A NATIONAL ANALYSIS OF EDUCATIONAL QUALITY AS MEASURED BY THE EDUCATIONAL CHARACTERISTICS CRITERION (ECC), ACHIEVEMENT, AND SELECTED COST FACTORS

Thesis for the Degree of Ed. D.

MICHIGAN STATE UNIVERSITY

Maurice D. Pelton

1966

This is to certify that the

thesis entitled

A National Analysis of Educational Quality As Measured by the Educational Characteristics Criterion (ECC), Achievement and Selected Cost Factors

presented by

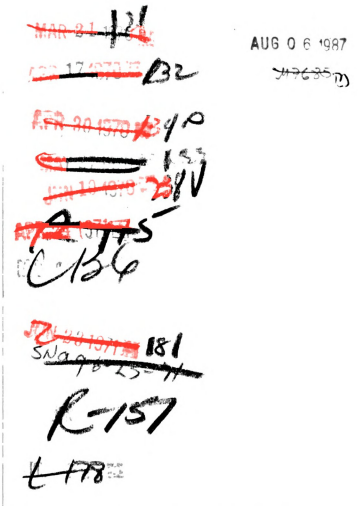
Maurice D. Pelton

has been accepted towards fulfillment
of the requirements for

Ed.D. degree in **Education**

Herbert R. Rasmussen
Major professor

Date **July 28, 1966**


AUG 0 6 1987
B2
C136
181
C-157

ABSTRACT

A NATIONAL ANALYSIS OF EDUCATIONAL QUALITY AS MEASURED BY THE EDUCATIONAL CHARACTERISTICS CRITERION (ECC), ACHIEVEMENT, AND SELECTED COST FACTORS

by Maurice D. Pelton

Purpose of the Study

This study was undertaken to determine the relationships that exist among the perceptions of educational quality of teachers and administrators as measured by the Educational Characteristics Criterion (ECC), school achievement as measured by the Stanford Achievement Test, and the educational cost factors of size, effort, ability, and expenditure per pupil.

Procedure and Design

Nineteen school districts presently using the Stanford Achievement Test in grade six agreed to participate in the study. The measurements of the perceptions of educational quality were secured by means of the Educational Characteristics Criterion (ECC). This instrument is designed to measure the quality of education in terms of the perceptions of those people who observe its process--in this study, teachers and administrators. The other variables--achievement as measured by the Stanford Achievement Test and the

cost factors of size, expenditure per pupil, millage, and state equalized valuation--were voluntarily submitted by the superintendents of the participating school districts.

The 1486 teachers and 131 administrators used in the study responded to the ECC by marking their perceptions of the degree to which each of 55 characteristics of educational quality was present in their school system. These 55 characteristics are included in one of seven categories of educational quality. They are: (I) Student's Level of Knowledge and Attitudes; (II) Community Attitudes; (III) Curriculum; (IV) Use of Facilities; (V) Socio-Cultural Composition of the Community; (VI) Administration and Supervision; (VII) Teacher and Teaching Methods.

For each school district, a mean total quality score (ECC score) and seven mean category quality scores were computed for teachers, administrators, and their responses combined. These, along with the district's mean sixth grade achievement score, and the four cost factors made up the 29 variables used in the computations.

All computations were performed on Michigan State University's Control Data Corporation (CDC) 3600 computer. Pearson product moment correlations were secured to ascertain the relationships between the variables, and the partial correlation technique was used to determine the relationship between the perceptions of educational quality characteristics and school achievement.

The three general hypotheses tested were:

I There is a positive relationship between administrator and teacher perceptions of characteristics of quality education as measured by the Educational Characteristics Criterion (ECC).

II There are positive relationships among the administrator and teacher perceptions of characteristics of quality education as measured by the Educational Characteristics Criterion, student achievement, and cost factors.

III There is a positive relationship between administrator and teacher perceptions of characteristics of quality education as measured by the Educational Characteristics Criterion and student achievement independent of cost factors.

Major Findings and Conclusions

1. The significantly positive correlation between the perceptions of administrators and teachers on the total quality score and on five of the seven category quality scores leads to the conclusion that in general, teachers and administrators do perceive the characteristics of quality education in the same way. It is highly probable, however, that the respondents see those factors related to educational facilities and the community much more in the same way than they do those characteristics more closely related to the teaching process.

2. The correlation between administrator perceptions of characteristics of quality and achievement is generally higher than teacher perceptions and achievement. This may be because administrators get a complete picture of the characteristics of quality in their school district, while teachers' perceptions are restricted to a single classroom. Administrator perceptions of the degree to which the characteristics of educational quality included in

Category VI (Administration and Supervision) and Category VII (Teacher and Teaching Methods) are present in school districts seem to be especially closely related to achievement. The administrator total quality score is also significantly related to expenditure per child--an accepted measure of quality. All evidence in this study seems to point to the administrators' perceptions of educational quality factors as a promising quality measure.

3. When the cost factors are made independent by use of the partial correlation technique there is a general increase in the relationship between the characteristics of quality education and achievement. It may be that those school districts which do not possess those characteristics of quality education that comprise the ECC compensate, in their quest for a quality program, by employing to a greater degree, the cost factors. This, in effect, means spending more money.

This study has demonstrated that the ECC has definite potential as an instrument that can give an indication of the quality of school programs, and shows promise as a diagnostic instrument to help school leaders pinpoint problem areas.

A NATIONAL ANALYSIS OF EDUCATIONAL QUALITY AS MEASURED BY THE EDUCATIONAL CHARACTERISTICS CRITERION (ECC), ACHIEVEMENT, AND SELECTED COST FACTORS

by

Maurice D. Pelton

A THESIS

Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of

DOCTOR OF EDUCATION

College of Education

1966

ACKNOWLEDGEMENTS

The writer wishes to express his gratitude to Dr. Herbert C. Rudman for his advice and encouragement in the preparation of this thesis, and for his guidance in the completion of other requirements for the degree. The assistance afforded the writer during his many years of study at Michigan State by the other members of the doctoral guidance committee is greatly appreciated. These gentlemen are Dr. Richard Featherstone, Dr. Charles Blackman, Dr. William Faunce, and Dr. Karl Hereford.

Special appreciation is due to many others who have cooperated with the writer in this undertaking. They are: the many teachers and administrators who contributed of their time in responding to the ECC, Norma Ray and Carol Thomas for their help in preparing material for the computer, the writer's parents, Mr. and Mrs. D. D. Pelton and Dr. and Mrs. G. A. Branaman, for their many favors over the years of graduate study, and Gary, Don and Eric for their patience with an often short-tempered father.

Finally, to the most important person--the writer's wife, Dorothy--a special acknowledgement is given. Without her love, faith, encouragement and typewriter, this thesis could never have been written.

TABLE OF CONTENTS

TABLE OF CONTENTS - Continued

LIST OF TABLES

LIST OF APPENDICES

CHAPTER I

THE PROBLEM

Statement of the Problem

One of the major deterrents to the establishment of a quality educational program is the inability of those educators and laymen charged with the responsibility for determining a quality program to agree on what constitutes quality education. Firman says, "The term 'quality in education' does not mean the same thing to all of the people who may use the phrase. Every person describes a quality school in terms of his own set of educational objectives, and these objectives are certainly varied."[1]

Quality Defined

Some persons consider a school that teaches only the "3 R's" a quality school, while others insist upon a rigid academic program of college preparation. Some feel that a quality school program must include vocational training, while there are those who insist that such training has no place in a quality school system. Certain educators advocate training for life adjustment while their counterparts would consider educational quality in a much narrower vein.

---

[1]William D. Firman, "The Relationship of Cost to Quality in Education" (a paper presented to the Committee on Educational Finance, National Education Association, St. Louis, Missouri, 1963), pp. 8-9.

Clark admits that, "There are almost as many definitions of quality in education as there are persons discussing the problem."[2] He gives his definition, however, as "accomplishing whatever worthwhile ends one wants from education at a high level of efficiency."[3]

The Search for a Quality Program

As groups come into conflict over the definition of quality, irrational charges and countercharges are made, and the educational process is slowed for lack of an agreement as to direction. Adams says: "The uncertainty as to what constitutes 'good education,' and the lack of measurable indices of quality are persistent obstacles. . . to precise educational planning and the establishment of educational priorities."[4]

Because of this lack of specificity on the part of boards of education and their educational leaders, they have little choice but to turn, in their quest for a quality program, to the only known alternative--higher and higher expenditures. Although we have nothing approximating a mathematical proof, Mort points out that every known study dealing with the cost-quality relationship in education indicates that the more money spent for education, the higher its quality will be.[5]

---

[2]Harold F. Clark, Cost and Quality in Public Education (Syracuse: Syracuse University Press, 1963), p. 2.

[3]Ibid.

[4]Don Adams, "Education and the Wealth of Nations," Phi Delta Kappan, 47:170, December, 1965.

[5]Paul R. Mort, "Cost-Quality Relationship in Education," Problems and Issues in Public School Finance, ed. R. L. Johns and E. L. Morphet (New York: Bureau of Publications, Teachers College, Columbia University, 1952), p. 9.

Studies since 1920 have substantiated this cost-quality relationship with little apparent impact on those citizens charged with the responsibility of supporting education.[6] One only has to read the "Letters to the Editor" section of local newspapers following the defeat of bond and millage proposals to see that the voters want a clearer definition of the educational values held for their schools. From this it becomes apparent that haphazard spending of more and more money is not the answer to the problem, and that there is a need for some criterion other than financial expenditure to indicate what constitutes quality education. This criterion needs to be one that synthesizes the values held for education by educators and laymen, proponents and critics.

Quality as Values Held by Observers

The old adage, "Beauty is in the eye of the beholder," has taken on a new dimension in the recent work of Cognitive-Field psychologists. Their work has shown that "what a person perceives consists of what one makes of what seems to be oneself and one's environment. Depending on the habits--insights or understandings--a person brings to a particular occasion, he seems to give meaning and order to things in terms of his own needs, abilities, and purposes."[7, 8] Harris puts it this way:

---

[6]See Chapter II for a review of much of this research.

[7]Morris L. Bigge, Learning Theories for Teachers (New York: Harper and Row, Publishers, 1964), pp. 184-185.

[8]A series of experiments dealing with perception are summarized in Alfred Kuenzli, The Phenomenological Problem (New York: Harper and Row, Publishers, 1959), Chapter 8.

> We enter a restaurant, and six persons are sitting there. What do we "see" beyond the mere fact that these are six human beings? Do we all see the same picture, either individually or collectively?
>
> A European will note that these are six Americans, by their dress and attitudes. A woman entering the room will probably note that the six consist of two married couples, an older woman, and a single man. A Southerner will see one man who could possibly be a light-skinned Negro.
>
> An anti-Semite will immediately label one of the couples as "Jewish." A salesman will divide the group into "prospects" and "duds."[9]

It appears that educational quality may be perceived in the same way, and that what is needed is an instrument designed to measure the values held by observers making judgments about education. Such an instrument might give educators the added insight needed to put excellence into educational practice. The Educational Characteristics Criterion (ECC), designed to measure the quality of education in terms of the values that people hold for their schools, could be that instrument.

Objectives of the Study

This study has three major objectives:

1. To determine the relationships that exist between the perceptions of quality of teachers and those of educational administrators as measured by the Educational Characteristics Criterion (ECC).

2. To determine the relationships that exist among administrator and teacher perceptions of educational quality as measured by the ECC, student achievement as measured by the Stanford Achievement Test, and the cost variables of size of school district, expenditure

---

[9]Sidney J. Harris, "Perception Warps What Eyes Behold," The State Journal (Lansing, Michigan), December 28, 1965.

per pupil, millage rate, and state equalized valuation.

3. To determine the relationships that exist between administrator and teacher perceptions of educational quality as measured by the ECC and student achievement as measured by the Stanford Achievement Test, independent of cost variables.

Study Rationale

Cost-Quality Relationship

Previous studies dealing with cost-quality relationships in education have produced an overwhelming amount of evidence that the relationships are strong. In these studies, a variety of factors have been used as measures of quality, including: pupil-teacher ratio, training and experience of staff, the amount and kind of course offerings, percentage of students that graduate from high school, the degree to which school districts adapt to educational innovations, and student achievement as measured by standardized achievement tests. No matter how quality is defined, there is a positive correlation between the quality of the program and the amount of money spent on education.

Standardized Achievement Tests

It is logical that standardized achievement tests should be used as a measure of educational quality. Although they cannot measure all educational objectives of all school systems, standardized achievement tests can measure one factor (maybe the only one) held to be important by all school districts--formal academic achievement in such areas as reading, language arts, social studies, science, and mathematics. High academic achievement is also one

objective of a school system that all concerned, i.e., parents, students, teachers, administrators, and school board members, perceive to be an important characteristic of a quality school district.

The use of standardized achievement tests as a basis for judging the effectiveness of a school program has been criticized by some educators, but most would agree that standardized achievement tests can give a precise measurement of academic achievement, one of the most important objectives of the school program. Rudman agrees with this point of view when he says, "The standardized achievement test measures what he (the pupil) knows and it measures his ability to use logic and reason."[10] He also states that, "It is one of the most reliable indices available to the teacher for determining a pupil's level of knowledge."[11]

Ebel agrees that standardized achievement tests are good measures of quality, inasmuch as he says, "They can help the school staff and the community it serves assess the effectiveness of the school program."[12]

Perceptions of Teachers and Administrators

That what a person perceives is dependent upon his needs, abilities, and purposes has been well established by the Cognitive-Field psychologists.[13] That educational quality is a function of

---

[10]Herbert C. Rudman, "How Good Are Standardized Achievement Tests?" The National Elementary Principal, 44:37, November, 1964.

[11]Ibid.

[12]Robert L. Ebel, "Standardized Achievement Tests--Uses and Limitations," The National Elementary Principal, 41:29, September, 1961.

[13]Bigge, loc. cit.

perception is rapidly gaining acceptance by many educators.[14, 15] Since administrators and teachers have much to do with the determination and implementation of educational programs, it is important to measure their perceptions of the characteristics which make up their programs.

Previous research using the Educational Characteristics Criterion (ECC) as a measure of the perceptions of teachers and administrators shows that it discriminates among various populations, and that it correlates highly with the cost factors of millage, size, expenditure per pupil, and state equalized valuation. Thus there should be a relationship among the perceptions of teachers and administrators as measured by the ECC, school achievement as measured by a standardized achievement test, and the cost factors of millage, size, expenditure, and state equalized valuation. By using the partial correlation technique, the relationship between the perceptions of teachers and administrators and school achievement can be determined without the effect of the cost factors.

Importance of the Study

This study will add to the research already completed using the Educational Characteristics Criterion as a measure of educational quality. Previous studies have substantiated the reliability and validity of the ECC using cost factors as measures of quality and teachers and administrators as respondents. Springer added the factor of achievement as a measure of quality in his study of

---

[14] Firman, loc. cit.

[15] Clark, loc. cit.

selected Michigan schools.[16] This study will expand on the work done by Springer to determine if the ECC can predict achievement in schools selected in a national sample.

The need for an instrument such as the ECC is voiced by McLure who stated that, " . . . next to expenditure level in influence on high educational returns is the importance of the picture, in the minds of educators and laymen, of what constitutes good education."[17]

Assumptions and Delimitations

1. It is recognized that school achievement is a broad term encompassing many facets of students' school life. For the purpose of this study, however, school achievement is limited to the test scores achieved on the Stanford Achievement Test by sixth grade students in the participating school districts.

