upon to see a problem through to its solution. . . . . SD D A SA

5. Citizenship:

a. In considering how I act in political and civic matters in my community and state, I am an active citizen. . . . . SD D A SA

b. I make my feelings and position known to my friends, family, teachers, principal, and community leaders. . . . . SD D A SA

c. I initiate contacts with people who are principals in an issue of concern to me. . SD D A SA

d. I am interested in and sensitive to what happens in my community and state. . . . . SD D A SA

e. I try to do something about what happens in my community and state. . . . . SD D A SA

f. I involve myself in the work of community agencies or citizens' groups whose function is to solve problems which I feel need solving . . . . . SD D A SA

g. I express my concerns to community and state leaders about problems and make suggestions for improving conditions which are related to these problems. . . . . SD D A SA

h. If I feel my position on an issue is correct I attempt to convince others to support me and my position . . . . . SD D A SA

PART THREE--Activities of personal choice

Using the list of activities which follows, please indicate on the scale which appears to the right of each activity, the degree to which you spend your time outside of school in each activity.

If you never spend time on the activity, circle N . . . . . (N) S F VF A

If you sometimes spend time on the activity, circle S . . . . . N (S) F VF A

If you frequently spend time on the activity, circle F . . . . . N S (F) VF A

If you very frequently spend time on the activity, circle VF. . . . . N S F (VF) A

If you always spend time on the activity, circle A . . . . . N S F VF (A)

1. Reading current fiction . . . . . N S F VF A
2. Reading poetry. . . . . N S F VF A
3. Reading magazines . . . . . N S F VF A
4. Reading the newspaper . . . . . N S F VF A
5. Writing letters to the editor . . . . . N S F VF A
6. Writing verse or prose. . . . . N S F VF A
7. "Solving the world's problems" in friendly discussion . . . . . N S F VF A
8. Photography . . . . . N S F VF A
9. Watching news and public interest programs on T.V. . . . . N S F VF A
10. Hiking or camping . . . . . N S F VF A
11. Attending a Board of Education meeting in your school district . . . . . N S F VF A

12. Hunting and fishing	N	S	F	VF	A
13. Gardening	N	S	F	VF	A
14. Watching entertainment or sports programs on T.V.	N	S	F	VF	A
15. Attending state legislative hearings or sessions	N	S	F	VF	A
16. Working at your favorite hobby.	N	S	F	VF	A
17. Attending a political rally	N	S	F	VF	A
18. Attending the legitimate theater. . . .	N	S	F	VF	A
19. Playing bridge or other card games. . .	N	S	F	VF	A
20. Playing baseball, football, basketball, soccer.	N	S	F	VF	A
21. Working with community agencies and/or groups.	N	S	F	VF	A
22. Visiting museums, art galleries, and special exhibitions	N	S	F	VF	A
23. Going to the movies	N	S	F	VF	A
24. Attending a Board of Education meeting in a school district other than yours .	N	S	F	VF	A
25. Attending sports events	N	S	F	VF	A
26. Doing volunteer work--hospital, social agency, school.	N	S	F	VF	A
27. Self improvement through reading, special courses, correspondence courses	N	S	F	VF	A
28. Attending a lecture, forum, discussion group session	N	S	F	VF	A
29. Working voluntarily for a candidate for public office	N	S	F	VF	A
30. Cooking and/or sewing, needlework . . .	N	S	F	VF	A
31. Attending court sessions and public hearings.	N	S	F	VF	A

32. Hanging around a community center or youth canteen. . . . . N S F VF A

33. Bowling, billiards, ping pong. . . . . N S F VF A

34. Attending town meetings or community council meetings . . . . . N S F VF A

35. Skating, skiing, tobogganing . . . . . N S F VF A

36. Golfing, tennis. . . . . N S F VF A

PART FOUR

After reading the paragraph which follows, check in the columns at the right, the statement you consider the best, most reasonable answer to the question and the statement you consider the poorest or weakest answer. Do this for each of the four questions.

