A STUDY TO DETERMINE THE RELATIONSHIP BETWEEN THE DEGREE OF PROGRAM OPENNESS, THE ATTAINMENT OF ORGANIZATIONAL PERFORMANCE OBJECTIVES AND SELECTED DEMOGRAPHIC VARIABLES AS PERCEIVED BY TEACHERS IN SELECTED PUBLIC ELEMENTARY SCHOOLS

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APPROVAL SHEET

Title of Thesis: A STUDY TO DETERMINE THE RELATIONSHIP BETWEEN THE DEGREE OF PROGRAM OPENNESS, THE ATTAINMENT OF ORGANIZATIONAL PERFORMANCE OBJECTIVES AND SELECTED DEMOGRAPHIC VARIABLES AS PERCEIVED BY TEACHERS IN SELECTED PUBLIC ELEMENTARY SCHOOLS

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ABSTRACT

Title of Thesis: A Study to Determine the Relationship Between the Degree of Program Openness, the Attainment of Organizational Performance Objectives, and Selected Demographic Variables as Perceived by Teachers in Selected Public Elementary Schools.

Kevin J. Lyons, Doctor of Philosophy, 1975

Thesis directed by: Harvey Goldman
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The problems of concern in this study were: (1) To investigate whether a relationship existed between teachers' perceptions of the attainment of organizational performance objectives and the degree of program openness exhibited by selected elementary schools; (2) to investigate whether a relationship existed between selected demographic variables and teachers' perceptions of program openness and the attainment of organizational performance objectives; and (3) to investigate whether organizational performance objective attainment could be predicted from the demographic variables and degree of program openness.

The sample in this study was comprised of teachers representing sixty-four elementary schools. The schools were selected from twelve of the twenty-four school systems in the State of Maryland.

Two instruments were utilized in this study.

1) The Dimensions of Schooling instrument (IV). This instrument was a thirty item questionnaire which was designed to measure the degree of openness exhibited

by the educational program of a school. The instrument yields a score which descirbes the program on a continuum of openness which ranges from one to thirty.

2) The Organizational Status Survey. This instrument was a sixty-three item questionnaire which was designed to measure perceptions about the quality of performance manifested by the public schools. The instrument yields scores on six performance objectives.

Significant positive correlations were found between degree of program openness and the performance objectives Organizational Rationality and Individuality. Correlations between socio-economic status of the school and each of the performance objectives were not significant. A negative correlation was found between size of student enrollment and Individuality. In all cases, the correlations were linear in nature.

The multiple correlation between the performance objective Organizational Rationality and the variables degree of program openness, socio-economic status, and size of student enrollment was found to be significant. Degree of program openness was found to be the best predictor of Organizational Rationality. Socio-economic status was also found to account for a significant amount of the variability, while size of student enrollment was not. The multiple correlation between the performance objective Individuality and the variables degree of program openness, socio-economic status, and size of student enrollment was also found to be significant. Size of student enrollment was found to be the best predictor of Individuality, while degree of openness was also found to account for a significant amount of variability. Socio-economic status was not found to be a significant predictor.

Degree of program openness was found to have a significant positive correlation with socio-economic status, and a significant negative correlation with size of student enrollment. In both cases the relationship was linear in nature. Schools with open and mixed architectural designs were found to be significantly more "open" than schools with a traditional design.

The results of this study represent an investigation of the attainment of specific performance objectives, as perceived by teachers in public elementary schools, in relation to degree of program openness and selected demographic variables. The results provide an indication of the way in which open education is associated with performance objective attainment and with certain demographic variables. They also provide an indication of some of the factors which may influence school effectiveness and open education.

DEDICATION

It is not often that one has the opportunity to acknowledge, in writing, the contributions of others to one's life. It is less often that the opportunity arises to dedicate a portion of one's life to those whose influence and guidance caused a beginning and helped make a future. It is to these people that this work, and the past five years are dedicated.

Pamela M. Lyons, person, mother, wife, lover, and typist, whose constant understanding, support, encouragement, and love made it possible and worthwhile.

Brendan John Lyons and Margaret Ann Lyons whose patience and love were tested more, but who responded better, than any.

Ann V. Lyons, whose strength, courage, and devotion to a family has kept it together.

John J. Lyons (1912-1970), in loving memory, who influenced the beginning and the results.

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The completion of this study is a result of the untiring efforts of many individuals. Sincere appreciation is expressed to the members of the dissertaion committee: to my major advisor, Dr. Harvey Goldman, for his continued guidance and counsel, his requirement and stimulation to think, and his infinite patience throughout the course of this study; to Dr. James Dudley, friend and teacher, who provided encouragement, ideas, criticism, and reinforcement throughout my graduate career; Dr. Jodellano J. Statom, for her encouragement, support, and enthusiasm for teaching; and to Dr. Charles E. Johnson, for his expertise and suggestions in dealing with the research design.

The writer is indebted to the many teachers and principals from all parts of the State of Maryland who gave of their time and insights, without which this study would never have been completed. A word of thanks to Dr. E. Robert Stephens, Head of the Department of Administration, Supervision, and Curriculum, for his support and for providing the opportunity to teach and learn in the department. Finally, to my fellow graduate students in the department, who provided intellectual stimulation, consolation, and laughter during the past five years.

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CHAPTER I

INTRODUCTION

The term "Open Education" is being mentioned with increasing frequency by both educators and lay people in discussions of American educational practices. The absence of a definitive model to describe open education, however, makes the specific assessment of its effects extremely difficult. As Bussis and Chittenden indicate:

> . . . Approaches to early (elementary or primary school) education which have come to be labeled "open" seem particularly vulnerable to misunderstanding and elusive to evaluation efforts. The need for a clearer conceptualization of the objectives of such programs is critical, both for better communication of their essential components and for more meaningful evaluation of their outcomes. . . .[1]

The difficulties associated with the measurement of effectiveness are not limited to programs in education. All organizations are faced with the necessity of evaluating their efforts, whether they are educational organizations, business organizations or governmental agencies. Traditionally, limited indices such as monetary profit (in business) or academic achievement (in schools) have been used as the criterion by which success or failure is measured. During the past decade, however, researchers have begun to utilize more broad-based criteria in attempts to measure organizational effectiveness. These endeavors are concerned with more than monetary profit or academic achievement as measures of effectiveness. Tannenbaum and Georgopoulus, in reference to this practice, state: "Organizations can no longer be concerned solely with how successful the

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[1]Anne Bussis and Edward A. Chittenden, Analysis of an Approach to Open Education (Princeton: Educational Testing Service, 1970), p. 2.

organization has been in achieving its goals, but rather, how successful (in terms of these goals) and at what cost to human strain and organizational viability."[2]

In searching for improved evaluation models, it has become increasingly apparent that more systematic and inclusive information is necessary in order to measure effectiveness in all areas critical to the adequate functioning of organizations. Bertram Gross, in addressing this problem, set forth a hierarchy of objectives generic to all organizations. Basically, this is a set of performance areas that all organizations must accomplish to remain in existence. These include: 1) satisfaction of interests, 2) output of services or goods, 3) efficiency or profitability, 4) investment in organizational viability, 5) mobilization of resources, 6) observance of codes, and 7) [administrative] rationality."[3] These performance objectives, since they are broad-based and inclusive, may be used in analyzing the functioning of organizations.

Given the lack of research regarding open education, the lack of research on the effectiveness of organizations in general and public schools in particular, and the increased movement toward open education practices in the schools, it is imperative that research focus on techniques which will better enable educators to assess open education with regard to the total educational organization.

Purpose of the Study

The purpose of the study was to explore the relationship between open education and specific indices of organizational effectiveness. As

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[2]Arnold S. Tannenbaum, Control in Organizations (New York: McGraw-Hill Book Company, 1968), p. 46.

[3]Bertram Gross, The Managing of Organizations, 2 vols. (Glencoe: The Free Press, 1964), 2:488.

such, the study was exploratory in nature, and was concerned with attempting to investigate whether differing programmatic environments were related to differing patterns of organizational functioning. It was also concerned with investigating relationships between educational programs and specific demographic variables, and between indices of organizational performance and specific demographic variables.

Statement of the Problem

The problem of concern was three-fold; 1) to investigate whether a relationship existed between teachers' perceptions of the attainment of organizational objectives and the degree of program openness exhibited by selected elementary schools, 2) to investigate whether a relationship existed between selected demographic variables and teachers' perceptions of program openness and demographic variables and the attainment of organizational performance objectives, and 3) to investigate whether performance objective attainment could be predicted from the demographic variables and degree of program openness.

Importance of the Study

A study of this nature would appear to have many important implications for theoreticians and practitioners alike. It is entirely possible that one of the reasons for the lack of success in comparing the effectiveness of one type of program with that of another is the use of criteria which are extremely narrow in scope. In studies comparing such variables as instructional strategies, curricular offerings,

leadership styles, or patterns of organization, the measures used in assessing effectiveness seem to be so narrow that they reflect only easily measurable outcomes and ignore the global ramifications for the organization as a whole. This study deals not only with a global measure of organizational performance, but it also seeks to provide a better view of the relationship between open education and the nature of performance within the total educational organization.

It is also intended that a better means for making accurate decisions with regard to the type of school program a community desires will also emerge. If certain purposes are better fulfilled with one type of program than another, the choice may lie in asking communities whether they are willing to expend the resources necessary for improved performance. The study will also seek to determine whether the attainment of performance objectives is related to the socio-economic level of the community. This has implications for whether communities are able to expend these additional resources as well as implications for future planning considerations.

Finally, the results of this study will be useful from a theoretical standpoint in that they will add to the growing body of knowledge dealing with various facets of open education and organizational effectiveness. In addition, the study will provide information on the ability of the instruments used in study, both of which are newly developed, to measure these variables.

Theoretical Bases of the Study

In this section research is presented which deals with the theoretical foundations of the variables of concern in this study. The discussion is divided into two subsections. Research which

deals with the concept of organizational effectiveness as a multidimensional entity is presented in the first subsection. In the second subsection, research concerned with uncovering the basic tenets of open education is presented.

Organizational Effectiveness

Likert[4] indicates that there are common fundamental principles applicable to the effective organization of human activity, whether in government, industry, education, or the military. The existence of these principles enables researchers to analyze organizations in terms of characteristics common to all organizations. In order to measure these common characteristics, Likert developed the Profile of Organizational Characteristics Instrument. This instrument was developed from analyses of large numbers of organizations in different industries. The instrument classifies organizations along a continuum into four distinct types, on six variables. The variables are leadership, motivation, communication, interaction, decision-making and performance goal-setting. Companies rated low on these variables are characterized by managers who are perceived as having little supportive behavior toward their employees, have poorly motivated employees, and little interaction between hierarchical levels. Communications flow is primarily from the top, decision-making is largely in the hands of management, employees have little say in establishing the goals of the organization, and performance standards are low. As ratings on these variables increase, organizations are characterized by employee perception of management demonstrating increased supportive behavior, steadily increasing employee motivation, increased interaction between

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[4]Renis Likert, The Human Organization: Its Management and Value (New York: McGraw-Hill Book Company, 1966), p. 26.

hierarchical levels, two-way communications flow, increased sharing of goal setting and decision-making responsibility by all hierarchical levels, and increasingly high performance standards. Organizations which are rated highest on these variables are those which were found to be most successful.

Friedlander and Pickle[5] indicate that organizational effectiveness criteria must take into account the profitability of the organization, the degree to which it satisfies its members, and the degree to which it is of value to the larger society. These three perspectives are referred to as system maintenance and growth, subsystem fulfillment, and environmental fulfillment. Effectiveness was viewed as "the degree to which the needs of components were fulfilled (or satisfied) in their transactions with the organization."[6]

Ninety-seven small businesses were chosen to participate in a study designed to test the feasibility of this conceptualization. Seven subsystem components were chosen as a basis for measurement. Data for measuring the fulfillment of the societal component was gathered by questionnaires and interviews. The degree of satisfaction for the owner of each organization was based on economic data. His satisfaction score was comprised of his average yearly profit for the past ten years, and his average yearly profit as a function of the hours per week the owner worked for the organization. The fulfillment of the employee component was measured from the SRA Employee Inventory, a measure of employee satisfaction. Five types of employee fulfillment were measured: 1) satisfaction with working conditions; 2) satisfaction with financial reward; 3) confidence in management; 4) opinion about immediate supervision; and 5) satisfaction with self development.

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[5]Frank Friedlander and Hal Pickle, "Components of Effectiveness in Small Organizations," Administrative Science Quarterly 13 (September, 1968): 289-305.

[6]Ibid., p. 293.

By viewing the concept of organizational effectiveness in this manner, the organization is treated as a set of interdependent subsystems through which the transfer of energy takes place. Energy exchange occurs both within the organization and also between the organization and its environment. Friedlander and Pickle indicated; "In this light, organizational effectiveness is the extent to which all forms of energy returns to the organization are maximized."[7]

Mahoney and Weitzel[8] investigated the relationships among 114 characteristics that they indicate are often considered criteria of organizational effectiveness. A sample of eighty-four managers in thirteen companies completed questionnaires which described various sub-units of their companies in terms of these 114 characteristics. In addition, a judgement about the overall effectiveness of the subunit was obtained from the managers. Factor analysis of these 114 characteristics resulted in twenty-four relatively independent dimensions which accounted for sixty-five percent of the variance among the organizations.[9]

A second analysis was made to investigate the relationships of these twenty-four criteria to managerial judgements about ultimate overall effectiveness. Utilizing a stepwise multiple regression analysis, they found that four of the dimensions accounted for fifty-eight percent of the variance in judgements of ultimate effectiveness.

The 114 variables were then tested with 103 research and development organizational units in four companies using the same procedure as out-

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[7]Ibid., p. 302.

[8]Thomas A. Mahoney and William Weitzel, "Managerial Models of Organizational Effectiveness," Administrative Science Quarterly 14 (September, 1969): 357-366.

[9]Ibid., p. 357.

lined above. In this instance they found that only three of the twenty-four dimensions accounted for seventy-one percent of the variance in judgements of effectiveness (all twenty-four dimensions accounted for seventy-nine percent). The model of effectiveness derived from the sample of research and development units is extremely different from that derived from the general business sample, with one dimension the only one common to both.

Mahoney and Weitzel point out that the similarities between these two models are as important as the differences. The same twenty-four variables accounted for fifty-eight percent of the variance in the general business model and sixty-two percent of the variance in the research and development model. The relative importance of each of the dimensions varies from setting to setting, with a small subset accounting for most of the variance in that particular setting. They conclude that "these twenty-four variables appear to provide a reasonable explanation of organizational effectiveness in varied organizational settings."[10]

Seashore and Yuchtman[11] studied the annual performance of seventy-five insurance sales agencies over an eleven year period in an attempt to discover the factorial elements that characterize the behavior of small business organizations. From an initial list of over 200 variables, seventy-six were selected for analysis. Elimination of variables was based on unreliability of measurement, duplication, dubious accuracy, and similar statistical considerations. Data was collected from organizational records. The seventy-six performance variables were factor analyzed using the principal component solution and rotated using

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[10] Ibid., p. 364.

[11] Stanly E. Seashore and Ephraim Yuchtman, "Factorial Analysis of Organizational Performance," Administrative Science Quarterly 12 (December, 1967): 377-396.

the varimax criterion. From these seventy-six variables, fifteen factors were found to account for over ninety percent of the total variance. From these fifteen, ten were labeled and given meaningful identification. These ten accounted for seventy percent of the total variance.[12]

Factor analysis was performed on the data three different times in 1952, 1957, and 1961. The factor loadings in each of these analyses were so similar that, according to Seashore and Yuchtman, figures for one year may be substituted for any other year. This re-emergence of the same factor structure in each analysis is taken as support for utilization of these factors as hypothetical constructs.[13] They conclude that, while these ten factorial dimensions may not constitute a universal set of effectiveness criteria applicable to all kinds of organizations, 'it does seem possible that several of them are universal, while others may be unique to these and similar organizations."[14]

Gross,[15] from reviewing the major studies on organizations, concluded that there are performance areas in which all organizations must be effective if they are to remain in existence over a period of time. These performance areas are interdependent; consequently changes in one will eventually bring about changes in the others. In order to analyze the functioning of organizations, researchers must take into account each of these dimensions of organizational performance if accurate analysis is to be made. Gross indicates that these performance objectives, generic to all organizations, are seven in number; satisfaction of interest, output of services or goods, efficiency or profitability, investment in organizational viability, mobilization of resources, observance of codes, and rationality.[16]

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[12]Ibid., p. 380 [13]Ibid., p. 384. [14]Ibid.

[15]Gross, Vols 1 and 2. [16]Ibid., 2:488.

In an attempt to apply the concept of multiple dimensions of organizational performance measures to the public schools, Goldman and Coplan[17] utilized the Global Matrix of Organizational Purposes set forth by Gross as a conceptual framework. Using these seven categories as a base, 186 statements designed to reflect the extent to which educational organizations succeeded in each category, were generated. Each statement was accompanied by a four option forced-choice Likert type scale. Respondents were asked to indicate the degree to which they perceived each statement to be characteristic of the school system in which they worked.

Respondents for the initial field test of the instrument were graduate students enrolled in the College of Education at a large eastern university who were either currently employed, or had been recently employed by a public school system. Pearson product-moment correlations were calculated between items in order to discover those items which appeared to be related to each other. Those items with the highest within-category correlations were retained. Goldman and Coplan indicate that at that point, singularity of the correlation matrix prevented use of a factor analysis technique.[18]

From this intital field test, 108 items were selected and a revised instrument tested on 119 graduate students at the same university. This data was subjected to factor analysis using the Thurstone Criteria for simple structure. Six factors emerged from this analysis, with loadings

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[17] Harvey Goldman and Bette Coplan, "The Measurement of Organization Performance," University of Maryland, 1972.

[18] Ibid., p. 5.

ranging form 0.419 to 0.803. The six factors which emerged, and their definitions are as follows:[19]

1) Public Interest: The degree to which it is perceived that the public interest in the schools is satisfied.

2) Organizational Rationality: The degree to which it is perceived that the formal processes are rationally designed and contribute to the accomplishment of organizational goals.

3) Administrative Rationality: The degree to which it is perceived that the behavior of administrators contributes to the attainment of organizational goals.

4) Instructional Effectiveness: The degree to which it is perceived that students are adequately educated and the degree to which the teaching behaviors contribute to that education.

5) Staff Development: The degree to which it is perceived that the school system invests resources in improving the competencies of its personnel.

6) Individuality: The degree to which personnel are permitted to deviate from existing rules and policies when such action is considered necessary.[20]

From this final testing a sixty-three item questionnaire, the Organizational Status Survey, was developed. The instrument is designed to describe "performance patterns" across the six categories. Goldman and Coplan indicate, "no value judgement is attributed to the patterns; each is, instead, a reflection of conditions existing within a particular school system."[21] At the present time, numerous studies are underway utilizing this instrument in public school systems across the country. A more detailed presentation of some of these will be made in Chapter II.

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[19] Ibid.

[20] Ibid., pp. 6-7

[21] Ibid., p. 9.

Open Education

The concept of Open Education is extremely varied in its philosophical and programmatic implications. It rests on assumptions concerning the nature, development, and learning of children. Barth states that many of these assumptions are "hunches based largely on impressions, emotional responses, and observations in classrooms."[22] Other assumptions are taken from the literature on learning theory and the history and philosophy of education. Some rest on an empirical base, and others have no rigorous research support. Some, "do not lend themselves to experimental investigations."[23] This subsection will delineate what appears to be some of the salient features of open education as described by those researchers who have been involved in attempting to measure the concept. This will be done by briefly indicating some of the major ideas of open education, the sources of these ideas, and some descriptions of open education by researchers who have synthesized these major ideas from the literature.

The practices and tenets of open education stem from a variety of sources. Learning theory, particularly the work of Swiss psychologist and philosopher Jean Piaget, is one area from which many of the tenets and practices of open education are taken. Among the elements espoused by Piaget which find expression in the philosophy of open education are the following: children progress through different stages of intellectual development; their thinking progresses along a continuum from concrete to abstract; play is an important vehicle for learning; the manipulation

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[22]Roland S. Barth, Open Education and the American School (New York: Agathon Press, Inc.,1972), p. 5.

[23]Ibid.

of materials is crucial to children's learning; and the process of knowing consists of trial and errors which are initially concrete and external to the individual, but which later become more abstract and internal.[24]

The idea of the importance of play as a vehicle for learning is found in the writings of Frederick Froebel and Susan Isaacs. The use and development of manipulative materials as found in the practices of Maria Montessori have had an unmistakable influence on practices of open education. The child-centered curriculum, the stress placed on the interaction of a child with his environment, and the idea of a child learning from a total experience may be traced to John Dewey, William Kilpatrick, and many of the other progressive educators in this country. This idea of the importance of the child's interaction with his environment may also be found in the psychoanalytic theories of Freud and Erickson, and learning from a total experience found in Tolman's emphasis on the Gestalt or the primacy of totality of perception and experience. Finally, practices in the British primary schools have had a strong influence on the development of open education in the United States.[25]

Barth reviewed the literature of open education and identified what he considered to be key assumptions. He indicated:

> . . . Underlying the more or less clearly circumscribed set of practices associated with open education there is, I believe, a set of assumptions - a rationale - which contains the germ of a theory. . . .[26]

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[24]Jean Piaget, Science of Education and the Psychology of the Child (New York: Orion Press, 1970), p. 156.

[25]Barth, pp. 5-6.

[26]Ibid., p. 17.

These assumptions proposed by Barth appear to be accepted as statements of open education philosophy, and provide a basis on which open programs may be built. As such, they have been utilized in the development of instruments designed to measure "openness".[27] Some of these key assumptions are:

1) Children are innately curious and will explore their environment without adult intervention.

2) Active exploration in a rich environment, offering a wide array of manipulative materials, facilitates children's learning.

3) Play is not distinguished from work as the predominant mode of learning in early childhood.

4) Children will be likely to learn if they are given considerable choice in the selection of the materials they wish to work with and in the choice of questions they wish to pursue with respect to those materials.

5) Concept formation proceeds very slowly.

6) Intellectual growth and development takes place through a sequence of concrete experiences followed by abstractions.

7) Errors are necessarily a part of learning; they are to be expected and even desired, for they contain information essential for future learning.

8) Objective measures of performance may have a negative effect on learning.

9) Knowledge is a function of one's personal integration of experience and therefore does not fall neatly into separate categories or "disciplines".[28]

Andreae, in describing open education, indicates. . ."(open education) has the beginnings of a viable structure within which children can grow.

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[27]See Herbert J. Walberg and Susan C. Thomas, "Open Education: A Classroom Validation in Great Britain and United States, "American Educational Research Journal 9 (1972): 197-208. and Ross E. Traub, Joel Weiss, C. W. Fisher, and Don Musella, "Closure on Openness: Describing and Quantifying Open Education," Interchange 3 (1972): 69-84.

[28]For a complete list of Barth's Assumptions, see Appendix D.

The extent to which growth takes place depends on the teacher's understanding of openning (sic)education."[29] This understanding is based on the following premises.

1) Children learn best when they have rich, first hand experiences with concrete objects and situations.

2) The processes of thinking are action-based.

3) In a rich stimulating environment, the child will discover, manipulate, plan, question, and practice those things that are important to him, although some children may, at times, need guidance and encouragement.

4) Materials should be appropriate to the child's level of thinking and be related to the child's acquired knowledge, experience and interests. Thus he may make a transition from what is known to what is new.

5) By concentrating on what the child can do, the teacher is likely to gain the child's cooperation, confidence and active involvement in his own learning.

6) The social context of the child's life is closely related to his cognitive growth; thus continuing opportunities to talk, work and share with children and teachers will enhance his cognitive growth.[30]

Walberg and Thomas, in developing an instrument which purports to measure classroom openness, identified eight distinct themes which appear to be indicative of open education.

1) Provisioning for Learning - Manipulative materials are supplied in great diversity and range. Children have free movement about the classroom. Talking is encouraged. Children generally group and regroup themselves through their own choices.

2) Humaneness, Respect, Openness and Warmth - use of student made material. Students discipline themselves, many student made products around the room.

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[29] Jenny Andreae, "Stages in Implementation," in Donald A. and Lilian Myers, Open Education Re-examined (Lexington, Massachusetts: D. C. Heath and Company, 1973), p. 24.

[30] Ibid.

3) Diagnosis of Learning Events - Students correct their own work. To obtain diagnostic information, the teacher closely observes the specific work or concern of a child and asks immediate, experience based questions.

4) Instruction Guidance, and Extension of Learning - teacher bases her instruction on each individual child and before suggesting any extension or reduction of activity, teacher gives diagnostic attention to the particular child and his particular activity.

5) Evaluation of Diagnostic Information - Teacher keeps notes and writes individual histories of each child's intellectual, emotional and physical development. Teacher keeps collection of child's work for use in evaluating development. Teacher views evaluation as information to guide her instruction and provisioning for the classroom.

6) Seeking Opportunities for Professional Growth - Teacher uses the assistance of someone else. Teacher works with Colleague.

7) Self-perception of Teacher - Teacher tries to keep all children within sight so that she can make sure they are doing what they are supposed to.

8) Assumptions About Children and Learning Process - Classroom climate warm and accepting. Student seen as important.[31]

These sets of assumptions, premises, and themes provide a framework around which open education programs may be built. They do not exhaust the list of all possible manifestations of open education, nor do they provide the definitive definition of the concept. They do provide, however, a summarization of the major ideas underlying open education. They also provided the basis for the development of the Dimensions of Schooling instrument which was used in this study.

Definitions of Terms

Open Education - The term as used in this study refers to a type of school program. Open education is a programmatic strategy for influencing

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[31] Walberg and Thomas, pp. 200-201: item 7 typifies traditional rather than open education. In their instrument there is only one item reflecting this theme. In describing this theme, then, the less often this occurs the more open the specific classroom.

the cognitive, conative and affective development of children.[32] A school program that reflects the practices of open education may be characterized by the existance of certain key elements. The more open a school's program, the greater extent these elements are in evidence. In an open program there are opportunities for students to participate in setting objectives, these objectives being established for individuals. There is a wide diversity of materials and activities available to students, and the environment is one which is flexible enough to be easily modified to suit the requirements of these various activities. Students are allowed to group themselves according to individual interests without regard for age and past accomplishment. There is no fixed timetable for activities during the school day and students have the freedom to work at their own pace and to chose the materials they use and the activities they engage in. The teacher acts as a resource person whose attention is directed toward individuals or small groups. Evaluation of students is a continual process with information collected from teacher observations, work samples, and anecdotal reports. Students are afforded the opportunity to discuss behavior problems and formulate rules designed to alleviate them.