2. This study is limited to a sample of school districts selected at random from among a population of all of the school districts in the United States that are currently using the Stanford Achievement Test. This test, however, is the most widely used of all achievement tests, and is used in the largest of all school districts and in the smallest. It is used in districts of every type of socio-economic make-up in every state in the union. Because of this fact, it is assumed that Stanford users are representative of school districts as a whole in the United States.[18]

---

[16]Owen Springer, "A Study of the Relationships Between the Educational Characteristics Criterion (ECC), the Stanford Achievement Test, and Selected Cost Factors" (East Lansing: unpublished Ed. D. Thesis, Michigan State University, 1964).

[17]National Education Association, "Better Schools Cost More," National Education Association Research Bulletin, 37:43, April, 1959.

[18]See Stanford Achievement Test data, Appendix I.

3. It is assumed that educational quality is a relative concept and may be defined as the perceptions and values that people hold about their schools.

4. It is assumed that participants will respond to the ECC with their honest and independent perceptions of quality. The method used to distribute the ECC among respondents is designed to ensure integrity of response.

5. It is assumed that participating school districts will report the financial data accurately.

Definitions of Terms

School Systems. The term school system refers to the local organization created by the state for the purpose of operating public schools having grades K-12 or 1-12. The term school system and school district will be used interchangeably in this study.

Educational Quality. Those educational characteristics of a school district, both school and community, which are perceived by educational personnel as being effective in accomplishing the purposes of American public education. For the purposes of this study these characteristics are defined by the ECC.

Total Quality Score (TQS). The sum of the weighted item responses of any individual on the ECC.

Category Quality Score (CQS). The sum of the weighted item responses on the ECC included in each of the following categories of educational quality: (1) student's level of knowledge and attitudes, (2) curriculum, (3) administration and supervision, (4) use of facilities, (5) socio-cultural composition of the community, (6) community

attitudes, and (7) the teacher and teaching methods.

School Achievement Score. The mean score of sixth grade students tested for a particular school district as measured by the Stanford Achievement Test.

Teacher. A certified employee assigned to a group of students in grades K-12 for instructional purposes.

Administrator. A certified employee of a school district assigned to supervise the affairs of a school district or individual building.

Mill. The value of a tenth of a cent or a thousandth of a dollar.

Financial Ability. The state equalized valuation of a school district divided by the average daily membership (size of school district).

Financial Effort. The tax rate expressed in mills voted by the people of a school district for purposes of current operating expense.

Size of School District. The average daily school membership of a school district in grades K-12 or 1-12.

Average Daily Membership. The total days' membership divided by the number of days that school was in session.

Expenditure Per Pupil. The cost per pupil as determined by dividing the total current operating expenses by the average daily membership.

Hypotheses to be Tested[19]

General Hypothesis I

There is a positive relationship between administrator and teacher perceptions of characteristics of quality education as

---

[19]These hypotheses were originated by Owen Springer for his study, Springer, loc. cit.

measured by the Educational Characteristics Criterion (ECC).

Operational HIa: There is a positive correlation between administrator-respondent scores and teacher-respondent scores as measured by each ECC category quality score (CQS).

Operational HIb: There is a positive correlation between administrator-respondent scores and teacher-respondent scores as measured by each ECC total quality score (TQS).

General Hypothesis II

There are positive relationships among administrator and teacher perceptions of characteristics of quality education as measured by the Educational Characteristics Criterion (ECC), student achievement, and the cost variables.

Operational HIIa: There is a positive correlation between administrator and teacher total quality scores (TQS) as measured by the ECC and school mean achievement scores as measured by the Stanford Achievement Test.

Operational HIIb: There is a positive correlation between administrator and teacher total quality scores (TQS) as measured by the ECC and size of the school district.

Operational HIIc: There is a positive correlation between administrator and teacher total quality scores (TQS) as measured by the ECC and expenditure per pupil.

Operational HIId: There is a positive correlation between administrator and teacher total quality scores (TQS) as measured by the ECC and millage rate.

Operational HIIe: There is a positive correlation between

administrator and teacher total quality scores (TQS) as measured by the ECC and state equalized valuation.

Operational HIIf: There is a positive correlation between school mean achievement scores as measured by the Stanford Achievement Test and size of the school system.

Operational HIIg: There is a positive correlation between school mean achievement scores as measured by the Stanford Achievement Test and expenditure per pupil.

Operational HIIh: There is a positive correlation between school mean achievement scores as measured by the Stanford Achievement Test and millage rate.

Operational HIIi: There is a positive correlation between school mean achievement scores as measured by the Stanford Achievement Test and state equalized valuation.

General Hypothesis III

There is a positive relationship between administrator and teacher perceptions of characteristics of quality education as measured by the Educational Characteristics Criterion (ECC) and student achievement independent of the cost variables.

Operational HIIIa: There is a positive correlation between teacher total quality scores (TQS) as measured by the ECC and school mean achievement scores as measured by the Stanford Achievement Test independent of the cost variables.

Operational HIIIb: There is a positive correlation between teacher category quality scores (CQS) as measured by the ECC and school mean achievement scores as measured by the Stanford Achievement Test independent of the cost variables.

Operational HIIIc: There is a positive correlation between administrator total quality scores (TQS) as measured by the ECC and school mean achievement scores as measured by the Stanford Achievement Test independent of the cost variables.

Operational HIIId: There is a positive correlation between administrator category quality scores (CQS) as measured by the ECC and school mean achievement scores as measured by the Stanford Achievement Test independent of the cost variables.

Operational HIIIe: There is a positive correlation between combined administrator and teacher total quality scores (TQS) as measured by the ECC and school mean achievement scores as measured by the Stanford Achievement Test independent of the cost variables.

Operational HIIIf: There is a positive correlation between combined administrator and teacher category quality scores (CQS) as measured by the ECC and school mean achievement as measured by the Stanford Achievement Test independent of the cost variables.

Organization of the Remainder of the Thesis

This chapter has stated the problem, the objectives of the study, its rationale, and the importance of the study in relationship to the problem. The assumptions upon which this study is based were stated along with its delimitations, definitions, and hypotheses.

Chapter II will review the literature relevant to the problem under investigation. It will be divided into the following sections: philosophical statements about education; related

cost-quality studies; studies in which quality is defined as school achievement; and previous research involving the Educational Characteristics Criterion.

Chapter III will examine in detail the instruments to be used in the study. Procedure and methodology will be presented, along with a detailed description of the source of data, cost factors, sample selection, research design, and the statistics to be used in the analysis of the data.

In Chapter IV the data is analyzed, and Chapter V will consist of a summary, conclusions, limitations, implications, and recommendations to be drawn concerning the data collected.

CHAPTER II

RELATED LITERATURE

Some years ago a famous educator summed up the problem of purpose of education this way:

> All people do not agree on those things they would have a child learn. . . . from the present mode of education we cannot determine with certainty to which men incline, whether to instruct a child in what will be useful to him in life, or what tends to virtue, or what is excellent; for all of these things have their separate defenders.[1]

This statement concerning the difficulty of defining what constitutes a quality education was made by Aristotle, some twenty-three hundred years ago, and the problem is still with us.

This chapter will explore this problem by examing the feelings of laymen and educators about educational quality. Some views come as a result of intensive research, while others represent carefully considered philosophy. Conflicting points of view will be presented in order to show the breadth and complexity of the problem.

The chapter is divided in several parts: (1) theoretical statements about education; (2) related cost-quality research; (3) research in which quality is defined as standardized achievement test results; and (4) research involving the Educational Characteristics Criterion.

---

[1]John H. Fischer, "The Priorities Question in Education," Teachers College Record, 61:1, 1959.

Theoretical Statements About Education

Quality Education in Ancient Times

The basic goal of primitive education was to transmit folkways intact and unchanged because, to insure security, there had to be conformity. Likewise, the main objective of the early Oriental education was to prepare students to fit into their proper places in the established order of things.

> Considering education in its broadest sense, education in today's society has elements in common with that of primitive society. Civilized man is still concerned with making the most of his material environment. Like his prehistoric ancestors, he has economic and social problems along with religions and philosophy. But the basic emphasis has shifted from the group to the individual.[2]

With the Greeks, some emphasis on the individual is noted. While education for citizenship (emphasis on the group) was important, the Greeks recognized the importance of individual development of the mind and the body, and stressed physical fitness, music, dancing and poetry. With this broadening of educational objectives came the beginning of the question, "What constitutes a quality education?" This is documented by Aristotle's statement at the beginning of this chapter.

Education In a Democracy

Education in modern authoritarian societies has objectives similar to primitive societies, in that "teachers are expected to transmit a fixed set of values; education is indistinguishable from

---

[2]Carroll Atkinson and Eugene T. Maleska, The Story of Education (Philadelphia: Chilton Books, Publishers, 1962), p. 9.

indoctrination."[3]

In a democracy, where the individual is important, the problems are much greater. Fischer summarizes these problems in this statement:

> Even if we were to teach the common people the minimum skills of literacy and stop there, a pattern from which European nations have only recently begun to depart, the problem wouldn't be too bad. However, more than ever before, we depend upon our educational establishment not only to give us a steady and growing supply of experts and leaders, but also to elevate the knowledge and competence of the whole people to the level required by the social, political, and technological conditions under which we live. . . . further complicated by the democratic ideal of equal opportunity for personal fulfillment. . . .[4]

That the "equal opportunity for personal fulfillment" ideal is not shared by all Americans is evidenced by Rickover's comment: "England could not afford to follow the practice of many of our state universities that take in nearly all high school graduates and flunk out 40 percent of the freshman class at the end of the first year. I don't think we can afford it much longer."[5]

Quality Measured and Improved by National Testing

Admiral Rickover's statement had to do with his goal of a national testing program. Later, in testimony before the House Appropriations' Committee, he said:

> What I suggest is that you set up a small committee of eminent, scholarly persons who would be charged with working up specifications for certain educational levels, in the form of

---

[3]Henry Ehlers and Gordon C. Lee, Crucial Issues In Education (New York: Holt, Rinehart and Winston, 1964), p. 4.

[4]Fischer, loc. cit., pp. 1-2.

[5]Hyman G. Rickover, "Education For All Children," Hearings Before the Committee on Appropriations, House of Representatives, Eighty-Seventh Congress, 1962, p. 139.

> national examinations leading to nationally valid diplomas. This would be a standards committee. Every country abroad has national examinations.[6]

Most American educators do not share the Admiral's enthusiasm for national testing. Stoddard is one, and his objection is shared by many.

> Do we prefer what the Bonn government has set up--a system of examinations through which the decision to go to the university, or not to go, is firmly made when a child is ten years old? (The result: only one out of twenty pupils make the grade.)[7]

Although Stoddard and many others have objected, the move for a national testing program has continued. In February of 1965, under a grant by the Carnegie Corporation, the Exploratory Committee on Assessing the Progress of Education (ECAPE) met and drew up a document setting forth their plans for a tryout of new instruments designed to assess education on a national basis. The objectives of ECAPE are set forth by John Gardner, then president of the Carnegie Corporation.

> A well-conceived and well-executed assessment would, it is hoped, serve several important purposes. First, it would give the nation as a whole data on the strengths and weaknesses of the American educational system. Thus, it might constitute a much more accurate guide than we currently possess to the allocation of public and private funds--where they are needed, what they achieve--and to many other decisions affecting education. Second, assessment results, especially if coupled with auxiliary information on characteristics of various regions, communities, schools, etc., would provide data necessary for research on educational problems and processes which cannot be undertaken now. Third, when sampling and testing procedures are adequately developed, international comparisons might be possible. And finally, it is hoped that a national assessment of education would make all groups more vitally interested in the educational system--not just in where it it stands, but also in what its goals should be and how it might be improved.[8]

---

[6] Ibid.

[7] George D. Stoddard, "The Issues That Divide Us," School and Society, 86:237, May 24, 1958.

[8] John W. Gardner, "A National Assessment of Educational Progress" (unpublished report, The Carnegie Corporation, April 23, 1965), p. 1.

Harold Hand objects strongly to this plan for the national assessment of education:

> . . . I am opposed to (1) a national testing program set up for purposes of comparing the school or schools in one district or region with those in other districts or regions and (2) the way in which ECAPE is functioning. I am opposed to a national testing program set up for purposes of comparing schools chiefly because (a) it would set up new obstacles to realization of our goal of equality of educational opportunity, (b) it would be the nose under the tent which would be followed by a monstrous camel in the form of a centrally controlled curriculum, (c) it would stultify the curriculum, (d) it would stifle local innovation and experimentation in respect to the curriculum, (e) it would result in unbearable pressures on classroom teachers and school administrators, and (f) it would encourage cheating on the part of students and teachers alike. I am opposed to the way ECAPE is functioning chiefly because it is violative of a cardinal principle of American democracy. . . . namely, the principle of government by the consent of the governed.[9]

The Nation's Interest In Education

Although controversy arises over almost all issues in education, there has never been an argument that education should not be provided. The issues in education have centered around what kind of education should be provided, who should be educated, how much, and by what method.

As early as 1787, the nation's interest in education was pointed out in the Northwest Ordinance. "Religion, morality, and knowledge, being necessary to good government and the happiness of mankind, schools and the means of education shall forever be encouraged."[10]

It is interesting to note that one of the great issues in education today is over religion in the schools, when in the early

---

[9]Harold C. Hand, "The Camel's Nose," Phi Delta Kappan, 47:9,12, September, 1965.

[10]Kenneth H. Hanson, Public Education in American Society (Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1956), p. 38.

years of our country the main purpose of education was to teach reading so that everyone might read the Bible. As Atkinson and Maleska point out:

> It is a fact that religion was the earliest and most dominant force in the promotion of early American education. And yet today a child in a public school is taught almost everything except religion.[11]

The importance of the individual in American education is illustrated by this statement by the Educational Policies Commission:

> Universal opportunity for public education is America's response to a moral principle; that every person should have opportunity to develop his full potential. The interests of the nation . . . its political effectiveness, prosperity, and security . . . today lend new urgency to that moral principle.[12]

Education and the Nation's Strength

In the decade following the end of World War II the education system in the United States became severely tested. The postwar "baby boom" bulged the nation's classrooms. The explosion of knowledge taxed the curriculum, and the need for highly trained leaders and intelligent followers challenged the schools as never before.

The report of the Conference on the Ideals of American Freedom and the International Dimensions of Education sponsored by the United States Office of Education issued several statements having to do with tests of strength of our nation. Among them: (1) a nation's strength lies in the strength of all its people; (2) it is tested in the aspirations of its youth and the quality of its schooling; (3) our

---

[11]Atkinson and Maleska, op. cit., p. 158.

[12]Educational Policies Commission, National Policy and the Financing of Public Schools (Washington: National Education Association, 1959), p. 7.

democracy is no stronger than the moral and intellectual fiber of our people; (4) our country can be no richer than our teachers' minds and our children's opportunities; (5) since the quiet strength and latent power of education is less tangible than arms and missiles, it has been more difficult to realize; and (6) American education has become the testing ground for democracy.[13]

Perhaps the ultimate challenge to education is incorporated in this short statement by the Committee for Economic Development.

> A democracy lives or dies by the ability of its people to choose wisely. We need better schools to teach us how to understand the alternatives before us, and how to choose wisely among the real alternatives.[14]

Quality Education by Legislation

The turmoil created by the greatest migration in the world's history coupled with the postwar population explosion has created monstrous problems for California in the last two decades. Following the initial furor over the Russian Sputnik launching in October of 1957, the California legislature, greatly concerned about education, appointed a Citizens Advisory Committee on Education. This diverse group of people, mostly laymen, submitted recommendations which were considered at the 1961 session of the state legislature. Of the 825 education bills introduced, 434 were passed, and 388 signed into law. Stone summarized some of the most important of these mandates to educators,

---

[13]United States Department of Health, Education, and Welfare, Education for Freedom and World Understanding, Bulletin OE10016 (Washington, D. C.: U. S. Government Printing Office, 1962), pp. 50-51.