> The death of the world is imminent because the human population of the planet is about five times too large, and we're managing to support all these people--at today's level of misery--only by spending our capital, burning our fossil fuels, dispersing our mineral resources and turning our fresh water into salt water. We have not only overpopulated but overstretched our environment. We are poisoning the ecological systems of the earth--systems upon which we are ultimately dependent for all of our food, for all of our oxygen and for all of our waste disposal. These very complex ecosystems are made up of many different kinds of organisms; we're killing off those organisms and simplifying the systems. The stability of ecosystems is dependent on their complexity; if they become simple, they become unstable.
>
> Dr. Paul Ehrlich

	Best Answer	Poorest Answer
I. Who should attack and attempt to solve this problem?		
a. All the people in the world.		
b. All the people in the nation		
c. Local communities.		
d. Persons directly concerned		
II. Why are we slow in making progress?		
a. People are indifferent; they don't care much; they have other things on their minds and are willing to "let the other guy do it.".		
b. We do not know what we want. Since there are many different groups, peoples, and cultures in this country, we must come to a common agreement of what we hope to accomplish before we will make progress		
c. People are just talking about the problem and have very little knowledge about it; no action is being taken to solve the problem		

	Best Answer	Poorest Answer
d. We do not get at fundamental causes. We have thought of it as a single problem, while really it is part of our whole social system.		
e. Many people are not willing to work hard the way they did years ago. If people were ready to work hard, there would be progress on this problem		
III. What should we do about this problem?		
a. Improve our educational system by devoting more time to the study of such problems and by increasing our emphasis on facts, skills, and abilities related to the problem. .		
b. Reform our government by improving the operation of it. We should work for greater honesty and competence in our government. The incompetents should be recalled to private life.		
c. Work for increased governmental control over conditions which contribute to this problem		
d. Make some significant changes in our society. This means a change in the ruling class. It may mean something like our American Revolution of 1776.		
e. Each individual in our country must care about the problem, and then seek the best way he or she can be most effective in initiating changes of the conditions which contribute to or cause the problem		
f. In the long run, time will be the most effective positive help in working out a solution. Time will provide for a slow but gradual change.		

	Best Answer	Poorest Answer
g. People should keep out of problems that are not their business. This problem would not exist if everyone did this.		
IV. What is the hope or progress in solving this problem?		
a. We can expect progress in the next five or ten years		
b. We can expect progress in the next fifty years		
c. There is practically no hope of progress.		
d. The outlook is very grave. Things will get worse before they get better.		

PART FIVE

Read each statement carefully. Then indicate whether you are: strongly dissatisfied, dissatisfied, satisfied, or strongly satisfied with your personal development in each area.

If you are strongly dissatisfied, circle SD. .	(SD)	D	S	SS
If you are dissatisfied, circle D.	SD	(D)	S	SS
If you are satisfied, circle S	SD	D	(S)	SS
If you are strongly satisfied, circle SS . . .	SD	D	S	(SS)
1. Ability to handle tension.	SD	D	S	SS
2. Ability to control emotions.	SD	D	S	SS
3. Ability to compete without resenting competitors.	SD	D	S	SS
4. Self-reliance.	SD	D	S	SS
5. Ability to stick to a task	SD	D	S	SS
6. Knowing my own abilities	SD	D	S	SS
7. Knowing how to attack a problem.	SD	D	S	SS
8. Ability to understand my parents' point of view	SD	D	S	SS
9. Ability to make ethical or moral distinctions.	SD	D	S	SS
10. Ability to get along with adults	SD	D	S	SS
11. Knowing how to get involved in community activities	SD	D	S	SS
12. Developing a philosophy of life.	SD	D	S	SS
13. Knowing where to go to get the facts of an issue.	SD	D	S	SS
14. Knowing how to influence people.	SD	D	S	SS
15. Knowing how to resolve a conflict in opinion.	SD	D	S	SS
16. Developing a clear sense of myself (who I am).	SD	D	S	SS