Continuum of Openness - This term refers to the extent that the characteristics of open programs is perceived to exist in a school. The range of the continuum is from zero to thirty as measured by the Dimensions of School instrument (IV). Schools rated higher on this continuum are considered to have more open programs than schools rated lower.

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[32]Traub, Weiss, Fisher, and Musella, p. 69.

Organizational Purposes - This term is an all-inclusive term referring to any commitments to desired future situations or sequences of interrelated situations.

Performance Objective - This term refers to a specific category of purpose. The major categories of the Organizational Status Survey may be considered performance objectives. The performance objectives measured by the Organizational Status Survey are defined as follows:

1) Public Interest: A measure of the degree to which the public is perceived as being satisfied with the public schools.

2) Organizational Rationality: A measure of the degree to which the formal and informal rules of the schools are perceived as being rational and contributing to the accomplishment of organizational goals.

3) Administrative Rationality: A measure of the degree to which the behaviors of administrators are perceived as contributing to the accomplishment of school system goals.

4) Instructional Effectiveness: A measure of the extent to which students are perceived as being adequately educated (academically, socially, vocationally) and the extent to which the instructional staff is perceived as contributing to that education.

5) Staff Development: A measure of the extent to which a school system is perceived as investing resources to improve the competencies of its personnel.

6) Individuality: A measure of the degree to which personnel perceive themselves as being permitted to deviate from existing rules and policies when such action is necessary.

Performance Pattern - This term refers to the profile of the degree of attainment on the six performance objectives derived from the Organizational Status Survey.

Socio-economic Status - The socio-economic status of a school was considered to be a measure of the average income of families of children attending that school. The rationale for using this measure may be found

in the Maryland Accountability Program Report for the school year 1974-75. The report states:

> In the last three decades, many indices have been developed to estimate socio-economic status. However, most of these can be shown to measure the same underlying factor. From the literature, it appeared that two measures, "mothers' education" and "family income" were most efficacious. Hence, the MSDE decided to use these.[33]

In the analyses conducted utilizing these measures of socio-economic status, the two variables were found to correlate above 0.80 in all cases. Also, in any prediction equations utilizing these two measures the amount of variability accounted for by one over the other was negligible.[34] In light of these findings, it was decided to use family income, alone, as a measure of socio-economic status in this study.

Research Questions

Listed below are the research questions which were asked in this study:

Q:A1 Is there a relationship between the perceived degree of program openness of a school and the perceived attainment of performance objectives?

Q:B1 Is there a relationship between the socio-economic status of a school and the perceived attainment of performance objectives?

Q:B2 Is there a relationship between the size of student enrollment of a school and the perceived attainment of performance objectives?

Q:B3 To what extent can performance objectives be predicted using the variables socio-economic status, size of student enrollment, and degree of program openness?

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[33]Maryland State Department of Education, Maryland Accountability Program Report, School Year 1974-75 (January 1975), App. B-4.

[34]Ibid., see App. B-7, B-8, B-9, and B-11.

Q:C1 What is the relationship between socio-economic status and perceived degree of program openness of a school?

Q:C2 What is the relationship between size of student enrollment and perceived degree of program openness of a school?

Q:C3 Is there a difference in perceived program openness between schools with open, traditional, and mixed architectural designs?

Limitations of the Study

This study was limited in several ways. 1) The study dealt with perceptions rather than objective measures of the variables under study. The accuracy of the results, therefore can be no greater than the groups' perceptions of the situation. 2) Certain constraints were involved in the sample selection procedure which prevented random sampling of elementary schools in the State of Maryland. These included various county regulations which prevented research from persons or agencies outside of the county, other county requirements which required that schools volunteer to participate in the study, and time and monetary constraints coupled with the necessity of having an adequate number of "open" schools for meaningful analysis. 3) The study was ex-post facto research which made control of the independent variables impossible, and which prevented attributing causality to any relationship found. 4) Although instructions were given for teachers to return the completed questionnaires to the secretary of each school to be returned, it was impossible to ensure that this was in fact the procedure followed in each school. Therefore, the possibility exists that some responses might be biased if teachers were required to return the questionnaires to the principal.

Summary

This chapter presented an introduction to the study, a statement of the problem, and a discussion of the theoretical bases of the study which included research on open education and organizational effectiveness. It also contained the definitions of important terms, the research questions, and the limitation of the study.

Overview of the Remainder of the Study

Chapter II contains a review of the literature relevant to the problem. Chapter III contains a discussion of the procedures utilized in the study, and Chapter IV presents the findings of the study. Conclusions and recommendations are set forth in Chapter V.

CHAPTER II

REVIEW OF THE LITERATURE AND RESEARCH

In Chapter II a selection of research is reviewed which is related to this study. The chapter is divided into two subsections. Research dealing with open education and its' relationship to selected variables is reviewed in the first subsection, and research dealing with organizational effectiveness and its' relationship to selected variables in reviewed in the second subsection.

While many studies exist which examine open space schools in relation to many of the variables discussed in Chapter II, there are only a few that deal with open education. The following section will present only those studies in which the concept of open education is examined. An annotated bibliography is provided in Appendix E which presents additional writing and research relevant to open education, open space schools, and organizational effectiveness.

Open Education

In this subsection a selection of research dealing with various aspects of open education is reviewed. The variables investigated with regard to their relationship to open education were; socio-economic level of the community, size of the student body, student achievement, student attitude and behavior, and the role of the administrator. The studies reported all involve the elementary school. No attempt is made to include studies conducted utilizing secondary schools or other educational units.

In an attempt to analyze open classrooms, Meyers and Duke[1] conducted a study utilizing 122 classrooms in 15 elementary schools in the State of New York. Each of the classrooms were reported to be engaged in open education by experts familiar with the schools. The schools were located in urban (6), suburban (5), and semi-rural (4) communities. Upper-middle class (4), middle-class (5), and lower-middle class (6), communities were represented, as were schools of various size student enrollments (83 to 1,100). The study was descriptive in nature and not designed to compare open and traditional classrooms. A list of sixteen characteristics, derived from a list of sixty-eight taken from the writings of various open education proponents, was used as the criterion measure. The investigators visited the classrooms during the 1971-72 school year, and rated them on each of the sixteen characteristics utilizing a five point Likert scale. In addition, narrative notes were made about each classroom.

The possible range of scores on the 16 criteria was 16 to 80. The range obtained from the observations was 38 to 78. The mean scores for schools in urban communities was 62, for suburban communities 57, and for the semi-rural communities it was 49. Schools with enrollments between 83 and 160 had a mean score of 65.2. Schools with enrollments between 400 and 799 had a mean score of 53.1, and those with enrollments between 800 and 1100 had a mean score of 60.2. In terms of socio economic level, schools in communities rated as upper-middle class had a mean score of 59, middle class communities had a mean score of 50, while lower-middle class communities had a mean score of 60.[2] The differences in means were reported as being non-significant.

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[1]Donald A. Myers and Daniel L. Duke, "Status in New York State," in Donald A. and Lillian Myers, Open Education Re-examined (Lexington, Massachusetts: D. C. Heath and Company, 1973), pp. 49-65.

[2]Ibid., p. 52.

With regard to the relationship between openness and socio-economic level, Walberg and Thomas[3] found results which support, in part, the Myers and Duke findings. From the literature, they chose those characteristics which consistently were assigned high importance by advocates of open education. From these characteristics, a teacher questionnaire and a fifty item observation instrument was developed. The teacher questionnaire was validated, using the observation instrument in sixty-two schools in Great Britain and in the United States. The schools were selected by a group of experts familiar with the schools, and represented both open and traditional programs, as well as all socio-economic levels. They found that classrooms in schools located in higher socio-economic areas, whether British or American, tended to be more programatically open than similar classrooms in schools located in lower socio-economic areas.[4] This appears to support the Myers and Duke finding of high openness at higher socio-economic levels, but in conflict with the finding of equally high openness scores in lower socio-economic communities. The greatest difference found by Walberg and Thomas, however, was between the open classrooms and the traditional classrooms. They indicate; "[T]he differences between open and traditional teachers' classrooms are far larger than the differences found either between schools of different socio-economic strata, or between schools in Great Britain and the United States."[5]

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[3]Herbert J. Walberg and Susan Christie Thomas, "Open Education: A Classroom Validation in Great Britain and United States," American Educational Research Journal 9 (Spring 72): 197-208.

[4]Ibid., p. 204.

[5]Ibid., p. 207.

In a similar attempt at measuring program openness, Traub, Weiss, Fisher and Musella,[6] developed the Dimensions of Schooling instrument (DISC). The instrument is designed to measure the extent of program openness in an entire school rather than in individual classrooms. Utilizing this instrument the researchers studied the relationship between type of building architecture (traditional, open-space, mixed) and program openness of schools in the metropolitan Toronto area.

The original form of the instrument (DISC I) was field tested in two extreme educational settings; a school with an exemplary traditional program and a school with an exemplary "open" program. In addition, the traditional school had a traditional architectural design, while the "open" school had an open-space design. The schools were chosen by a team of experts familiar with the schools in the area. The DISC (I) was administered to teachers in each of the schools. The mean score obtained from teachers in the "open" school was 20.18 and from the traditional school 11.27. The standard deviations were 1.30 and 2.17 respectively. The researchers also report that the distribution of scores from the schools did not overlap.[7]

After revision, the Dimensions of Schooling (II) was administered to 449 teachers in thirty schools. The schools were varied as to their architectural type; eighteen were traditional, six were open, and six were a combination of traditional and open architecture. It was found that teachers from schools which had an open architectural design reported that their programs were more open than did teachers from schools

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[6]Ross E. Traub, Joel Weiss, C. W. Fisher, and Don Musella, "Closure on Openness: Describing and Quantifying Open Education," Interchange 3 (1972): 69-84.

[7]Ibid., p. 80.

with a traditional architectural design (no results are given for schools with the mixed design). Although the difference in the means is small (1.40, t = 5.09) it is significant at the 0.01 level.[8] Traub, Weiss, Fisher, and Musella indicate, ". . . it appears that open architecture may have a small effect in the direction of making a school program more open than the program of a comparable school of traditional architecture."[9]

The one aspect of education which has been placed under constant scrutiny by both educators and lay people has been student achievement. Opponents of open education question whether or not the informal atmosphere of an open school, with the many options available to children, is condusive to the acquisition of basic skills. Advocates of open education claim that children can and do learn as much, or more, in an open school as they do in traditional settings.

The Plowden Report[10] gave credence to the open education movement in Great Britain, and contains research results which compare student achievement in open and traditional British Schools. In a cross-sectional study of pupils in junior schools (ages 7-11), four tests (reading, English, mechanical arithmetic, and problem arithmetic) were used to compare students from the two types of schools. After analyzing the test results the committee reported:

> . . . A straight comparison between streamed and non-streamed schools showed that pupils in the streamed schools had slightly higher mean scores on the attainment tests. The difference were greater the more the test reflected "traditional" practice; they were largest for mechanical arithmetic and smallest for reading. . . .[11]

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[8] Ibid.

[9] Ibid.

[10] Central Advisory Council for Education, Children and Their Primary Schools, 2 vols. (London, England: Her Majesty's Stationary Office, 1967).

[11] Ibid., vol. ., p. 589; Streamed schools are schools in which students have been grouped into classes by ability. Non-streamed schools more closely follow the open education program.

Caution is urged by the Plowden Committee, however, in placing too much emphasis on these results. They indicate four reasons for this caution:

1) Although they attempted to develop tests which favored neither the traditional noropen school, they believe that the tests were biased in favor of the traditional school.

2) Although some of the differences were statistically significant; these differences usually amounted to no more than 2 or 3 more right answers on a test having 30-40 items.

3) Children from non-streamed schools tend to be slow starters, but tend to catch up with traditional students by the time they finish elementary school.

4) No control was made for social class or teacher attitude and beliefs. Once these factors are controlled, the differences may diminish or disappear.[12]

Although cognitive development is an essential feature of the program of open schools, the affective growth of children is also an extremely important aspect. Proponents of open education contend that children should enjoy school. Results of attempts at investigating some of these affective variables in their relationship to open education are not entirely consistent.

Ruedi and West[13] compared the self-concept of forty-eight fourth, fifth, and sixth grade children from two schools, one open and one traditional. The children were matched on the basis of grade and Stanford Achievement Word Meaning scores,[14] and administered Gordon's "How I See Myself Scale". The researchers hypothesized that students

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[12] Ibid.

[13] Jane Ruedi, and Charles K. West, "Pupil Self-Concept in an 'Open' and in a 'Traditional' School"(Document Resume, University of Illinois at Urbana-Champaign, 1973).

[14] The criterion for matching was that the scores for each pair be within 0.5 grade levels of each other.

from the open school would score significantly higher in composite self-concept and in each of the factors which contribute to the composite score (autonomy, interpersonal adequacy, academic adequacy, and teacher-school). The data was analyzed using the Mann-Whitney Test for Two Independent Samples. Of the twenty comparisons, sixteen were in the predicted direction. However, only one comparison was significant (the teacher-school factor, combined for all grades). This led the researchers to conclude that students in the open school viewed teachers and school more favorably than did students in the traditional school.[15]

Kohler[16] studied three hundred sixteen children between the ages of nine and twelve in six private, suburban, upper-middle class schools in Connecticut. The objectives of Kohler's study were to: 1) determine if differences in self-concept exist between children experiencing open education and those experiencing traditional education, 2) determine if differences in self-concept exist between males and females experiencing open and traditional programs, 3) determine if differences in self-concept of children exist within a set of open schools and within a set of traditional schools, and 4) determine if a relationship exists between the rated degree of openness of a school and the measured self-concept of the students.[17]

The Walberg-Thomas Observation Scale was used to determine the degree of openness of the schools and the Sears Self-Concept Inventory used to

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[15]Ruedi and West, p. 10.

[16]Terence Kohler, "A Comparison of Open and Traditional Education: Conditions that Promote Self Concept," paper presented at the American Educational Research Association Annual Meeting, 1973.

[17]Ibid., p. 3.

measure the childrens' self-concept. Three of the schools were open and three traditional as measured by the Walberg-Thomas Scale.

Kohler found no significant difference between children experiencing open and traditional education in any of the six "areas" of self-concept identified by the Sears Self-Concept Inventory. Pearson product-moment correlations between the degree of openness of a school and each of the six areas of self-concept were also found to be non-significant.[18]

Kohler did find, however, that males in open schools tended to score higher in total self-concept than did females in open schools, or males in traditional schools. There were no differences between females from the open schools and females from the traditional school.[19]

Bleier, Groveman, Kuntz, and Mueller[20] compared the "conforming behavior" of students in two third grade classes from a public elementary school in the Boston area. In all, thirty-six students participated in the study. The two classes were comparable in age, sex distribution, I.Q., SES, and ethnic background. In addition, results of the Metropolitan Achievement Test administered six weeks before the study revealed no significant differences between the classes. One of the classrooms was organized along traditional lines in which children were allowed little freedom or choice of movement, and participated in basically the same academic and nonacademic activities. The other class was organized in accordance with what was reported as open education precepts. The children

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[18] Ibid., p. 7.

[19] Ibid.

[20] Mark Bleier, Howard Groveman, Nancy Kuntz, and Edward Mueller, "A Comparison of Yielding to Influence in Open and Traditional Classrooms," Childhood Education 49 (October, 1972): 45-50.

and the teacher set individual goals, instruction was individualized, children were encouraged to work together and to help each other, they were free to choose any of the materials in the room they wished, and were given the freedom to set their own pace.[21]

Two months before the end of the school year a general knowledge test with items of varying difficulty was administered to students in both classes. Each item on the test had a response circled in pencil. The children were told that the test had been given to sixth graders recently to see how many questions they could answer; and the sixth graders had not followed directions. The third grade children were told to ignore the sixth grade responses. Every effort was made to insure that the atmosphere was relaxed and the children free from test anxiety. In addition the third grade children were asked to rate each item as being an "easy one" or "hard one". Within these categories of easy and hard, four response types were then possible: 1) a correct response to each question that also conformed to the "suggestion", 2) a correct response to each question that did not conform to the "suggestion", 3) an incorrect response to each question but one that conformed to the "suggestion", and 4) an incorrect response to each question that did not conform to the "suggestion". It was expected that children from the open and traditional classes would answer correctly an equal number of questions, but that children from the traditional class would have a greater number of incorrect conforming responses on the hard items.

Differences between the groups were tested by means of t tests. The researchers found that the only significant difference between the

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[21] Ibid., p. 45.

classes was in the mean numbers of incorrect, conforming responses to the difficult items, with the traditional class giving many more such responses ($t = 2.14$, $p < 0.05$).[22] The authors conclude that;

> . . . open class children were more likely to follow their hunches rather than adopt the response of a child from a higher grade. . .These children appeared to have more confidence in their own ability to do a difficult task than did traditional class children. . . .[23]

Another area in which advocates of open education claim open schools are superior is in the area of the development of responsible, independent behavior on the part of students. In an open program it is claimed that controls on behavior are developed within the student, diminishing the need for close adult supervision of all activity.[24]

In an investigation of this premise, Goldupp[25] conducted a study of eight Head Start Classrooms in Lincoln, Nebraska. The purpose of the study was to discover "pattern shifts", or incidents of inappropriate behavior on the part of students when classroom teachers were present, absent, or had returned from a short absence. The classrooms under investigation were six classrooms which utilized the Tucson Early Education Model (TEEM) curriculum, and two classrooms using locally developed more traditional curricula. The instrument utilized in the study was the Classroom Attitude Observation Schedule, developed by Goldupp. Utilizing this instrument, observations were made during free

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[22] Ibid., p. 47.

[23] Ibid., p. 50.

[24] Heather S. Doob, Summary of Research on Open Education (Arlington, Virginia: Educational Research Service, Inc. 1974), p.5.

[25] Ocea Goldupp, "An Investigation of Independent Child Behavior in the Open Classroom: The Classroom Attitude Observation Schedule (CAOS)," (Tucson, Arizona; Arizona University Center for Educational Research and Development), 1972.

choice time in all classrooms in three separate units of twelve minutes each.[26] During each twelve minute interval the observer made a clockwise scan of the room every two minutes, recording and counting the location of children and adults in the room, and the activities they were engaged in. In addition, instances of disruptive or innapropriate behavior were noted. During the first twelve minute interval the teacher is present in the classroom. For the second interval she is absent, and for the third interval she has returned.

Goldupp used a 2 x 3 analysis of variance to compare type of class and phase of observation. She found that incidence of inappropriate behavior increased significantly in the traditional classroom during the "teacher absent" phase. During the teacher present phases there was no significant difference between the two types of classes.[27] This led her to conclude that:

> . . .The evidence is fairly conclusive that in some of these classes, particularly the comparison (traditional) and low rated TEEM classroom, controls come largely from the teacher, and not from controls internalized by the children or from the activities themselves and the extent that children find them satisfying. . . .[28]

The role of the administrator is also seen as being different in an open school. Drummond[29] studied the leadership function of the

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[26]Ibid., p. 6. Goldupp indicates that the free choice time in TEEM classrooms carries the greatest overlap into the open classroom concept.

[27]Ibid., p. 24.

[28]Ibid., p. 25. TEEM classrooms were also rated by experts on the extent they practiced the stated objectives of the program. Low rated TEEM classrooms were found to be similar to traditional classrooms.

[29]T. Darrell Drummond, "A Study of the Autonomy Assumed and Exercised by Headteachers in Selected British Primary Schools." Doctoral dissertation, University of Maryland, 1974).

British headteacher in twenty-one British primary schools over a three year period. In structured interviews with each headteacher, Drummond attempted to ascertain the "degree of autonomy assumed and exercised by the headteacher in the management of the primary school and in the direction of its' instructional program."[30] The schools that were surveyed represented seven educational authorities, in both rural and urban communities. All of the schools included in the survey were considered to be in the top third of the primary schools in Great Britain in terms of quality, as designated by the Plowden Report.[31]

The questionnaire consisted of eleven questions designed to elicit responses which describe certain dimensions of the headteacher's autonomy. Among the dimensions investigated were: 1) the perception of the headteacher as to the degree of his autonomy, 2) how this autonomy is employed in relation to the teaching staff, and 3) controls that exist on his autonomy.[32]

It was found that the headteachers saw themselves as being the major determiner of the curriculum of the school, claimed full control over staff selection, and claimed a great deal of the responsibility for staff development.[33] In terms of the internal functions and affairs of the school, the headteachers unanimously indicated they had complete and absolute autonomy. Drummond cites a sampling of the responses to this question:

> . . .our degree of autonomy is frightening -- but I'd fight to the end to keep it. . .absolutely. Ultimately, in the final crunch, what I say goes. . . .[34]

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[30] Ibid., p. 2.

[31] Ibid., p. 3.

[32] Ibid., p. 4.

[33] Ibid., p. 115.

[34] Ibid., p. 64.

Although the headteacher perceives himself as having complete autonomy, Drummond points out, the head must delegate more and more of his day to day responsibilities to the classroom teachers if he is to remain an active headteacher and not merely an administrator.[35] This staff involvement, which is seen as important, does not in any way supersede the final decision-making responsibilities of the headteacher. This fact becomes obvious from other responses cited by Drummond.

> . . .Totally (autonomous); no doubt about it. Of course, I can leave some decision-making to staff, particularly where they share the same commitments to the children as I do. . . The head is captain of the ship, really. I reserve the right to make all decisions. There's got to be staff involvement, of course, but there's no argument on fundamental issues.[36]

In his conclusion, Drummond sees the British headteacher, in his exercise of discretionary power, as being a "benevolent autocract".[37]

In summary, in this section a selection of research on open education was reviewed. The variables studied in their relationship to open education were the following: socio-economic level, size of student body, school architecture, achievement, student attitude and behavior, and the role of the administrator. Architecture was found to have a small, but significant, effect in the direction of making a school program more open than traditional architecture. It was found that there is a possibility of a curvilinear relationship between degree of openness and socio-economic level and student body size. The research showed no significant differences in achievement between students in open schools and students in traditional schools as measured by standardized achievement tests. When student self-concept was investigated results were mixed. One study found males in open schools to have a higher self-concept and

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[35] Ibid., p. 66. [36] Ibid., p. 67. [37] Ibid., p. 112.

another found that children from open schools viewed teachers and schools in a more favorable light. It was found that students from open schools tended to exhibit more personally responsible behavior, had more confidence in their ability, and exhibited more autonomy. Finally, in an investigation of the role of the headteacher in the British primary school, it was found that they see themselves, primarily, as benevolent autocrats.

Organizational Effectiveness

A selection of studies is reviewed in this section which are concerned with the measurement of organizational effectiveness and the relationship between effectiveness and various organizational variables. Among the variables under investigation were: productivity, intra-organizational strain, organizational flexibility, total control, member consensus, communication, and supportive behavior on the part of management. Additional studies are reviewed in which the Organizational Status Survey was used to assess perceived effectiveness of the public schools, as well as to discover relationships between perceived effectiveness and size of the student body, age and experience of principals, and type of instructional strategy employed in the school.

The assessment of organizational performance, using multiple measures of effectiveness, has received little attention in the literature on organizations. Researchers, in studying organizations, appear to concentrate on relatively narrow aspects of functioning. Emphasis is placed on individual characteristics of organizations (span of control, bureaucratic structure, level of decision-making), the characteristics of individuals in organizations (values, motivations, morale), or on limited aspects of the relationship between the organization and it's environment (resource acquisition, rate of response to changing conditions). When measures of organizational effectiveness are required as correlates of these charac-

teristics, the tendency has been to use rather global and singular measures of performance such as amount produced or relative standing within a particular industry. Few researchers have seriously concerned themselves with investigating the multi-dimensional nature of organizational performance.

In addressing himself to this problem, Likert[38] has utilized the Profile of Organizational Characteristics Instrument (see chapter one, page 5) in numerous studies attempting to define the dimensions of organizational effectiveness and the relationship of effectiveness to various organizational variables, or leadership skills. One such study was conducted between 1962 and 1964 involving an apparel company. In 1962, the company, although second in volume in the industry had been unprofitable in terms of economic criteria for several years preceding the study. As measured by the Organizational Characteristics instrument, the company was categorized in System I (defined as Exploitive-Authoritative by Likert). Changes were made in the management practices of the company which were designed to reflect practices characteristic of System IV organizations (defined as Participative-Group by Likert). The instrument was again administered to employees after two years. The results of the second survey indicated that the changes were successful and that the company could be characterized as being in system IV. This movement of the company toward System IV was accompanied by changes in the company's economic picture. According to Likert:

> . . .Average earnings of piece rate workers increased by nearly 30% total manufacturing costs decreased by about 20%. Turnover dropped to half of its former level. Length of employee training was substantially reduced. Interviews reflected vastly more friendly attitudes toward the company. The image of the company in the community changed, and the organization began to show a profit. . . .[39]

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[38]Rensis Likert, The Human Organization: Its Management and Value (New York: McGraw-Hill Book Company, 1967), pp. 29-37.

[39]Ibid., p. 38.

Also addressing themselves to the problem of effectiveness, Tannenbaum and Georgopoulus[40] contend that the study of organizational effectiveness must deal with the question of organizational means and ends (the objectives of the organization being the ends, and the methods used to attain these objectives being the means). They conducted a study which involved thirty-two delivery stations within the United Parcel Service. Data was obtained from company records, on-site observation, and questionnaire responses. Three indices of effectiveness were obtained. The indices were: 1) station productivity as measured by company records of performance vis-a-vis established work standards; 2) intraorganizational strain, as measured by questionnaire responses concerning incidences of tension or conflict existing between organizational subgroups; and 3) organizational flexibility, as measured by questionnaire responses concerning the ability of the organization to adapt to internally and externally induced change.[41] In addition to these indices, independent judgements of "relative overall station effectiveness" were obtained from experts who were familiar with the stations, but not directly involved in station operations.

Rank-order correlations were computed between the experts' rating of effectiveness and each of the three specific criteria of effectiveness. A significant positive correlation was found between station effectiveness and station productivity (0.73) and station flexibility (0.39), and a significant negative correlation found between effectiveness and intra-organizational strain (-0.70).[42]

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[40]Basil S. Georgopoulos and Arnold S. Tannenbaum, "A Study of Organizational Effectiveness," American Sociological Review 32 (1957): 534-40.

[41]Ibid., p. 538.

[42]Ibid., p. 539.