[14]Ralph Lazarus, We Can Have Better Schools (New York: Committee for Economic Development, 1959), p. 4.

which were:

> 1. The subjects to be taught in elementary and secondary schools, including instruction in a foreign language by 1965, beginning no later than grade six.
> 2. A state-wide intelligence and achievement testing program, the results of which were to be reported annually to the State Department of Education and at a public meeting of each local board of Trustees.
> 3. A host of "administrivia" measures, from a required salute to the flag and polio and TB injections to expulsion of students and the giving of psychological inventories only with parental consent.
> 4. Special programs for gifted pupils.
> 5. New certification requirements--the Fisher Act, so named for the then senator from San Diego who introduced it.[15]

What Shall Be Taught?

One of the objectives of the California legislature and thier State Superintendent is a return to the "basic subject matter" curriculum. One of the major issues being hotly debated in America is what shall be taught. Unfortunately, the issue becomes clouded as all sides exaggerate in an effort to make their point. One of the leaders of the "back to the basics" movement is Freeman, who says:

> The introduction of courses in marriage and family relationships, child development, grooming, junior homemaking for boys, teen-age fathers, beauty care, date behavior, consumer buying, stage craft, square dancing, pep club, and fly casting without an increase in the number of classroom hours resulted in less time being spent on solid subject matter learning. Pupils took the new courses not in addition to the fundamental subjects but instead of them. Mathematics became an optional subject through four years of high school in some of the country's largest school systems.[16]

Conant disagrees with those who would have all students take a liberal arts curriculum. He sees the expansion of the curriculum as

---

[15]James C. Stone, "Teacher Education by Legislation," Phi Delta Kappan, 47:287, February, 1966.

[16]Roger Freeman, Taxes For the Schools (Washington, D. C.: The Institute for Social Science Research, 1960), p. xxiv.

meeting the need of tying school education to the requirements of society. He says: ". . . if the schools had tried to carry through the program of one of the foremost critics of our high schools and colleges, our whole national life would be in danger of collapse . . ."[17]

How?

Similar to the issue of what should be taught is the issue of how. Illustrative of this issue is the conflict in reading instruction between the advocates of the so-called "phonics first" method and the "sight-word" method champions. Here again, the issues are clouded by exaggerations and the intrusion of and simplification by self-styled experts. Actually, as A Report of a Conference of Reading Experts states:

> . . . extremes of "no-phonics" or "all-phonics" programs are exceptions; a predominantly sight-word method is practically non-existent; teachers of reading are in practically unanimous agreement on the importance of many constituent parts, and they report that they practice them in the classroom.[18]

Equal Opportunity For All

The United States, as no other country in history, has dedicated itself to providing an equal opportunity for all its young to secure an education. The importance of this dedication is pointed out by the President's Committee for the White House Conference.

> An important reason for the growing importance of education is the plain fact that the schools have become the chief instrument for keeping this nation the fabled land of opportunity it started out to be.

---

[17]James B. Conant, The Child, The Parent, and The State (Cambridge, Massachusetts: Harvard University Press, 1959), p. 63.

[18]Learning to Read, A Report of a Conference of Reading Experts (Princeton, New Jersey: Educational Testing Service, 1962), p. 14.

> The order given by the American people to the schools is grand in its simplicity; in addition to intellectual achievement, fostering morality, happiness, and useful ability, the talent of each child is to be sought out and developed to the fullest. Schools of that kind have never been provided for more than a small fraction of mankind.[19]

That the public schools, with equal opportunity for all youth as one of its ideals, have not provided a quality education for all, is brought home in a publication by the National Committee for the Support of Public Schools, which states that the lack of schooling and poor schooling are associated with such social problems as (1) low earning capacity, (2) large pupil drop-out rates and subsequent unemployment, (3) rejection from military service, and (4) dependence upon relief in its various forms.[20]

A giant step toward the correction of this problem was taken on April 11, 1965, when President Johnson signed into law the Elementary and Secondary Education Act of 1965. A major part of the money provided by the act, $1.06 billion, will be made available to the states on the basis of the number of children from low income families.[21]

Whether or not the "Head Start Programs" and other products of this new act will be successful, it is too early to say, but as the N.E.A. points out:

> The objective of Title I is to offer the very best education we can provide to those who have too often been neglected in our

---

[19]Committee for the White House Conference on Education, A Report to the President (Washington, D. C.: Superintendent of Documents, Government Printing Office, 1956), p. 4.

[20]John K. Norton, ed., Changing Demands on Education and Their Fiscal Implications (Washington, D. C.: National Committee for Support of the Public Schools, 1963), pp. 45-51.

[21]Public Law 89-10, 89th Congress, H.R.2362, S 370, 1965.

> schools. If increased educational opportunity can reduce the cost of crime, delinquency, unemployment and welfare in the future, the new legislation will have been a sound investment on that count alone.[22]

Economics of Education

"Economists are interested in getting whatever it is society wants with less effort, or getting more of whatever it is society wants with the same effort."[23]

> There are two basic problems in education: one is to get a reasonable amount of interest in and attention to the problem of trying to increase the output of what each of us wants from education with any given input. The second part of the problem is to begin to get widespread understanding that more people are going to have a great deal more education, and that consequently more efficient methods will have to be found to provide the increased amount.[24]

Clark's suggestions for increasing educational output, which can raise the quality of education, provide more education, or both, include increasing the school year; extending the school day; raising the amount of homework; increasing interest on the part of all concerned; increasing the use of technological devices; improving the content of courses; and utilizing more efficient teaching methods.[25]

Freeman concurs with Clark, and offers these suggestions: "The schools could get a higher return on the investment (educational expenditure) by a general raising of the standards of learning, by

---

[22]"We've Got It Started: Elementary and Secondary Education Act of 1965," N.E.A. Journal, 54:38, September, 1965.

[23]Harold F. Clark, Cost and Quality in Public Education (Syracuse, New York: Syracuse University Press, 1963), p. 11.

[24]Ibid.

[25]Ibid., pp. 50-51.

greater emphasis upon the teaching of basic skills and knowledge, a more compact and subject-centered curriculum, fuller and more effective use of the available resources, and the introduction of manpower and space saving techniques."[26]

The Cost-Quality Relationship

The cost-quality relationship in education has been widely studied, as will be pointed out in the next section of this chapter. Carr was referring to such research when he made this statement: "We could make rapid and substantial improvements in the quality of our schools right now if we had the financial resources to do as well as we already know how to do."[27]

Freeman disagrees. After extensive studies in school finance, he makes this observation:

> The American people have loyally and faithfully supported their schools. The record of steeply increasing school revenues is nothing short of spectacular and makes no persuasive case for holding insufficient funds responsible for the shortcomings in the product of our public school system.[28]

The Place of Education in our Value System

Melby agrees that education needs more money, but feels that education suffers more because we don't place it high enough in our system of values. He sums up this idea in this statement:

---

[26]Roger L. Freeman, op. cit., p. xix.

[27]William G. Carr, "What's Past Is Prologue," N.E.A. Journal, 46:605, December, 1957.

[28]Roger L. Freeman, School Needs in the Decades Ahead (Washington, D. C.: The Institute for Social Science Research, 1958), p. ix.

> The first thing we need to do is to give education a new place in our society. Education suffers today because it does not have enough money but it suffers even more because of its place in society, because instead of being a central concern in our way of life it is an ancillary endeavor. . . . As a people we shall never secure the educational power we need unless we can give education so high a place in our society that it becomes a matter of central concern rather than of secondary attention.[29]

Summary

1. The problem of agreement about what constitutes a quality education goes back at least as far as the ancient Greeks, when some concern for the individual was recognized.

2. The country recognizes the importance of education to the strength of the nation and the role played by education in fostering the ideals of democracy. Many statements have been issued concerning the part education is playing, and must play, in providing equal opportunity for all of the nation's citizens.

3. Because the schools are not meeting all of the needs of all of America's children, outside influences are beginning to make an impact on the educational scene that had previously not played an important part. Some of these influences are a national assessment program, legislative mandates concerning curriculum and teacher certification, and federal aid to education.

4. There has never been an argument that education should not be provided in the United States. Serious issues are debated, however, concerning who should be educated, how much, and in what manner. These issues are difficult to resolve because of the emotional character of the arguments, and the oversimplification of the problem by laymen.

---

[29]Ernest O. Melby, Education For Renewed Faith in Freedom (Columbus, Ohio: The Ohio State University Press, 1959), pp. 68-69.

5. More cures for the ills of education have been suggested. Some educators say that given more money the schools could solve many problems immediately, while economists suggest that educators can increase their output, without additional money, by applying certain economic principles. Others feel that for education to improve, Americans must reserve a higher place for it in their system of values.

Related Cost-Quality Studies

Three Early Studies

Leonard P. Ayers is generally credited with making the first scientific inquiry into the measurement of educational quality. Ranking states according to their expenditures for education between 1896 and 1920, he found a high correlation between expenditure and a ten item index. In his Index, Ayers used five financial items and five which had to do with tangible characteristics of the school program. Ayers Index:

1. Per cent of school population attending school daily.
2. Average days attended by each child of school age.
3. Average number of days schools were kept open.
4. Per cent that high school attendance was of total attendance.
5. Per cent that boys were of girls in high school.
6. Average annual expenditure per child in school.
7. Average annual expenditure per child of school age.
8. Average annual expenditure per teacher employed.
9. Expenditure per pupil for purposes other than teachers' salaries.
10. Expenditure per teacher for salaries.[30]

In 1926 Norton reported that in financially able states more money was spent per pupil, teachers were paid more, more money was

---

[30]Leonard P. Ayers, An Index Number for State School Systems (New York: Russell Sage Foundation, 1920), p. 14.

expended on nonsalary items, and the school plant was superior. In these states, pupils attended school a greater number of days per year, more pupils went on to high school, and the teachers were better prepared.[31]

In the middle thirties, Ferrell studied the relationship of current expenditure per pupil to the following six item efficiency index:

1. Per cent average daily attendance is of the census.
2. Holding power measured by the average of the sum of (a) per cent eighth grade enrollment is of first grade enrollment and (b) per cent high school enrollment is of the total public school enrollment.
3. Per cent of teachers employed who have a given amount of preparation.
4. Per cent of teachers employed who have had three or more years of teaching experience.
5. Per cent the number of teachers is of the number of pupils.
6. Per cent the number of days in the elementary school term is of 200 days.[32]

Ferrell treated county schools and independent school systems separately. He found a correlation of .92 between quality as defined by his index and expenditures for county schools, and a correlation of .77 for independent districts.[33]

Schooling--Adult Life Relationship

In 1925 Bagley reported a study of quantity and quality in 26

---

[31]John K. Norton, The Ability of States to Support Education (Washington, D. C.: National Education Association, 1926).

[32]Doctor T. Ferrell, Relation Between Current Expenditure and Certain Measures of Educational Efficiency in Kentucky County and Graded School Systems, Contributions to Education, Number 216 (Nashville, Tennessee: George Peabody College for Teachers, 1936).

[33]Ibid.

different states. As a measure of quality, he used an index based on enrollment and attendance figures, number of days that school was in session, high school percentage of total enrollment, and average annual expenditure per child of school age. These measures, obtained for 1880, 1890, 1900 and 1910, were correlated, a generation later, with the circulation of widely read magazines, the percentage of illiteracy among the native-born whites 21 years old or older, persons included in Who's Who, per capita income, and percentage of white soldiers in the draft who received high grades on the Army Alpha. He concluded that the differences in education were the main causes of the differences in the behavior and welfare factors.[34]

In the late 1930's Thorndike carried on a study to trace the effects of education and other factors on social life.[35] Using his "goodness of life for good people" Index or G Index, he compared the social scene of 1930 with social and educational conditions of 1900. Thorndike's G Index was made up of five health factors, seven educational items, two recreation items, eight economic and social items, five "creature comfort" items, and nine miscellaneous items taken as evidence of good conditions.

As measures of educational quality in 1900, Thorndike used the indices of Ayers[36] and Bagley.[37] As a measure of personal qualities of residents he developed the "Index of Personal Qualities

---

[34]W. C Bagley, Determinism in Education (Baltimore: Warwick and York, 1925), chapters 4 and 5.

[35]Edward L. Thorndike, Education As Cause and As Symptom (New York: The Macmillan Company, 1939).

[36]Ayers, op. cit.

[37]Bagley, op. cit.

of 1930" (P), a list which he believed to be indicative of the intelligence, morality, and devotion to the home of 1900.

The average correlation of the five educational items for 1900 with the 1930 G score was .41, current expenditure per pupil was also .41, while the personal qualities of residents was .59.

In summing up his findings on education as a cause of the achievement of individuals and groups, Thorndike says,

> On the whole, the facts which I have reported probably attach less causal efficacy to schooling, home life, and special forms of training than the general opinion of educators has attached to them. They certainly do not support the promises of educational evangelists that, if all the children for a generation or two had enough education of the right sort, they would be healthy, wealthy, and wise, living in peace and amity, free from vulgarity and meaness, busy with noble thoughts and deeds.[38]

Mort's Early Studies

Many of the early studies concerned with the educational program were an outgrowth of the efforts to implement the concept of a foundation program of school financing. Mort's surveys of New Jersey (1933)[39] and Maine (1934)[40] were two such studies. More than a thousand questions designed to probe into school programs were used as a basis for observing three groups of school systems, each group representing a different level of expenditure. The areas of concern in these studies dealt with such things as administrative services,

---

[38]Thorndike, op. cit., p. 67.

[39]Paul R. Mort, Director, Reconstruction of the System of Public School Support in the State of New Jersey, Report of the Governor's School Survey Commission, II (Trenton, New Jersey: The Commission, 1933).

[40]Paul R. Mort, Director, The Financing of the Public Schools of Maine (Augusta, Maine: Maine School Finance Commission, 1934).

character of courses of study, adequacy and condition of school plant, number and type of books provided, health services, character of attendance service, training and experience of teachers, character of the promotion program, and teachers' salaries. He found his extensive check list to be highly and positively correlated to the amount of money expended.

The Regents' Inquiry

In the 1938 New York Regents' Inquiry, 43 school districts were graded on a 5 point scale. It was found that although many districts had high costs and inferior programs, no school systems had high educational efficiency without high expenditure. The report further indicates that the schools with superior educational results spread the greater expenditure over all the items of expense, and devote a larger proportion of the entire budget to direct instruction. A correlation of .50 was found between expenditure and the 5 point scale after a correction for sparcity.[41]

The Mort-Cornell Guide

In 1937 Mort and Cornell developed an instrument known as the Guide for Self-Appraisal of School Systems. This instrument provides 183 items purporting to represent improvements in educational practices that had occurred in the first twenty-five years of this century. 58 of the 183 items deal with classroom instruction, 86 deal with educational leadership, and the remainder with physical facilities

---

[41]A. G. Grace and G. A. Moe, State Aid and School Costs: Report of the Regents' Inquiry (New York: McGraw Hill Book Company, 1938), pp. 324-329.

and business management. The instrument was used to determine which communities had most rapidly taken on these improved practices. The degree to which these changes had taken place was taken as a measure of their adaptability.[42]

The Mort-Cornell Guide was first applied to a sampling of 36 school districts in Pennsylvania. They found that although level of expenditure was not the only factor in educational quality, it was one of the highest of a series of relationships with factors chosen as being related to adaptability. High correlations were found to exist between the Guide and such factors as current expenditure per weighted pupil, community expenditure, percentage of business and professional workers, and educational level of the adult population.[43]

A few years later Mort used the Mort-Cornell Guide again, this time in Rhode Island.[44] The Rhode Island study is especially significant inasmuch as 38 of the 39 school districts in the state were included.