17. Ability to distinguish fact from opinion. . . . . SD D S SS

18. Knowing how to gain the support and cooperation of others in solving mutual problems . . . . . SD D S SS

19. Ability to understand and respect the convictions of people with whom I disagree. . . . . SD D S SS

20. Ability to relate to people who are in a position of authority. . . . . SD D S SS

APPENDIX B

Secondary School Project Questionnaire

Post-test Form

Secondary School Project Questionnaire

Form POST

Dear Student:

The purpose of this questionnaire is to determine how you feel about this course and all the activities associated with it and related to it. There are no right or wrong answers to the questions. We want to know how you feel and what you think.

Your response will be treated anonymously. It is very important that you complete the questionnaire individually and not in cooperation with anyone else.

Read the directions before each section and proceed until you complete the entire questionnaire. Please begin.

STUDENT POST-TEST

PART ONE

1. Are you glad that you're enrolled in this course? (Yes or No) Why?

2. When this course began you were asked, "What do you expect this course to be like?" Is this course what you expected it to be? (Yes or No)

   In what ways?

3. In what ways has this course changed you?

PART TWO

Read each statement carefully. Then indicate, as accurately as you can, on the scale which appears to the right of each statement, the response you judge to be most descriptive of your position.

If you strongly disagree with the statement, circle SD. . . . . (SD) D A SA

If you disagree with the statement, circle D . SD (D) A SA

If you agree with the statement, circle A. . . SD D (A) SA

If you strongly agree with the statement, circle SA. . . . . SD D A (SA)

1. Knowing what you want in life:

   a. I have a clear idea of the direction I want my life to take . . . . . SD D A SA

   b. I am aware of most of my important beliefs. . . . . SD D A SA

   c. I recognize problems in relation both to my own personal living and to the larger society. . . . . SD D A SA

   d. I attack problems as a whole, and in relation to other problems, rather than one at a time or in a hit or miss fashion. . . . . SD D A SA

   e. In terms of knowing what you want in life, this course: (check one)

      ___1. Contributed a great deal to my development. It is very strong in this respect.

      ___2. Did a good, but not exceptional job.

continued

___3. Was of some help to me, but in general was rather poor.

___4. Contributed very little to my development in this respect.

2. Using Resources:

a. I know a number of people to whom I can go for effective help on solving a problem. . SD D A SA

b. I approach and use these people and yet do not take advantage of them or lean too heavily upon them. . . . . SD D A SA

c. I am effective in bringing knowledge and past experience to bear upon new problems. SD D A SA

d. I am familiar with a variety of useful local resources such as libraries, museums, social agencies, government bureaus, forums, etc.. . . . . SD D A SA

e. I use local resources for materials, evidence, and further experiences. . . . . SD D A SA

f. In terms of using resources, this course: (check one)

___1. Contributed a great deal to my development. It is very strong in this respect.

___2. Did a good, but not exceptional job.

___3. Was of some help to me, but in general was rather poor.

___4. Contributed very little to my development in this respect.

3. Handling Evidence and Data:

a. In attacking a problem, I take the time and effort to inventory possible causes, outcomes, and methods of solving the problem. . . . . SD D A SA

b. I consider the consequences of my solution to a problem. . . . . SD D A SA

c. I have an experimental attitude in attacking problems . . . . . SD D A SA

d. I seek all possible evidence related to a problem . . . . . SD D A SA

e. I collect facts in a systematic fashion. SD D A SA

f. I tend to be objective in dealing with facts related to a problem . . . . . SD D A SA

g. I am careful to distinguish between fact and opinion. . . . . SD D A SA

h. In a discussion I am insistent upon fairness on the part of all members participating, including myself. . . . . SD D A SA

i. In terms of handling evidence and data, this course: (check one)