Smith and Ari,[43] utilizing the same company investigated the relationship between these effectiveness measures and total organizational control and member consensus. Control was defined as; "any process by which a person (or group or organization of persons) determines (i.e., intentionally influences or affects) what another person or group or organization of persons will do." Member consensus is defined as the continuous uniformity in expectations, attitudes, or behavior within a group (or organization) regarding an activity. They hypothesized that control (i.e., influence) exercised at all levels of the organization provides the basis for the effective co-ordination of organizational activity. This exercise of control is hypothesized to bring greater acceptance of jointly made decisions as well as an increased sense of responsibility and motivation to further the goals of the organization. Similarly, such motivational effects are very likely to be reflected in increased uniformity concerning the decisions and goals of the organization.[44] It was expected that high total control would be related to organizational effectiveness. All correlations between these variables were found to be significant at or beyond the 0.05 level. This indicates, according to Smith and Ari, that higher producing stations tend to be characterized by high total control, high member consensus, and high morale.[45] The authors state:

> . . .The effects of certain patterns of control on organizational performance derive partially from the uniformity with respect to organizational standards and policies which these patterns of

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[43] Clagett G. Smith and Oquz N. Ari, "Organizational Control Structure and Member Consensus," in Arnold S. Tannenbaum, Control in Organizations (New York: (New York: McGraw-Hill Book Company, 1968), pp. 145-165.

[44] Ibid., p. 145.

[45] Ibid., p. 159.

> control promote. In turn, the regularity, orderliness, and predictability derived from such uniformity were viewed as being essential to the concerted action underlying the highly effective organization. . . .[46]

Seashore and Yuchtman,[47] studied the annual performance of seventy-five insurance sales agencies over an eleven year period. Their purpose was also to investigate specific criteria indicative of organizational effectiveness. Using data collected from organizational records, seventy-six performance variables were identified, and subjected to factor analysis. From this analysis, ten factors emerged which accounted for approximately seventy percent of the total variance.[48] In 1961 a questionnaire survey was conducted in thirty-three of the agencies. The questionnaire was designed to measure various processes and internal states of the organization. These variables included: 1) the managers supportiveness (a measure of his preference for behaviors that are ego-enhancing rather than ego-deflating for his subordinates); 2) the degree of upward communication. (a measure of managerial effort toward seeking and accepting information from his subordinates); 3) the type of power (expert or reward) a manager was seen to possess (a measure of the extent to which subordinates acceded to supervisors influence attempts because of the supervisors experience and knowledge or because of his ability to give or withold rewards); and 4) the total control of the agency (a measure of the degree of control attributed to each of three hierarchical levels).[49] The responses to the questionnaire were correlated with measures of performance on the ten factors in 1961 and in 1962.

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[46] Ibid., p. 162.

[47] Stanly E. Seashore and Ephraim Yuchtman, "Factorial Analysis of Organizational Performance," Administrative Science Quarterly 12 (December 1967): 377-395.

[48] Ibid., p. 381.

[49] Ibid., p. 388.

It was found that some of the questionnaire variables are significantly related to some of the performance factors and not related to others. As an example, Managers' supportiveness is related to business volume, but not to maintenance costs. The researchers point out that some of these individual level variables have significantly negative relationships to organizational performance criteria. For example, managerial supportiveness is associated with low average productivity per agent. Seashore and Yuchtman use this as an illustration of the danger in using a single rather than a set of performance indicators. They argue that if individual agent productivity had been used, alone, as a measure of organizational effectiveness, it would be falsely concluded that supportiveness on the part of managers was negatively related to organizational effectiveness.[50]

Bowers,[51] in a related study, investigated the relationship between twelve specific indices of organizational effectiveness, a global assessment of organizational effectiveness, and the amount of total control in an organization. Seven of the specific indices of effectiveness were derived from a factor analysis of performance indicators obtained from company records. These indices, it is claimed, are similar to those found by Seashore and Yuchtman.[52] The remaining five were measures of

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[50] Ibid., p. 390.

[51] David G. Bowers, "Organizational Control in An Insurance Company" In Arnold S. Tannenbaum, Control in Organizations (New York: McGraw-Hill Book Co., 1968)

[52] See Ephraim Yuchtman, "Control in an Insurance Company: Cause or Effect," in Arnold S. Tannenbaum, Control in Organizations (New York: McGraw-Hill Book Company, 1968), p. 126. Yuchtman claims that the results of the correlational analysis are similar in their implications and that differences in factors were due to factor analysis technique.

employee satisfaction (with company, regional manager, fellow agents, job, and income) derived from questionnaire responses. The measure of total control was also obtained from questionnaire responses. Forty agencies of a major insurance company, twenty representing the higher ranking agencies and twenty representing the middle and lower ranking agencies were selected for the study. This global assessment of agency effectiveness was made by company officials.

Rank-order correlations were computed between the global estimate of agency effectiveness and the specific effectiveness criteria, and the perceptions of total control in the organization. Statistically significant relationships were found between the global effectiveness rating and the specific indicies of; business costs (-0.44) volume of business (0.53), and satisfaction with regional manager (0.53), and fellow agents (0.81). Total control was found to be related to all satisfaction measures and to two of the specific performance measures (business costs (-0.55) and agency development factor A (-0.32).[53] This led Bowers to conclude that "[t]otal control relates to overall organizational effectiveness, but not to all measured aspects of it."[54]

Friedlander and Pickle,[55] indicate that effectiveness criteria must take into account the profitability of the organization, the degree to which it satisfies it's members, and the degree to which it is of value to the larger society. In a study using ninety-seven small businesses,

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[53]Bowers, op. cit., p. Agency development factor A. reflects development of younger men with an emphasis on low cost and high production sales.

[54]Bowers, p. 123.

[55]Frank Friedlander and Hal Pickle, "Components of Effectiveness in Small Organizations," Administrative Science Quarterly 13 (September 1968): 289-305.

they explored the concept of organizational effectiveness by studying the relationship between internal and external system effectiveness. The internal system was composed of organizational components within the formal boundaries of the organization. The external system was composed of societal components in the larger environment. System effectiveness was determined by measuring the degree to which the needs of these components were fulfilled in their transactions with the organization. The components which were considered relevant to the investigation were seven in number: the owner, the employees, and five societal components (the customer, suppliers, creditors, community, and the government).

Correlation coefficients were computed in order to explore the relationships among the various components. They found that in a moderate number of instances, organizations were able to satisfy both societal needs and employee needs simultaneously. However, those relationships that were significant were of a relatively low magnitude. The two societal components found most often to correlate with aspects of employee satisfaction were the community and customer components. With respect to the association between owner fulfillment and employee satisfaction, several significant relationships were found. Financially successful organizations were also those in which employees had confidence in management, held higher opinions of their supervisors and sensed opportunities for self-development. The relationship is highest between owner fulfillment and employee self development. This "finding,. . .seems understandable since the self-development measure reflects the employees feelings of belongingness, participation and pride in the company - a sense of 'psychological ownership' in the organization."[56]

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[56]Ibid., p. 299.

In the discussion of the results, Friedlander and Pickle indicate that the findings of the study show only a moderate number of relationships between the degree to which the organizations were able to fulfill the needs of their employees, their owner, and the societal components.

> . . .Evidently organizations find it difficult to fulfill simultaneously the variety of demands made upon them. Whether the organization can concurrently fulfill all or even a major share of the divergent demands made upon it is a provocative and hypothetical question. . . .[57]

While research concerning multiple effectiveness criteria in business and industry is sparce, research of this type in schools is practically non-existent.[58] In an attempt to rectify this problem, Goldman and Coplan developed the Organizational Status Survey (chapter one, page 10) as a means of measuring these criteria in a public school setting. They have conducted several studies utilizing the Organizational Status Survey in attempts at assessing school system effectiveness both nationally and on the local level. At this time, data is available on two of these studies.

The first of these to be reported here dealt with the perceptions of a nationwide sample of 2,192 secondary school principals. The Organizational Status Survey was distributed to a sample of 3,800 principals throughout the country (58% were completed and returned). The purpose of the study was to examine the overall category means of this national sample; and to compare perceptions of principals of different ages, those with differing amounts of experience, those in buildings with differing enrollment, and those in buildings with differing instructional patterns, as to the perceived effectiveness of their school system.[59]

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[57]Ibid., p. 303.

[58]Harvey Goldman and Bette Coplan, "The Measurement of Organizational Performance," (University of Maryland, 1972).

[59]Harvey Goldman and Bette Coplan "Principals Assess Their School Systems," NASSP Bulletin 390 (April, 1975):52-65.

The secondary school principals perceived schools, in general, as performing "to a moderate degree" on five of the six categories described by the Organizational Status Survey. The performance objective which was rated lowest by the principals was the category Staff Development ($\bar{X}$ = 2.700) The researchers indicate that this low rating makes it evident that "few resources, in terms of either money or personnel, are invested to improve the competencies of those employed by the system."[60] From the sub-category scores, evidence indicated that a greater amount of resources were devoted to helping school personnel cope with problems that confronted them on a daily basis ($\bar{X}$ = 2.729), than to helping them improve personally or to obtain better jobs ($\bar{X}$ = 2.442).[61] Thus, more resources (although still considered insufficient) are devoted to workshops and activities to help teachers cope with things such as drug problems or community pressures than are devoted to helping them improve themselves as individuals. While the researchers indicate that the former problems are certainly important, the tendency is to prepare personnel to "deal with 'yesterday's problems' and to ignore 'anticipated futures'." Goldman and Coplan indicate; "the result is what might be expected -- an inordinate amount of time is devoted to reacting to the varied pressures and circumstances impinging on administrators and teachers."[62]

The researchers also found that younger principals (those in the 30-34 age range) tended to rate their systems lower in Staff Development ($\bar{X}$ = 2.422) than did principals over 60 years old ($\bar{X}$ = 2.758). The younger principals also perceived their systems to be encouraging Individuality to a lesser extent than did older principals: (younger, $\bar{X}$ = 2.850; older, $\bar{X}$ = 3.052).[63]

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[60] Ibid., p. 59. [61] Ibid. [62] Ibid. [63] Ibid., p. 61.

When principals were compared with regard to the length of time they had been employed by the school system similar patterns emerged. Principals who had been in the system for shorter periods of time perceived less resources being devoted to improving the competencies of school personnel.[64] In addition to the obvious relationship of age and experience, the authors offer several explanations for this finding. They hypothesize that younger principals may be more familar with the in-service programs available to teachers, since they are probably not far removed from the classrooms themselves; older principals may feel more of a commitment to system policies since they may have had some influence in determining them; or, possibly, more experienced administrators may have a more accurate knowledge of what exists in their systems.[65]

When school size was used as the criterion variable principals of smaller schools (0-400 students) also perceived their systems to be placing less emphasis on Staff Development ($\bar{X} = 2.530$). This was also true for the Instructional Effectiveness category. In discussing this finding, Goldman and Coplan, hypothesis that smaller schools tend to be located in rural districts and tend to have less resources to devote to a wide variety of activities, in terms of number of in-service programs, and also in terms of a variety of programatic offerings.[66]

Finally, in comparing schools whose teachers worked in self-contained classrooms with those in which team-teaching was practiced, a slightly different pattern emerged. Principals of schools whose teachers engaged in team-teaching and those who responded to the category "other" perceived their schools to be more effective on each of the six categories.

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[64] Ibid.,

[65] Ibid.

[66] Ibid.

These differences, however, were small.[67] The differences were found to be greatest in the Instructional Effectiveness and Individuality categories. Although they admit that large discrepencies in sample size and small differences in category means make only limited inferences possible, the authors tentatively conclude:

> . . . It seems obvious that the emphasis of such schools upon individualized instruction, multi-level curricula, and self-pacing should lead to a greater degree of success in meeting the needs of students. . . .[68]

Preliminary data is available on one other large scale study involving the Organizational Status Survey. The study was carried out with 600 elementary school principals in the State of Maryland. While complete results are not available, preliminary analysis show results similar to those from the sample of secondary school principals.[69]

The elementary principals perceived the schools, in general, as performing "to a moderate degree" on the categories described by the Organizational Status Survey. The performance objective which was rated lowest by the elementary principals was the category Staff Development ($\bar{X} = 2.800$). This was also the finding with the secondary principals. In comparing organizational patterns (team teaching, self-contained classroom, and "other"), no significant differences were found in perceived effectiveness. However, principals from schools in which team teaching was

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[67] Ibid., Although part of the research project, this data was not included in the NASSP article. Further information may be obtained by writing the authors.

[68] Ibid.

[69] Harvey Goldman and Bette Coplan, unpublished research, University of Maryland, 1974.

practiced did perceive their schools to be slightly more effective in attaining the performance objectives Instructional Effectiveness, Staff Development, and Individuality.[70]

In Summary, this sub-section provided a review of the research on organizational effectiveness. From this review it appears that, in assessing organizational performance, single measures have proven inadequate for any meaningful appraisal of organizational functioning. The organization must be viewed as a complex social system which requires analysis of many interdependent and complex interactions. Therefore, any measures of performance must, of necessity, be multi-dimensional in nature and consider a wide variety of effectiveness measures. While research identifying or describing these measures is not extensive, models exist which attempt to deal with these variables. These models generally are concerned with measuring the extent to which organizations are successful in satisfying their internal and external clientele while accomplishing the goals of the organization, and while insuring future growth and survival. Research indicates that it is possible to identify some of these measures, and that fulfillment of all of them at any specific time is difficult. Relationships were also found between measures of effectiveness and total organizational control, a managers supportive behavior, member consensus, increased interaction, and goal setting at all levels. Research aimed at measuring school system effectiveness was also cited. While much of this research is incomplete, it does indicate that; measuring school system effectiveness is possible, there may be differences in effectiveness of schools with different organizational

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[70] Ibid.

patterns, and that school systems tend to under-invest resources in activities designed to contribute to their growth and survival.

CHAPTER III

METHODOLOGY

This chapter contains a description of the sample and the procedure used to identify the sample. It includes a description of the instruments used, the data collection procedures, statistical hypotheses, and a summary of the statistical methods used in analyzing the data.

Sample

The sample for this study was comprised of teachers representing sixty-four elementary schools from the State of Maryland. The schools were selected from twelve of the twenty-four school systems within the State. At the time of the study there were 985 elementary schools distributed throughout the twenty-four systems in the State.[1] Five schools were located in the smallest system and 173 schools in the largest. The student enrollment in the State was 489,380; with 1,229 students enrolled in the smallest system, and 104,290 students enrolled in the largest system (see Appendix C for complete enrollment data by system).

Sample Identification

In selecting the sample to be used in this study it was necessary to identify a group of schools in which the variability of program openness was large enough to conduct a meaningful analysis. Specifically, it was

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[1] The school systems in the State of Maryland are organized by county. There are twenty-three counties in the State, each with their own school system. The City of Baltimore operates a separate school system. The twenty-three counties and the City of Baltimore system constitute the twenty-four school systems referred to in this study.

necessary to ensure that an adequate number of schools with a high degree of program openness were included. It was felt that the number of "open" programs in the population of schools was too small to ensure that an adequate number would be included if random sampling procedures were undertaken. For this reason the researcher decided to rely on judgements of a group of "experts" who were familiar with the schools to identify "open" programs in existence. It was felt that the necessity for having a sample of "open" schools sufficiently large for analysis outweighed the constraints imposed by the lack of random sampling of schools. This lack of randomization prevents statistical generalizations to schools other than those in the study.

In January, 1974, a list of ten characteristics of "open education" program was compiled. These characteristics were taken from the literature on open education and had been used as a basis for the development of the Dimensions of Schooling instrument (see Appendix A). In January and February, 1974, this list was given to professors and supervisors of student teachers from Copin, Towson, and Salisbury State College, and the Baltimore and College Park campuses of the University of Maryland. Each of those who was asked to respond had weekly contact with elementary schools within the State and were familiar with open education programs. Nineteen agreed to participate. These nineteen "experts" were asked to identify those schools which, in their opinion, were practicing open education. Fifty-eight schools representing twelve of the twenty-four counties in the State were identified in this manner. They were then asked to indicate, for each of the schools identified, whether that school exhibited each characteristic on the list "to a great extent," to an "average amount," or "very little." Each of the rated characteristics was given a numerical value from one to three ("to a great extent" was given a three), and an

overall score computed for each school by summing the ratings given on all ten characteristics. The fifty-eight schools were then ranked in descending order on their overall openness score. It was felt that this ranking would provide a listing of open programs that were in existence, and provide a base from which to draw schools for the final sample.

Permission was then requested from school systems to contact schools within each system for inclusion in the study. Of the twelve systems represented in the list of schools, four indicated they would not allow research efforts from outside of the system during the period of the study. A fifth system indicated that, due to certain internal problems, only selected schools would be asked to participate. The remaining systems that were contacted indicated that schools and teachers would be allowed to participate on a voluntary basis. Twenty-three schools of the fifty-eight identified remained for possible inclusion in the study. Of this twenty-three, twenty-two agreed to participate.

Fourteen additional "open" schools were identified by faculty members at the College of Education, College Park Campus of the University of Maryland. The faculty members were familiar with schools in the area and with open education programs. The principal of each of these schools had agreed to discuss, with the researcher, possible participation of his school in the study. This process resulted in the inclusion of schools with identified open programs which were overlooked during the initial identification procedure. It was felt that these schools would substitute for schools which were lost as a result of school system regulations. It was also felt that because of the small number of schools which were identified, the rating sheet would serve no further purpose. For this reason the faculty members were not asked to complete one for the schools they identified.

An attempt was made to control for socio-economic effects. Where possible, the two closest schools, geographically, to the identified "open" schools were asked to participate. It was possible to match nineteen of the twenty-two open schools with at least one school in close geographic proximity. The final forty-five schools were selected in this manner.

Instrumentation

Two instruments were utilized in this study. The first instrument is a thirty item teacher questionnaire designed to measure the degree of program openness of a school. This questionnaire, The Dimensions of Schooling (DISC IV), was developed by Traub, Weiss, Fisher and Musella, from the Ontario Institute for Studies in Education.[2] Each of the thirty items briefly defines a dimension or aspect of school life and is followed by a set of alternatives. Each alternative represents a point along a continuum from "most open" to "least open". The teacher is asked to respond by assigning the highest rank to the alternative that applies to "most students most of the time" and the lowest rank to the alternative that applies to "only a few students for very little time." No rank is assigned to those alternatives that do not apply to a particular teacher's situation. Teachers may respond to as many or as few of the alternatives as are appropriate. This procedure, developed by the authors, is called a "limited ranking" procedure. Items in the questionnaire are classified into two major groupings. In the first grouping are items which are concerned with a general dimension of the school (they cut across

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[2] Ross E. Traub, Joel Weiss, C. W. Fisher, and Don Musella, "Closure on Openness: Describing and Quantifying Open Education," Interchange 3 (1972): 69-84.

all teaching and learning situations). The second group of items deal with specific dimensions of a teacher's class. Within this group of items, provision is made for teachers to respond to each item in reference to more than one subject matter area. The rationale for this procedure is that the authors feel certain subject matter areas may have more inherent structure than others (e.g., math and science as opposed to social studies) and, consequently, should be treated differently.[3] By treating each of these areas separately they feel a more accurate description of the practices of each school can be obtained. A copy of the instrument may be found in Appendix A. The scoring system for this instrument is based upon a set of option weights and rank weights. Since the limited ranking scoring procedure is a complicated one, discussion is omitted here. The procedure is explained in detail, however, in Appendix A.

The second instrument that was utilized is a sixty-three item questionnaire, The Organizational Status Survey, which is designed to measure the "quality of performance manifested by the public schools" relative to six performance objectives.[4] Each item is a statement designed to reflect a single characteristic of a school system. Respondents are asked to indicate the degree (on a four-option Likert Scale) to which the statement is characteristic of the school system in which they are employed. A copy of the instrument may be found in Appendix A. The six performance objectives which the Organizational Status Survey is designed to measure are:

1) Public Interest - A measure of the degree to which the public is perceived as being satisfied with the public schools.

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[3]Ibid., p. 78.

[4]Harvey Goldman and Bette Coplan, "The Measurement of Organizational Performance," University of Maryland, 1972, p. 3.

2) Organizational Rationality - A measure of the degree to which the formal and informal rules of the schools are perceived as being rational and contributing to the accomplishment of organizational goals.

3) Administrative Rationality - A measure of the degree to which the behaviors of administrators are perceived as contributing to the accomplishment of school system goals.

4) Instructional Effectiveness - A measure of the extent to which students are perceived as being adequately educated (academically, socially, vocationally) and the extent to which the instructional staff is perceived as contributing to that education.

5) Staff Development - A measure of the extent to which a school system is perceived as investing resources to improve the competencies of its personnel.

6) Individuality - A measure of the degree to which personnel perceive themselves as being permitted to deviate from existing rules and policies when such action is considered necessary.

Demographic Information - The demographic information requested from each respondent included the following personal information: 1) sex, 2) age, 3) total number of years respondent has worked for the school system, and 4) length of time respondent has been in his/her present position. Also, information was also collected on the instructional pattern of the school. Data relative to socio-economic status and school enrollment was obtained from the Maryland Accountability Study.

Data Gathering Procedures

In February and March of 1974, letters were sent to principals of schools identified for inclusion in the sample. The letter explained the purpose of the study, described the questionnaires, and asked for cooperation. One week after the letter had been mailed, a telephone call was made to each principal. The purpose of the telephone call was to answer any questions they might have and to provide directions

on the procedures to be followed in each school. Each school in which the principal agreed to cooperate was to be sent a packet containing ten sets of questionnaires and a list of fifteen random numbers. During the phone conversation the principal was instructed to ask each teacher whose position on the teachers' roster corresponded to one of the random numbers to complete both questionnaires and return them to the school secretary within a week. The secretary was then to return the completed questionnaires and cover sheet in the stamped self-addressed envelope which was enclosed. The principal was also asked to assure all respondents that their responses would be treated confidentially. The Organizational Status Survey, the Dimensions of Schooling instrument, and return envelopes were coded to facilitate follow-up if responses were not received in two weeks. Telephone calls were made to schools from which the completed questionnaires were not returned within three weeks of the initial mailing. Of the eighty-one schools whose principals agreed to cooperate, sets of questionnaires were received from sixty-seven. Of these sixty-seven sets, sixty-four were completed correctly. This final total represents seventy-nine percent of the original sample.

Within each of the sixty-four schools that returned questionnaires, the number of usable responses varied. Five of the schools in the sample had under ten teachers on the staff. In four of these five schools, all teachers completed the questionnaires. Twenty-one of the schools had twenty or less teachers on the staff. Of these schools, six returned less than 5 sets of questionnaires. This, however, represented over twenty percent of the staff. In table 1, the data reporting the number of returned questionnaires by school is presented. The table reflects the number of teachers in each building and the number and percent of teachers who responded to the questionnaires.

TABLE 1

NUMBER AND PERCENT OF TEACHERS RESPONDING TO ORGANIZATIONAL STATUS SURVEY AND DIMENSIONS OF SCHOOLING INSTRUMENT (N-64 SCHOOLS, 466 TEACHERS)

School Number	Teachers in Building	Teachers Responding	Percent	School Number	Teachers in Building	Teachers Responding	Percent
1601	22	10	46%	1036	3	3	100%
1602	26	9	35%	1037	14	8	57%
0303	44	8	18%	1038	18	8	44%
0404	26	9	35%	1040	12	3	25%
0405	28	10	36%	1041	5	4	80%
0406	26	7	27%	1042	5	5	100%
0407	15	9	60%	0747	41	10	25%
0408	19	10	53%	2348	38	8	21%
0409	41	9	22%	2149	13	10	77%
0410	18	10	56%	2351	33	10	30%
0411	26	8	31%	2352	27	9	33%
0412	34	9	27%	0753	24	6	25%
0413	28	9	32%	2454	21	10	48%
0414	25	8	32%	2355	20	4	20%
0415	21	6	29%	1756	21	10	48%
1717	21	7	33%	1757	30	7	30%
1718	26	6	23%	2159	18	4	22%
1719	21	7	33%	2460	19	8	42%
1720	27	7	26%	2161	15	9	60%
1721	23	8	35%	0662	34	10	35%
1722	26	9	35%	2165	18	4	22%
1723	18	4	22%	1669	24	3	13%
1725	30	9	30%	1770	19	4	21%
1726	19	7	37%	1672	20	6	30%
0227	23	10	43%	1473	20	7	35%
0228	11	6	55%	0375	42	6	14%
2429	27	9	33%	0376	37	9	24%
1630	28	9	32%	0377	25	10	40%
1031	16	3	16%	0478	32	6	19%
1032	5	5	100%	0479	35	5	15%
1033	11	5	46%	1680	29	10	35%
1034	3	3	100%	0481	22	4	20%

Internal Consistency

Estimates of reliability were obtained for the Dimensions of Schooling Instrument (IV) and for each factor on the Organizational Status Survey. The statistic used for this purpose was coefficient alpha, an internal consistency estimate developed by Cronbach.[5] The statistic provided a measure of how well the instruments distinguished between schools in the sample by indicating the proportion of variance that was due to differences between the schools and not to random error. The estimate was derived for each instrument by finding item means for each school and computing the statistic across all schools. By computing coefficient alpha in this manner each school became the unit of analysis.

Statistical Hypotheses and Analysis of Data

The hypotheses relevant to the relationship between perceived degree of program openness and perceived attainment of performance objectives are presented below.

H:A1 The linear correlation between perceived degree of program openness and perceived performance pattern of a school is zero.

null hypothesis $H_0: \rho_{xy} = 0$

alternate hypothesis $H_1: \rho_{xy} \neq 0$

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[5] L. J. Cronbach, "Coefficient Alpha and the Internal Structure of Tests," Psychometrika 16 (1951): 297-334.

H:A2 The quadratic and cubic trends of the relationship between perceived degree of program openness and perceived performance pattern of a school are not significant.

null hypotheses $H_{01}: \beta_2 = 0$
$H_{02}: \beta_3 = 0$

alternate hypotheses $H_{11}: \beta_2 > 0$
$H_{12}: \beta_3 > 0$

Pearson product-moment correlations were computed to measure the strength of the relationship for Hypothesis A1. To test the significance of the correlation coefficients a table of smallest significant r values was used. The possibility of a curvilinear relationship was investigated by means of polynomial regression equations (Hypothesis A2). The relationship was tested through a third degree polynomial. In testing this hypothesis the term $Y_i = \beta_0 + \beta_1 X$ represented the model of a score for simple linear regression; $Y_i = \beta_0 + \beta_1 X + \beta_2 X^2$ represented the model of a score for quadratic regression; and $Y_i = \beta_0 + \beta_1 X + \beta_2 X^2 + \beta_3 X^3$ represented the model of a score for cubic regression. The regression coefficient at each level was tested for significance, and was represented by the term β_j. The i^{th} performance objective derived from the Organizational Status Survey was represented by Y_i, and the degree of program openness was represented by X. An F ratio was computed to determine the significance of the variability added by each degree polynomial not accounted for by lower degree polynomials.

The hypotheses relevant to the relationship between perceived attainment of performance objectives and selected demographic variables are presented below.