"In Rhode Island, as in other states where the Mort-Cornell 'Guide for Self-Appraisal' or 'Lag Book' has been used, there is a clear cut unfolding of the educational program as the expenditure level rises."[45] The scores of the school systems varied from 100

---

[42]Paul R. Mort and Francis G. Cornell, Guide for Self-Appraisal of School Systems (New York: Bureau of Publications, Teachers College, Columbia University, 1937).

[43]Paul R. Mort and Francis G. Cornell, American Schools in Transition (New York: Teachers College, Columbia University, 1941).

[44]Paul R. Mort, Director, Schools for Our Children, Report of a Survey of the Structure and Operation of the Rhode Island Public School System (Providence, Rhode Island: Commission on the Legal Structure of Rhode Island Public Education, 1941).

[45]Ibid., p. 57.

points to almost 900 points scored on the Guide. The schools in the area of 100 points had been little affected by the many educational changes introduced in the forty years preceding the study. The schools that scored close to 900 points had been affected to some degree by almost all of the 183 items included in the Guide.

In West Virginia Strayer found the typical school in the lower expenditure level to be 25-40 years behind the times in terms of the practices investigated. Some attention was paid to the basic subjects of reading, writing, and arithmetic, but health practices, music, and art were almost non-existent. Some gain in the percentage of diffusion of modern practices was found as the expenditure level rose from the lower expenditure level to the middle level, but the gain was not great. The higher expenditure level indicated the effect of the expenditure much more than did the middle level over the low. The most significant effect of these increased expenditures is the characteristics of the program that are concerned with the child as an individual. Therefore, more schools are found that provide for individual differences and make use of standardized tests. The higher level schools also provided more programs of health, music, and art, and are characterized by more flexibility of classroom instruction.[46]

A study by McLure in 1947 utilized an adaptation of the Mort-Cornell Guide.[47] He selected some 100 schools in Mississippi for his study.

---

[46]George D. Strayer, Director, A Report of a Survey of Public Education in the State of West Virginia (Charleston, West Virginia: State of West Virginia, Legislative Interim Committee, 1945).

[47]Mort and Cornell, Guide, loc. cit.

Some of McLure's conclusions were that schools that spend little money have (1) unattractive buildings poorly suited for work; (2) few supplementary books; (3) almost complete absence of teaching supplies and laboratory equipment; (4) the three R's poorly taught; and (5) few activities for developing good citizenship.[48]

In 1942-1943, Vincent undertook an extensive study of three samples of New York State school systems. The three samples represented school districts from high, medium, and low expenditure levels. Vincent concludes that,

> There are certain general tendencies to be seen in the better supported schools which may have far-reaching effects upon schools in general. These general tendencies of better supported schools can be presented and discussed briefly under five headings.[49]

The five areas referred to by Vincent are: (1) concern for the mastery of basic skills; (2) concern for the conditions of child growth; (3) attention to the needs of the individual; (4) lack of dependence of teachers upon patent devises; (5) characteristics and activities of the staff (Vincent refers to a staff that is better qualified, more resourceful, and more active).[50]

In the spring of 1942, 28 suburban school systems of the New York metropolitan area undertook to study their schools, using the Mort-Cornell Guide for Self-Appraisal.[51] These school districts were

---

[48]William P. McLure, Let Us Pay for the Kind of Education We Need: Report of a Study of State and Local Support of Mississippi's Schools (University, Mississippi: Bureau of Education Research, University of Mississippi, 1948).

[49]William S. Vincent, Emerging Patterns of Public School Practice (New York: Bureau of Publications, Teachers College, Columbia University, 1945), p. 45.

[50]Ibid., pp. 45-46.

[51]Mort and Cornell, Guide, loc. cit.

all well-financed and it was soon discovered that this instrument was not adequate for describing the wide variety of programs offered in these well-financed districts. Field workers were therefore instructed to record as notes such practices which they observed. Nine hundred of these notes were recorded, synthesis of which revealed that school-community interplay, high quality of personnel, democratic operation, consideration of the individual, and certain dynamics of administration have emerged as significant patterns of practice in these better supported schools. The final report of this group (which formed the nucleus of what is now the Metropolitan School Study Council) emphasizes the fact that "you buy more when you spend more for education."[52]

The Growing Edge

"From the observers' notes (referred to above) and the work of Vincent in digesting the practices found in his study of the New York State schools, The Growing Edge was written."[53]

The Growing Edge was particularly designed to reflect those characteristics of schools which differentiated high expenditure level school districts from average ones. The instrument is limited to four facets that appear to be observed in high expenditure districts:

1. The teaching of skills in a real or realistic fashion and the teaching of a wider range of skills.
2. The teaching of areas of knowledge realistically.
3. The discovery and development of special aptitudes of individuals through test and tryout.

---

[52]Vincent, op. cit., pp. 8-9.

[53]Donald H. Ross, Administration for Adaptability (New York: Metropolitan School Study Council, Teachers College, Columbia University, 1958), p. 383.

4. The development of gross behavior patterns, like citizenship, character, and thinking, which are assumed to be developmental characteristics.[54]

Woollatt collected data from 33 New York and New Jersey suburban school districts, all of which were in the high expenditure bracket. These schools ranged from about 1.6 times to more than four times the national expenditure level (1943-1944). Woollatt's study was undertaken to determine the relationships that existed between the four educational characteristics listed above and expenditure within the high expenditure group. The study showed that there is a direct relationship between those factors taken together and expenditure, and between each one individually and expenditure. The correlation between the over-all score and expenditure was .59.[55]

James Campbell's study, reported in 1956, covered the financial performance of five school districts for a twenty year period.[56] He concluded that small amounts spent for a category of items, which he terms "quality improvement expenditures," seemed to yield unusually strong results on the "Growing Edge." Although he considered his study a pilot study, he did formulate the following statements:

1. Basic supply expenditures (expenditures for textbooks, pencils and paper, and other things associated with the bread-and-butter operation of the school) did not show a positive

---

[54]Paul Mort, William S. Vincent, and Clarence A. Newell, The Growing Edge: An Instrument for Measuring the Adaptability of School Systems (New York: Metropolitan School Study Council, Teachers College, Columbia University, 1946).

[55]Lorne H. Woollatt, The Cost-Quality Relationship on the Growing Edge (New York: Bureau of Publications, Teachers College, Columbia University, 1949).

[56]James A. Campbell, "Small Item Expenditure and School Quality--A Cost-Quality Study" (New York: unpublished Ed. D. Project, Teachers College, Columbia University, 1956).

relationship with school quality.

2. Quality improvement expenditures (expenditures for materials, supplies, services, and other expenses that seem to be made with the idea of improving the program, items which were not characteristic of 1920 schools) were relatively good predictors of school quality. There was no particular evidence of time lag in the effect of such expenditures on school performance.

3. Quality improvement expenditures predicted relative school quality as well as, if not better than, net current expenditures.

4. The present accounting system is not as helpful as it should be in sorting out expenditures that are quality producing.[57]

Furno added a new dimension to cost-quality research. He looked into the time lag of desired results from changes in expenditure. He found that increases in expenditure take several years to be fully felt in the school system. Conversely, unwise economy can cripple a system for years ahead.

Furno correlated each year's current expenditure over a twenty-five year span with school quality as measured by the Growing Edge at the end of the time span. The procedure was carried out for two sets of data over two overlapping twenty-five year periods. Correlations between expenditure level for each year from 1921 to 1945 and 1945 Growing Edge scores were calculated for member schools in the Metropolitan School Study Council. Correlations were also determined for expenditure levels for each year from 1931 to 1955 and 1955 Growing Edge scores.

Furno concluded that communities that were high expenditure communities in 1921 tended to be high in 1945. These schools also were, in general, the high quality ones. The same was true of the 1955 group of districts, but not to the high degree exhibited by the

---

[57] Ibid., p. 64.

schools evaluated in 1945.[58]

Quality as Staff Characteristics

Studies by Buley,[59] Hall,[60] and Grogan[61] shed light on desirable staff characteristics as related to level of expenditure. Significant and positive relationships were found between the level of a district's expenditure and the years of training had by the professional staff. Other positive relationships were found between expenditure and such items as amount of travel, type of books and journals read, number of years in the same system, and certain behavior and attitude characteristics.

Rating by Direct Observation

Griffis, in 1954, studied 44 southeast Texas school districts. They were studied by direct observation and rated on 100 modern educational practices in relation to three expenditure levels. He concluded that the higher expenditure schools attracted better prepared teachers, gave increased attention to individual pupils,

---

[58]O. F. Furno, "The Projection of School Quality from Expenditure Level" (New York: unpublished Ed. D. Project, Teachers College, Columbia University, 1956).

[59]Hilton C. Buley, "Personal Characteristics and Staff Patterns Associated with the Quality of Education"(New York: unpublished Ed. D. Project, Teachers College, Columbia Univeristy, 1947).

[60]Harold D. Hall, "Relationships of Selected Characteristics of Organization to Practice in School Systems: An Exploratory Measure of the Extent and Diffusion of Administrative Procedures and Staffing Practices and Their Relationships to Selected Characteristics of School Systems" (Urbana: unpublished Ed. D. Thesis, University of Illinois, 1956).

[61]Robert S. Grogan, "Determination of Staff Characteristics That Should Be Assessed in Future Studies" (New York: unpublished Ed. D. Project, Teachers College, Columbia University, 1961).

made use of more and better quality teaching aids, and usually had more functionally designed facilities.[62]

A study by Hirsch in 1957 applied the following index to public schools in the St. Louis city-county area:

1. Number of teachers per 100 pupils in average daily attendance.

2. Number of college hours per average teacher.

3. Average teachers' salary.

4. Percentage of teachers with more than ten years of experience.

5. Number of high school credit units.

6. Percentage of high school seniors entering college.[63]

After determining correlations between his index and school district expenditure, Hirsch subjected the index to an interesting test of reliability. He asked a number of educators in the St. Louis area to rate the school districts on the basis of excellent, good, medium, poor, and very poor. These ratings, when compared with the scope and quality index data, showed very close consistency.[64]

Summary

1. Almost every study of the relationship between expenditure and quality of education gives evidence that the relationship

---

[62]James T. Griffis, Educational Production at Three Cost Levels (Houston, Texas: Gulf School Research Development Association, 1955).

[63]Warner Z. Hirsch, Measuring Factors Affecting Expenditure Levels of Local Government Services (St. Louis: Metropolitan St. Louis Survey, 1957). As cited by the author in Warner Z. Hirsch, Analysis of the Rising Cost of Public Education (Washington: Joint Economic Committee, Congress of the United States, 1959), p. 27.

[64]Ibid., p. 28.

is strong.

2. The relationship holds true in districts of all levels of expenditure, from Mississippi (the lowest level reviewed) to New York (the highest).

3. The relationship holds true regardless of how quality of education is measured or defined.

4. The quantity and quality of an individual's education has an effect upon his success in later life.

5. Certain items of expenditure are better predictors of school quality than other items of expenditure, and are better predictors than net current expenditure.

6. Increases in expenditure take several years before an increase in the quality of education is fully realized, while unwise economy can cripple a school system for many years.

Educational Quality As School Achievement

Two Early Studies

One of the earliest attempts to relate the cost of education to quality, defined as school achievement, was undertaken by Powell in 1933. By studying 70 one-teacher schools in one New York county, he hoped to find out if increased expenditure brings increased returns. He equated two groups of 35 schools each with respect to intelligence and, as nearly as possible, with respect to supervision and community conditions. The schools in Group A on the average spent about 40 per cent more than schools in Group B.

Powell compared scores on (1) an achievement test battery and (2) a "happiness test," intended to measure certain aspects of a

child's adjustment to school life. He found that there are 93 chances out of 100 that schools such as those in Group A secure greater average achievement in school work than those in the less well-financed group. About the same conclusions were noted in adjustment to school life as determined by the "happiness test."

When sub-groups of schools were compared, where the higher level of support was about 75 per cent greater than the lower, Powell concluded that the differences were considerably greater and their reliability increased to 998 chances out of 1000 that a child would learn more in the higher of the two groups of such schools.[65]

In 1938 Grimm reported a study of educational opportunities in 24 elementary-school districts in Illinois. They were selected from the entire range within the state and represented eight at the top of the expenditure level, eight in the middle, and eight in the low expenditure range. As part of the study, Grimm used a series of achievement tests. Seventh grade students were tested in reading, arithmetic, and language, while all eighth grade students were tested in reading, health, and geography. Both grade levels were also given tests of intelligence.

The results of Grimm's study indicate that the student's knowledge of language and geography rises with the expenditure level. In reading and arithmetic, the results rise from the low level to the middle, but no further. The health test indicated no significant difference among the expenditure levels.

---

[65]Orrin E. Powell, Educational Returns at Varying Expenditure Levels (New York: Bureau of Publications, Teachers College, Columbia University, 1933).

Grimm also reported the higher level schools to have more extra-curricular activities, smaller classes, more music, better libraries, and better facilities.[66]

New York Educational Conference Board

Burke directed a study for the New York Educational Conference Board in 1954 to identify and describe different kinds of public elementary school programs in terms of mastery of the essential skills and planned efforts to achieve other important educational objectives, and to relate these programs to costs. Standardized tests were administered to over 5,000 pupils in 126 elementary schools. In addition teachers, administrators, and laymen made first-hand observations of the programs in these schools.[67]

The significant findings of the study are these:

> First, the schools differ widely in mastery of basic skills. Second, the schools that rank the highest in mastery of the Three R's usually have the most comprehensive programs for obtaining other important elementary school objectives. . . . Third, the schools which achieve the highest mastery of essential skills and do the most to promote all objectives cost the most.[68]

A National Study

At the high school level, Bloom and Statler of the University of Chicago reported a study of factors associated with educational achievement as measured by the General Educational Development Tests

---

[66]Lester R. Grimm, Our Children's Opportunities in Relation to School Costs (Springfield: Department of Research, Illinois Education Association, 1938).

[67]Arvid J. Burke, Director, What Do Good Schools Do For Our Children? (Albany: New York State Educational Conference Board, 1954).

[68]Ibid., p. 2.

in English composition, literature, science, and mathematics. In 1955 they tested 38,773 seniors representing 834 high schools in 48 states, and compared these results with those obtained in 1943 by an earlier investigator. The 1943 survey yielded the results for 35,330 seniors from 814 high schools in 48 states. A comparison of the results for the two years suggests the following conclusions:

1. The level of competence, as measured by the GED, was higher in 1955 than in 1943 in a majority of the states.

2. The differences among the states on the GED tests were as great in 1955 as in 1943 with the seniors in the lowest states at a great disadvantage when compared with the seniors in the top states.

3. The differences in performance on the tests among the various states were highly related to differences in financial support and in the level of formal education of the adult population. The correlation between test scores and adult population educational level was significant in both years, but was not as high as the correlation between test scores and expenditure level (1943, r=.73; and 1955, r=.75).

4. Shifts in the rankings of the states, between 1943 and 1955, were related to the factors of expenditure and adult population education level.[69]

The Quality Measurement Project

The Quality Measurement Project of the New York State Education Department created more sophisticated methods for assessing

---

[69]Benjamin S. Bloom and Charles R. Statler, "Changes In the States on the Tests of General Educational Development from 1943 to 1955," School Review, 65:204-221, Summer, 1957.

the quality of school systems.[70, 71] Over 70,000 pupils in grades four, seven and ten representing 98 school districts were classified on the basis of educational potential. Two kinds of data were used for classifying pupils in terms of their educational potential: a pupil's socio-economic circumstances and his intelligence. The Project relied upon achievement tests as quality indices, recognizing that these measures provide only a partial estimate of the quality of any system.[72] Pupils were classified into three groups--high potential, average potential, and low potential--and mean achievement scores were computed for each of the three groups of pupils in each system.