___1. Contributed a great deal to my development. It is very strong in this respect.

___2. Did a good, but not exceptional job.

___3. Was of some help to me, but in general was rather poor.

___4. Contributed very little to my development in this respect.

4. Carrying plans into action:

a. I act upon conclusions arrived at through the use of the thinking process SD D A SA

b. I face the effects of my conclusions. . SD D A SA

c. I tend to leave my conclusions on an intellectual level, rather than apply them to my daily life activities. . . . SD D A SA

d. I use action as the test of my plans and conclusions . . . . . SD D A SA

e. I revise my plans in light of additional evidence . . . . . SD D A SA

f. I can be depended upon to see a problem through to its solution . . . . . SD D A SA

g. In terms of carrying plans into action, this course: (check one)

___1. Contributed a great deal to my development. It is very strong in this respect.

___2. Did a good, but not exceptional job.

___3. Was of some help to me, but in general was rather poor.

___4. Contributed very little to my development in this respect.

5. Citizenship:

a. In considering how I act in political and civic matters in my community and state, I am an active citizen . . . . . SD D A SA

b. I make my feelings and position known to my friends, family, teachers, principal, and community leaders. . . . SD D A SA

c. I initiate contacts with people who are principals in an issue of concern to me SD D A SA

d. I am interested in and sensitive to what happens in my community and state. SD D A SA

e. I try to do something about what happens in my community and state. . . . . SD D A SA

f. I involve myself in the work of the community agencies or citizens' groups whose function is to solve problems which I feel need solving . . . . . SD D A SA

g. I express my concerns to community and state leaders about problems and make suggestions for improving conditions which are related to these problems . . SD D A SA

h. If I feel my position on an issue is correct I attempt to convince others to support me and my position. . . . . SD D A SA

i. In terms of developing my sense of responsibility, my interest, and my desire to act in <u>citizenship</u>, this course: (check one)

___1. Contributed a great deal to my development. It is very strong in this respect.

___2. Did a good, but not exceptional job.

___3. Was of some help to me, but in general was rather poor.

___4. Contributed very little to my development in this respect.

PART THREE--Activities of Personal Choice

Using the list of activities which follows, please indicate on the scale which appears to the right of each activity, the degree to which you spend your time outside of school in each activity.

If you never spend time on the activity, circle N. . . . . (N) S F VF A

If you sometimes spend time on the activity, circle S. . . . . N (S) F VF A

If you frequently spend time on the activity, circle F . . . . . N S (F) VF A

If you very frequently spend time on the activity, circle VF . . . . . N S F (VF) A

If you always spend time on the activity, circle A. . . . . N S F VF (A)

1. Reading current fiction. . . . . N S F VF A
2. Reading poetry . . . . . N S F VF A
3. Reading magazines. . . . . N S F VF A
4. Reading the newspaper. . . . . N S F VF A
5. Writing letters to the editor. . . . . N S F VF A
6. Writing verse or prose . . . . . N S F VF A
7. "Solving the world's problems" in friendly discussion. . . . . N S F VF A
8. Photography. . . . . N S F VF A
9. Watching news and public interest programs on T.V. . . . . N S F VF A
10. Hiking or camping. . . . . N S F VF A
11. Attending a Board of Education meeting in your school district. . . . . N S F VF A
12. Hunting or fishing . . . . . N S F VF A
13. Gardening. . . . . N S F VF A