H:B1 The linear correlation between perceived performance pattern and socio-economic status of a school is zero.

null hypothesis $H_0: \rho_{xy} = 0$

alternate hypothesis $H_1: \rho_{xy} \neq 0$

H:B2 The quadratic and cubic trends of the relationship between perceived performance pattern and socio-economic status of a school are not significant.

null hypotheses $H_{01}: \beta_2 = 0$
$H_{02}: \beta_3 = 0$

alternate hypotheses $H_{11}: \beta_2 > 0$
$H_{12}: \beta_3 > 0$

H:B3 The linear correlation between perceived performance pattern and size of student enrollment of a school is zero.

null hypothesis $H_0: \rho_{xy} = 0$

alternate hypothesis $H_0: \rho_{xy} \neq 0$

H: B4 The quadratic and cubic trends of the relationship between perceived performance pattern and size of student enrollment of a school are not significant.

null hypotheses $H_{01}: \beta_2 = 0$
$H_{02}: \beta_3 = 0$

alternate hypotheses $H_{11}: \beta_2 > 0$
$H_{12}: \beta_3 > 0$

H: B5 The multiple correlation between perceived performance pattern and socio-economic status, size of student enrollment, and perceived degree of program openness is zero.

null hypothesis $H_0: R = 0$

alternate hypothesis $H_1: R > 0$

Pearson product-moment correlations were computed to measure the strength of the relationship for hypotheses B1 and B3. The level of significance was determined by utilizing a statistical table which presents values for the smallest significant r. In addition, the possibility of a curvilinear relationship was investigated by means of polynomial regression equations (Hypotheses B2 and B4). The relationship was tested through a third degree polynomial. In testing these hypotheses the term $Y_i = \beta_0 + \beta_1 X$ represented the model of a score for simple linear regression; $Y_i = \beta_0 + \beta_1 X + \beta_2 X^2$ represented the model of a score for quadratic regression; and $Y_i = \beta_0 + \beta_1 X + \beta_2 X^2 + \beta_3 X^3$ represented the model of a score for cubic regression. The regression coefficient at each level was tested for significance and was represented by the symbol β_j. The i^{th} performance objective derived from the Organizational Status Survey was represented by Y_i, and the perceived degree of program openness was represented by X. An F ratio was computed to test the significance of the variability added by each degree polynomial not accounted for by lower degree polynomials.

Hypothesis B5 was tested with a stepwise multiple regression equation, with each of the performance objectives designated as the criterion variable, and socio-economic status, size of student enrollment, and degree of program openness used as predictors. An F ratio was computed at each step to determine the significance of the contribution of each variable to the prediction of the criterion.

The hypothesis relevant to the relationship between perceived degree of program openness and the selected demographic variables and to architectural design are presented below.

H:C1 The linear correlation between perceived degree of program openness and socio-economic status is zero.

null hypothesis $H_0 : \rho_{xy} = 0$

alternate hypothesis $H_1 : \rho_{xy} \neq 0$

H:C2 The quadratic and cubic trends of the relationship between perceived degree of program openness and socio-economic status are not significant.

null hypotheses $H_{01} : \beta_2 = 0$
$H_{02} : \beta_3 = 0$

alternate hypotheses $H_{11} : \beta_2 > 0$
$H_{12} : \beta_3 > 0$

H:C3 The linear correlation between perceived degree of program openness and size of student enrollment is zero.

null hypothesis $H_0 : \rho_{xy} = 0$

alternate hypothesis $H_1 : \rho_{xy} \neq 0$

H:C4 The quadratic and cubic trends of the relationship between perceived degree of program openness and size of student enrollment are not significant.

null hypotheses $H_{01}: \beta_2 = 0$
$H_{02}: \beta_3 = 0$

alternate hypotheses $H_{a1}: \beta_2 > 0$
$H_{a2}: \beta_3 > 0$

H:C5 There is no difference in perceived degree of program openness between schools with open, mixed, and traditional architectural design.

null hypothesis $H_0: u_o = u_m = u_t$

alternate hypothesis $H_0: u_o \neq u_m \neq u_t$

where u_o =open, u_m = mixed, and u_t = traditional design

Pearson product-moment correlations were computed to measure the strength of the relationship for Hypotheses C1 and C3. To test the significance of the correlation coefficients, a table of smallest significant r values was used. The possibility of a curvilinear relationship was investigated by means of polynomial regression equations (Hypotheses C2 and C4). The relationship was tested through a third degree polynomial. In testing these hypotheses the term $Y_i = \beta_0 + \beta_1 X$ represented the model of a score for simple linear regression; $Y_i = \beta_0 + \beta_1 X + \beta_2 X^2$ represented the model of a score for quadratic regression; and $Y_i = \beta_0 + \beta_1 X + \beta_2 X^2 + \beta_3 X^3$ represented the model of a score for cubic regression. The regression coefficient at each level was tested for significance, and was represented by the symbol β_j. The perceived degree of program openness was represented by the symbol Y_i. An F ratio was computed to determine the significance of the variability added by each degree polynomial not accounted for by lower degree polynomials.

A one-way analysis of variance was computed to determine whether there were significant differences in openness scores between schools with different architectural designs (Hypothesis C5). The significance of the post hoc comparisons was tested by Bonferroni t-tests. In all statistical analyses, the 0.05 level was the accepted level of signifiance.

Summary

This chapter contained a description of the population and the sample selected for this study. It also contained a description of the instrumentation, data collection procedures, statistical hypotheses, and the methods used in analyzing the data.

CHAPTER IV

FINDINGS

This chapter contains technical data relative to the instruments utilized in this study. It also contains a report of the findings with regard to each of the hypotheses tested.

Data Related to Instrumentation

The internal consistency for each instrument utilized in this study was computed using Cronbach's coefficient alpha. The mean, standard deviation, and internal consistency estimates for the Dimensions of Schooling instrument is found in Table 2.

TABLE 2

TECHNICAL DATA RELATIVE TO DIMENSIONS OF SCHOOLING INSTRUMENT (N=64)

Mean Score	Standard Deviation	Coefficient Alpha
12.210	1.840	0.904

Coefficient alpha for the Dimensions of Schooling instrument obtained for this sample was 0.904. Traub and his associates administered the instrument to 449 teachers in 30 schools. Six of the schools had an open space design, six had a traditional design, and eighteen were reported as having a mixed architectural design. The researchers report

a mean of 10.370 a standard deviation of 2.240, and a coefficient alpha of 0.810 for the entire sample.[1] The mean score found from the sample in this study was higher than that found by Traub and his associates. Coefficient alpha was also higher in this study. This finding provides further support for the reliability of the Dimensions of Schooling instrument.

The mean, standard deviation, and internal consistency estimates for each factor on the Organizational Status Survey is found in Table 3.

TABLE 3

TECHNICAL DATA RELATIVE TO ORGANIZATIONAL STATUS SURVEY
(N=64)

Performance Objective	Mean Score	Standard Deviation	Coefficient Alpha
Public Interest	3.026	0.279	0.943
Organizational Rationality	2.759	0.303	0.894
Administrative Rationality	2.960	0.284	0.944
Instructional Effectiveness	2.950	0.277	0.942
Staff Development	2.570	0.362	0.838
Individuality	2.815	0.319	0.498

Coefficient alpha for the performance objective Public Interest obtained in this study was 0.943. The mean score on this factor was 3.026, with a standard deviation of 0.279. Goldman and Coplan,[2] in their study of a national sample of secondary school principals, found a coefficient alpha of 0.909, a mean of 3.163, and a standard deviation of 0.438 for this objective.

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[1]Ross E. Traub, Joel Weiss, C. W. Fisher, and Don Musella, "Closure on Openness: Describing and Quantifying Open Education," Interchange 3 (1972): 79.

[2]Harvey Goldman and Bette Coplan, "Principals Assess Their School Systems," NASSP Bulletin 390 (April, 1975):57.

Coefficient alpha obtained for the performance objective Organizational Rationality was 0.894. The mean score and standard deviation of this factor was found to be 2.759, and 0.303 respectively. The study conducted by Goldman and Coplan yielded a coefficient alpha of 0.804, a mean of 3.000, and a standard deviation of 0.540 for this objective.[3]

For the performance objective Administrative Rationality, a coefficient alpha of 0.944 was found in this study. The mean score for this factor was 2.960 and the standard deviation was 0.384. In the national study of secondary school principals, Goldman and Coplan report a coefficient alpha of 0.916, a mean of 3.166, and a standard deviation of 0.443 for this objective.[4]

For the performance objective Instructional Effectiveness, a coefficient alpha of 0.942 was found in this study. The mean score on this factor was found to be 2.950 with a standard deviation of 0.277. Goldman and Coplan report a coefficient alpha of 0.874, a mean score of 3.039, and a standard deviation of 0.370 for the national secondary principal sample.[5]

The performance objective Staff Development yielded a coefficient alpha of 0.838, a mean score of 2.570 and a standard deviation of 0.362 in this research. The coefficient alpha for this objective in the study of secondary principals was found to be 0.733, the mean score was 2.612, and the standard deviation 0.550.[6]

Finally, the performance objective Individuality was found to have a coefficient alpha of 0.498, a mean score of 2.815, and a standard deviation of 0.319. Goldman and Coplan report a coefficient alpha of

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[3]Ibid. [4]Ibid. [5]Ibid. [6]Ibid.

0.420, a mean score of 2.950, and a standard deviation of 0.602 for this factor from the national sample of secondary school principals.[7]

Mean scores and standard deviations obtained from the sample of schools utilized in this study are similar to those found by Goldman and Coplan. The coefficient alpha obtained for each objective from the two studies are also similar. The scores reported by Goldman and Coplan were computed from individual principal's responses rather than mean responses from teachers in each building. Although the results were computed from a different type of sample, they indicate similar findings of reliability from different perspectives. This provides further support for the reliability of the factors representing the performance objectives of the Organizational Status Survey.

Presentation of Findings Relative to Hypotheses

Hypotheses A1, A2, B1, B2, B3, B4 and B5 were concerned with the relationship between perceived degree of program openness, socio-economic status and size of student enrollment and each of the performance objectives measured by the Organizational Status Survey.

Hypotheses A1: The linear correlation between perceived degree of program openness and perceived performance pattern of a school is zero.

In Table 4 Pearson product-moment correlations between the perceived degree of program openness and each of the performance objectives derived from the Organizational Status Survey are presented.

TABLE 4

PEARSON PRODUCT-MOMENT CORRELATIONS BETWEEN DEGREE OF PROGRAM OPENNESS AND PERFORMANCE OBJECTIVES (N=64)

	Public Interest	Organizational Rationality	Administrative Rationality	Instructional Effectiveness	Staff Development	Individuality
r	0.128	0.300	0.097	0.125	0.045	0.353
P≤	ns	0.05	ns	ns	ns	0.05

critical value of r at 0.05 level of significance = 0.246

From Table 4 it can be observed that the correlations between degree of program openness and the performance objectives Organizational Rationality and Individuality were significant beyond the 0.05 level.

Hypothesis A2: The quadratic and cubic trends of the relationship between perceived degree of program openness and perceived performance pattern of a school are not significant.

In Tables 5 and 6 the results of quadratic and cubic regression analyses conducted on the relationship between degree of program openness and each of the six performance objectives is presented. These analyses were conducted to ascertain whether a curvilinear relationship existed between program openness and any of the performance objectives. The data in each table reflect the variability in the relationship accounted for by the specific degree polynomial, but not accounted for by lower degree polynomials. The F ratios reflect significance tests for that specific degree of polynomial regression independent of the lower degrees.

TABLE 5

QUADRATIC REGRESSION ANALYSIS ON RELATIONSHIP BETWEEN DEGREE OF PROGRAM OPENNESS AND PERFORMANCE OBJECTIVES (N=64)

	Public Interest	Organizational Rationality	Administrative Rationality	Instructional Effectiveness	Staff Development	Individuality
F	0.414	0.170	0.373	0.468	0.441	0.894
P≤	ns	ns	ns	ns	ns	ns

critical value of F at 0.05 level = 4.000

As can be seen from Table 5, none of the F ratios were significant. This indicated that the quadratic trend was no better fit to the regression line than was the linear trend.

In Table 6 the results of the cubic regression analysis conducted between degree of program openness and each of the six performance objectives is presented.

TABLE 6

CUBIC REGRESSION ANALYSIS ON RELATIONSHIP BETWEEN DEGREE OF PROGRAM OPENNESS AND PERFORMANCE OBJECTIVES (N=64)

	Public Interest	Organizational Rationality	Administrative Rationality	Instructional Effectiveness	Staff Development	Individuality
F	0.133	0.105	0.048	0.000	0.445	0.153
P≤	ns	ns	ns	ns	ns	ns

critical value of F at 0.05 level = 4.000

As can be observed from Table 6, none of the F ratios were significant. This indicated that the cubic trend was no better fit to the regression line than either the quadratic or linear trends.

From the tests of hypotheses A1 and A2, the Pearson product-moment correlation between degree of program openness and Organizational Rationality was found to be 0.300, which was significant beyond the 0.05 level. This finding and the non-significant results obtained when higher order relationships were investigated indicated a positive linear relationship between the degree of openness of the program of a school and the teachers' perception of Organizational Rationality.

It was also found that the Pearson product-moment correlation between degree of program openness and Individuality was 0.353, which was significant beyond the 0.05 level. This finding and the non-significant results obtained when higher order relationships were investigated indicated a positive linear relationship between the degree of openness of the program

of a school and the teachers' perception of the degree of individuality evidenced in that school.

Finally, the Pearson product-moment correlations between degree of program openness and the remaining variables were not significant. These findings fail to reject the null hypotheses of no relationship between the degree of openness a school's program was perceived as having and the degree of attainment of the performance objectives Public Interest, Administrative Rationality, Instructional Effectiveness, and Staff Development that the school was perceived as exhibiting.

Hypothesis B1: The linear correlation between the socio-economic status and the perceived performance pattern of a school is zero.

In Table 7 the Pearson product-moment correlations between the socio-economic status of a school and the performance objectives derived from the Organizational Status Survey are presented.

TABLE 7

PEARSON PRODUCT-MOMENT CORRELATIONS BETWEEN SOCIO-ECONOMIC STATUS AND PERFORMANCE OBJECTIVES (N=64)

	Public Interest	Organizational Rationality	Administrative Rationality	Instructional Effectiveness	Staff Development	Individuality
r	0.073	-0.206	-0.033	0.041	0.034	-0.154
P≤	ns	ns	ns	ns	ns	ns

critical value of r at 0.05 level of significance = 0.246

From Table 7 it can be observed that none of the correlations were significant. This indicated that there was no linear relationship between degree of program openness and degree of perceived attainment on the performance objectives.

Hypothesis B2: The quadratic and cubic trends of the relationship between socio-economic status and the perceived performance pattern of a school are not significant.

The results of quadratic and cubic regression analyses conducted on the relationship between the variables are presented in Tables 8 and 9. These analyses were conducted to ascertain whether a curvilinear relationship existed between socio-economic status and any of the performance objectives. The data in each table reflect the variability in the relationship accounted for by the specific degree polynomial, but not accounted for by lower degree polynomials. The F ratios reflect significance tests for that specific degree polynomial independent of the lower degrees.

TABLE 8

QUADRATIC REGRESSION ANALYSIS ON RELATIONSHIP BETWEEN SOCIO-ECONOMIC STATUS AND PERFORMANCE OBJECTIVES (N=64)

	Public Interest	Organizational Rationality	Administrative Rationality	Instructional Effectiveness	Staff Development	Individuality
F	0.180	0.079	1.539	0.127	0.156	0.022
P≤	ns	ns	ns	ns	ns	ns

critical value of F at 0.05 level = 4.000

From Table 8 it may be observed that none of the F ratios were significant. This indicated that the quadratic trend was no better fit to the regression line than was the linear trend.

In Table 9 the results of the cubic regression analysis conducted between the socio-economic status of a school and the performance objectives derived from the Organizational Status Survey is presented.

TABLE 9

CUBIC REGRESSION ANALYSIS ON RELATIONSHIP BETWEEN SOCIO-ECONOMIC STATUS AND PERFORMANCE OBJECTIVES (N=64)

	Public Interest	Organizational Rationality	Administrative Rationality	Instructional Effectiveness	Staff Development	Individuality
F	0.833	0.320	0.650	0.891	0.303	1.510
P≤	ns	ns	ns	ns	ns	ns

critical value of F at 0.05 level = 4.000

As may be observed from Table 9 none of the F ratios were significant. This indicated that the cubic trend was no better fit to the regression line than the quadratic or linear trend.

Tests of Hypotheses B1 and B2 indicated that none of the performance objectives were found to be significantly related to socio-economic status. These findings fail to reject the null hypotheses that there is no relationship between the socio-economic status of a school and the degree of attainment of the performance objectives derived from the Organizational Status Survey.

Hypothesis B3: The linear correlation between size of student enrollment and the perceived performance pattern of a school is zero.

Pearson product-moment correlations between size of student enrollment and the performance objectives derived from the Organizational Status Survey are found in Table 10.

TABLE 10

PEARSON PRODUCT-MOMENT CORRELATIONS BETWEEN SIZE OF STUDENT ENROLLMENT AND PERFORMANCE OBJECTIVES (N=64)

	Public Interest	Organizational Rationality	Administrative Rationality	Instructional Effectiveness	Staff Development	Individuality
r	-0.079	-0.226	-0.215	0.055	0.061	-0.374
P ≤	ns	ns	ns	ns	ns	0.05

Critical value of r at 0.05 level = 0.246

From Table 9 it can be observed that a significant correlation was found between size of student enrollment and Individuality.

Hypothesis B4: The quadratic and cubic trends of the relationship between size of student enrollment and the perceived performance pattern of a school are not significant.

The results of the quadratic and cubic regression analyses which were conducted are presented in Tables 11 and 12. The data in each table reflect the variability in the relationship accounted for by the specific degree polynomial, but not accounted for by lower degree polynomials. The F ratios reflect significance tests for that specific degree polynomial independent of the lower degrees.

TABLE 11

QUADRATIC REGRESSION ANALYSIS ON RELATIONSHIP BETWEEN SIZE OF STUDENT ENROLLMENT AND PERFORMANCE OBJECTIVES (N=64)

	Public Interest	Organizational Rationality	Administrative Rationality	Instructional Effectiveness	Staff Development	Individuality
F	1.104	0.047	0.049	0.023	0.097	1.397
P≤	ns	ns	ns	ns	ns	ns

Critical F value at 0.05 level = 4.000

From Table 11 it can be observed that none of the F ratios were significant. This indicated that the quadratic trend was no better fit to the regression line than the linear trend.

In Table 12 the results of the cubic regression analysis conducted between size of student enrollment and the six performance objectives is presented.

TABLE 12

CUBIC REGRESSION ANALYSIS ON RELATIONSHIP BETWEEN SIZE OF STUDENT ENROLLMENT AND PERFORMANCE OBJECTIVES (N=64)

	Public Interest	Organizational Rationality	Administrative Rationality	Instructional Effectiveness	Staff Development	Individuality
F	1.957	1.893	0.067	0.798	0.007	1.456
P≤	ns	ns	ns	ns	ns	ns

critical value of F at 0.05 level = 4.000

The F ratios presented in Table 12 are all non-significant. This finding indicated that this higher order polynomial provided no better fit to the regression line than did the quadratic or linear trend.

From tests of Hypotheses B3 and B4 it was found that the Pearson product-moment correlation between size of student enrollment and Individuality was -0.374, which was significant beyond the 0.05 level. This finding and the non-significant results obtained when higher order relationship were investigated indicated a negative linear relationship between the student enrollment of a school and teachers' perceptions of Individuality.

The correlations between size of student enrollment and the remaining variables were not significant. These findings fail to reject the null hypotheses which specify no relationship between the size of the student enrollment of a school and the perceived degree of attainment on five of the performance objectives (Public Interest, Organizational Rationality, Administrative Rationality, Instructional Effectiveness, and Staff Development).

Hypothesis B5 was concerned with the degree to which the variables size of student enrollment, socio-economic status of the school, and degree of program openness were predictive of the performance objectives derived from the Organizational Status Survey.

> Hypothesis B5: The multiple correlation between the perceived performance pattern of a school and size of student enrollment, socio-economic status and perceived degree of program openness is zero.

In Table 13 the results of the stepwise multiple regression analysis is presented. The analysis was conducted using each of the performance objectives as the criterion variable, and the variables size of student enrollment, socio-economic status of the school, and degree of program openness as predictors.

TABLE 13

STEPWISE MULTIPLE REGRESSION SUMMARY TABLE: PERFORMANCE OBJECTIVES AS CRITERION VARIABLE, SIZE OF STUDENT ENROLLMENT, SOCIO-ECONOMIC STATUS, AND DEGREE OF OPENNESS AS PREDICTORS (N = 64)

Predicted Variable	Variable Added	Multiple R	R^2	Increase in R^2	F Ratio	P≤
Public Interest						
	Openness	0.128	0.016	0.016	1.036	ns
	Enrollment	0.136	0.019	0.002	0.126	ns
	S.E.S.	0.145	0.021	0.003	0.164	ns
Organizational Rationality						
	Openness	0.300	0.090	0.090	6.117	0.05
	S.E.S.	0.435	0.189	0.099	7.475	0.05
	Enrollment	0.438	0.192	0.003	0.201	ns
Administrative Rationality						
	Enrollment	0.215	0.046	0.046	2.995	ns
	Openness	0.218	0.048	0.002	0.097	ns
Instructional Effectiveness						
	Openness	0.125	0.016	0.016	0.978	ns
	Enrollment	0.156	0.156	0.009	0.540	ns
	S.E.S.	0.158	0.158	0.001	0.050	ns
Staff Development						
	Enrollment	0.062	0.004	0.004	0.237	ns
	Openness	0.089	0.008	0.004	0.255	ns
Individuality						
	Enrollment	0.374	0.140	0.140	10.086	0.05
	Openness	0.456	0.208	0.068	5.199	0.05
	S.E.S.	0.496	0.246	0.039	3.092	ns

$F_{1,62}$ critical value for significance at 0.05 = 4.000

It was found that only two of the performance objectives, Organizational Rationality and Individuality, had significant multiple correlations with the predictor variables. Degree of program openness was found to be the best predictor of Organizational Rationality, contributing approximately 9% to the total variance of the effects. Socio-economic status was found to also contribute significantly to the prediction, contributing another 9%. The contribution of student enrollment was negligible, contributing less than 1% to the total variance. Size of student enrollment was found to be the best predictor of the performance objective Individuality, contributing 13% to the total variance of the effects. Degree of program openness was found to contribute 6%. Socio-economic status, contributed 3% to the total variance. The contribution of the variable socio-economic status was not significant.

These findings indicated that Organizational Rationality and Individuality may be predicted from the variables degree of program openness, socio-economic status, and size of student enrollment. The null hypotheses specifying no relationship between Organizational Rationality and the predictor variables, and Individuality and the predictor variables may be rejected. The finding of a lack of significance between the predictor variables and the remaining performance objectives (Public Interest, Administrative Rationality, Instructional Effectiveness, and Staff Development) does not allow rejection of the null hypotheses for these variables.

Hypotheses C1, C2, C3, C4, and C5 were concerned with the relationship between perceived degree of program openness and socio-economic status, size of student enrollment, and building architecture.

Hypothesis C1: The linear correlation between perceived degree of program openness and socio-economic status is zero.

The Pearson product-moment correlation between the perceived degree of program openness exhibited by a school and the socio-economic status of that school is presented in Table 14.

TABLE 14

PEARSON PRODUCT-MOMENT CORRELATIONS BETWEEN DEGREE OF PROGRAM OPENNESS AND SOCIO-ECONOMIC STATUS

r	P ≤
0.311	0.05

critical value of r at 0.05 level of significance = 0.246

The findings presented in Table 14 indicate a significant relationship between degree of program openness and socio-economic status.

Hypothesis C2: The quadratic and cubic trends of the relationship between perceived degree of program openness and socio-economic status are not significant.

The results of the quadratic regression analysis conducted on the variables degree of program openness and socio-economic status is presented in Table 15.

TABLE 15

QUADRATIC REGRESSION ANALYSIS ON RELATIONSHIP BETWEEN DEGREE OF PROGRAM OPENNESS AND SOCIO-ECONOMIC STATUS (N=64)

F	P ≤
0.322	ns

critical value of F at 0.05 level = 4.000

As can be observed from Table 15 the F ratio was not significant. This indicated that the quadratic trend provided no better fit to the regression line than the linear trend.

In Table 16 the results of the cubic regression analysis is presented. This analysis was conducted to further investigate the possibility of a curvilinear relationship.

TABLE 16

CUBIC REGRESSION ANALYSIS ON RELATIONSHIP BETWEEN DEGREE OF PROGRAM OPENNESS AND SOCIO-ECONOMIC STATUS (N=64)

F	P $\leq$
0.312	ns

critical value of F at 0.05 level = 4.000

From Table 16 it may be seen that the cubic trend was not significant. This indicated that this polynomial was no better fit to the regression line than was the quadratic or linear trend.

From analyses of the data for Hypotheses C1 and C2, it was found that the correlation between socio-economic status and degree of program openness was 0.311 which was significant beyond the 0.05 level. The results of the quadratic and cubic regression equations were non-significant, indicating that no significant increase in explained variability was obtained by investigating these trends. From these findings, the null hypothesis, specifying no relationship between socio-economic status and degree of program openness, may be rejected. A positive linear relationship between the two variables is indicated. Walberg and Thomas[8] found that classrooms in schools located in higher socio-economic areas tended to be

[8] Herbert J. Walberg and Susan C. Thomas, "Open Education: A Classroom Validation in Great Britain and United States," American Educational Research Journal 9 (1972):201.

more programatically open than classrooms in schools located in lower socio-economic areas. Meyers and Duke[9] found that classrooms in schools located in upper-middle class communities tended to be more open than classrooms in schools located in middle class communities. They also found, however, that classrooms in schools located in lower middle class communities tended to be as programatically open as classrooms in upper-middle class communities, suggesting a curvilinear relationship. The findings in this study lend support to the Walberg and Thomas findings. They do not support Meyers and Duke's finding of a curvilinear relationship.

Hypothesis C3: The linear correlation between perceived degree of program openness and size of student enrollment is zero.

The Pearson product-moment correlation between the variables degree of program openness and size of student enrollment is presented in Table 17.

TABLE 17

PEARSON PRODUCT-MOMENT CORRELATIONS BETWEEN DEGREE OF PROGRAM OPENNESS AND SIZE OF STUDENT ENROLLMENT (N=64)

r	P≤
-0.276	0.05

critical value of r at 0.05 level of significance = 0.246

As can be seen from Table 17, the relationship between degree of program openness and size of student enrollment was -0.276 which was significant at the 0.05 level.