It was found that students in the same classification achieved at considerably different levels from system to system. The ranges in difference were from one to two grade equivalents in grades four and seven, and as many as four grade equivalents in grade ten.[73]

Among the many other findings of the first Project were: expenditure is positively related to school system effectiveness even when there is control on input (I.Q. and socio-economic level). However, the relationship is not so strong as to avoid the inference

---

[70]Samuel M. Goodman, Director, The Assessment of Quality (Albany: New York State Education Department, 1959).

[71]William D. Firman et al., Procedures in School Quality Evaluation: A Second Report of the Quality Measurement Project (Albany: New York State Education Department, 1961).

[72]Goodman, op. cit., p. 7.

[73]Ibid., p. 43.

that it is judicious expenditure, not just additional expenditure, that is related to increased effectiveness.[74]

Other conclusions: excellent schools average two-thirds smaller than poor ones; they were nearly twice as wealthy; 25 per cent more was spent per pupil for instructional purposes than in the poorer ones.

A year later, the same groups of students were tested again, essentially confirming the earlier findings.[75]

Summary

1. Almost every study of the relationship between expenditure and school achievement, as measured by standardized tests, shows the relationship to be significantly positive.

2. As the level of financial support rises, the chances that children will learn more, as measured by standardized tests, also rises.

3. The relationship holds true in studies of a single county through studies involving every state in the nation.

4. Expenditure is positively related to school achievement even when other variables such as I.Q. and socio-economic status are controlled.

5. There is a strong indication that it is judicious expenditure, not just additional expenditure, that is related to increased effectiveness.

---

[74] Ibid., p. 46.

[75] Firman, op. cit., pp. 25-26.

Quality as Perceptions of Educators and Laymen

Educators and School Board Members

Rudman, in an attempt to delineate quality of educational programs, identified ninety factors which curriculum specialists and other educationists claim influence the quality of curriculums.[76]

In a study replicating part of Rudman's research, Kraft studied the perceptions of educational quality by professors of education, professors in areas other than education, and board of education members. He asked his sample, selected from four regions of the United States, to react to ninety factors judged to affect the quality of an educational program. In his study, Kraft reached these conclusions: (1) there appears to be a relationship between the group the individual is a member of and his perceptions of the factors, (2) there is agreement in each group as to the importance and relevance of the factors concerned with teaching and teaching methods, (3) there is agreement between groups in attributing less value to the outside-the-classroom category of factors, and (4) there is no relationship between the geographic region of residence and his perception of characteristics in five of the seven categories used in the study.[77]

---

[76]Herbert C. Rudman and Stanley E. Hecker, "The Determination and Measurement of Factors Which Directly or Indirectly Affect the Quality of an Educational Program" (unpublished report, Michigan State University, East Lansing, 1961), p. 5.

[77]Leonard E. Kraft, "The Perceptions Held by Professors of Education, Professors in Areas other than Education, and School Board Members on Ninety Factors Which May or May Not Affect the Quality of an Educational Program" (East Lansing: unpublished Ed. D. Thesis, Michigan State University, 1962).

Teachers and Administrators

From his research with professors of education and curriculum specialists, Rudman developed the Educational Characteristics Criterion (ECC). Berg used this instrument in a study of teachers and administrators in selected Michigan schools. His sample included 871 teachers and 82 administrators from two school districts in the high (first) quartile of each cost factor of size, ability, effort, and expenditure per pupil. The sample also included 1,091 teachers and 106 administrators from thirty-nine districts in the low (fourth) quartile of each cost factor.

Berg found that the ECC discriminated positively between high and low financial support quartiles. The study also revealed that teachers and administrators perceive quality in the same way on six of the seven categories included in the instrument.[78]

Two years later Mueller replicated Berg's study on a national basis. He found that the ECC discriminated positively between school districts in the United States having high financial support and those districts having low financial support. However, unlike Berg, Mueller found significant disagreement between teachers and administrators concerning educational quality within the high financial support quartiles and within the low financial support quartiles.[79]

---

[78]Arthur D. Berg, "The Determination of the Discrimination and Reliability Indices of the Educational Characteristics Criterion with Implications Concerning Educational Cost-Quality Relationships" (East Lansing: unpublished Ph. D. Thesis, Michigan State University, 1962).

[79]Van Dyck Mueller, "A Study of the Relationships Between Teacher-Administrator Perceptions of Educational Quality as Measured by the Educational Characteristics Criterion (ECC) and Selected Cost Factors" (East Lansing: unpublished Ed. D. Thesis, Michigan State University, 1964).

In another state-wide study, Springer set out to determine the relationship between administrator and teacher perceptions of characteristics of quality education, student achievement, and selected cost factors. The major purpose of the study was to determine the ability of the Educational Characteristics Criterion to predict school achievement independent of selected cost factors.

Springer's findings were: (1) there was a high positive correlation between administrator and teacher perceptions of characteristics of educational quality on each of the seven categories of factors identified as contributing to quality education; (2) there may be no statistically significant difference between the relationships of ECC scores and achievement when the cost factors are made independent and when they are not. Thus the ECC may be able to predict school achievement free of the influence of the combined factors of size, expenditure per pupil, millage, and state equalized valuation.[80]

Summary

1. There are factors which educators commonly agree influence the quality of educational programs.

2. There is little relationship between the geographic region of residence and the perception of the characteristics of educational quality.

3. Teachers and administrators perceive characteristics of quality of education in the same way.

---

[80]Owen Springer, "A Study of the Relationships Between the Educational Characteristics Criterion (ECC), the Stanford Achievement Test, and Selected Cost Factors" (East Lansing: unpublished Ed. D. Thesis, Michigan State University, 1964).

4. The Educational Characteristics Criterion, an instrument designed to measure the quality of educational programs, can discriminate between public schools having high financial support and those having low financial support. It may also be able to predict school achievement free from the influence of the combined cost factors of size, state equalized valuation, expenditure per pupil, and millage.

CHAPTER III

INSTRUMENTATION AND PROCEDURE

This study is undertaken to determine the relationships that exist among the perceptions of educational quality of teachers and administrators as measured by the Educational Characteristics Criterion (ECC), school achievement as measured by the Stanford Achievement Test, and the educational cost factors of size, effort, ability, and expenditure.

Instrumentation

Educational Characteristics Criterion (ECC)

The Educational Characteristics Criterion (ECC) was developed by Dr. Herbert C. Rudman of Michigan State University.[1] It is based on the assumption that the quality of an educational program ". . . resides more in the mind of the observer than it does in the actual structure of the curriculum."[2] Educational quality is determined by decisions about those educational characteristics of a school district which are thought to be important in accomplishing the objectives of public education.

Several hundred quality and quality-related factors were identified by the faculty of Michigan State's College of Education

---

[1] Rudman and Hecker, op. cit.

[2] Ibid., p. 1.

with a significantly high level of agreement prevalent on ninety educational characteristics. Rudman next asked curriculum specialists to respond to the ninety characteristics sorted out of the original group. These items represented elements which either directly or indirectly affected educational quality. From an analysis of this second phase of his study, Rudman developed the ECC.

Kraft replicated the second phase of Rudman's study in 1962.[3] He asked professors of education, professors in areas other than education, and school board members to make judgments concerning the relatedness of the ninety educational characteristics to a concept of quality. These respondents generally concurred with the judgments of the curriculum specialists in the Rudman study.

Reliability and Discrimination.--The reliability and discrimination indices of the ECC were determined in the studies of the perceptions of teachers and administrators by Berg[4] and Mueller.[5] In his study of selected Michigan school districts, Berg found that the reliability of Educational Characteristics Criterion total scores ranged from .89 to .95 according to teachers or administrators within high or low support quartiles.[6] In Mueller's study of a national sample of school districts, he found the reliability of the ECC total scores to range from .89 to .91.[7]

---

[3]Kraft, op. cit.

[4]Berg, op. cit.

[5]Mueller, op. cit.

[6]Berg, op. cit., p. 174.

[7]Mueller, op. cit., p. 179.

Item analysis tests administered by Mueller indicated that all but four individual characteristic scores had adequate positive discrimination (P=.01) with respect to total score and related category scores.[8] In Michigan, Berg found only two individual characteristic scores to lack positive discrimination power with respect to total score and related category score.[9]

Both studies concluded that the ECC can discriminate positively between school districts having high financial support and those having low financial support.

Format and Design of the Instrument.--In its present form the Educational Characteristics Criterion is made up of fifty-five items,[10] a separate sheet of Instructions for Responding to the Educational Characteristics Criterion,[11] and a Supplementary Information Form[12] of seven items to be filled out by the superintendent of the school district under study.

The instrument is of a paper and pencil type, designed for individual response. It normally takes a respondent thirty minutes to complete the ECC, though there is no established time limit. Responses are made by marking an "X" over the number which represents the degree to which the educational characteristic is perceived to be present, i.e., "Most Characteristic . . . 4"; "Somewhat

---

[8] Ibid.

[9] Berg, op. cit., p. 193.

[10] Appendix C.

[11] Appendix D.

[12] Appendix E.

Characteristic . . . 3"; "Slightly Characteristic . . . 2"; "Least Characteristic . . . 1." Teachers and building principals are directed to respond to the ECC in relationship to their building experiences. Central office administrators and supervisors are directed to indicate their perceptions of the characteristics in relationship to the school system as a whole.

Categories Within the Instrument.--The fifty-five items that comprise the ECC are distributed among seven categories in this manner:

I. Student's level of knowledge and attitudes:

8. Students show a positive attitude toward scholastic work.

9. Students evidence accurate knowledge of self.

16. Students are knowledgeable about the educational and social opportunities available to them.

51. Pupils consider an academic grade of at least "B" to be the norm for academic achievement.

52. The professional staff of the schools in the community consider an academic grade of at least "B" to be the norm for academic achievement.

54. Parents and patrons in the community consider an academic grade of at least "B" to be the norm for academic achievement.

II. Community attitudes:

21. Parents and patrons (those residents of a school district without school-age children) are highly knowledgeable about education.

28. The perceptions of parents and patrons concerning the purposes of education are consistent and clear.
29. The local newspaper has shown a high interest in local school affairs.
30. There is no lag between the values taught in the school and what is practiced in the community.
36. A high percentage of the electorate in the community vote in school elections.
37. There are outstanding community leaders in this community who exhibit great interest in school affairs.
39. The community exhibits a great concern for the development of aesthetic and artistic interests.
40. A two-way communication channel readily exists between the home and the school.
45. The parents in this community expect their children to perform their share of family chores.
53. A high value is placed on education by the parents and patrons (those residents of a school district without school-age children) of the community.
55. Parents condone or encourage early dating for their children.

III. Curriculum:

4. Teachers perceive a coherent and coordinated structure to the educational program.
5. Concensus exists among the staff concerning the goals of the educational program.
6. A structure has been developed that permits continual

curriculum improvement.

15. A great variety of instructional materials are presently used in the classrooms.

17. A complete comprehensive testing program including intelligence and achievement testing is available in the schools.

IV. Use of facilities:

32. The physical facilities of the school system (buildings and equipment) are completely adequate.

V. Socio-cultural composition of the community:

25. The social status of teachers is very high in this community.

34. Cultural experiences are readily available in the community.

38. This is a highly stable community which does not have too many people leaving.

41. A high percentage of high school students own personal cars.

42. A high percentage of homes own television sets.

44. A high degree of ethnic, racial and religious homogeneity exists among the local population.

46. This community is composed of people who are predominantly Protestant.

47. This community is composed of people who are predominantly Catholic.

48. This community is composed of people who are predominantly Jewish.

49. The population of this community is equally divided between Protestants and Catholics.

50. One or two ethnic groups comprise the largest number of residents in the community.

VI. Administration and supervision:

10. Professional staff of the school system are involved in in-service education.

22. Lay members of the community are highly involved in the planning of educational goals with the school staff.

23. Regulations governing student conduct are highly explicit and detailed.

26. Regulations governing personnel policies are highly explicit and detailed.

35. Teachers' judgments are almost always used in the determination of educational policies.

VII. Teacher and teaching methods:

1. Teachers have intimate knowledge of children.

2. Teaching practices reflect concern for individual differences.

3. Teaching practices reflect a knowledge of individual differences.

7. Evidence exists of instructional and/or curricular experimentation.

11. Teachers thoroughly understand the information gathered on students and use this information to make sound educational decisions.

12. All teachers are certified to teach at the grade level or subject they are now teaching.
13. Teachers have complete freedom to teach what they consider to be important.
14. A great variety of instructional techniques are presently used in the classrooms.
18. Teachers often avail themselves of professional help.
19. Complete freedom is granted to students to investigate any local, state, national or international issue.
20. Availability to students of materials that reflect all shades of political and sociological points of view.
24. High degree of teacher participation in social and political activities of the community.
31. There exists a high level of cooperation among the teachers of the staff.
33. The community and its residents are used for instructional purposes.
43. A great deal of homework is assigned to students.

Scoring.--Total ECC scores are obtained by the sum of the weighted responses to each item. Weightings are determined by the degree to which each characteristic is judged to be present in a given situation (4, 3, 2, 1). Category scores are obtained by the sum of the individual educational characteristic scores included in each of the seven categories.

The Stanford Achievement Test

In The Sixth Mental Measurements Yearbook, it stated that

" . . . (the reviewer) would rate the 1964 edition of the Stanford Achievement Test high among standardized achievement test batteries designed for use at the elementary school level. The new edition is in many ways superior to its predecessors and some ways to its current competitors. . . ."[13]

The present edition, the fifth, is the latest in a series of Stanford Achievement Tests, dating back to 1923, making it the oldest achievement test on the market.

Standardization.--The results of any test yield very little meaning until they are compared to some reference group. Scores on the 1964 Stanford may be translated into grade equivelents, percentile ranks, or stanines, and these may then be compared to the norms determined by the scores made by the national sample of pupils tested in the standardization program.

The 1964 Stanford standardization sample consists of over 850,000 pupils from 264 school districts representing all fifty states. The norms are based on the total enrollment of all regular classes in the sample except for 1-2% of the pupils who were judged to be extremely atypical as to age.

Care was taken to include public schools (integrated, segregated white and segregated colored), private sectarian, and private non-sectarian in the sample. Size and geographic location were considered along with family income and number of years of schooling of the adult members of the family from which the students

---

[13]Oscar Kristen Buros, ed., The Sixth Mental Measurement Yearbook (Highland Park, New Jersey: The Gryphon Press, 1966), pp. 123-124.

being tested came.[14]

Validity.--The validity of a test depends upon the faithfulness with which it measures whatever it purports to measure, i.e., in the case of the 1964 Stanford Achievement Test, "The extent to which the content of the text constitutes a representative sample of the skills and knowledge which are the goals of instruction. . . .

The Stanford authors sought to insure content validity by examining appropriate courses of study and textbooks as a basis for determining the skills, knowledges, understandings, etc., to be measured."[15]

The validity of a test also depends directly upon the care with which each item in the test has been chosen. In the Stanford item analysis program, experimental editions of the test were administered to approximately 49,000 pupils in 19 school districts. Each of the approximately 15,000 questions used in the experimental edition was analyzed to determine item validity.[16]

Reliability.--The reliability of a test depends upon the consistency with which it gauges the abilities of those to whom it has been applied. When a test is reliable, scores made by the members of a group, upon retest with the same or with an alternate form of the test, will differ very little or not at all from their original values.

---

[14]Truman L. Kelley, et al., Stanford Achievement Test, Directions for Administering (New York: Harcourt, Brace and World, Inc., 1964), p. 27.