14. Watching entertainment or sports programs on T.V. . . . . N S F VF A

15. Attending state legislative hearings or sessions. . . . . N S F VF A

16. Working at your favorite hobby. . . . . N S F VF A

17. Attending a political rally . . . . . N S F VF A

18. Attending the legitimate theater. . . . N S F VF A

19. Playing bridge or other card games. . . N S F VF A

20. Playing baseball, football, basketball, soccer. . . . . N S F VF A

21. Working with community agencies and/or groups. . . . . N S F VF A

22. Visiting museums, art galleries, and special exhibitions . . . . . N S F VF A

23. Going to the movies . . . . . N S F VF A

24. Attending a Board of Education meeting in a school district other than yours . N S F VF A

25. Attending sports events . . . . . N S F VF A

26. Doing volunteer work--hospital, social agency, school. . . . . N S F VF A

27. Self-improvement through reading, special courses, correspondence courses N S F VF A

28. Attending a lecture, forum, discussion group session . . . . . N S F VF A

29. Working voluntarily for a candidate for public office . . . . . N S F VF A

30. Cooking and/or sewing, needlework . . . N S F VF A

31. Attending court sessions and public hearings. . . . . N S F VF A

32. Hanging around a community center or youth canteen . . . . . N S F VF A

33. Bowling, billiards, ping pong. . . . . N S F VF A

34. Attending town meetings or community council meetings . . . . . N S F VF A

35. Skating, skiing, tobogganing . . . . . N S F VF A

36. Golfing, tennis. . . . . N S F VF A

PART FOUR

After reading the paragraph which follows, check in the columns at the right, the statement you consider the best, most reasonable answer to the question and the statement you consider the poorest or weakest answer. Do this for each of the four questions.

> The death of the world is imminent because the human population of the planet is about five times too large, and we're managing to support all these people--at today's level of misery--only by spending our capital, burning our fossil fuels, dispersing our mineral resources and turning our fresh water into salt water. We have not only overpopulated but overstretched our environment. We are poisoning the ecological systems of the earth--systems upon which we are ultimately dependent for all of our food, for all of our oxygen and for all of our waste disposal. These very complex ecosystems are made up of many different kinds of organisms; we're killing off those organisms and simplifying the systems. The stability of ecosystems is dependent on their complexity; if they become simple, they become unstable.
>
> Dr. Paul Ehrlich

	Best Answer	Poorest Answer
I. Who should attack and attempt to solve this problem?		
a. All the people of the world. . . .		
b. All the people in the nation . . .		
c. Local communities.		
d. Persons directly concerned		
II. Why are we slow in making progress?		
a. People are indifferent; they don't care much; they have other things on their minds and are willing to "let the other guy do it."		
b. We do not know what we want. Since there are many different groups, peoples, and cultures in this country, we must come to a common agreement of what we hope to accomplish before we will make progress . . .		

	Best Answer	Poorest Answer
c. People are just talking about the problem and have very little knowledge about it; no action is being taken to solve the problem.		
d. We do not get at fundamental causes. We have thought of it as a single problem, while really it is part of our whole social system		
e. Many people are not willing to work hard the way they did years ago. If people were ready to work hard, there would be progress on this problem.		
III. What should we do about this problem?		
a. Improve our educational system by devoting more time to the study of such problems and by increasing our emphasis on facts, skills, and abilities related to the problem . .		
b. Reform our government by improving the operation of it. We should work for greater honesty and competence in our government. The incompetents should be recalled to private life .		
c. Work for increased governmental control over conditions which contribute to this problem.		
d. Make some significant changes in our society. This means a change in the ruling class. It may mean something like our American Revolution of 1776		
e. Each individual in our country must care about the problem, and then seek the best way he or she can be most effective in initiating changes of the conditions which contribute to or cause the problem.		
f. In the long run, time will be the most effective positive help in working out a solution. Time will provide for a slow but gradual change .		

	Best Answer	Poorest Answer
g. People should keep out of problems that are not their business. This problem would not exist if everyone did this.		
IV. What is the hope of progress in solving this problem?		
a. We can expect progress in the next five or ten years		
b. We can expect progress in the next fifty years		
c. There is practically no hope of progress.		
d. The outlook is very grave. Things will get worse before they get better.		

PART FIVE

Read each statement carefully. Then indicate whether you are: strongly dissatisfied, dissatisfied, satisfied, or strongly satisfied with your personal development in each area.