Hypothesis C4: The quadratic and cubic trends of the relationship between perceived degree of program openness and size of student enrollment are not significant.

[9]Donald A. Meyers and Daniel L. Duke, "Status in New York State," in Donald A. Myers and Lillian Myers, Open Education Re-examined (Lexington, Massachusetts: D. C. Heath and Company, 1973), p. 61.

The results of the quadratic regression equation computed to determine whether a curvilinear relationship existed between size of student enrollment and degree of program openness is presented in Table 18. The data in the table reflect the variability accounted for by this specific degree polynomial, but not accounted for by the lower degree polynomial. The F ratio reflects the significance test for quadratic regression independent of linear regression.

TABLE 18

QUADRATIC REGRESSION ANALYSIS ON RELATIONSHIP BETWEEN DEGREE OF PROGRAM OPENNESS AND SIZE OF STUDENT ENROLLMENT (N=64)

F	P≤
3.677	ns

critical value of F at 0.05 level of significance = 4.000

As can be seen from Table 18 the F ratio was not significant. This indicated that the quadratic trend provided no better fit to the regression line than did the linear trend.

The results of the cubic regression analysis computed between degree of program openness and size of student enrollment is presented in Table 19. The data in the table reflect the variability accounted for by this specific degree polynomial, but not accounted for by lower degree polynomials. The F ratio reflects the significance test for cubic regression independent of quadratic and linear regression.

TABLE 19

CUBIC REGRESSION ANALYSIS ON RELATIONSHIP BETWEEN DEGREE OF PROGRAM OPENNESS AND SIZE OF STUDENT ENROLLMENT (N=64)

F	P≤
0.082	ns

critical value of F at 0.05 level of significance = 4.000

From Table 19 it may be observed that the F ratio was not significant. This indicated that the cubic trend provided no better fit to the regression line than did the quadratic or linear trend.

From analysis of the data for hypotheses C3 and C4, the Pearson product-moment correlation between size of student enrollment and degree of program openness was found to be -0.276, significant at the 0.05 level. When the relationship was tested for curvilinearity it was found that no significant addition to the linear relationship was added by the quadratic and cubic functions. This finding indicated that there was a negative linear relationship between size of student enrollment and degree of program openness. The null hypothesis, specifying no relationship between the variables, may be rejected.

Meyers and Duke,[10] in their study of elementary schools in New York State reported high "openness" scores for schools with small enrollments (83-160), lower "openness" scores for schools with enrollment in the middle of the scale (400-799), and high "openness" scores for schools with large enrollments (800-1100). The implied curvilinearity of the Myers and Duke findings cannot be supported as a result of this research.

Hypothesis C5 was concerned with the relationship between perceived degree of program openness and the architectural design of a school.

> Hypothesis C5: There is no difference in perceived degree of program openness between schools with open, traditional, and mixed architectural design.

The results of the analysis of variance computed to test differences in perceived program openness between schools with an open, traditional, and mixed architectural design, is presented in Table 20.

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[10] Ibid., p. 62.

TABLE 20

ANALYSIS OF VARIANCE: MEAN OPENNESS SCORES FOR SCHOOLS WITH OPEN, TRADITIONAL, AND MIXED ARCHITECTURAL DESIGNS

Source	df	Sum of Squares	Mean Square	F	P ≤
Between Groups	2	74.101	37.050	15.840	0.05
Within Groups	61	142.628	2.339		
Total	63				

As can be seen from Table 20, there were significant differences between the mean "openness" scores for the three types of schools. This difference was significant beyond the 0.05 level. From this finding, the null hypothesis, which states that there will be no significant differences in perceived program openness between schools with different architectural designs, may be rejected.

In order to ascertain which differences between the means were significant, post-hoc comparisons were conducted which involved all of the pairwise contrasts among the three sets of means. Bonferroni t-tests were computed for each of the contrasts. The formula for the "t" statistic is $t = C_r \Big/ \left[MS_{error}\left(\sum_j C_{rj}/n_j\right)\right]^{1/2}$; where C_r is the contrast of interest, MS_{error} is the Mean Square error from the analysis of variance, C_{rj} is the contrast coefficient for each group tested, and n_j the number in that group. The contrasts tested in this analysis and the result of the t tests computed on these contrasts is presented in Table 21.

TABLE 21

CONTRASTS BETWEEN MEAN OPENNESS SCORES OF SCHOOLS WITH OPEN, TRADITIONAL, AND MIXED ARCHITECTURAL DESIGNS (N=64)

Contrast	Mean Openness Scores	t	P ≤
Open - Traditional	13.877 - 11.464	5.194	0.05
Open - Mixed	13.977 - 13.262	1.078	ns
Mixed - Traditional	13.262 - 11.464	3.206	0.05

critical value of t at 0.05 level with 3 contrasts and 61 d.f. = 2.460

As can be seen from Table 21, schools with an open architectural design were significantly different in perceived degree of program openness from schools with traditional architectural designs. Schools with a mixed architectural design were significantly different from schools with a traditional design. There was no difference between schools with an open design and schools with a mixed architectural design.

Traub, Weiss, Fisher, and Musella[11] report a difference of 1.400 between the means of six open-space and eighteen traditional schools on program openness. This difference was reported as being significant at the 0.05 level. The finding in this study supports the finding of Traub, Weiss, Fisher, and Musella.

Summary

In this chapter, technical data relative to the instruments utilized in this study and findings relative to each hypothesis were presented. In addition, a description of the statistical analyses conducted, and references to related research with regard to each hypothesis, was presented.

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[11]Traub, Weiss, Fisher, and Musella, p. 83.

CHAPTER V

REVIEW, SUMMARY, DISCUSSION, AND RECOMMENDATIONS

This chapter contains a review of the study and a summary and discussion of the findings. It also contains recommendations for further study.

Review of the Study

The problem of concern in this study was to: 1) investigate the relationship between the perceived degree of program openness of a school and perceived degree of performance objective attainment; 2) investigate the relationship between performance objective attainment and size of the student enrollment of a school; 3) investigate the relationship between performance objective attainment and socio-economic status of a school; 4) investigate the relationship between the degree of program openness and size of the student enrollment of a school; 5) investigate the relationship between the degree of program openness and socio-economic status of a school; 6) investigate whether the degree of program openness was related to the architectural design of the school; and 7) investigate the extent that attainment of performance objectives could be predicted from degree of program openness, socio-economic status, and size of student enrollment.

The sample utilized in this study was comprised of sixty-four elementary schools representing twelve of the twenty-four school systems in the State of Maryland. Schools were identified by experts from

various colleges and universities within the State who were familiar with open education programs. School systems were contacted for permission to carry out the study within each system. The principal of each school was contacted individually for permission to include that school and for cooperation in carrying out the study.

A packet containing ten sets of questionnaires, a list of random numbers, and a self-addressed stamped envelope was mailed to each school selected for inclusion in the sample. Two questionnaires were utilized in the study. The first was a thirty item questionnaire designed to measure the degree of program openness of an entire school. The second was a sixty-three item questionnaire designed to measure perceptions about the quality of performance manifested by the school in six areas; Public Interest, Organizational Rationality, Administrative Rationality, Instructional Effectiveness, Staff Development, and Individuality.

The random numbers were used to select teachers to respond to the questionnaires. Socio-economic data, and data on size of school enrollment were obtained from the Maryland accountability study. Teachers were requested to return completed questionnaires to the secretary in each school for mailing in the stamped, self-addressed return envelope. Respondents were assured that their responses would be treated confidentially. Usable questionnaires were received from seventy-nine percent of the schools identified for inclusion in the sample.

In order to investigate the relationship between degree of program openness and each of the performance objectives, Pearson product-moment correlations were computed. This statistic was also utilized to investigate the relationship between degree of program openness and socio-economic status, and degree of program openness and size of student enrollment.

The relationship between socio-economic status and performance objective attainment, and between size of student enrollment and performance objective attainment was also investigated by use of the Pearson product-moment correlation. In addition, for each of these investigations, quadratic and cubic regression analyses were carried out to determine whether a curvilinear relationship existed between the variables. A stepwise multiple regression analysis was performed in an attempt to determine the utility of the variables degree of program openness, socio-economic status, and size of student enrollment for predicting the attainment of each of the performance objectives. Finally, a one-way analysis of variance and a series of Bonferroni t-tests were computed to determine the differences in degree of program openness of schools with different architectural designs.

Summary and Discussion of Findings

Hypothesis: A1 The linear correlation between perceived degree of program openness and perceived performance pattern of a school is zero.

Hypothesis: A2 The quadratic and cubic trends of the relationship between perceived degree of program openness and perceived performance pattern of a school are not significant.

A significant positive correlation was found between degree of program openness and the variables Organizational Rationality and Individuality. The lack of significance obtained when the relationship was investigated for curvilinearity indicated that this relationship was linear in nature. From this finding it may be concluded that schools in which there is a high degree of program openness are also those schools in which the teachers perceive the organizational structure, the policies and regulations, and

the work group norms to be facilitating the goals of the school. They are also schools in which teachers feel freer to deviate from existing rules and regulations when such deviation is deemed necessary than is the case in less open schools, and in which teachers feel freer to respond to day-to-day occurances in a flexible manner. Certain elements which characterize open programs, as defined in this study, may help in providing an explanation for these findings. In open programs there are opportunities for students to participate in setting objectives. These objectives are set for individuals rather than groups. Students are allowed to group themselves according to individual interests. There is no fixed timetable, so opportunities are available for students and teachers to pursue activities in which they are engaged without being constrained by time limits. The lack of a fixed timetable also allows for flexibility in choices of activities when interests or needs dictate. Students are afforded the opportunity to discuss behavior problems and to formulate rules designed to alleviate them. If necessary, the opportunities are available for students to deviate from these rules, or to change them when it is seen as necessary. The greater the extent that a school program exhibits these characteristics, the more rational in terms of goal attainment the teachers perceive the program to be. Also, the greater extent that these program characteristics are in evidence, the greater degree of individuality the teachers perceive there to be in the school.

The relationship between degree of program openness and Public Interest, Administrative Rationality, Instructional Effectiveness, and Staff Development was not found to be significant. This indicated that as perceived by the teachers, degree of satisfaction of the general public,

the parents of children in the school, and the school board was not related to whether or not the school had an open program. It may be assumed that the various "publics" of the school were perceived as being either satisfied or dissatisfied with the school because of factors other than the degree of openness of the program. The way in which administrative behavior related to the attainment of school system goals was also not related to the degree of program openness evident in the school. In this regard, the behavior of the administrator may be characterized in a variety of ways. These include; the perceived adequacy of administrative decision-making, the ability of the administrator to communicate with personnel, the way in which the formal and informal rules established by the administrator contribute to goal attainment, and the ability of the administrator to establish educational goals and set priorities. From this finding and the finding of a relationship between program openness and Organizational Rationality, it may be concluded that the organizational structure, work group norms, and rules and regulations of "open" programs are more rational in terms of goal attainment. Administrative behavior in these settings, however, is not necessarily perceived as being more rational. Quality of administrative behavior with regard to attainment of organizational goals may be high or low in schools with "more open" or "less open" programs.

No significant relationship was found between the degree of program openness and teachers' perception of instructional effectiveness. Instructional Effectiveness includes an assessment of the instructional program in terms of the quality of instruction provided by the teachers as well as the extent to which children in the program are perceived as learning (academically, socially, vocationally). This finding indicates

that children in "more" open programs have access to as high a quality of instruction, and learn as much, as children from programs that are "less open". It also provides evidence which may aid in refuting claims of opponents of open education who contend that the informal atmosphere of the open classroom, with the variety of alternatives open to children is not conducive to the acquisition of basic skills. It also supports the findings of the Plowden Report which found, in terms of achievement, no significant differences between children in streamed and non-streamed schools.[1]

Finally, it was found that the amount of resources invested by the school in helping personnel function more effectively was no different for "more open" or "less open" schools. Resource investment, in this context, may be viewed as investment toward the improvement of personnel in two areas. The first of these areas is concerned with helping school personnel function more effectively in their assigned jobs. Examples of this type of investment would include workshops devoted to helping teachers improve teaching skills, gain additional knowledge of specific subject matter areas, or learn new classroom management techniques. The second area is concerned with helping personnel obtain promotions in the system and aiding in personal growth without regard for professional considerations. Examples of this type of investment would include graduate level courses for certification at higher levels or for developing skills necessary to function effectively at different levels. Also included are opportunities for personal development such as workshops, courses, activities, or released time devoted to those areas that school personnel

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[1]Central Advisory Council for Education, Children and Their Primary Schools, 2 vols. (London, England: Her Majesty's Stationary Office, 1967).

want to pursue and in which they may have a personal interest. The way in which schools devoted resources to these areas was found to have no relationship to the type of program a school had.

Hypothesis: B1 The linear correlation between perceived performance pattern and socio-economic status of a school is zero.

Hypothesis: B2 The quadratic and cubic trends of the relationship between perceived performance pattern and socio-economic status of a school are not significant.

The findings in this study fail to reject these hypotheses. Pearson product-moment correlations between the socio-economic status of the school and each of the performance objectives were non-significant. Analyses aimed at the investigation of a curvilinear trend in the data also proved to be non-significant. This indicates that the socio-economic level of the parents of children in a school is not related to the perceived attainment of any of the performance objectives (Public Interest, Organizational Rationality, Administrative Rationality, Instructional Effectiveness, Staff Development, and Individuality).

One possible explanation for this finding is that variation in performance objective attainment is not as sensitive to fluctuations in socio-economic status as is the variable degree of program openness. Another explanation of the non-significant findings is related to the limited variability of the variable socio-economic status. Few schools were included in the sample from extremely low socio-economic areas. The lowest average income level reported for any of the schools in the sample was $4,660 per year. In only one other school was the income of the parents of the children in the school below $7,300 per year.[2] The

[2]See Appendix C for complete socio-economic details.

absence of schools from extremely low income areas reduces the variability of the variable socio-economic status. Any relationship that might exist between the attainment of performance objectives and low socio-economic status would not be found from this data. The lack of a significant correlation may reflect this condition. Further study is warranted which would investigate the relationship between socio-economic status and perceived performance pattern utilizing schools representing a greater range of socio-economic status.

Hypothesis: B3 The linear correlation between perceived performance pattern and size of student enrollment of a school is zero.

Hypothesis: B4 The quadratic and cubic trends of the relationship between perceived performance pattern and size of student enrollment of a school are not significant.

A significant negative correlation was found between the size of the student enrollment of a school and the perceived attainment of the performance objective Individuality. Analyses aimed at the investigation of a curvilinear trend in the data all proved to be non-significant. This finding suggests that larger schools are those in which teachers feel less free to deviate from the existing rules and policies of the school if such deviation is deemed necessary.

A possible explanation for this decreased flexibility that larger schools are perceived as having may be found in looking at the way schools are organized for goal achievement. In smaller schools, with fewer teachers and children, communications are easier between levels of the hierarchy, there is probably more opportunity for interaction between all members of the school, there is less need for coordination

of large numbers of people and activities, and more opportunities for involvement of all those concerned in the decision-making process. The larger schools become the more problems in coordination occur, opportunities for interaction between levels in the hierarchy lessen, rules and regulations increase, and communication between levels in the hierarchy becomes more difficult. In order to alleviate problems associated with size, schools may be organizing in accordance with the bureaucratic model of organization which invests the principal with line (final) authority, and teachers with staff (advisory) authority.[3] Etzioni in discussing this concept, indicates that in professional organizations such as schools the traditional line and staff concepts may have to be reversed since the staff "experts" are carrying out the major goal activity, while the line plays a service role. Administrators in professional organizations are in charge of secondary activities; they administer the means to the major activity being carried out. Professionals (experts) constitute the line (major authority) structure. If the goals and authority structure are incompatible, goals may become modified to the extent that the means used to attain these goals become part of the goals themselves. Organizations, then, seek to attain means as well as goals. In reference to this possibility in schools, Etzioni states:

> . . .In professional organizations overinfluence by the administration is considered a ritualization of means, undermining the goals for which the organization has been established, and endangering the conditions under which knowledge can be created and institutionalized. . . .[4]

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[3]Amitai Etzioni "Aughority Structure and Organizational Effectiveness," Administrative Science Quarterly 4 (June, 1959): 43-67.

[4]Ibid., p. 53.

The findings from this study seem to indicate that smaller size schools tended to be organized less often in accord with the traditional bureaucratic model. Teachers tended to have more autonomy over curriculum decisions and a greater degree of freedom and responsibility in carrying out these decisions. As school size increased, however, it appears that the organization became more structured, more centralized, and less flexible. As this occurred teachers felt more constrained by the rules and regulations of the organization and perceived fewer opportunities to deviate from these rules in the performance of their teaching duties. Also, there was an increased probability of overinfluence by the administration which may have resulted in the ritualization of means that Etzioni discussed.

Hypothesis: B5 The multiple correlation between perceived performance pattern and socio-economic status, size of student enrollment, and perceived degree of program openness is zero.

The three variables, size of student enrollment, socio-economic status, and degree of program openness were used as predictors in an attempt to ascertain the feasability of their use in the prediction of perceived performance objective attainment. From the stepwise multiple regression analyses it was found that two of the performance objectives, Organizational Rationality and Individuality, were significantly related to the three variables. The best predictor of Organizational Rationality was found to be degree of program openness. The socio-economic status of the school was found to also account for a significant amount of the variance in the equation, and was the next best predictor of Organizational Rationality. The size of student enrollment accounted for a negligible amount of the variance, and therefore cannot be considered a significant predictor of Organizational Rationality. When the prediction

of Individuality was examined, however, it was found that the best predictor was size of student enrollment. Degree of program openness was also found to make a significant contribution to the prediction. In this analysis, the socio-economic status of the school was found to contribute a negligible amount to the prediction of the performance objective Individuality.

The first finding indicated that programmatically open schools in higher socio-economic areas provide the best prediction of a high degree of Organizational Rationality. It was expected that degree of program openness would provide a significant prediction of Organizational Rationality because of the significant correlation between the two variables (see Hypotheses C1 and C2). The correlation between socio-economic status and Organizational Rationality, however, was not significant. It is possible that socio-economic status may be acting as a suppressor variable. A suppressor variable is a predictor variable that has a high correlation with another predictor variable but a low correlation with the criterion variable. Socio-economic status has a non-significant correlation with Organizational Rationality, and a significant correlation with degree of program openness. Socio-economic status is apparently increasing the predictive power of the variable program openness by suppressing, or correcting for, some of the unexplained variance that the two predictor variables have in common, but do not share with Organizational Rationality. It is possible that a certain attitude may exist in higher socio-economic communities which is more accepting of innovation in general. This attitude may be more conducive to the implementation of open education programs, and therefore, offer less resistance to flexible organizational patterns. This attitude, common in higher socio-economic communities, may help "modify" the variable degree of program openness and make it a better predictor of Organizational Rationality.

The second finding indicated that schools that had smaller student enrollments and that were more programatically open provided the best prediction of the performance objective Individuality (size of student enrollment and Individuality are negatively correlated). In smaller schools, with fewer teachers and children, communications are easier between levels of the hierarchy, there is probably more opportunity for interaction between all members of the school, and less need for coordination of large numbers of people and activities. These conditions appear to be conducive to an increased amount of flexibility, and an increased feeling of freedom, on the part of teachers, to deviate from existing rules when it is perceived as being necessary. These conditions appear to exist whether the school has a traditional or an open program. In schools with open programs this ability to deviate from existing rules and regulations appears to be more in evidence. This is probably due to the flexible nature of the program itself. This program flexibility may enhance the relationship between size and the degree of Individuality evidenced in the school.

Hypothesis: C1 The linear correlation between perceived degree of program openness and socio-economic status is zero.

Hypothesis: C2 The quadratic and cubic trends of the relationship between perceived degree of program openness and socio-economic status are not significant.

The correlation between the socio-economic status of a school and the degree of program openness was found to be significant beyond the 0.05 level. When the relationship was tested for curvilinearity, a non-significant result was obtained, which indicated the existance of a positive linear relationship between the degree of program openness and the socio-economic status of the school. This finding indicated that the higher the socio-economic status of a school the more open the

program of the school tended to be. This supports the findings of Walberg and Thomas.[5] They found that classrooms located in higher socio-economic areas tended to be more programmatically open than classrooms located in schools in lower socio-economic areas. It does not support, however, the Meyers and Duke[6] finding of high openness in both upper-middle class and lower middle-class communities.

One explanation for this finding is that an open program may be more expensive to operate. Open education programs call for a great diversity of materials and equipment, a great many trips outside of the school, and an increased amount of time on the part of the teacher devoted to planning, diagnosing, conferring, and preparing materials for children. These requirements call for a willingness to spend money on the part of the system, not only in terms of money for materials, but also to attract highly competent and committed teachers to the school. The argument that, in an open setting, many of the materials used may be teacher made, student made, or obtained from collections of discarded materials, and therefore, ought not to cost a great deal of money is a valid one only in a limited sense. Teacher time devoted to preparing materials tends to be quite expensive, both in terms of actual "man-hours" and in terms of fatigue. In addition, the use of more sophisticated audio-visual equipment, other electronic aids to teaching, and commercially prepared kits has become increasingly common, and increasingly more expensive.

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[5]Herbert J. Walberg and Susan C. Thomas, "Open Education: A Classroom Validation in Great Britain and United States," American Educational Research Journal 9 (Spring, 1972): 205.

[6]Donald A. Meyers and Daniel L. Duke, "Status in New York State," in Donald A. and Lillian Meyers, Open Education Re-Examined (Lexington, Massachusetts: D. C. Heath and Company, 1973), p. 61.

Another explanation of this finding is the possibility that citizens in higher socio-economic communities may not be as concerned about the overiding importance of academic achievement as are citizens in lower socio-economic communities. That is not to say that the concern for academic achievement is not extremely high in the higher socio-economic areas. Rather, there may be less emphasis placed on the school to become a vehicle for upward mobility, and a greater concern placed upon some of the non-academic qualities that open education is reported to foster (increased self-concept, socialization skills, increased self-awareness). It is also possible that people in these communities may be more sophisticated in terms of educational philosophy. They may better understand and accept alternative forms of education, and see the value of forms of education which differ from the traditional pattern.

There is a third possible explanation of this finding. In education, innovative programs tend to be found most often in wealthier communities. Many newer types of programs may originate in inner city or lower socio-economic areas, but they tend to quickly become absorbed by the suburbs if they appear successful. Free schools, for example are a middle and upper class phenomenon. Rosenfeld, in discussing open schools, individually prescribed instruction , and other "educational reforms" indicates:

> . . .[E]ach innovation diffuses rapidly from its urban-technical point of origin to the suburban middle-class public and private schools whose clientele and personnel. . . know and want an establishment educational innovation when they see one. . . [innovations] . . . seem to have found a more hospitable reception in the suburbs. . . .[7]

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[7]Gerry Rosenfeld, "Urban Education: The Establishment's Last Stand", in Nobuo Shimahara and Adam Scrupski eds., Social Forces and Schooling: An Anthropological and Sociological Perspective (New York: David McKay Company, 1975),p. 299.

Hypothesis: C3 The linear correlation between perceived degree of program openness and size of student enrollment is zero.

Hypothesis: C4 The quadratic and cubic trends of the relationship between perceived degree of program openness and size of student enrollment are not significant.

It was found that a significant negative relationship existed between the size of the student enrollment and the perceived degree of program openness of a school. Since tests for curvilinearity were non-significant, this relationship was determined to be linear in nature. As the enrollment of a school increased the perceived degree of program openness decreased. This finding does not support the Meyers and Duke finding of a high degree of program openness in schools with a high enrollment and also in schools with a low enrollment.[8]

Open programs, stressing the great diversity of activities, the highly individualized nature of the program, the flexibility of time and facilities use, and the amount of coordination required to meld these elements into a coherent and systematic program, may not be feasible in large schools at this time. It is entirely possible that the level of sophistication educators have at this time regarding the implementation of open education practices is not sufficiently high for successful implementation with large student enrollments. It is also possible that the extent to which educators rely on the bureaucratic model in organizing schools and school systems may be dysfunctional to the implementation of open education programs. The tendency appears to be for schools to become increasingly structured as size increases and to rely more on the traditional line-staff authority structure. As this

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[8]Meyers and Duke, p. 63.

happens, fewer of the important educational decisions are delegated to the classroom teacher. This structure becomes less viable as attempts are made to implement an open program which requires many of these decisions to be made at the level of the individual classroom.

Hypothesis: C5 There is no difference in perceived degree of program openness between schools with open, traditional and mixed architectural designs.

As a result of the analysis of variance and the series of Bonferroni t-tests it was found that schools with open architectural designs were significantly more programmatically open than schools with traditional architectural designs. They were also more programatically open than schools with a mixed design, but the difference was not significant, however. Schools with a mixed architectural design were found to be significantly more programmatically open than schools with a traditional design. This supports the finding of Traub, Weiss, Fisher and Musella[9] who report a significant difference between the means of open-space and traditional schools using the Dimensions of Schooling instrument.

It seems reasonable to assume that open architectural designs, which provide increased opportunities for flexible use of space, would be more conducive to the implementation of an open program. It also seems reasonable to assume that mixed architectural designs also provide flexibility in space utilization, although not as much flexibility as completely open architectural designs. This appeared to be the case for the schools in this study.

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[9]Ross E. Traub, Joel Weiss, C. W. Fisher, and Don Musella, "Closure on Openness: Describing and Quantifying Open Education," Interchange 3 (1972):79.

The findings of this study suggest several characteristics of schools with "open" programs. These schools tend to be located in higher socio-economic areas, they have relatively smaller student enrollments, and they tend to have an open-space or a mixed architectural design. These open schools are characterized as attaining the performance objectives derived from the Organizational Status Survey "to a moderate degree". They are schools in which teachers feel free to deviate from existing rules and regulations when it is deemed necessary to accomplish the goals of the school. The organizational structure, rules and regulations, and work norms however, are usually perceived to be structured to facilitate these goals. In terms of the extent to which the Public Interest is satisfied, the extent to which administrative behavior is perceived as being rational, and the extent to which resources are invested in personnel, "open" schools are characterized no differently than schools with "less open" programs. Finally, "open" schools are perceived to be attaining the performance objective Instructional Effectiveness to the same degree as schools with a "less open" program design.

The findings of this study also suggest several characteristics of the schools in this sample. Because of the lack of randomization, no statistical generalizations can be made to the population of schools in the State of Maryland. However, the findings in this study are similar to those found by Goldman and Coplan in their studies of a national sample of secondary school principals and Maryland elementary school principals.[10]

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[10] Harvey Goldman and Bette Coplan, "Principals Assess Their School Systems", NASSP Bulletin, 390 (April, 1975). See also Harvey Goldman and Bette Coplan, unpublished research, University of Maryland, 1974.