[15]Ibid., p. 25.

[16]Ibid., p. 26.

In the 1964 edition of the Stanford, odd-even split-half reliability coefficients corrected by the Spearman-Brown Prophecy Formula and the Kuder-Richardson reliability coefficients are used. Each of these is based upon a randomly drawn sample of 1,000 cases from each grade. These are presented in the Directions for Administering along with the standard error of the measurement in terms of grade scores.[17] For the sixth grade (the grade used in the present study), the split-half coefficients range from .85 (arithmetic concepts) to .95 (language). The Kuder-Richardson Formula coefficients range from .87 (arithmetic concepts and arithmetic computations) to .93 (language).

Subtests.--The 1964 edition of the Stanford Achievement Test Intermediate II Battery (used in this study) consists of nine subtests: Word Meaning; Paragraph Meaning; Spelling; Language; Arithmetic Computations; Arithmetic Concepts; Arithmetic Applications; Social Studies; and Science.

Procedure

Harcourt, Brace, and World, Inc., publishers of the Stanford Achievement Test, were asked to submit a list of those school districts in the United States who at that time were using the test. The company submitted a list of the post offices to which test results had been mailed after being corrected by the company in 1965. From this list a random sample of 240 was selected and a letter was written to the "Superintendent of Schools, Elementary School District"

---

[17] Ibid., p. 24.

inviting his district to participate in the study.[18] Along with the letter, which included a brief description of the study, each superintendent was sent a Preliminary Information Sheet,[19] requesting information concerning the number of teachers and administrators in the district and detailed cost data for the 1965-1966 school year. Affirmative replies and preliminary information were received from 42 superintendents, representing school districts in 18 states.

An analysis of the grades tested in the 42 school districts revealed grade six to be the most common, so it was decided that it should be the grade used in the study.

Classification of School Districts on the Basis of Cost Factors

Previous research in which the interrelationships of educational cost factors were to be determined, has deemed it advisable to consider them as a group. It was assumed that of the four factors, two would present little difficulty in obtaining precise comparable data. Size is defined as the average daily school membership of a school district, and expenditure per pupil is defined as the total current operating expense, excluding capital outlay and debt service, divided by the average daily membership.

The data for the factors of effort (mill rate) and ability (property valuation) are certainly less precise than the two previously mentioned factors. Since the assessment of property for tax purposes lacks a uniform, equitable, or objective basis in the fifty

---

[18] Appendix A.

[19] Appendix B.

states for comparison purposes, the following procedure was used:

Ability was computed by defining taxable valuation as the final appraisal of the worth of real and personal properties for tax purposes. The assessment ratio (assessed value divided by estimated market value) was applied to the final appraised value to determine the figures used in ranking the districts.[20]

Effort--the fluctuation in mill rate due to wide differences in final appraisal of property was adjusted by applying the same assessment ratio. While assessment practices vary within any given state, it was decided that the ratios used were the most accurate and recent figures available for the purpose desired.

Tables 1-4 show the distribution of the 42 school districts as they were classified by quartiles.

TABLE 1.--Ability (property valuation per pupil) of 42 school districts

Quartile	Property Valuation Per Pupil (Dollars)
Quartile 4	47,437 - 62,000
Quartile 3	27,800 - 38,708
Quartile 2	16,286 - 27,000
Quartile 1	922 - 15,714

TABLE 2.--Size (average daily membership) of 42 school districts

Quartile	ADM
Quartile 4	11,809 - 104,424
Quartile 3	5,611 - 9,500
Quartile 2	3,048 - 5,450
Quartile 1	225 - 2,795

[20]Obtained from U.S. Department of Commerce, Bureau of Census, Taxable Property Values (Washington, D. C.: U.S. Government Printing Office, 1963), p. 94.

TABLE 3.--Effort (mills levied for operation) of 42 school districts

Quartile	Millage
Quartile 4	46.74 - 97.20
Quartile 3	39.00 - 46.00
Quartile 2	23.17 - 36.90
Quartile 1	10.59 - 21.60

TABLE 4.--Expenditure per pupil of 42 school districts

Quartile	Expenditure Per Pupil (Dollars)
Quartile 4	723 - 948
Quartile 3	539 - 666
Quartile 2	450 - 534
Quartile 1	174 - 449

Selection of the Sample

The final selection of the sample was dictated by two factors: (1) the necessity that school districts included administered the Stanford Achievement Test at the sixth grade level, and (2) the need for an adequate and somewhat equal number of respondents, both teacher and administrator, in each of the four quartiles of cost factors. On the basis of these criteria, 28 school districts were selected to participate in the study.

Fourth (High) Quartile.--Four school districts were selected at random from among those districts in the fourth quartile. Geographically, two districts are located on the East Coast, one on the West Coast, and the other in a North Central state. There were 821 teachers and 62 administrators in the sample based upon 100% sampling in the four districts.

Third Quartile.--Nine school districts comprised the third quartile of cost factors, with a total of 562 teachers and 44 administrators. Geographically, two districts are located in Eastern states, two in the Midwest, and the other five in the North Central region of the United States.

Second Quartile.--Eight school districts comprised the second quartile. Geographically, one is situated in New England, one in the Southwest, one on the Pacific Coast, two in Eastern states, and three in the North Central section of the country. This quartile totals 1098 teachers and 88 administrators based upon 100% sampling in the districts.

First (Low) Quartile.--Seven school districts, representing 734 teachers and 51 administrators, were selected to make up the first quartile. Three school districts are located in the North Central part of the country, three in the Deep South, and one in a Southwestern state.

A total of 3,215 teacher respondents and 245 administrator respondents, representing 28 school districts in 16 states, made up the sample for this study. Not all districts were ranked in the same quartile on all four cost factors; however, each ranked in the quartile it represented in the study on expenditure per pupil which was judged to be the most important cost factor. It was so judged because the amount of money spent on each child is a result of the other three cost factors.

Mailing Procedure

On February 22, 1966, a letter, describing the study, was mailed to the superintendents of 240 school districts inviting

them to participate in the study. Included with the letter was a Preliminary Information Sheet requesting financial information about the district, the number of teachers and administrators employed in the district, and the grade levels at which the Stanford Achievement Test is used.

On April 21, 1966, a package was mailed to the superintendent of each participating school district. The package contained enough ECCs for each teacher and administrator, General Instructions for Administration and Mailing of the Educational Characteristics Criterion,[21] the Supplementary Information Sheet, and an envelope containing labels addressed for the return of all material.

A personal letter was also sent to each superintendent containing additional information and postage for the return of the material.[22]

The superintendents were requested to have all ECCs returned to his office within 48 hours from the time of their distribution. It was hoped that the 48 hour time limit would result in better individual perceptions that would be less influenced by group discussion.[23]

Cooperation in the study was much less than had been desired. Two school districts failed to return any material and

---

[21]Appendix F.

[22]Appendix G.

[23]See Appendix F for complete mailing and administrative instructions.

were never heard from after the initial indication that they would participate in the study. Follow-up letters failed to stimulate any response on their part.

One superintendent telephoned to say that he had not had time to distribute the ECCs, but that he was doing it immediately and that he would send them within a week. He failed to do so.

The Stanford Achievement Test results arrived from one school district as requested in the cover letter to the superintendent of schools. An accompanying letter stated that the ECCs had been misplaced and that if we would send duplicate material, it would be completed and returned immediately. The ECCs were returned but the percentage of response was too low to be used in the study. Apparently school had been dismissed for the summer, and the responses represented only those teachers who were still working in the buildings.

Five school districts returned ECCs in the manner prescribed, but failed to enclose the Stanford Achievement Test scores. Repeated follow-up letters failed to achieve any results. Evidently these school districts were either unable or unwilling to supply their test results.

Complete data was received from 19 school districts in 11 states. Usable teacher responses totaled 1486, and usable administrator responses numbered 131.

Table 5 displays the number and percentage of responses received from the 19 school districts.

TABLE 5.--Number and percentage of responses

School	Teachers		Administrators		Combined	
	Number	Percentage of Potential	Number	Percentage of Potential	Number	Percentage of Potential
1	27	80	3	100	30	81
2	63	93	5	100	68	93
3	159	74	11	55	170	72
4	42	81	2	67	44	80
5	10	100	2	100	12	100
6	227	86	17	71	244	75
7	41	87	4	100	45	89
8	41	46	6	100	47	50
9	17	71	4	100	21	80
10	53	61	5	62	58	61
11	33	89	3	100	36	90
12	365	91	35	100	400	91
13	20	48	4	80	24	51
14	124	60	11	79	135	61
15	22	51	1	50	23	51
16	9	69	1	33	10	62
17	30	69	3	100	33	71
18	41	83	6	86	47	84
19	162	62	8	57	170	62
Total Number and Percentage of Potential	1486	73	131	81	617	74

Treatment of the Data

Stanford Achievement Test

Since all of the schools did not test at the same time, it was necessary to account for this variation in order that meaningful comparisons could be made. The grade placement at the time of testing ranged from 6.1 (September 15-October 15) to 6.8 (April 15-May 15).

The mean score for each of the nine subtests was determined for each school district, and from this, a total battery mean achievement score. For those school districts whose grade placement at the time of testing was 6.8, this figure represented the achievement variable used in the study. For those districts that tested prior to 6.8, the following procedure was used:

The total battery mean achievement score was divided by the grade placement at the time of testing to determine the mean gain for ten months. This figure was divided by ten to determine the gain for one month. The difference between 6.8 and the grade placement at the time of testing was found and multiplied by the mean gain per month. This amount was added to the total battery mean achievement score and was considered the achievement variable for the study.

Educational Characteristics Criterion Scores

The ECCs were marked with a school system code number and were turned over to the Michigan State University Computer Laboratory for processing. The scores of all respondents were punched into data processing cards and administrator, teacher, and combined

scores were ascertained for each of the seven categories plus the total scores.

The ECC scores, the Stanford Achievement Test scores and the four cost factors of size, ability, effort, and expenditure were punched into data processing cards and became the variables used in the computations.

Statistical Methodology

All statistical computations were performed on the Control Data Corporation (CDC) 3600 computer. Pearson product-moment correlations were computed to determine the relationships that exist between the variables as called for in Hypotheses I and II. For Hypothesis III, the partial correlation technique was used to control the cost factors so that the relationship between the ECC scores and the Stanford Achievement Test results could be ascertained independent of the cost factors.

The obtained correlation coefficients were tested at the .10 level of significance, which seemed reasonable in view of the small sample. The degrees of freedom used were N-2 (17) for the correlation coefficients calculated for Hypotheses I and II. For Hypothesis III, the degrees of freedom used in determining significance were N-6 (13), one degree of freedom being lost for each variable entering into the partial correlation.

Summary

Educational cost factors of size of school district, millage, state equalized valuation, and expenditure per child were secured from the superintendents of 42 public school districts in

18 states. The districts were classified by quartiles according to the four cost factors. A sample of 28 school districts were chosen; however, data, complete enough to be used in the study, was received from only 19 school districts in 11 states.

The 1486 teachers and 131 administrators used in the study responded to the Educational Characteristics Criterion (ECC). This instrument is designed to measure the quality of education in terms of the perceptions of those people who observe its process--in this study, teachers and administrators. The other variables--achievement, as measured by the Stanford Achievement Test, and the aforementioned cost factors--were voluntarily submitted by the superintendents of the participating schools.

The data was scored, coded, and prepared for computations on the Control Data Corporation (CDC) 3600 computer. Pearson product-moment correlations were secured to ascertain the relationships between the variables, and the partial correlation technique was used to determine the relationship between perceptions of quality and school achievement independent of the effect of the cost variables.

CHAPTER IV

ANALYSIS OF THE DATA

A ten per cent level of significance has been chosen as the basis for accepting or rejecting each of the hypotheses advanced in this study. Inasmuch as all correlations have been hypothesized to be positive, a one-tailed test of significance has been used.

The degrees of freedom used in determining the significance of the product moment correlations calculated for Hypotheses I and II are 17 (N-2). The degrees of freedom used in determining the significance of a partial correlation are N-m, where m is the number of variables entering into the partial correlations. Thus, when the four cost factors are controlled as is called for in Hypothesis III, 13 degrees of freedom (N-6) are used.

At the ten per cent level of significance, a correlation of .30 is necessary to allow the acceptance of the correlations calculated for Hypotheses I and II. The significance level of the partial correlations for 13 degrees of freedom is .35.

Other significant correlations pertinent to the data being analyzed in this study are displayed in Table 6.

The variables used in calculating the correlation coefficients are shown in Table 7. In reading this table, note that the

mean achievement score for each of the 19 schools is displayed on page 74 along with the cost variables and the quality scores for Categories I, II, and III. Page 75 shows the quality scores for Categories IV through VII and the total quality scores. For example, column 1-A gives the administrator quality score for Category I, 1-T gives the teacher quality score for Category I, 1-C gives the combined quality score for Category I, and so on. Other characteristics of the participating districts not used in the calculations may be found in Appendix H.

TABLE 6.--Values of the correlation coefficients for different levels of significance

df	p=.10	.05	.025	.01	.005
17	.308	.389	.456	.528	.575
16	.317	.400	.468	.542	.590
13	.350	.441	.514	.592	.641

Hypothesis I

There is a positive relationship between administrator and teacher perceptions of characteristics of quality education as measured by the Educational Characteristics Criterion.

The correlation coefficients determined for Hypothesis I are displayed in Table 8. There is a significant positive correlation (.47) between administrator-respondent scores and teacher-respondent scores as measured by the ECC total quality scores (TQS). Thus, the hypothesis can be accepted and it can be safely stated that in general, teachers and administrators do perceive characteristics of quality education in the same way. But to be more

TABLE 7.--The variables used in calculations

Sch	Ach	Size	Exp/Pl	Mill	SEV	1-A	1-T	1-C	2-A	2-T	2-T	3-A	3-T	3-C
1	7.7	532	540	9.2	51373	16.3	15.5	15.6	25.0	28.5	28.1	14.3	15.1	15.1
2	7.7	1495	459	9.1	39887	14.0	15.8	15.7	26.6	26.9	26.9	14.6	15.6	15.5
3	7.6	4489	740	6.1	115700	19.2	16.9	17.0	32.5	30.0	30.2	15.6	16.2	16.1
4	7.5	909	723	14.6	11423	16.5	15.8	15.8	26.5	25.8	25.8	18.5	15.7	15.8
5	7.4	225	372	5.3	58009	13.0	14.1	13.9	22.0	22.0	22.0	17.5	15.8	16.1
6	7.4	5450	745	22.1	105859	16.9	15.3	15.4	29 2	27.3	27.5	17.2	14.8	14.9
7	7.1	700	666	2.3	78570	16.3	16.7	16.6	29.5	28.5	28.6	17.3	15.5	15.6
8	7.1	1622	644	16.9	11534	18.8	15.5	15.9	31.5	28.5	28.9	17.7	14.5	14.9
9	6.9	400	581	7.2	68797	15.8	13.4	13.8	25.8	24.2	24.5	14.8	12.4	12.8
10	6.8	2192	433	8.6	31282	15.2	15.0	15.0	28.8	26.8	26.9	15.6	16.0	15.9
11	6.8	696	554	8.3	63739	14.3	16.1	15.9	28.0	28.1	28.1	14.0	14.3	14.3
12	6.7	11809	449	19.2	44110	14.7	14.8	14.8	28.7	27.2	27.3	16.3	16.5	16.5
13	6.1	880	514	3.3	78911	15.3	16.8	16.5	26.5	28.5	28.2	15.3	16.1	16.0
14	5.6	5611	246	3.6	27846	15.7	14.9	14.9	25.6	24.9	25.0	16.2	15.0	15.1
15	7.0	1037	388	5.2	35000	16.0	16.1	16.1	26.0	27.3	27.3	14.0	15.5	15.4
16	6.8	243	179	2.6	22000	16.0	15.7	15.7	30.0	27.2	27.5	14.0	16.2	16.0
17	7.5	891	534	11.2	33068	17.0	15.1	15.3	29.3	25.5	25.8	16.7	14.2	14.4
18	7.1	750	622	7.2	65853	15.0	15.2	15.2	24.8	24.5	24.6	14.2	14.4	14.4
19	7 4	4900	948	27.2	73751	16.3	15.5	15.6	25.5	25.6	25.6	15.8	14.6	14.7