If you are strongly dissatisfied, circle SD.	(SD)	D	S	SS
If you are dissatisfied, circle D	SD	(D)	S	SS
If you are satisfied, circle S	SD	D	(S)	SS
If you are strongly satisfied, circle SS .	SD	D	S	(SS)
1. Ability to handle tension.	SD	D	S	SS
2. Ability to control emotions.	SD	D	S	SS
3. Ability to compete without resenting competitors.	SD	D	S	SS
4. Self-reliance.	SD	D	S	SS
5. Ability to stick to a task	SD	D	S	SS
6. Knowing my own abilities	SD	D	S	SS
7. Knowing how to attack a problem. . . .	SD	D	S	SS
8. Ability to understand my parents' point of view.	SD	D	S	SS
9. Ability to make ethical or moral distinctions.	SD	D	S	SS
10. Ability to get along with adults . . .	SD	D	S	SS
11. Knowing how to get involved in community activities	SD	D	S	SS
12. Developing a philosophy of life. . . .	SD	D	S	SS
13. Knowing where to go to get the facts of an issue.	SD	D	S	SS
14. Knowing how to influence people. . . .	SD	D	S	SS
15. Knowing how to resolve a conflict in opinion.	SD	D	S	SS
16. Developing a clear sense of myself (who I am)	SD	D	S	SS

17. Ability to distinguish fact from opinion. . . . . SD D S SS

18. Knowing how to gain the support and cooperation of others in solving mutual problems. . . . . SD D S SS

19. Ability to understand and respect the convictions of people with whom I disagree. . . . . SD D S SS

20. Ability to relate to people who are in a position of authority. . . . . SD D S SS

PART SIX

Read each statement carefully. Then indicate whether you: agree, probably agree, probably disagree, or disagree.

If you agree, circle A.	(A)	PA	PD	D
If you are uncertain, but probably agree, circle PA	A	(PA)	PD	D
If you are uncertain, but probably disagree, circle PD	A	PA	(PD)	D
If you disagree, circle D	A	PA	PD	(D)

1. In general, my own experience in this course has been a good one.	A	PA	PD	D
2. There are good opportunities for students to get to know, meet, or work with faculty members outside the classroom.	A	PA	PD	D
3. Students have a good opportunity to influence the direction of this course. . .	A	PA	PD	D
4. Students have freedom to develop their own activities in this course	A	PA	PD	D
5. This course offers a good range and variety of interesting activities	A	PA	PD	D
6. This course develops the student's ability to analyze and criticize written and visual materials.	A	PA	PD	D
7. This course offers really useful knowledge and develops really useful skills. .	A	PA	PD	D
8. This course has helped me to understand people better	A	PA	PD	D
9. This course has strengthened my political awareness	A	PA	PD	D
10. Through this course I am improving my ability to work with people who are different from me.	A	PA	PD	D
11. My ability to think and reason has improved because of this course	A	PA	PD	D
12. This course is the best course I am taking this year	A	PA	PD	D

13. Many students in this course develop a strong sense of responsibility about their role in contemporary social and political life. . . . . A PA PD D

14. Students in this course seem to expect other people to adapt to them rather than trying to adapt themselves to others. . . A PA PD D

15. This is the best course I have had in high school . . . . . A PA PD D

16. This course tends to make students more practical and realistic . . . . . A PA PD D

17. People in positions of authority don't listen to young people. . . . . A PA PD D

18. Students put a lot of energy into everything they do, in class and out . . . . . A PA PD D

19. Because of this course, I am more involved in the activities of groups and agencies in the community . . . . . A PA PD D

20. When this course is ended I plan to continue the fight against environmental decay . . . . . A PA PD D

PART SEVEN

A. Please list the characteristics of this course which, in your opinion, make it unique and different from other courses you have taken or are taking.

B. In what ways, in your opinion, can this course be made better?