It was found that the schools in this sample were perceived as attaining five of the six performance objectives derived from the Organizational Status Survey slightly less than "to a moderate degree". The performance objective which was rated as receiving the least attention by schools was Staff Development ($\bar{X}$ = 2.570). This objective is the extent to which a school system is perceived as investing resources to improve the competencies of its personnel. Thus, it appears that the schools in this study tended to give less emphasis to the investment of resources devoted to helping personnel improve themselves than to other areas of functioning. If school systems systematically place less emphasis on this area of function, over a long period of time, the consequences are likely to be detrimental to the system. Lack of emphasis in this area indicates less attention being placed on the training and development of personnel within a system. By ignoring this important human asset (or, at least, placing less emphasis on it), the organization is placing less importance on developing a staff of teachers, administrators, and other support personnel who are committed to the organization and who have the skills necessary to cope with problems as they arise. Likert[11] has estimated that, in terms of economic criteria, the value of the human assets of an organization ranges from thirty-five to eighty-five percent of the worth of the organization.

Friedlander and Pickle in their study of organizational effectiveness indicated that successful organizations were those in which employees had confidence in management, held higher opinions of their supervisors and sensed opportunities for self development. They indicate, ". . . S elf-development...reflects the employees feelings of belongingness, participation

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[11]Rensis Likert, The Human Organization: It's Management and Value (New York: McGraw-Hill Book Company, 1966), p. 120.

and pride in the company -- a sense of 'psychological ownership' in the organization."[12]

Drummond, in his study, found that British headteachers encouraged their teachers to participate in programs outside of the school by taking over the teacher's class for a day, or longer if necessary. A great deal of emphasis was placed on teachers improving their skills through various types of courses or workshops which were held either in the school or by various agencies outside of it. Drummond states, "In-service work is seen to have its own intrinsic and practical value in the personal and professional growth of participating teachers."[13]

The investment of resources in activities designed to improve the quality of the personnel in organizations has been viewed as being extremely important from the standpoint of increased organizational effectiveness. Healthy organizations must continually devote adequate resources to the development of a well trained and dedicated work force if they expect to be able to function at a high level of effectiveness. It becomes obvious from the results of this study, and the studies conducted by Goldman and Coplan that the public schools tend to place less emphasis on this area of functioning than they do to all other areas.

Finally, the finding of different levels of performance objective attainment by schools was an expected one. Friedlander and Pickle,[14] in their study, found that in only a moderate number of instances were organizations able to satisfy both societal needs and employee needs simultaneously. They discussed the difficulties involved in attempting

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[12] Frank Friedlander and Hal Pickle, "Components of Effectiveness in Small Organizations," Administrative Science Quarterly 13 (September, 1968):299.

[13] Drummond, pp. 86-87.

[14] Friedlander and Pickle, p. 303.

to fulfill, simultaneously, the variety of demands made upon an organization, and implied that concurrent fulfillment of all or even a major share of many of these demands might not even be possible. Gross[15] also addressed himself to this problem. He indicates that organizations must maintain an effective level of performance across a number of performance areas for the organization to be considered "healthy". This adequate level of performance would, of necessity, have to be accomplished over a reasonable period of time. Measurement at any given point in time might indicate, however, that a given organization may be realizing a high degree of attainment on one or more performance objective, a moderate degree of attainment on some of the objectives, and possibly a low degree on some. The findings of this study seem to substantiate these claims. Although differences in degree of attainment are not as great as Gross implied, the pattern does tend to show differential levels of attainment. Greatest emphasis by the schools seems to be directed toward satisfying the various publics of the school, administering the schools in a rational manner, and on the effectiveness of instruction within the institution.

Recommendations For Further Study

Many additional studies relative to the degree of program openness and the attainment of organizational performance objectives within the schools are needed. Recommendations for future study include the following:

1) That the schools identified as having an "open" program for purposes of this study be reassessed at specified intervals over a five year period to determine the stability of open programs in schools.

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[15] Bertram Gross, The Managing of Organizations, 2 vols. (Glencoe: The Free Press, 1964), 2:479.

2) That assessment of these same schools with regard to performance pattern be conducted in order to determine if schools, over time, concentrate on different performance objectives, and to determine whehter any changes are associated with changes in program openness.

3) That an investigation of the relationship between degree of program openness and age and years of experience of teachers be conducted to discover if these demographic variables are associated with program openness.

4) That an investigation of the relationship between program openness and age, tenure, or years of experience of principals be conducted to discover if these variables are associated with program openness.

5) That an investigation of "open" schools that have been in existence for varying periods of time be conducted to determine whether time is a factor in the attainment of an open program, and in the attainment of performance objectives related to program openness.

6) That the relationship between socio-economic status and performance patterns be studied in greater detail, utilizing schools from a greater range of socio-economic areas.

7) That student perceptions of the degree of program openness and performance objective attainment be investigated and compared with teacher perceptions.

Summary

This chapter contained a review of the study and a summary and discussion of the findings related to each hypothesis. It also contained a general description of the performance patterns of the schools included in the study, the general characteristics of "open" schools that were found, and recommendations for further study.

APPENDIX A

ORGANIZATIONAL STATUS SURVEY

Harvey Goldman and Bette Coplan
University of Maryland
College Park, Maryland

Your responses to the statements in this instrument will contribute to a better understanding of school systems. Base all answers on your perceptions of the entire school district. If uncertain about how to respond to a particular statement, do so according to what you believe to be true.

Read carefully and respond to every item.

After reading each statement, select the appropriate response on the separate answer sheet and blacken the space completely with a soft pencil.

Please complete the personal information questions on the separate answer sheet.

SAMPLE ITEMS

	To a great degree	*To a moderate degree*	*To a minor degree*	*Not at all*
1. Public agencies cooperate with the schools.	☐	■	☐	☐
2. Teachers understand the concerns of parents.	☐	☐	■	☐

After reading each statement, select the appropriate response on the separate answer sheet and blacken the space completely with a soft pencil.

1. The school board is satisfied with what is being accomplished by the schools.
2. Programs are carefully evaluated.
3. The public feels that the schools contribute to the development of enlightened citizens.
4. Students with psychological problems receive help.
5. Knowledgeable outsiders view this system as one which helps its personnel grow professionally.
6. Parents are satisfied with the job being done by the schools.
7. Decisions evolve through a rational process.
8. The school board is satisfied with the quality of classroom teaching.
9. There is a "communication gap" between administrators and other personnel.
10. Formal rules limit the activities of personnel.
11. Individuality is encouraged in this organization.
12. Decisions are modified as conditions change.
13. Students are being prepared to participate in a democratic society.
14. Teachers plan cooperatively to solve problems.
15. Graduates meet their obligations to the larger society.
16. Morale is low because of existing policies.
17. Administrators are satisfied with the services offered by professional staff.
18. The public is satisfied with the curriculum.
19. In-service programs help personnel carry out their present jobs better.
20. In-service programs help personnel cope with existing problems.
21. Students who complete school are academically competent.
22. There are precise statements of what is to be accomplished.
23. Informal rules impose constraints on staff members.
24. The public is satisfied with the amount students learn.
25. Alternative means of solving problems are explored before final decisions are made.
26. Parents are satisfied with the quality of the schools.
27. Formal rules limit opportunities for creativity.
28. Administrators in this system behave consistently.
29. Differences about organizational purposes make it difficult for teachers and administrators to communicate.
30. Personnel are allowed latitude when carrying out their assigned functions.

31. The students express themselves well in writing.
32. Decisions made are consistent with the long-range goals of the system.
33. In-service programs are designed to help persons obtain better jobs in the district.
34. The students have learned to use arithmetic skills well.
35. Teachers instruct as well as you expect.
36. Students are prepared to become intelligent voters.
37. Explicit organizational priorities have been established.
38. Rules in the schools limit teacher effectiveness.
39. Administrators search for ways to promote competent people.
40. Students are helped to understand themselves.
41. Teachers are effective in helping students learn the basic academic skills.
42. Students with social problems receive assistance.
43. Personnel are able to deviate from existing rules whenever necessary.
44. Parents have confidence in the schools.
45. Those who make policy are concerned with improving the quality of the system.
46. Formal channels of communication are used effectively.
47. The organization is receptive to new ideas.
48. Students exercise self-control.
49. It is difficult to understand the intent of formal communications.
50. The organization of schools for instructional purposes is rigid.
51. Teachers receive help in coping with the changing nature of students.
52. The public feels that its tax investment in education is well spent.
53. The school system meets its obligations to the public.
54. Administrators are rational decision-makers.
55. Concern is manifested with providing the best quality of services.
56. Pressure to conform is prevalent.
57. Personnel devote maximum effort to their jobs.
58. Administrators understand the problems confronting other personnel.
59. Students are prepared to be productive citizens.
60. This organization utilizes means that are consistent with its long-range goals.
61. Students have learned undesirable social behaviors in school.
62. The demand by the public for services is met.
63. The policy-makers are intellectually astute.

Organizational Status Survey — Answer Sheet

Date

School System

The number next to each response corresponds to the number of the item in the booklet. Use a soft pencil and fill in the response spaces completely. All errors should be carefully erased.

	To a great degree	To a moderate degree	To a minor degree	Not at all
1				
2				
3				
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63				

PLEASE ANSWER THE QUESTIONS BELOW

After reading the following questions, select the responses which best describe you. Place the response code numbers on the lines at the left of the items.

——— 1. You are:

(01) male
(02) female

——— 2. Please indicate your age:

(01) 20 to 24 years old
(02) 25 to 29 years old
(03) 30 to 34 years old
(04) 35 to 39 years old
(05) 40 to 44 years old
(06) 45 to 49 years old
(07) 50 to 54 years old
(08) 55 to 59 years old
(09) over 60 years old

——— 3. If you are located in a single school, which phrase best indicates the predominant pattern of organization:

(01) self-contained classroom
(02) team-teaching
(03) other (please describe) ———————

——— 4. If located in a single building, indicate the size of the student body:

(01) 0 to 400 students
(02) 401 to 800 students
(03) 801 to 1200 students
(04) 1201 to 1600 students
(05) 1601 to 2000 students
(06) over 2000 students

——— 5. What is the total number of years you have worked for the school system:

(01) 1 to 2 years
(02) 3 to 4 years
(03) 5 to 6 years
(04) 7 to 9 years
(05) 10 or more years

——— 6. How long have you been in your present position:

(01) 1 to 2 years
(02) 3 to 4 years
(03) 5 to 6 years
(04) 7 to 9 years
(05) 10 or more years

——— 7. Indicate which of the following phrases most closely describes your position:

classroom teacher —
(01) elementary (02) secondary
supervisor, counselor, resource teacher, reading teacher, etc. —
(03) elementary (04) secondary
vice-principal
(05) elementary (06) secondary
principal —
(07) elementary (08) secondary
central office —
(09) staff position (10) line position

School_____ Date_____

Grade(s)_____

The purpose of this questionnaire is to obtain a description of your class on a variety of dimensions. PLEASE RESPOND TO THE ITEMS IN TERMS OF WHAT ACTUALLY HAPPENS IN YOUR SCHOOL SITUATION. DO NOT RESPOND IN TERMS OF WHAT YOU THINK SHOULD HAPPEN.

Each item contains several categories describing situations relating to one dimension of schooling.

For each dimension please read all the categories before responding to that dimension.

For each dimension, rank the categories in terms of how often they occur in your class. Assign the highest rank (1) to the category which occurs most often or to the most students. Assign the second highest rank (2) to the category which happens the next most often... and so on down to the lowest ranked category.

Do not rank categories which do not apply to your situation or where a ranking system is inappropriate.

Rank as many or as few of the categories as you feel are appropriate for describing your class situation.

Items 1-6 refer to the general school situation; Items 7-30 should refer to the four main subject areas specified. Please respond only to subject areas which you teach. If you teach a subject area not listed, please write it under OTHER and respond in that column.

("Class" in this questionnaire is defined as the group of students assigned to you at this time.)

Example Item:

Library Usage

A.	Students go to the school library individually whenever they wish.	3
B.	Students go to the school library individually with the permission of their teachers.	2
C.	Students go to the school library in groups with the supervision of a teacher or librarian.	1
D.	Students go to the school library mainly outside regular school hours.	

The response in the example describes a situation in which the most frequently occurring category is "C"; the second most frequently occurring category is "B"; the third most frequently occurring category is "A"; and "D" simply does not occur.

Remember you may rank as few or as many of the categories as are appropriate for your situation.

Items 7-30 are concerned with subject matter areas. Please respond as before for each of the subject areas that you teach. That is, rank the categories in terms of how often they apply to your situation. This will require a column of ranks for each subject that you teach.

If you teach a subject which is not listed, respond in the column headed "other". Please specify the subject.

If you use "integrated subjects" respond in the column headed "other" (and specify "integrated subjects" in the place provided.)

Please note: In an effort to conserve paper and mailing costs the questionnaire is printed on BOTH SIDES of each page. Please excuse this inconvenience, but it is necessary.

THANK YOU FOR YOUR CONSIDERATION AND FOR YOUR TIME.

1. ASSIGNMENT OF STUDENTS TO TEACHERS. This section is concerned with who makes the decisions about student assignment to teachers.

   A. Class assignments are decided upon by students.

   B. Class assignments are decided upon by parents.

   C. Class assignments are decided upon by teachers.

   D. Class assignments are decided upon by principal or vice principal.

2. TIME SCHEDULING. This section is concerned with the amount of time which is blocked into scheduled activities.

   A. Fully Unscheduled: Activities (e.g. math or other subjects, outdoor play, work with art materials, etc.) are not scheduled, but occur as students' and/or teachers' interests dictate.

   B. Mostly Unscheduled: Activities are not scheduled for most of the day, but there are some activities (no more than 1/4 of the day) that are held at specific times (e.g. a French lesson given by a teacher who comes from outside the school or reading, etc.).

   C. Scheduled and Unscheduled: Approximately 1/2 the day is unscheduled with the other 1/2 blocked into scheduled activities.

   D. Mostly Scheduled: Activities are scheduled for most of the day (about 3/4) but the rest of the time is left unscheduled so that activities occur as students' and teachers' interests dictate.

   E. Fully scheduled: The full day is organized into activities that occur according to some pre-arranged time-table.

3. FREE TIME. This section is concerned with the amount of time during which students are free to pursue their own interests. This is not the same as independent study time where students work on projects or assignments in a particular subject area.

   A. The entire day is available for students to pursue their own interests (free time).

   B. At least half the day is available as free time.

   C. One - two hours of free time are available each day.

   D. Less than one hour of free time is available each day.

   E. There is no free time available.

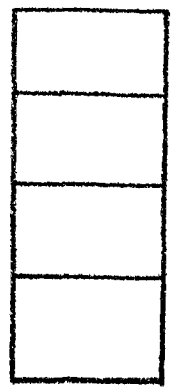
4. RULE-MAKING. This section is concerned with determining who makes the rules which govern school behavior.

A. Rules for student conduct are made by the administrative staff (principal, vice principal).

B. Rules for student conduct are made by the teachers.

C. Rules for student conduct are made by the parents.

D. Rules for student conduct are made by the students.



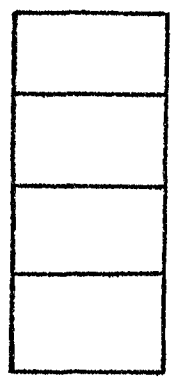
5. RULE-ENFORCING. This section is concerned with determining who enforces the rules governing general school behavior.

A. Rules for student conduct are enforced by the administrative staff (principal, vice principal).

B. Rules for student conduct are enforced by the teachers.

C. Rules for student conduct are enforced by the parents.

D. Rules for student conduct are enforced by the students.



6. DEFINING GENERAL OBJECTIVES. This section is concerned with who specifies the general objectives, (aims, goals, philosophy, expected outcomes) of schooling.

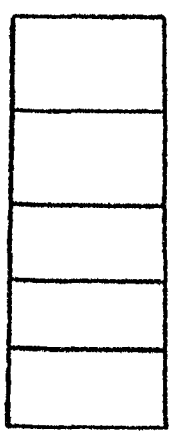
A. The objectives are defined by the administrative staff (i.e. the school board, central administration, principal).

B. Objectives are defined by teachers.

C. Objectives are defined by parents.

D. Objectives are defined by students.

E. Objectives are not defined.

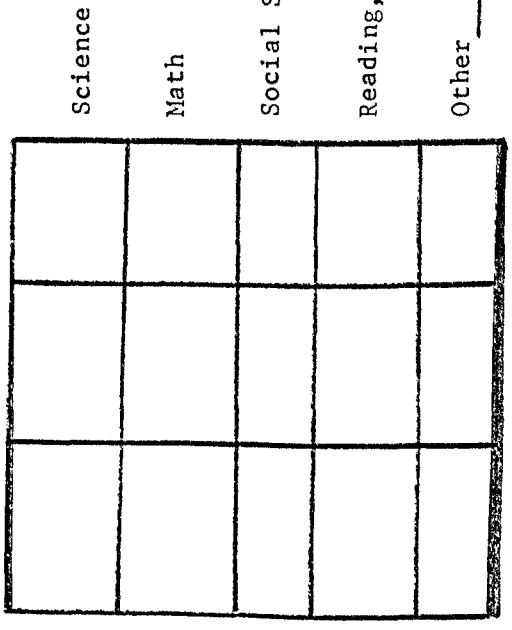


7. STUDENTS' MOBILITY. This section is concerned with the amount of freedom which students have to move around the school on a regular basis.

A. Students do not need the permission of the teacher to leave the classroom, but freely move in and out of the room (or area) to use the library, resource centre, etc.

B. Students must ask the teacher's permission to move in and out of the classroom to use the library, resource centre, etc. but permission is usually given readily.

C. Students move in and out of the classroom to use the library, resource centre, etc. only in special circumstances (i.e., with special permission) or as class groups.

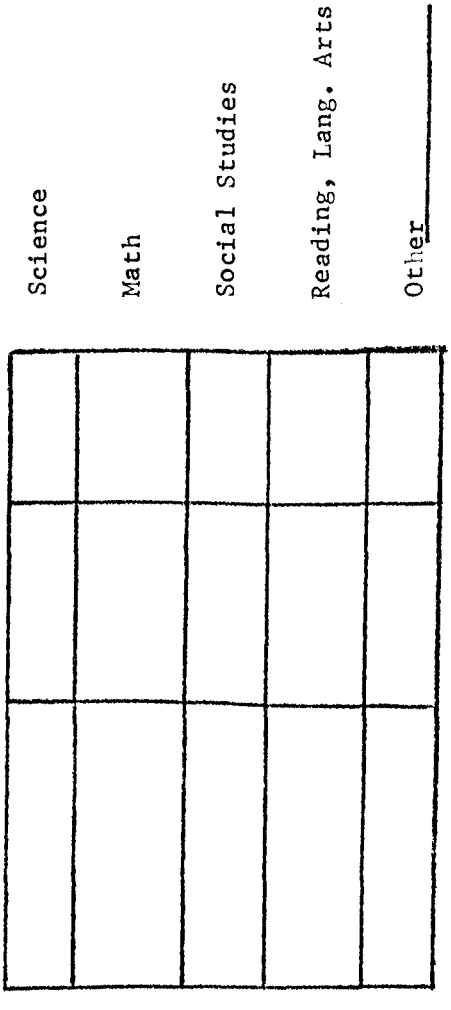


8. DEVELOPMENT OF MATERIALS. This section is concerned with the amount of personal involvement that students and teachers have in the development of materials for the classroom.

A. There is little involvement of teachers and/or students in developing materials; i.e. most materials in use are ready-to-use "packages" (e.g. reading series, sets of math texts, computer-assisted instruction, etc.).

B. There is some involvement of teachers and/or students in developing materials; i.e. most materials in use are things chosen by teachers, students, or others from a wide variety of sources in a ready-to-use form (e.g. books not in series, an abacus, a film, etc.).

C. There is a great deal of involvement of teachers and/or students in developing materials; i.e., most materials in use have been developed, created or adapted by students, teachers and others specifically for situations which arose in this classroom (e.g. collections of objects for use in working out math problems, books, tape recordings or films made by students or teachers, equipment built by parents, etc.)



9. SELECTION OF MATERIALS. This section is concerned with the involvement students have in selecting materials with which to work.

A. Students choose for themselves from all the materials available and may bring in materials from outside the classroom.

B. Students chose from alternatives suggested by the teacher.

C. Students are assigned materials prescribed for them individually.

D. Student is assigned materials prescribed to members of his subgroup of the class. (Same materials for all students in the same subgroup; different materials for each subgroup.)

E. Student is assigned materials prescribed to all members of his class. (Same materials for all students in the same class).

Science	Math	Social Studies	Reading, Lang. Arts	Other_____

10. FLEXIBILITY OF ENVIRONMENT. This section is concerned with who makes the decisions about the arrangement and the setting up of the learning area.

A. The arrangement of furniture and equipment in the learning area is decided upon by the administrative staff and doesn't change frequently.

B. The arrangement of furniture and equipment in the learning area is decided upon and changed by the teachers.

C. The arrangement of furniture and equipment in the learning area is decided upon and changed by the students.

Science	Math	Social Studies	Reading, Lang. Arts	Other_____

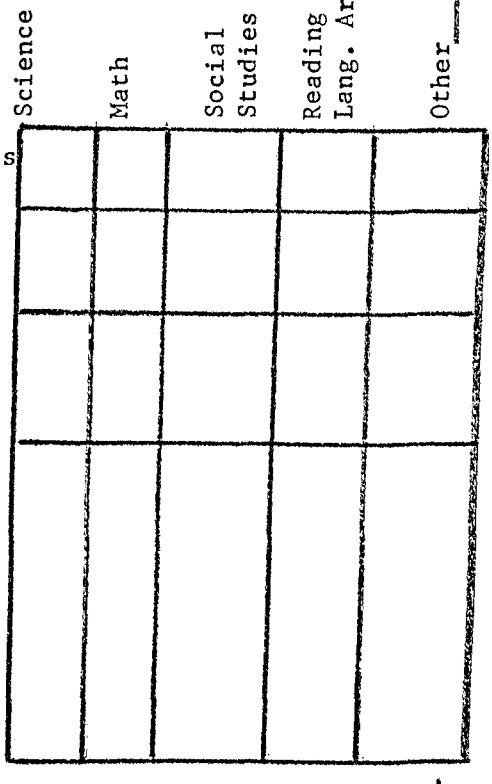
11. LEARNING ENVIRONMENT. This section concerns the size of the area used by students during the school day.

A. Study and other activities take place at the student's own desk or table.

B. Study and other activities take place in a number of different places (centers) within the classroom area.

C. Study and other activities take place in a number of different places (centers) within the school.

D. Study and other activities take place on a fairly regular basis outside the school; the community and its institutions are incorporated into the learning environment. (e.g. a class is held in a museum or students go on a weekly nature walk or a few students and a teacher aide spend time walking around a shopping area and visiting a butcher, a baker, a shoemaker's shop. This does not refer to occasional outings or class trips).

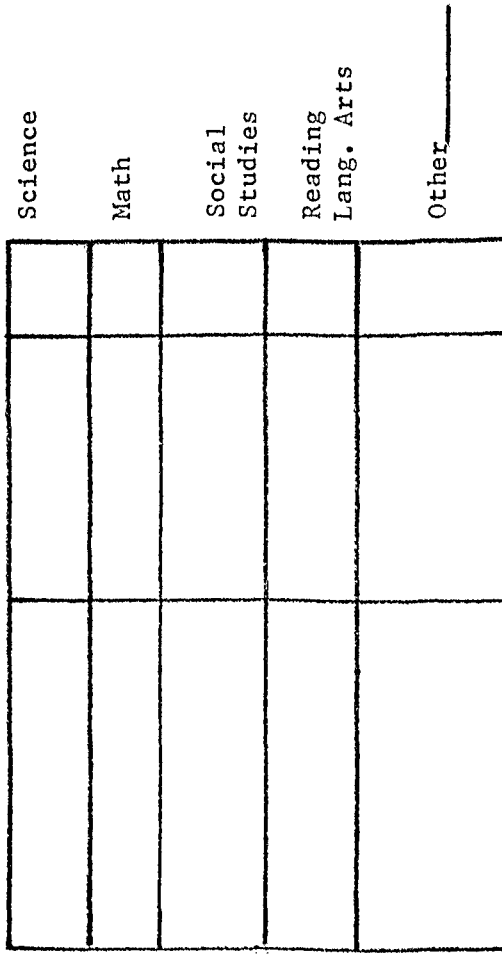


12. OTHER ADULT INVOLVEMENT. This section is concerned with the involvement of adults other than teachers in the classroom.

A. All teaching is done by the regular classroom teacher and special subject teachers.

B. Although most of the teaching is done by the classroom and special teachers, occasionally there are visitors, parents or volunteers who have special knowledge of a topic, or who help in a practical way in the classroom (e.g. a student's mother who is a doctor may talk to a class about what doctors do, or a parent may help decorate the classroom for a party).

C. Although much of the teaching is done by the classroom and special teachers, there are regularly involved parents, volunteers and frequent visitors who are welcome in the classroom and whose involvement is considered an important part of the learning experience. (e.g. a parent spends an afternoon a week at the school working with the students in art or a university student comes regularly to tutor students in math).

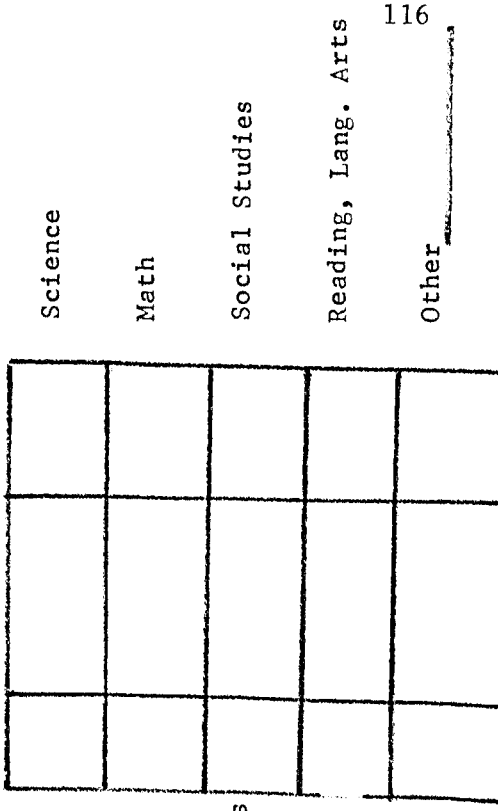


13. PEER GROUP ASSISTANCE. This section is concerned with the extent to which students work with other students on school work.