TABLE 7.--The variables used in calculations (continued)

Sch	4-A	4-T	4-C	5-A	5-T	5-C	6-A	6-T	6-C	7-A	7-T	7-C	Tot-A	Tot-T	Tot-C
1	3.0	2.4	2.4	25.7	25.9	25.9	15.0	15.7	15.6	43.3	44.3	44.2	142.7	147.4	146.9
2	1.6	1.9	1.9	24.8	26.1	26.0	15.0	15.2	15.1	44.6	42.5	42.6	141.2	143.9	143.7
3	3.7	3.4	3.4	29.5	27.7	27.8	19.3	16.5	16.7	47.4	47.1	47.1	167.2	157.7	158.3
4	3.0	2.8	2.8	26.5	25.6	25.6	18.0	15.7	15.8	47.0	44.9	45.0	156.0	146.2	146.6
5	1.5	1.2	1.3	24.0	23.1	23.3	12.0	12.0	12.0	47.0	38.9	40.3	137.0	127.1	128.8
6	1.8	1.9	1.9	26.9	25.9	26.0	17.1	14.7	14.9	46.1	43.2	43.4	155.2	143.2	144.0
7	3.3	3.0	3.0	27.5	26.4	26.5	15.3	14.4	14.5	46.8	44.6	44.8	155.8	149.0	149.6
8	3.8	3.0	3.1	29.7	26.4	26.9	16.2	14.2	14.5	49.5	42.4	43.3	167.2	144.6	147.4
9	2.5	2.6	2.6	25.3	23.5	23.9	14.8	12.5	13.0	44.0	38.6	39.6	142.8	127.2	130.1
10	2.4	2.6	2.6	27.4	26.4	26.5	16.4	15.1	15.2	45.8	43.6	43.8	151.6	145.5	146.1
11	2.7	2.6	2.6	28.3	28.0	28.0	14.7	14.5	14.5	40.3	41.8	41.7	142.3	145.3	145.1
12	2.7	2.9	2.9	26.1	26.1	26.1	16.0	15.5	15.5	45.0	45.4	45.3	149.5	148.3	148.4
13	2.5	2.3	2.4	25.5	26.6	26.4	13.0	16.1	15.6	40.0	43.8	43.2	138.0	150.4	148.3
14	1.6	1.7	1.7	24.8	24.8	24.8	13.6	13.5	13.5	44.7	41.4	41.7	142.4	136.4	136.9
15	2.0	2.3	2.3	28.0	26.9	27.0	14.0	14.2	14.2	41.0	43.4	43.3	141.0	145.7	145.5
16	3.0	2.8	2.8	27.0	27.2	27.2	14.0	14.1	14.1	44.0	46.6	46.3	148.0	149.8	149.6
17	3.3	2.7	2.8	27.3	25.6	25.8	17.7	13.7	14.1	46.7	41.1	41.6	158.0	137.9	139.7
18	1.7	1.7	1.7	25.2	24.4	24.5	13.3	13.8	13.7	40.5	40.7	40.7	134.7	134.8	134.8
19	3.3	2.8	2.8	22.9	24.7	24.6	15.1	14.2	14.2	44.8	42.3	42.4	143.5	139.7	139.9

TABLE 8.--Correlation coefficients between teacher and administrator category quality scores (CQS) and total quality scores (TQS)

The relationship between	Teacher scores and Administrator scores	Combined TQS and Combined CQS		$\bar{X}$	s
Category I			Administrator	15.9	1.5
Student's level of knowledge and attitudes	.35	.83	Teacher	15.5	.8
			Combined	15.5	.8
Category II			Administrator	27.4	2.5
Community attitudes	.71	.92	Teacher	26.7	1.9
			Combined	26.7	1.9
Category III			Administrator	15.7	1.4
Curriculum	.11	.55	Teacher	15.1	.9
			Combined	15.2	.9
Category IV			Administrator	2.6	.7
Use of facilities	.91	.68	Teacher	2.5	.6
			Combined	2.5	.6
Category V			Administrator	26.4	1.8
Socio-cultural composition of the community	.73	.87	Teacher	25.8	1.3
			Combined	25.9	1.3
Category VI			Administrator	15.2	1.8
Administration and supervision	.50	.86	Teacher	14.5	1.2
			Combined	14.5	1.0
Category VII			Administrator	44.6	2.6
Teacher and teaching methods	.11	.91	Teacher	42.9	2.3
			Combined	43.1	2.0
Total Score	.47		Administrator	148.1	9 6
			Teacher	143.1	7.7
			Combined	143.6	7.1

specific, in this study certain characteristics of educational quality were viewed very similarly by teachers and administrators, while other characteristics were obviously perceived from quite different points of view.

Of the seven categories of the ECC, the characteristics represented by five were perceived in the same way by teachers and administrators as evidenced by their significant and positive correlations. They are: Category I (Student's level of knowledge and attitudes) .35; Category II (Community attitudes) .71; Category IV (Use of facilities) .91; Category V (Socio-cultural composition of the community) .73; Category VI (Administration and supervision) .50.

A very low correlation was found to exist between the perceptions of teachers and those of administrators on Category III (Curriculum) .11, and Category VII (Teacher and teaching methods) .11.

Careful analysis of the characteristics that make up the seven categories (pp. 54-58) indicates that the highest correlation between the perceptions of teachers and administrators, is found on those categories represented by factors which can be seen as a whole by teachers. The educational characteristics that make up Categories III and VII are, for the most part, those which the teacher would have little opportunity to know the extent of their existence outside of the classroom. It seems logical to assume, for example, that a sixth grade teacher might have little knowledge of what takes place in the kindergarten room of the same building. It follows, also, that this teacher might have even less knowledge

of the extent to which characteristics of educational quality exist in classrooms at the high school level. Administrators, through classroom visitations and other aspects of their job, perceive the extent to which these characteristics exist from a much broader viewpoint.

Another possible explanation for the low correlation between the perceptions of administrators and teachers of these two categories could be that they are not interpreting the characteristics in the same way. For example, the word "curriculum" might mean one thing to an administrator and an entirely different thing to a teacher.

On characteristics pertaining to the community and its people, knowledge of their presence might well come from participation in affairs outside of school and could account for the higher relationships that exist between the perceptions of teachers and those of administrators on Categories I (.35), II (.71), and V (.73). Even here, however, Category I (Student's level of knowledge and attitudes) shows a low, even though significant correlation (.35), and this may be because the teacher's perceptions are limited to students in her own classroom.

Categories IV (Use of facilities) .91, and VI (Administration and supervision) .50, are made up of characteristics of quality education that are easily observable and are both significant and positive.

Table 8 also illustrates the relationship between the total quality score of teachers and administrators (combined TQS) and each combined category score (combined CQS). Although it has no

direct implications for the present study, it is interesting to note that there is a significant positive correlation between each combined category quality score and the combined total quality score.

Summary

It can be stated with a relatively high degree of assurance that, in general, teachers and administrators do perceive the characteristics of quality education in the same way. There are certain characteristics, however, upon which there is little agreement. These characteristics fall into the categories of curriculum and the teacher and teaching methods. The reason for this lack of agreement may be because teachers see these characteristics of quality education only from the point of view of their classrooms, while administrators perceive the same characteristics from a much broader point of view. It may simply be, however, that they are interpreting the characteristics differently.

In the other categories of quality education that make up the Educational Characteristics Criterion, there is significant agreement between the way teachers view these characteristics and the way they are viewed by administrators. The most significant areas of agreement are those relating to the community and the adequacy of educational facilities.

Hypothesis II

> There are positive relationships among administrator and teacher perceptions of characteristics of quality education as measured by the Educational Characteristics Criterion, student achievement, and the cost variables.

ECC Scores and Achievement

Table 9 displays the correlation coefficients that were calculated to determine the relationships between school achievement and the ECC scores of administrators, of teachers, and their combined ECC scores.

TABLE 9.--Correlation coefficients between ECC and school mean achievement scores

	Administrator	Teacher	Combined
Category I - Student's level of knowledge and attitudes	.21	.06	.12
Category II - Community attitudes	.06	.05	.05
Category III - Curriculum	.13	-.06	-.04
Category IV - Use of facilities	25	.13	.14
Category V - Socio-cultural composition of the community	.08	-.03	.00
Category VI - Administration and supervision	.45*	.11	.19
Category VII - Teacher and teaching methods	.36*	.07	.14
Total	.29	.05	.09

*Statistically Significant

The relationship between school achievement and the combined total quality score of teachers and administrators, though positive, is far from significant. This causes a rejection of the hypothesis that there is a positive relationship between these two variables.

There are no significant relationships found to exist between achievement and teacher ECC scores--neither the total score nor any one of the category scores. No significant relationships are found

between achievement and combined ECC scores. This finding is not surprising, however, in light of the relationship between teacher scores and achievement, since teacher scores comprise 92% of the total scores that make up the combined score. This is illustrated by the nearness of the correlations of teacher and combined scores on each category and the total score.

The relationship between achievement and administrator total quality score (.29) is almost significant--.30 necessary for significance--and makes one cautious in rejecting the notion that the perceptions of administrators are not good predictors of school achievement. This is especially true in light of previous research in which there was a significant relationship between the perceptions of administrators and school achievement.[1]

An examination of the categories reveals that in each one the perceptions of administrators are more closely related to achievement than are the perceptions of teachers or the combined perceptions. As was indicated in the previous section, this is probably due to the fact that the administrator's position allows him to perceive a more comprehensive picture of the characteristics that comprise a quality program than the teacher's position allows.

The highest relationships between achievement and the perceptions of administrators are in Category VI (Administration and supervision) .45, and Category VII (Teacher and teaching methods) .36. Both are positive and significant. The lowest relationships are with Category II (Community attitudes) .06, and with Category V (Socio-cultural composition of the community) .08. This

---

[1]Springer, op. cit., p. 79.

seems to give an indication that administrator perceptions of the existence of those characteristics of quality education most closely associated with the teaching process might be a good measure of student achievement, while their perceptions of the existence of community characteristics associated with educational quality bear little relationship to student achievement. The relationships of the other categories to achievement while not significant are correlated higher than the community characteristics, and are all more closely associated with the teaching process.

Cost Factors and Achievement

The relationships among the cost factors, achievement, and ECC combined TQS are found in Table 10.

TABLE 10.--Correlation coefficients among ECC TQS, school achievement and cost factors

Variables	Adm. TQS	Teach. TQS	Combined TQS	Ach.	Size	SEV	Mills Levied
Administrator TQS							
Teacher TQS	.47*	.					
Combined TQS	.58*	.99*					
Achievement	.29	.05	.09				
Size	.19	.19	.20	-.21			
SEV	.00	.12	.10	.16	.16		
Mills	.26	-.03	.00	.34*	.53*	.05	
Expenditure	.35*	.10	.13	.50*	.10	.50*	.63*

*Statistically Significant

P=.10(.308) P=.05(.389) P=.025(.456) P=.01(.528) P=.005(.575)

The high positive relationship between expenditure per child and achievement (.50) reinforces the long held notion that the more money spent for education, the better its quality will be. There is also a significant relationship between achievement and the number of mills levied (.34). This is not a surprising finding, in that to have high expenditure, it is necessary for the people of the district to tax themselves.

The low relationship (.16) between property valuation and achievement points out the fact that having the ability to support education in a quality manner is not enough. The people of the school district must be willing to make an effort to have a quality program by taxing the available resources in their community.

The negative correlation between size and achievement (-.21) indicates a trend toward an inverse relationship between these two variables among the schools in this study. This causes a rejection of the hypothesis, and supports the findings of Firman who concluded " . . . the excellent schools were smaller than the poor ones, two-thirds as large."[2]

The relationships between expenditure and property valuation (.50) and expenditure and mills (.63) is as one might expect since high expenditure is a result of some combination of the other two variables. The low correlation between property valuation and mills (.05) can be explained by the fact that low property valuation necessitates high millage in order to have quality education.

---

[2]Firman, "The Relationship of Cost to Quality in Education," p. 18.

Similarly, those districts fortunate enough to have high property valuation do not have to tax themselves as highly as some other districts in order to finance a quality program.

ECC Scores and Cost Factors

The relationships between the ECC combined total quality score and size (.20), SEV (.10), and expenditure (.13) are all positive but not significant. There is no relationship between the TQS combined score and millage rate (.00). Thus, the hypotheses that there are positive relationships between administrator and teacher total quality scores (TQS) as measured by the ECC and the four cost variables of size, millage, SEV, and expenditure must be rejected. Likewise, there is no significant relationship between any of the four cost factors and teacher total quality score.

There is no positive significant relationship between administrator TQS and size (20), millage rate (.26), or SEV (.00). There is, however, a significantly positive relationship between administrator perceptions of characteristics of quality education and expenditure per pupil (.35). This is an interesting finding, since, as has been cited so many times previously, the relationship between the amount of money spent on education and educational quality, no matter how it is defined is always positive. It may be that administrator perceptions of the degree to which characteristics of quality education exist in his school district may also be an accurate measure of educational quality.

Summary

The relationship between school achievement and the total quality score of administrators and teachers combined, though positive, is not significant. Thus the hypothesis that there is a positive correlation between these two variables is rejected. There is, likewise, no significant relationship between achievement and any one of the combined category scores. There is no significant relationship between achievement and any teacher ECC score, either total or any one of the seven categories of educational characteristics. Although the relationship between administrator total score and achievement is not significant, it approaches significance. This finding plus positive significant relationships between two of the administrator category quality scores and achievement, lends promise to administrator ECC scores as predictors of school achievement.

There is a significant positive correlation between achievement and expenditure per pupil, and this hypothesis is accepted. Likewise, the relationship between achievement and millage rate is positive and significant. These significant correlations reinforce the long held idea that the more money spent for education, the higher its quality will be.

The positive but non-significant correlation between achievement and state equalized valuation causes rejection of the hypothesis that there would be a positive correlation between these two variables. The negative, though non-significant, relationship between size of school district and achievement causes rejection of the hypothesis that there would be a positive relationship between

achievement and size. It appears as though there may be an inverse relationship existing between achievement and the size of the school district.

The correlations between the combined teacher-administrator total quality score and the four cost factors of size, SEV, millage rate, and expenditure per pupil are all non-significant. This causes rejection of the hypotheses that there would be positive relationships between the combined TQS score and each one of the cost factors.

An interesting relationship exists between the administrator total quality score and expenditure per pupil. The correlation is positive and significant. Inasmuch as expenditure per pupil is generally recognized as a measure of quality education, it appears as though the perceptions of administrators concerning the existence of characteristics of quality education in their district may also hold promise as an accurate measure of quality education.

Hypothesis III

> There is a positive relationship between administrator and teacher perceptions of characteristics of quality education as measured by the Educational Characteristics Criterion and student achievement independent of the cost variables.

The partial correlation coefficients computed between administrator, teacher, and combined ECC scores and achievement, independent of the cost variables, are displayed in Table 11. For comparison purposes, the product moment correlation coefficients between achievement and the ECC scores are also shown.