A. Students independently seek assistance in their schoolwork from peers or other students; this is a frequent occurance in the class and is accepted and encouraged as a valid way of seeking solutions or of exploration.

B. There is occasional student-to-student assistance on a somewhat formal teacher-initiated basis (e.g. the teacher assigns a good reader to help a poorer reader or arranges for a tutor).

C. Assistance always comes from the teacher.

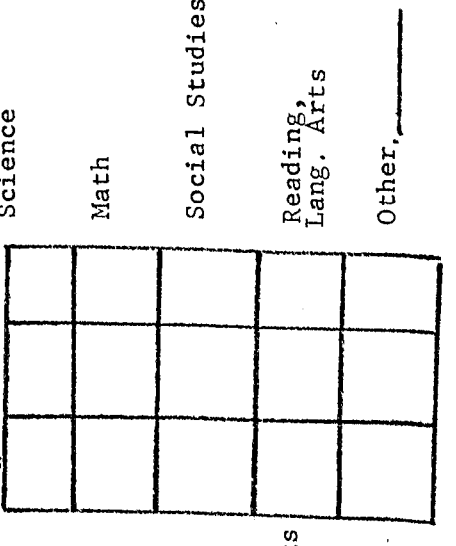


14. MEDIA USAGE. This section concerns the use of media as teaching aids in instruction.

A. Teachers and books are the primary media of instruction

B. Teachers and books are augmented by media which is used by the teacher (e.g. the teacher shows a film or plays a record for the class).

C. Teachers and books are augmented by media which students have ready access to and use themselves (e.g. tape recorders or videotape equipment or records).

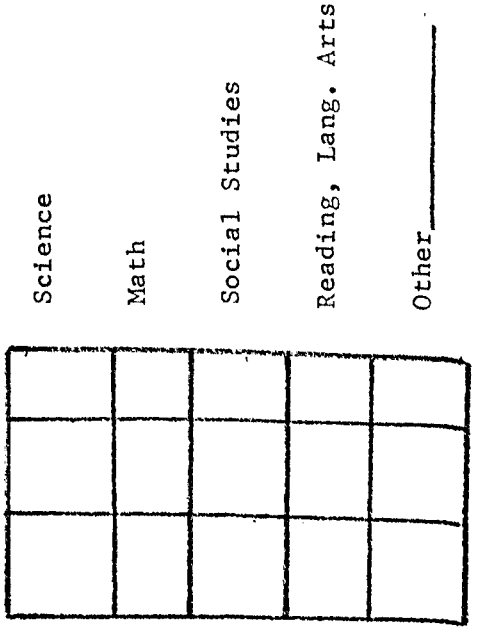


15. TEACHER FOCUS. This section concerns the size of the student group addressed by the teacher at one time.

A. The teacher directs attention to the class as a whole.

B. The teacher directs attention to subgroups of the class.

C. The teacher directs attention to individual students.



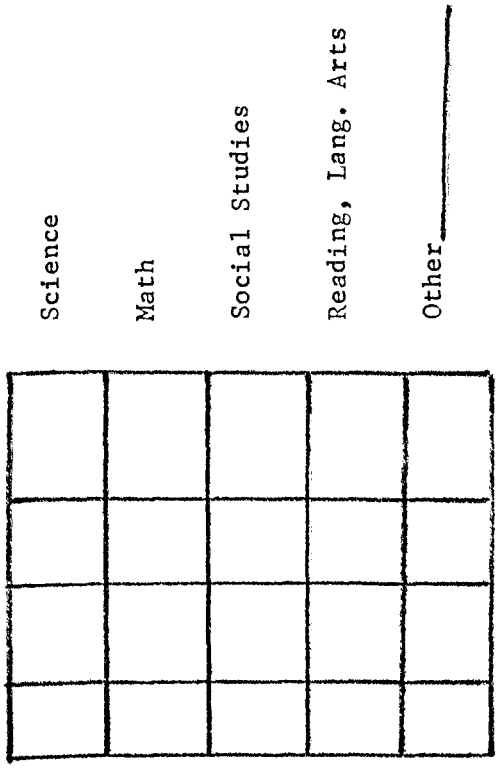
16. TEACHER ROLE. This section is concerned with the role the teacher plays in the student's contact with what is being learned.

A. The teacher acts as a resource person to whom students come when seeking information and ideas.

B. The teacher acts as a discussion leader on topics initiated by the students

C. The teacher acts as a discussion leader on topics of his/her choice.

D. The teacher acts as a presenter of planned lessons.



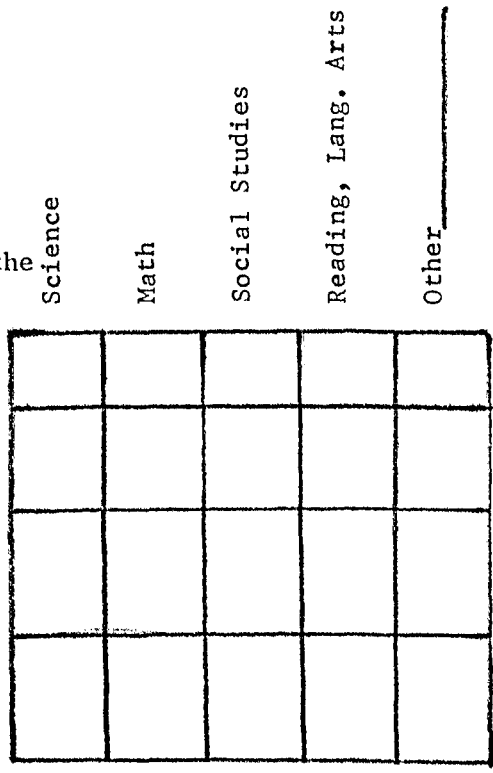
17. COOPERATIVE TEACHING. This section is concerned with the extent to which teachers plan and teach together.

A. Teachers plan and teach independently of each other.

B. Teachers discuss and plan work together but teach independently.

C. Teachers discuss, plan, and work on special projects together but generally maintain independence in regular teaching.

D. Teachers discuss, plan and work cooperatively so that they function as a coordinated unit.

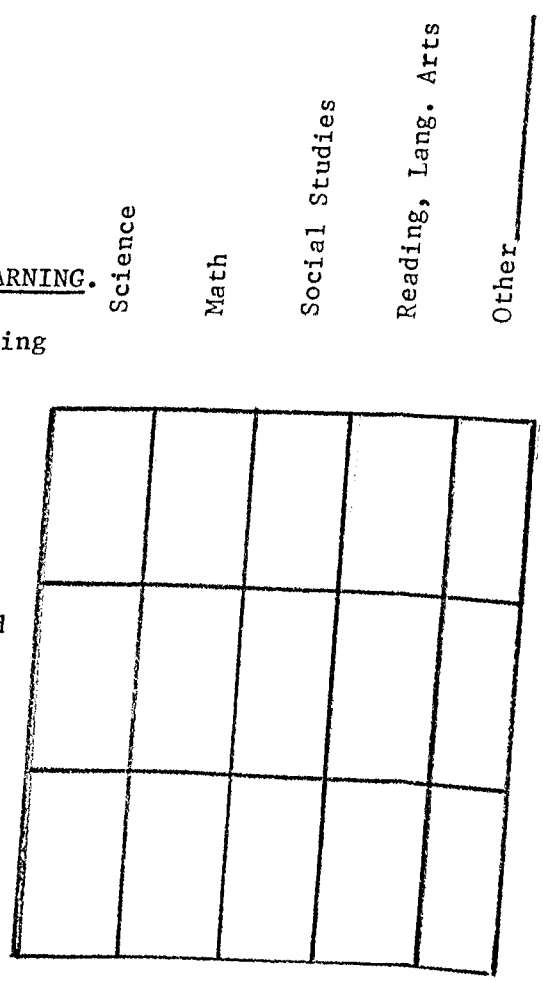


18. STUDENT INVOLVEMENT IN FORMULATING APPROACHES TO LEARNING. This section is concerned with the extent to which teachers help students arrive at approaches to learning and problem solving.

A. Students formulate their own methods of learning and solving problems (e.g. a student studying the Arctic independently consults several people, looks in the card catalogue at the library, and writes to the government for information).

B. Students choose from alternative methods suggested by the teacher for learning and solving problems (e.g. a student studying the Arctic asks the teacher for help. The teacher suggests two books, a film strip and writing to the government).

C. Students are assigned methods by the teacher for learning and solving problems (e.g. a student studying the Arctic is assigned the tasks of writing a letter to the government, reading two books, and viewing a filmstrip).



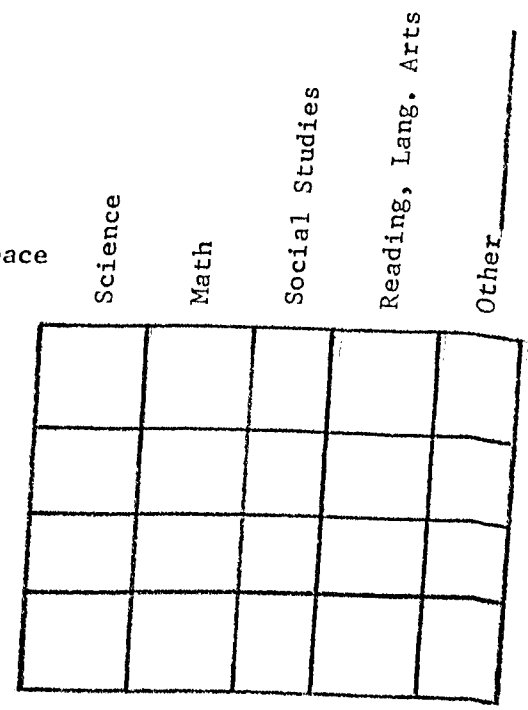
19. STUDENT PACING. This section is concerned with the pace at which the student works.

A. The student is expected to work at a pace set for all members of the class.

B. The student is expected to work at a pace set for the members of his subgroup of the class.

C. The student works at a pace prescribed for him individually.

D. The student sets his own pace.



20. ATTENDANCE. This section is concerned with students' physical presence at class activities.

A. Attendance at all activities of the class is not required (e.g. a math lesson is scheduled; a student is involved in another project and chooses not to attend the class).

B. Attendance at more than half the activities of the class is not required (e.g. it is required that a student attend a reading lesson, but he may choose not to be present for a social studies lesson).

C. Attendance at less than half the activities of the class is not required.

D. Attendance at all the activities of the class is required.

Science	Math	Social Studies	Reading, Lang. Arts	Other _____

21. INDEPENDENT STUDY TIME. This section concerns the amount of time available for independent study; students work by themselves on projects of their choice but in keeping with the wide range objectives of the subject area (e.g. during a geography unit on the Middle East, a student might use his independent study time to create a paper mache relief map of the Sinai Penninsula).

A. Independent study time is available as the need arises.

B. There are 1-3 hours of independent study time available weekly.

C. There are 1/2-1 hours of independent study time available weekly.

D. There is no independent study time available.

Science	Math	Social Studies	Reading, Lang. Arts	Other _____

22. SUBGROUPING CRITERIA. This section is concerned with how subgroups within the class are developed.

A. Students group themselves according to their own criteria (e.g. interests, friendships, etc.).

B. Students are grouped by the teacher on the basis of information about students' interests, aptitude, achievement, or social maturity.

C. Students are grouped by the teacher on the basis of random assignment e.g. alphabetically, by sex or by size.

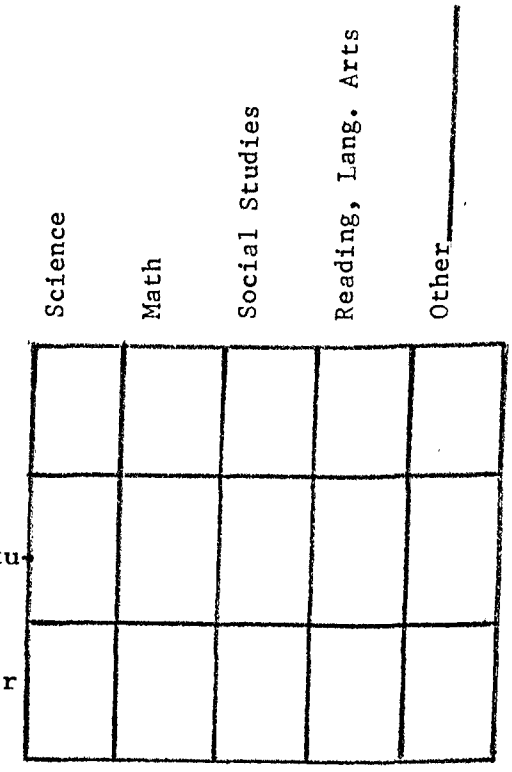
Science	Math	Social Studies	Reading, Lang. Arts	Other _____

23. SUBGROUPING STABILITY. This item is concerned with the establishment and change in the composition of subgroups within the class.

A. Subgroups within the class are established for the duration of a specified period of time (e.g. for the school year or for a term).

B. Subgroups within the class are established and/or reorganized when the teacher feels it is necessary and/or desirable (e.g. for a new activity or when students' interests change).

C. Subgroups within the class are established and/or reorganized when students feel it is necessary and/or desirable (e.g. for a new activity or when students' interests change).

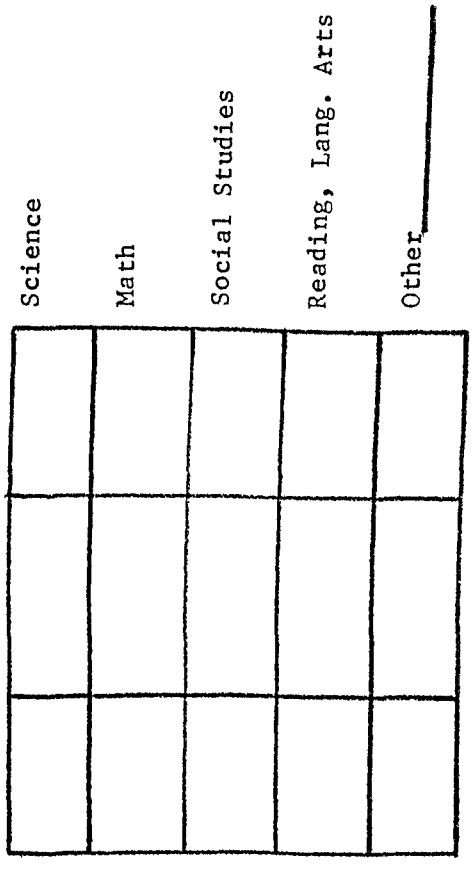


24. AGE RANGE. This section is concerned with the range of age of students in one class.

A. Students in the class are about the same age (except those who, at one time, have been either promoted or who have skipped a grade); age is the primary criterion for assigning a student to a class.

B. Students in the class are in a two or three year age range; there is a semi-graded system which will allow, to some extent, that individual differences in physical, social and intellectual maturity will be considered in assigning students to a class or grade.

C. Students in the class vary in age by more than three years; there is a multiage system which allows students with a wide variety of qualifications and ages to be in the same class.



25. DEFINING INSTRUCTIONAL OBJECTIVES This section is concerned with who specifies the objectives of schooling specific to each subject area.

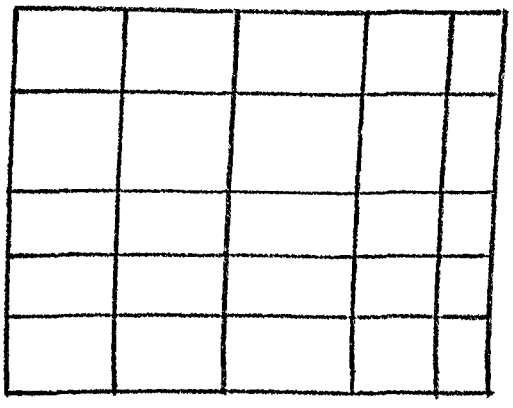
A. The objectives are defined by the administrative staff (school board, central administration, principal).

B. Objectives are defined by teachers.

C. Objectives are defined by parents.

D. Objectives are defined by students.

E. Objectives are not defined.



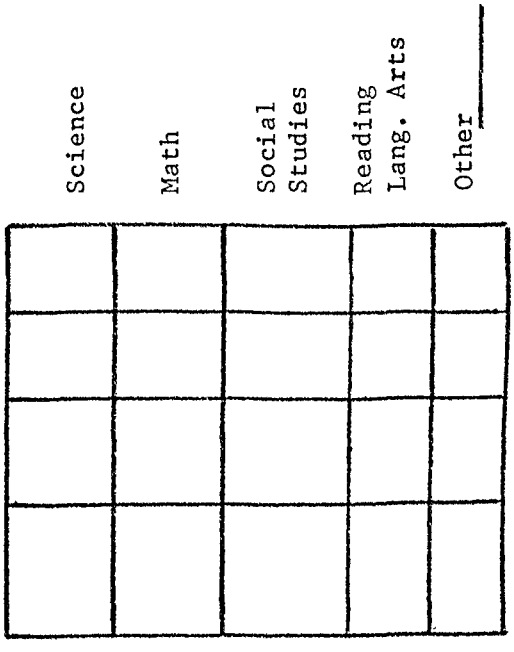
26. PROMOTION TIMING. This section is concerned with when moves from grade to grade or from class to class occur (based on achievements or maturity.)

A. Promotion decisions are made at the end of the school year or term.

B. Promotion decisions are made at the end of each unit of study.

C. Promotion decisions are made whenever it seems appropriate for the individual student.

D. Promotion does not occur. Rather, students remain in a class unit or intact group for several years.



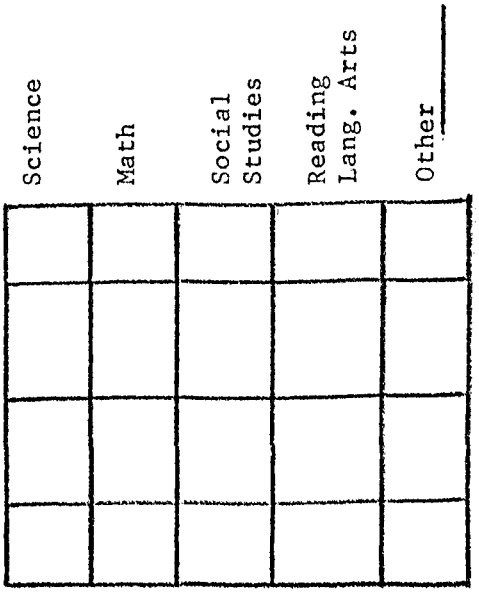
27. EVALUATION FOCUS. This section is concerned with the size of the group being evaluated.

A. Evaluation procedures are the same for all students in the school.

B. Evaluation procedures are the same for all students in the class, but differ from class to class in the school.

C. Evaluation procedures are the same for each student within a subgroup of the class but differ from subgroup to subgroup.

D. Evaluation procedures are different for each student in the class.

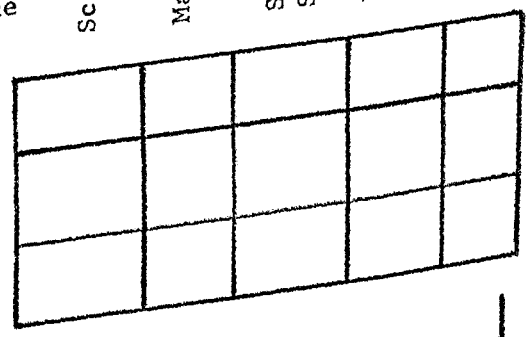


28. TIMING OF EVALUATION. This section is concerned with the time(s) at which evaluation takes place.

A. Evaluation takes place at a few specified intervals (e.g. the end of each term).

B. Evaluation takes place at more frequent intervals (e.g. monthly or weekly).

C. Evaluation takes place all the time (e.g. daily).

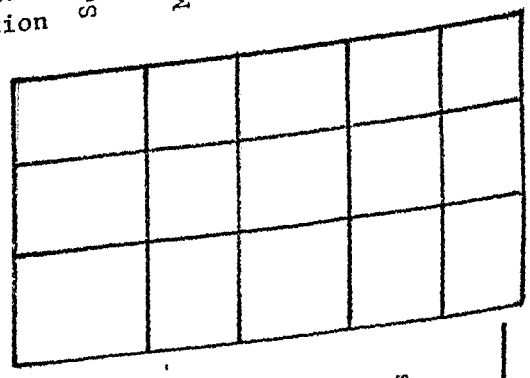


29. STUDENT ROLE IN EVALUATION. This section is concerned with the degree to which students plan how their evaluation is to take place, i.e. developing procedures, collecting and analyzing data, making judgements, deciding when evaluation takes place, etc.

A. Students have the responsibility for planning and implementing evaluation procedures.

B. Teachers have the responsibility for planning and implementing evaluation procedures.

C. The administration has responsibility for planning and implementing evaluation procedures.



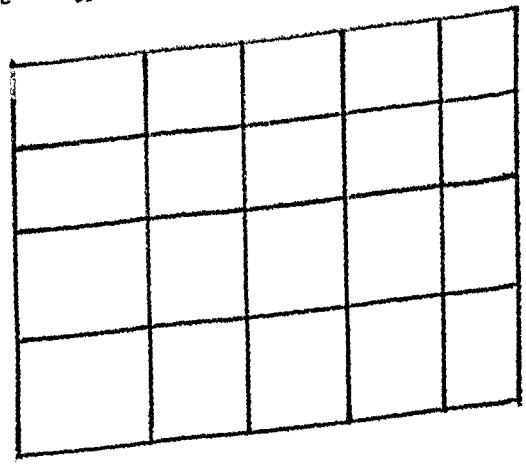
30. EVALUATION PROCEDURES. This section concerns with the types of tests and other evaluation instruments used in student evaluation.

A. No formal tests are used; evaluation is based on work samples and anecdotal reports.

B. Evaluation instruments used were developed in this classroom.

C. Evaluation instruments used were developed within the school (by other teachers or in previous years).

D. Standardized (commercial) instruments are used.



DEPARTMENT OF MEASUREMENT AND EVALUATION

October 25, 1971.

Scoring System for DISC (Dimensions of Schooling) Instrument

1. Option-weights: Order the options to each item from most open to most closed and weight them as follows: Assign the weight a (where a is one less than the number of options) to the most open option, the weight a-1 to the second most open option, and so on. The most closed option receives a weight of 0.

2. Rank-weights: Weight the ranks assigned by a respondent to the options of the item as follows:

Rank	Weight		
	3-option item	4-option item	5-option item
1	8	18	35
2	2	3	4
3	1	2	3
4		1	2
5			1

3. Compute the basic score for the item by multiplying the weight for the rank of one by the weight for the option that was assigned the rank of one.

4. When more than one option to an item has been ranked, adjust the basic score by adding the following amount to it.

   Adjustment = (rank-weight) x (option-weight of option receiving rank smaller than one - option-weight of option ranked one)

5. Compute this adjustment for each additional option that was ranked and add each adjustment to the basic score. The result is the score for the item.

6. To ensure each item receives equal weight, divide the score obtained in step 5 by the maximum possible score for the item. This maximum depends on the number of options an item has, as is indicated in the following table.

No. of options	Maximum Possible Score
3	16
4	54
5	140

Consider a couple of examples:

E.G. 1

Option	Rank
A (most) (open)	2
B	1
C (most) (closed)	

Basic Score = 8 x 1 = 8

Adjustment = 2 x (2 - 1) = 2

Adjusted Score = 8 + 2 = 10

E.G. 2

A (most) (open)	1
B	
C (most) (closed)	2

Basic Score = 8 x 2 = 16

Adjustment = 2 x (0 - 2) = - 4

Adjusted Score = 16 - 4 = 12.

Discussion:

For 3-option items, the proposed scoring procedure will produce the following scores for each possible ranking of the options:

Option	Different Possible Rankings														
(open)															
A	1	1	1	1	1	1	2	2	3	2	3	2	3	2	3
B		2		2	3	1	1	1	1	2	2	1	1	1	1
C			2	3	2			2	3	2	1	1	1	1	1
(closed)															
Score:	16	14	12	12	11	8	10	6	9	7	0	2	4	4	5

Note that the basic score determines the general level. That is, all rankings in which option A is ranked 1 have higher scores than rankings in which option B is ranked 1, etc. The adjustments differentiate among the possible rankings in which option A (or B or C) is ranked 1.

The same general result holds for items with 4 or more options. However, it is obvious that the number of different possible rankings increases as the number of options increases. Therefore, the scoring scheme must be able to discriminate among more possible answers as the number of options increases. This accounts for the reason why the weight for the rank of one needs to be increased as the number of options increases.

TEN CHARACTERISTICS OF OPEN EDUCATION
SCHOOL RATING SHEET

DIRECTIONS FOR RATING SHEET

Please indicate on the top spaces of the enclosed rating sheet the five most "open" elementary schools that you are familiar with in terms of the ten discriptors on the side of the sheet. You do not have to have students in the school you select. Next, rate each of the schools on the extent that each of the ten descriptors are evidenced in the school. Give a rating of "1" if that descriptor is only minimally true about the school; a "2" if it is moderately true; and a "3" if the descriptor is an accurate description of that school's program. Note: it may be possible for a school that you consider to be open to be relatively low or moderate on some of the program descriptors. Please return the rating sheet to me at your earliest convenience.

Thank you for your time and cooperation This data will aid me greatly in the completion of my dissertation.

Kevin J. Lyons

DESCRIPTORS	SCHOOL				
1. Students are involved in setting objectives for themselves.					
2. The emphasis on materials and activities is on diversity both in their use and their constant introduction.					
3. The physical environment is one which can be readily modified to suit the situational requirements of an activity.					
4. The structure of decision-making is decentralized and directly involves the people affected by the decision.					
5. There is no fixed timetable and no bells to signal the time for changing activities.					
6. The student is free to work at his own rate and is free to formulate his own method of learning.					
7. Provision is made for the students to group themselves without regard for age or past accomplishment.					
8. The teacher acts as a resource person and as a provider of materials, directing his attention to small groups of students or individuals.					
9. Evaluation of student progress is made in a number of ways: student reporting, teacher observation, and work samples, with an absence of formal tests.					
10. Students and teachers formulate and enforce rules togeather.					

1 = To a minor degree 2= To a moderate degree 3 = To a large degree

APPENDIX B

UNIVERSITY OF MARYLAND
COLLEGE OF EDUCATION
COLLEGE PARK 20742

DEPARTMENT OF ADMINISTRATION,
SUPERVISION AND CURRICULUM

Dear

This letter is with reference to our phone conversation this morning concerning some data gathering I would like to do in County. The study I'm undertaking is statewide in nature and concerned with the relationship between the "openness" of a school's program to educational purpose. The questions under investigation are whether or not "open" schools emphasize different purposes than do traditional schools, and whether the socio-economic level of the community, the size of the student body, and the years of teacher experience is related to program "openness". This requires that ten teachers in each building selected complete two questionnaires, one that takes approximately ten minutes, the other thirty minutes to complete.

I believe this study may benefit the county in at least four ways. First, it will provide feedback to the county on the extent that schools which are attempting to initiate an "open" program are succeeding. Secondly, it may give an indication of any relationship that may exist between the socio-economic level of the community and the degree of "openness" of the school. This could be extremely useful for future planning of facilities. Thirdly, any relationship that is found between size of student body and years of teaching experience to degree of "openness" may also be useful for future planning in terms of staff selection and site location. Finally, the way in which the different types of schools emphasize the purposes of organizations may be useful in analyzing the results of open education within the system.

All data collected and reported in the study will be kept completely annonymous. The school system, school buildings, and individual respondents will not be identified in any way except to report back to the people involved. As participation is voluntary, I would plan to contact each principal personally to explain the study and ask for cooperation.

Once the data is collected and analyzed, a copy of the results will be made available to the county, and to each school that participates, Also, there will be no cost to the system as I will be contacting each principal and delivering and collecting the instrument personally.

Enclosed is a copy of each instrument to be used, a copy of the proposed letter to each principal, and a cover letter to be included. Thank you for your time and cooperation.

Sincerely,

Kevin J. Lyons
Instructor

KJL/pml

UNIVERSITY OF MARYLAND
COLLEGE OF EDUCATION
COLLEGE PARK 20742

DEPARTMENT OF ADMINISTRATION,
SUPERVISION AND CURRICULUM

March 21, 1974

Dear

This letter is to enlist your help in gathering data for my doctoral dissertation at the University of Maryland. I am studying the difference between "open" and traditional schools and the way the two types of schools fulfill certain functions in which all types of organizations engage. Because of the nature of the study, the measures are very broad.

Your school has been selected by a panel of experts from Towson State College, Copin State, Salisbury State, and the University of Maryland as being an exemplary school for purposes of this study. The data that I need would be gathered by having ten teachers in your building fill out two questionnaires. One takes approximately ten minutes to complete, the other thirty minutes. (The teachers will be given a week to complete the instruments.)

Exemplary schools from all over the State are being asked to participate in the study on a voluntary basis. The schools will not be identified either by school system, school building or individual respondent. Complete annonymity of your school and teachers is assured. If you desire, a copy of the results will be provided you. I will phone within the next three or four days to answer any further questions and to,again, ask for your co-operation. I realize that the work load for all personnel in the schools is extremely heavy this time of year, but any help in this matter would be greatly appreciated.

Thank you again for your consideration.

Sincerely,

Kevin J. Lyons
Instructor

KJL/pml

APPENDIX C

TABLE 22

SIZE OF STUDENT ENROLLMENT AND NUMBER OF ELEMENTARY SCHOOLS PER SCHOOL SYSTEM IN THE STATE OF MARYLAND

School System	Student Enrollment	Number of Elementary Schools
Allegany	8,869	29
Anne Arundel	42,833	75
Baltimore City	104,920	170
Baltimore County	65,740	114
Calvert	3,647	7
Caroline	2,723	6
Carroll	9,413	18
Cecil	6,398	17
Charles	8,327	18
Dorchester	3,365	18
Frederick	11,809	26
Garrett	3,328	15
Harford	18,677	27
Howard	11,380	23
Kent	1,229	5
Montgomery	65,700	144
Prince George's	88,570	173
Queen Anne's	2,099	7
St. Mary's	6,002	17
Somerset	2,461	13
Talbot	2,671	8
Washington	9,118	31
Wicomico	7,895	17
Worcester	2,206	7
TOTAL	489,380	985 Schools

TABLE 23

DEGREE OF PROGRAM OPENNESS, SIZE OF STUDENT ENROLLMENT, AND SOCIO-ECONOMIC STATUS BY SCHOOL FOR ENTIRE SAMPLE OF SCHOOLS

School Number	Degree of Program Openness	Size of Student Enrollment	Socio-economic Status
1601	14.633	509	24151
1602	11.678	740	21028
0303	9.434	1171	6396
0404	13.128	629	13005
0405	10.863	643	15227
0406	16.256	593	13865
0407	11.397	382	9959
0408	14.684	477	10229
0409	15.962	836	11555
0410	12.437	523	12850
0411	12.225	569	12546
0412	11.647	799	11408
0413	12.125	624	9646
0414	12.961	503	12080
0415	14.030	427	18141
1717	11.829	506	12070
1718	12.622	659	15505
1719	10.439	468	12368
1720	13.441	662	11935
1621	14.269	537	13643
1722	11.306	601	13600
1723	12.090	401	13571
1725	13.861	740	13235
1726	12.510	422	11068
0227	12.382	341	10768
0228	11.300	566	10738
2429	12.676	503	7122
1630	12.327	637	14983
1031	12.227	362	8098
1032	11.868	122	6064
1033	16.384	234	8083
1034	12.163	63	8309
2036	13.617	55	4660
1037	14.175	282	8340
1038	13.044	360	8339
1040	12.193	65	7300
1041	11.547	89	7145
1042	12.252	105	7145
0747	11.549	800	11297
2348	10.217	908	9131
2149	12.629	306	8201
2351	8.725	941	8144
2352	7.698	645	8892
0753	14.662	519	8811

Table 23 (cont'd)

School Number	Degree of Program Openness	Size of Student Enrollment	Socio-economic Status
2454	11.337	458	7955
2355	10.972	596	6611
1756	13.530	468	12895
1757	11.757	687	13624
2159	11.430	266	7771
2460	15.029	414	7242
2161	8.881	350	8778
662	13.575	777	11397
2165	8.690	366	7979
1669	15.137	531	24106
1770	10.990	588	11353
1672	14.258	461	16304
1473	12.242	520	15198
375	9.311	1173	9539
376	10.911	933	5553
377	9.829	575	9076
478	9.210	755	10629
479	11.938	766	11811
1680	11.815	586	11396
481	11.372	417	12085

Socio-economic status = mean income level of parents of children attending school.

TABLE 24

PERCEIVED PERFORMANCE PATTERN BY SCHOOL FOR ENTIRE SAMPLE OF SCHOOLS

School Number	Public Interest	Organizational Rationality	Administrative Rationality	Instructional Effectiveness	Staff Development	Individuality
1601	33.90	26.10	54.30	49.10	14.70	05.60
1602	33.89	26.44	55.89	47.33	12.78	14.78
0303	29.13	26.75	51.00	43.50	13.88	04.75
0404	35.33	26.56	59.33	50.11	14.11	16.33
0405	37.60	26.40	58.00	51.70	15.10	05.60
0406	38.71	34.86	65.14	55.43	15.86	06.57
0407	35.22	28.33	59.11	50.22	15.67	06.11
0408	31.60	26.80	53.90	47.10	14.20	06.10
0409	34.11	31.00	58.22	48.44	13.89	06.44
0410	38.00	31.50	60.20	53.40	14.40	06.50
0411	33.50	27.25	54.00	45.75	13.88	05.88
0412	33.33	23.56	55.56	47.55	14.11	05.33
0413	35.11	29.88	60.33	48.77	15.11	05.66
0414	34.88	28.25	59.00	49.25	14.25	06.00
0415	32.33	28.83	55.00	47.17	13.83	06.00
1717	34.28	23.00	51.43	45.85	11.71	04.85
1718	35.00	28.33	53.33	50.66	13.16	05.83
1719	31.43	27.00	52.42	45.14	10.43	05.42
1720	33.57	29.85	57.28	52.57	12.00	05.42
1721	31.37	25.50	53.63	47.13	11.00	04.76
1722	33.44	28.88	60.44	48.11	12.11	05.33
1723	30.50	22.50	59.50	49.50	12.00	06.50
1725	29.66	25.22	44.22	41.77	08.88	04.66
1726	30.14	26.57	52.28	44.14	13.14	05.28
0227	25.50	31.30	47.10	41.10	10.80	05.70
0228	30.50	26.00	52.17	43.50	12.16	05.00
2429	36.22	31.66	61.66	50.55	14.11	06.66
1630	36.00	27.33	58.66	47.00	13.55	05.11
1031	24.66	26.33	41.33	31.66	08.33	05.66
1032	30.80	29.40	52.20	40.20	12.00	06.60

Table 24 Cont'd

School Number	Public Interest	Organizational Rationality	Administrative Rationality	Instructional Effectiveness	Staff Development	Individuality
1033	34.60	29.00	58.40	46.40	11.60	05.60
1034	35.66	29.00	63.33	51.66	15.00	07.00
1036	36.66	29.66	62.33	56.66	11.66	07.00
1037	32.75	27.50	58.62	45.50	12.62	05.75
1038	36.25	31.12	64.25	52.25	14.62	05.75
1040	31.66	31.33	60.33	43.66	11.66	06.00
1041	34.75	31.75	60.50	48.50	14.25	05.75
1042	32.00	29.00	59.25	43.25	11.75	06.50
0747	34.70	32.70	61.40	48.00	11.00	05.60
2348	35.87	30.75	62.62	51.00	14.62	05.37
2149	33.50	22.60	55.80	47.30	11.30	05.10
2351	36.30	24.90	60.30	50.20	12.40	04.80
2352	34.00	27.77	57.44	46.11	13.22	04.77
0753	28.50	27.16	49.16	39.33	10.83	04.83
2454	38.50	28.50	62.20	52.90	12.70	05.90
2355	35.50	29.50	60.25	50.50	16.00	05.50
1756	31.00	27.20	52.90	44.90	11.90	05.20
1757	30.71	24.42	46.42	42.28	09.71	05.71
2159	34.00	24.00	54.00	46.50	12.00	05.00
2460	38.50	35.50	65.13	55.00	15.75	07.13
2161	32.00	27.44	55.44	46.11	12.33	05.11
0662	35.00	30.00	60.40	51.70	12.30	05.80
2165	31.75	26.75	53.50	46.00	12.00	05.00
1669	31.33	23.00	46.66	43.33	11.66	05.00
1770	30.00	22.25	50.25	42.75	10.00	05.00
1672	35.33	26.50	54.17	44.83	12.33	05.83
1473	36.14	27.14	57.14	50.00	11.14	05.71
0375	31.00	23.50	58.25	52.00	12.50	05.75
0376	25.56	22.44	44.77	38.77	10.33	04.55
0377	29.77	24.88	49.44	42.33	12.00	05.66
0478	33.33	23.66	54.83	45.50	13.76	05.66
0479	27.80	27.60	50.00	44.20	13.80	05.80
1680	37.50	33.00	16.90	51.20	15.90	06.30
0481	33.66	25.33	53.66	39.00	13.33	04.33

APPENDIX D

ASSUMPTIONS ABOUT LEARNING AND KNOWLEDGE

I. ASSUMPTIONS ABOUT CHILDREN'S LEARNING

A. Motivation

1. Children are inately curious and will explore their environment without adult intervention.

2. Exploratory behavior is self-perpetuating.

B. Conditions for Learning

1. The child will display natural exploratory behavior if he is not threatened.

2. Confidence in self is highly related to capacity for learning and for making important choices affecting one's learning.

3. Active exploration in a rich environment, offering a wide array of manipulative materials, will facilitate children's learning.

4. Play is not distinguished from work as the predominant mode of learning in early childhood.

5. Children have both the competence and the right to make significant decisions concerning their own learning.

6. Children will be likely to learn if they are given considerable choice in the selection of the materials they wish to work with and in the choice of questions they wish to pursue with respect to those materials.

7. Given the opportunity, children will choose to engage in activities which will be of high interest to them.

8. If a child is fully involved in and is having fun with an activity, learning is taking place.

C. Social Learning

1. When two or more children are interested in exploring the same problem or the same materials, they will often choose to collaborate in some way.

2. When a child learns something which is important to him, he will wish to share it with others.

D. Intellectual Development

1. Concept formation proceeds very slowly.

2. Children learn and develop intellectually not only at their own rate but in their own style.

3. Children pass through similar stages of intellectual development, each in his own way and at his own rate and in his own time.

4. Intellectual growth and development takes place through a sequence of concrete experiences followed by abstractions.

5. Verbal abstractions should follow direct experience with objects and ideas, not precede them or substitute for them.

E. Evaluation

1. The preferred source of verification for a child's solution to a problem comes through the materials he is working with.

2. Errors are necessarily a part of the learning process; they are to be expected and even desired, for they contain information essential for further learning.

3. Those qualities of a person's learning which can be carefully measured are not necessarily the most important.

4. Objective measures of performance may have a negative effect upon learning.

5. Learning is best assessed intuitively, by direct observation.

6. The best way of evaluating the effect of the school experience on the child is to observe him over a long period of time.

7. The best measure of a child's work is his work.

II. ASSUMPTIONS ABOUT KNOWLEDGE

A. The quality of being is more important than the quality of knowing; knowledge is a means of education, not its end. The final test of an education is what a man <u>is</u>, not what he <u>knows</u>.

B. Knowledge is a function of one's personal integration of experience and therefore does not fall into neatly separate categories or "disciplines".

C. The structure of knowledge is personal and idiosyncratic; it is a function of the synthesis of each individual's experience with the world.

D. Little or no knowledge exists which it is essential for everyone to acquire.

E. It is possible, even likely, that an individual may learn and possess knowledge of a phenomenon and yet be unable to display it publicly. Knowledge resides with the knower, not in its public expression.

APPENDIX E

SELECTED ANNOTATED BIBLIOGRAPHY ON RESEARCH ON OPEN-SPACE SCHOOLS

The following section presents a brief annotated bibliography on selected studies which have been conducted utilizing open space schools. The studies reported in this section were designed to investigate the same, or related, variables to those reported in Chapter II. These studies are included in this section because they were concerned with an architectural substitution for the variable openness. While research indicates that programs in open space schools tend to be more programmatically open than programs in conventional schools, it was not felt that this justified the inclusion of studies on open space schools with studies on open education. Since they are related, however, it was felt that it would be appropriate to include them in a separate section. The studies that follow are by no means comprehensive in nature. The bases on which they were selected was that they investigated variables similar to those presented in Chapter II.

Brunetti, Frank A.; Cohen, Elizabeth G.; Meyer, John W.; Molnar, Sheila R. F. "Studies of Team Teaching in the Open Space School," Interchange 3 (1972): 90-99.

Report of a study which investigated teacher autonomy, influence, interaction, and job satisfaction; and student autonomy and observed activity levels in open space schools. Comparisons were made between 110 teachers in 9 open space schools and 120 teachers in 8 traditional schools. It was found that teachers in open space schools; reported more interaction related to their work, evaluated each others work more often, reported more influence of teachers' groups in the running of the school, did not perceive this influence to be at the expense of a loss of influence by other groups, felt a greater sense of autonomy over teaching decisions, and reported higher levels of job satisfaction. They also reported that children in open space schools were more active in task, non-task, and teacher directed activities.

Broward County School Board. Evaluation of Innovative Schools: Student Achievement (Fort Lauderdale, Florida: Broward County School Board), 1972.

Report of a study comparing student achievement of children in open plan schools and children in traditional schools. The California

Achievement Test of Basic Skills was used to compare students in the third, fifth, and eighth grades. Comparisons were also made between types of school, sex of student, grade level, and race. It was found that, at the third grade level, students from the open plan schools performed better. At the fifth grade level, results tended to favor students in the traditional school. At the eighth grade level, students from the traditional school also performed better with the exception of black males. Black males from the open plan schools tended to perform better than their counterparts from the traditional schools.

Hackensack Public Schools. Overview and Evaluation of Project L.E.M.: Innovative Schools in Action. Hackensack, New Jersey: Hackensack Public Schools), 1972.

Report of project aimed at improvement of reading and mathematics skills of children in one elementary school through implementation of an open education program. Teachers were trained in working in a non-graded, team teaching situation, and spent ten sessions with a psychotherapist in attempts to alter stereotype social attitudes and change individual perceptions. The physical plant was renovated to provide an open-space facility. Results of achievement tests given after one year, indicated increases in achievement that exceeded the goals set for the school. The gain was greatest for children initially functioning below the 40th percentile.

Heimgartner, Norman Louis. A Comparative Study of Self-Concept: Open Space vs Self Contained Classroom. Greely, Colorado: University of Northern Colorado, 1972.

Report of a study comparing changes over a one year period between children in an open space environment and children in a self-contained situation. One hundred three children from the laboratory school at the University of Northern Colorado were compared to one hundred thirteen children from a self-contained classroom school in Greely, Colorado. Self-Social Symbols Tasks, and the Childrens' Self-Social Constructs Tests were used to measure self-concept. It was found that children from the open space school: had greater identification with the group than children in self-contained classrooms; had an increase in self-esteem while children in the self-contained classrooms demonstrated a loss; did not view themselves differently in the relationship of their size to that of an adult, and did not identify with any one particular teacher.

Meyers, R. E. "A Comparison of the Perception of Elementary School Children in Open Area and Self-Contained Classrooms in British Columbia". Journal of Research and Development in Education 4 (Spring, 1972): 100-111.

A study conducted to ascertain whether children would perceive their roles and the roles of their teachers differently as a result of their being in an open area classroom. The Ideal Teacher Checklist was administered to pupils in the third grade and above in open area and traditional elementary schools. It was found that; pupils in open areas were less concerned with discipline or control, were more autonomous, and were less concerned about fair treatment.

Final Report on the Office of Economic Opportunity Experiment in Educational Performance Contracting, by H. W. Ray, Director. Columbus, Ohio: Battelle Memorial Institute, March 14, 1972.

Report of a study comparing student achievement in traditional schools, schools with various types of performance contracting, and an open school. The main portion of the study dealt with differences in achievement between schools utilizing different performance contracting programs and schools with traditional programs in eighteen selected school districts. An open school in Hartford, Connecticut was included in the study for purposes of further comparison. All schools were located in low income, predominately black areas. Stanford Metropolitan Achievement tests were used as the measures of achievement. The open school was found to have a greater effect than performance contracting or traditional programs in reading at the first grade level and math at the second and third grade level, and just as effective as the other programs in math at the first grade level, and reading at the second and third grade levels.

York County Board of Education. A Day in The Life: Case Studies of Pupils in Open Plan Schools. Ontario, Canada: York County Board of Education, 1970.

A study reporting comparisons of student behavior in four open plan and three traditional elementary schools in Ontario, Canada. Case studies were compiled on a random sample of children from kindergarten to the eighth grade. Each child was observed for the entire day and overt behavior noted at ten minute intervals. It was found that in open plan schools students initiated activities on the basis of their own interests, were allowed to pursue activities to completion, exhibited personally responsible behavior, and developed questions with regard to their independent activities. It was also found that there was a greater amount of interpersonal interaction, a higher degree of accessibility to learning resources, and a greater degree of co-operative planning involving student-teacher and teacher-teacher interaction.

SELECTED ANNOTATED BIBLIOGRAPHY ON OPEN EDUCATION

The following annotated bibliography contains a brief selection of writings on open education. Included are books, articles, and collections of writings which represent a small sample of the writing which has been done in the field of open education, and which has not been referenced earlier in this study. The bibliography is not intended to be comprehensive in nature. The purpose for including this reference list is to provide a beginning for those interested in investigating open education. A more comprehensive list may be found in: Roland Barth, Open Education and the American School; Charles Silberman, The Open Classroom Reader; and Ewald Nyquist and Gene R. Hawes, Open Education: A Sourcebook for Parents and Teachers.

Andreae, Jennifer. Open Education: ESEA TITLE I. New York: State Education Department, 1970.

An account of a school districts experience in implementing an open education program. It includes reasons for teachers' and administrators' motivation for change, accounts of the experiences of teachers who converted to open classrooms, and descriptions of the involvement of parents.

Ashton-Warner, Sylvia. "Spearpoint." Saturday Review: June, 1972

Ms. Ashton-Warner presents a critique of the American system of education, from experiences obtained during teaching at a free school in Aspen, Colorado.

Baily Stephen K. "The City as a Classroom." Speech presented at the annual convention, New York State Council for Open Schools. Buffalo New York, April 23, 1971.

A rational is given for an open classroom school. Also, a description of the city as an educational resource that may be used to provide valuable learning experiences for children.

Barth, Roland S., and Rathbone Charles H. A Bibliography of Open Education. Newton, Massachusetts: Educational Development Center, 1970.

An annotated bibliography of 265 references. It is intended to be a starting point for those interested in open education. Books and articles, films, and periodicals are listed with complete bibliographic information.

Blackie, John. Inside the Primary School. New York: Schocken Books, 1971.

A comprehensive overview of the primary school movement. It includes chapters on the different subject-matter areas.

Brown, Mary and Precious, Norman. The Integrated Day in the Primary School. New York: Agathon Press, Inc., 1970.

A detailed and practical account of open educational practices.

Campbell, David N. A Practical Guide to the Open Classroom. Pennsylvania: University of Pittsburg, 1972.

A reference which presents explicit guidlines for conducting an open classroom formulated from experiences in open classrooms around the Country. A list of over 200 activities is included which can be used indoors and out-of-doors.

Evans, Judith T. Characteristics of Open Education: Results from a Classroom Observation Rating Scale and a Teacher Questionnaire. Newton, Massachusetts: Educational Development Center, 1971.

Study using the Walberg-Thomas Scales and observation instrument to evaluate open education practices. A portion of the validity study on the Walberg-Thomas Scales.

Featherstone, Joseph. Schools Where Children Learn. New York: Liveright, 1971.

A compilation of essays originally appearing in the New Republic from 1968-71. Featherstone discusses the Primary School Revolution in Britain, and the state of the educational profession.

Hapgood, Marilyn. "The Open Classroom: Protect it From Its Friends". Saturday Review. September 18, 1971, pp. 66-75.

A cautionary note is sounded by Ms. Hapgood. She indicates that American educators should not attempt to copy the British Infant School Model without making some adjustments to account for the cultural differences between the United States and Great Britain.

Holt, John. How Children Fail. New York: Pitman Publishing Company, 1964.

Holt indicates that children fail, because they are afraid, bored, and confused. He suggests that openness in the classroom will help to remedy the situations which have led to the failure of children.

Katz, Lillian G. Open-Informal Education: Recommendations for Reserach and Development, Final Report. Illinois: Illinois University, 1971.

A presentation of suggestions for research and development of open education; including an attempt at defining open education, addressing issues in open education, and suggested topics for research.

Kohl, Herbert R. The Open Classroom: A Practical Guide to a New Way of Teaching. New York: Review Books, 1969.

A description of how to create an environment for an open classroom, while stressing the practical aspects of teaching.

Nyquist, Ewald B. "The Concept of Open Education." Education Digest 37 (November, 1971): 9-12.

A review of the history and current goals of open education.

_____, and Hawes, Gene R. eds., Open Education: a Sourcebook for Parents and Teachers. New York: Bantom Books, Inc., 1972.

A reference on open education containing exerpts from the Plowden Report, and articles by Silberman, Dewey, Piaget, and Featherstone and many others. It provides an excellent summary of much of the writing on open education.

Rathbone, Charles H. ed. Open Education: The Informal Classroom. New York: Citation Press, 1971.

A selection of readings that examine practices and principles of the British Infant Schools and their American counterparts.

Silberman, Charles E. ed. The Open Classroom Reader. New York: Random House, 1973.

A collection of articles on open education. Presents underlying philosophical ideas as well as articles dealing with each major curriculum area.

Weber, Lillian. The English Infant School and Informal Education. Englewood Cliffs, New Jersey: Prentice-Hall, 1971.

A detailed discussion of informal education practices in British Infant Schools.

SELECTED ANNOTATED BIBLIOGRAPHY ON ORGANIZATIONAL EFFECTIVENESS

The following bibliography is a very brief presentation of some of the writings with regard to organizational effectiveness that have not been referenced in other parts of this study. These writings represent some of the bases for viewing organizations from a multidimensional, systems perceptive. They are presented here in order to provide a begining, when used in conjunction with the references in the study, for those interested in studying organizational effectiveness.

Coleman, Peter. "Organizational Effectiveness in Education: Its' Measurement and Enhancement." Interchange 3 (1972): 42-52.

A discussion of the measurement of effectiveness in educational organizations. Coleman sits forth a typology of educational goals, the feasability and desirability of the measurement of these goals, and some undesirable consequences which can accrue to the organization as a result of overemphasis on measuring only a few of these goals. He calls for a systems approach, using many indicators, to measure effectiveness in organizations. Specifically, he recommends using the Global Matrix of Bertram Gross as a conceptual framework for measuring organizational effectiveness.

Etzioni, Amitai. A Comparative Analysis of Complex Organizations. New York: The Free Press, 1961.

Etzioni analyses various types of organizations in terms of the "compliance relationship" between the organization and those in subordinate positions within the organization. The compliance relationship is determined by the type of power applied to the subordinate and the type of involvement developed by the subordinates. Various correlates of this compliance relationship, supported by research, are analyzed; and typologies of organizations are developed.

Hall, Francine. "The Concept of Organizational Effectiveness and the Educational Organization." paper presented at the American Educational Research Association Annual Meeting, New Orleans, Louisianna, 1973.

A paper presenting a conceptual model for conceptualizing effectiveness in educational organizations. Hall presents four models of organizational effectiveness as found in the literature. She indicates that in considering effectiveness of educational organizations, one must consider the extent to which the school is educationally effective and the extent to which it is effective as an organization. She argues that these two views are not mutually exclusive, and both must be accomodated in considering effectiveness of the Public Schools.

Katz, Daniel, and Kahn, Robert L., The Social Psychology of Organizations. New York: John Wiley and Sons, 1966.

Katz and Kahn set forth, in detail, the open systems model which is used as a conceptual framework upon which organizations may be analyzed. They set forth the characteristics of open systems, apply them to various types of organizations, and present research which is applicable to various aspects of the model.

Lawrence, Paul R., and Lorsch, Jay W., Organization and Environment: Managing Differentiation and Integration. Homewood, Illinois: Richard D. Irwin, Inc., 1969.

A study concerning the relationship between the structural characteristics of complex organizations and the environmental conditions these organizations face. It is a multidimensional study, viewing organizations as social systems and examining the complex relationships among organizational structure, the economic and technological environment of the organization, the decision-making behavior of managers, and the performance of the organization.

Schein, Edgar. Organizational Psychology. Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1965.

A brief introduction to the field of Organizational Psychology. Schein presents the general historical trend from, what he calls, "an individual-oriented industrial psychology toward a group-and-systems-oriented organizational psychology". He examines the processes of management, the problems associated with formal and informal groups within the organization, the organizations as a total system, system, and the concept of total system effectiveness.

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