Significant positive partial correlations are found to exist between achievement and administrator Category VI (Administration and supervision) .48; between achievement and administrator

TABLE 11.--Correlation coefficients between ECC scores and achievement scores, and partial correlation coefficients between ECC scores and achievement test scores independent of the cost factors.

Category	Administrator		Teacher		Combined	
	r	partial r	r	partial r	r	partial r
Category I Student's level of knowledge and attitudes	.21	.07	.06	.04	.12	.06
Category II Community attitudes	.06	.13	.05	.08	.05	.09
Category III Curriculum	.13	.03	-.06	.33	-.04	.35*
Category IV Use of facilities	.25	.11	.13	.09	.14	.11
Category V Socio-cultural composition of the community	.08	.16	-.03	.08	.00	.09
Category VI Administration and supervision	.45*	.48*	.11	.18	.19	.27
Category VII Teacher and teaching methods	.36*	.41*	.07	.30	.14	.38*
Total	.29	.30	.05	.20	.09	.24

*Statistically Significant P=.10(.35) P=.05(.441)

Category VII (Teacher and teaching methods) .41; between achievement and combined Category VII (Teacher and teaching methods) .38; and between achievement and combined Category III (Curriculum) .35. The hypotheses that there are positive relationships between these category quality scores and achievement, independent of the cost factors, are accepted.

Although there are positive relationships between achievement and the total quality scores (administrator, teacher and combined) and between achievement and the remaining category scores, none are significant and must be rejected.

The general effect of the partial correlation technique, as used here, is to neutralize the influence of the cost factors on achievement and the ECC scores. Such a partial coefficient represents the net correlation between achievement and the presence of educational quality characteristics for school systems with the identical cost factors--same size, put forth the same effort, have the same ability, and spend the same amount per child.

In general, as may be seen in Table 11, if all 19 school districts maintain the same cost factors, there is a closer correspondence between the characteristics of quality programs and achievement than there is when the cost factors vary. This difference may be interpreted to mean that school districts that do not possess the characteristics of quality programs incorporated in the ECC, compensate for this by the effects of the cost factors, i.e., spend more money.

Table 11 shows that seven category scores decrease when the cost factors are partialled out. These are examples of high

correlation between those factors measured by the ECC and the combined cost variables. This means that the apparent relationship between the ECC and achievement was due, in part, to the common dependence of both variables upon the combined cost factors.

Whether the cost variables are made independent or not, it appears that administrator perceptions of the degree to which their schools are characteristic of the factors contained in Categories VI and VII holds promise as a measure of educational quality. It may be that the administrator total score may also be used as a quality measure, in that it approaches significance.

Summary

Four categories that comprise part of the Educational Characteristics Criterion meet the test of significance in their relationship to achievement when the cost factors of size, millage, expenditure and property valuation are partialled out. These are administrator Category VI (Administration and supervision), administrator and combined Category VII (Teacher and teaching methods), and combined Category III (Curriculum). All other relationships between ECC scores and achievement, though positive, are not significant.

Generally, there is a closer relationship between achievement and the ECC scores when the cost factors are made independent. This may be interpreted to mean that school districts that do not possess the quality characteristics that make up the ECC compensate by the effects of the combined cost factors--mainly spend more money. Correlation coefficients that decrease when the cost factors

are partialled out are examples of high correlations between the ECC score and the cost factors. This means that the apparent relationship between achievement and the ECC is due, in part, to the common dependence of both variables on the combined cost factors.

It appears that the perceptions that administrators have of the educational characteristics included in the categories of Teacher and teaching methods and Administration and supervision may be an excellent measure of quality. The administrator total quality score also seems to hold promise as a quality measure.

Summary

The relationship between the teacher total quality score and that of administrators is positive and significant (.47). Therefore the hypothesis is accepted and it can be concluded that, in general, teachers and administrators perceive characteristics of quality education in the same way. There is significant agreement between the perceptions of administrators and those of teachers on five of the seven category quality scores, with correlations ranging from .35 to .91. There is very low correlation (.11), however, between the two groups of respondents on Category III (Curriculum) and Category VII (Teacher and teaching methods). It may be that teachers and administrators do not see these characteristics of educational quality in the same way because of the differences in the nature of the two positions. Teachers may be inclined to react to the ECC in terms of their experiences in their own classrooms, while administrators may perceive the same characteristics from a much broader point of view. The characteristics

upon which there is highest agreement (those dealing with the community and the use of educational facilities) seem to lend themselves more readily to being seen in their entirety by teachers as well as administrators.

The relationship between school achievement and the combined total quality score, though positive (.09), is not significant. The relationship between administrator total quality score and achievement approaches significance (.29), giving an indication that the perceptions of administrators may be used as predictors of school achievement.

There are positive significant correlations between achievement and the two cost factors of mills levied (.34) and expenditure per pupil (.50). This supports the long held idea that the more money spent for education, the better its quality will be. The low relationship between achievement and property valuation (.16) suggests that having the financial resources to support a good educational program is not enough. The people of a community must be willing to tax themselves in order to provide for a quality school district. The relationship between size of school district and achievement is negative (-.21), suggesting that an inverse relationship may exist between these two variables.

There is no significant relationship--though all are positive--between the combined total quality score and any one of the cost factors. A positive and significant relationship exists, however, between the administrator total quality score and expenditure per pupil. This points, once again, to the perceptions of

administrators as potentially accurate measures of educational quality.

In general, there is an increase in the relationship of the ECC scores to achievement when the cost factors are made independent. This may be interpreted to mean that school districts that do not possess those educational quality characteristics that comprise the ECC may compensate in their quest for higher quality by spending more money.

CHAPTER V

SUMMARY, CONCLUSIONS, IMPLICATIONS AND RECOMMENDATIONS

Summary

This study was undertaken to determine the relationships that exist among the perceptions of educational quality of teachers and administrators as measured by the Educational Characteristics Criterion (ECC), school achievement as measured by the Stanford Achievement Test, and the educational cost factors of size, effort (millage rate), ability (state equalized valuation), and expenditure per pupil. A major objective of this study was to find the relationships that exist between administrator-teacher perceptions of quality and school achievement, independent of the cost variables.

Nineteen school districts, representing all geographic areas of the United States, participated in the study. Each of the 1486 teachers and 131 administrators used in the study responded to the Educational Characteristics Criterion by marking their perceptions of the degree to which each of 55 characteristics of educational quality was present in their school system. The other variables--Stanford Achievement Test scores of all sixth grade students in the district and the aforementioned cost factors--were voluntarily submitted by the superintendents of the participating

districts.

The ECC is an instrument that is designed to measure the quality of education in terms of the perceptions of those people who observe its process--in this study, teachers and administrators. Each of the 55 educational characteristics that make up the ECC is included in one of seven categories of educational quality. They are: (I) Student's level of knowledge and attitudes; (II) Community attitudes; (III) Curriculum; (IV) Use of facilities; (V) Socio-cultural composition of the community; (VI) Administration and supervision; and (VII) Teacher and teaching methods.

For each school district, a mean total quality score and seven mean category quality scores were computed for teachers, administrators, and their responses combined. These, along with the district's mean sixth grade achievement score and the four cost factors of size, millage, expenditure and property valuation, made up the 29 variables used in the computations.

All computations were performed on Michigan State University's Control Data Corporation (CDC) 3600 computer. Pearson product moment correlations were secured to ascertain the relationships between the variables and the partial correlation technique was used to determine the relationship between perceptions of quality and school achievement, independent of the cost factors.

The three general hypotheses tested were:

I There is a positive relationship between administrator and teacher perceptions of characteristics of quality education as measured by the Educational Characteristics Criterion.

II There are positive relationships among administrator and teacher perceptions of characteristics of quality education as measured by the Educational Characteristics Criterion, student achievement, and the cost factors.

III There is a positive relationship between administrator and teacher perceptions of characteristics of quality education as measured by the Educational Characteristics Criterion and achievement independent of the cost variables.

Limitations

There are several limitations to this study. First, the study is limited by the design itself. This was due, in part, to a desire on the part of the present investigator to replicate the earlier study by Owen Springer. It was felt that it was desirable to duplicate Springer's design, in order to compare the results of the present study with his, obtained from a sample of Michigan schools.

Missing, as an integral part of the study, is an analysis of the relationship between each individual educational characteristic included in the ECC and achievement. This has been partially corrected by a post-design analysis, but it is a limitation, nevertheless.

The design should have included a plan to determine the statistical significance of the difference between the product moment correlations (computed to determine the relationship between the ECC scores and achievement) and the partial correlations computed as called for in Hypothesis III. The interpretation of Hypothesis III is limited by this omission.

The sample from which complete data was obtained was unexpectedly small. The care with which the sample was drawn, with

respect to the cost factor quartiles, was negated by the fact that nine school districts did not supply data complete enough to allow their inclusion in the study.

The school districts studied are a very small part of the original sample, thus placing a limitation upon any projection of the results to school districts in general. The school districts studied are representative of the entire sample in many ways--size, wealth, and geographic location for example--however, it is impossible to tell whether or not the districts used are representative in all ways.

It is recognized that the assessment of property for tax purposes lacks a uniform, equitable, and objective basis in the fifty states for comparison purposes. The ratios used to adjust for these differences incorporate the most accurate and recent figures available. It is a limitation, nevertheless, and the conclusions drawn should be interpreted with this in mind.

Conclusions

1. There is a positive relationship (.47) between administrator and teacher perceptions of characteristics of quality education as measured by the Educational Characteristics Criterion (ECC). This is supportive of much of the previous research that has used the ECC as a quality measure. Springer found a correlation coefficient of .69 to exist between the teacher total quality score and that of administrators.[1] In his study, Berg treated separately those school districts characterized by high cost factors and those

[1]Springer, op. cit., pp 101-102.

characterized by low cost factors. He found significant correlations to exist between the ECC total quality scores of administrators and those of teachers within the high quartile of cost factors and within the low.[2] In a replication of the Berg study, however, Mueller failed to find this significant relationship.[3] In an earlier study dealing with characteristics of quality education, using professors of education, professors of areas other than education, and school board members as respondents, Kraft found a significant relationship between the group the respondents were members of and their perceptions of the quality factors.[4] The evidence that has been accumulated in the present study and the earlier ones seem to justify the conclusion that, in general, teachers and administrators do perceive the characteristics of quality education in the same way.--

2. It is highly probable that teachers and administrators see some characteristics of quality education more similarly than some others. In this study, the correlation coefficients between the observations of teachers and administrators of Category III (Curriculum) and Category VII (Teacher and teaching methods) are a non-significant .11. The other category correlation coefficients are: Category I (Student's level of knowledge and attitudes) .35; Category II (Community attitudes) .71; Category IV (Use of facilities) .91; Category V (Socio-cultural composition of the community) .73; and Category VI (Administration and supervision) .50.

---

[2]Berg, op. cit., pp. 157-158.

[3]Mueller, op. cit., p. 113.

[4]Kraft, op. cit., p. 88.

These findings are somewhat supported by the previous research. Berg found no significant agreement on Category VII (Teacher and teaching methods) in either his high cost quartile group or his low cost quartile group,[5] and while there was significant agreement on this category in the Springer study, it represented the lowest correlation found in all of the categories.[6] On the other end of the agreement scale, the only category in which a significant relationship was found between the perceptions of teachers and administrators, in the Mueller study, was that one dealing with the "Socio-cultural composition of the community."[7]

It is concluded that teachers and administrators are more apt to see in the same way those characteristics which pertain to educational facilities and the community than those characteristics which are closer to the actual teaching process.

3. There is no significant relationship to be found between the combined total quality score and achievement or any one of the combined category scores and achievement. This is so because 92% of the combined score is composed of the observations of teachers, and the relationship between the perceptions of teachers and achievement is low (.05). This supports the findings of Springer, who likewise found no significant relationship between achievement and the perceptions of teachers as measured by the ECC total quality score or any one of the category quality scores. On the basis of this study,

---

[5]Berg, loc. cit.

[6]Springer, loc. cit.

[7]Mueller, loc. cit.

there seems to be little evidence that would encourage the conclusion that teacher perceptions of educational quality characteristics are related to school achievement.

4. The relationship between the administrator total quality score and achievement (.29) is not significant but is very nearly so (.30 necessary for significance at the .10 level). The relationship between achievement and administrator Category Quality Score VI (Administration and supervision) is significant (.45), as is Category VII (Teacher and teaching methods) with a correlation coefficient of .36. These results are similar to those in the Springer study.[8] He found a significant relationship between achievement and administrator total quality score, significant relationships between achievement and Categories VI and VII, and lower but still significant correlations with two other categories. The findings of both studies are true whether the cost factors are made independent or not.

It is concluded, from the evidence cited, that there is a relationship between achievement and the perceptions that administrators have of the characteristics of educational quality included in Category VI (Administration and supervision) and Category VII (Teacher and teaching methods). Although the perceptions of administrators as measured by the total ECC score is not significant, it approaches significance. This and the results of previous research do not allow the conclusion to be drawn at this time that there is not a positive relationship between achievement and the perceptions of educational quality characteristics by administrators.

---

[8]Springer, loc. cit.

5. There is no significant relationship between the teacher total quality score and any one of the four cost factors. The correlation coefficients between the teacher TQS and the four cost factors are: size .19, SEV .12, mills -.03, and expenditure .10. It must be concluded that there is little relationship between teacher perceptions of educational quality characteristics and the cost factors. Because these scores are so predominant in the make-up of the combined total quality score, the correlation coefficients between the combined TQS and the four cost factors are only slightly larger.

The correlation coefficients between the administrator total quality score and the four cost factors are: size .19, SEV .00, mills .26, and expenditure per pupil .35. Of these relationships, only expenditure per pupil is significant and it must be concluded that there is little relationship between administrator perceptions of educational quality characteristics and size, millage, and state equalized valuation. There is a significant relationship, however, between administrator perceptions and expenditure per child.

6. The relationship between the ECC scores and the four cost factors is rather inconclusive. Berg and Mueller concluded that the ECC can discriminate between those districts having high financial support and those having low support; however, there was a wide difference in the support level of the two groups. In the Springer study and this one, where there was not this clear-cut difference, the relationship becomes less clear. Springer found some significance in the relationships between the ECC, size, and state equalized valuation. This study found a significant

relationship with expenditure per child.

In light of the present evidence, it seems advisable to suspend judgment concerning the ECC's relationship to cost factors until further research has been carried out.

7. The correlation coefficient between achievement and size is -.21 and between achievement and state equalized valuation, .16. Although an inverse relationship between achievement and size appears likely, this is not without a precedent. Firman, in New York, concluded that high achieving schools were two-thirds smaller than lower achieving ones.[9] In another study, Pierce found a relationship of only .08 between the size of a school district and adaptability of elementary schools.[10] In view of the evidence, there seems to be little reason to conclude that there is any positive relationship between size and achievement.

The relationship between property valuation and achievement is less clear. There is considerable evidence that the relationship is strong, although it was not so in this present study.

8. The positive, significant relationships between achievement and millage, and achievement and expenditure per pupil leads to a conclusion that has characterized many studies: the more money spent for education, the higher its achievement levels will be.

9. It is concluded that there is a strong positive relationship between the cost factors of mills levied and expenditure,

---

[9]Firman, "The Relationship of Cost to Quality in Education," p. 18.

[10]Truman M. Pierce, Controllable Community Characteristics Related to Quality Education (New York: Bureau of Publications, Teachers College, Columbia University, 1947), p. 59.

property valuation and expenditure, and size and mills. There is little evidence which would support the conclusion, however, that there is a high relationship between size and property valuation, mills and property valuation, and size and expenditure.

10. When the cost factors are made independent by use of the partial correlation technique, there is a general increase in the relationship of the characteristics of quality education and achievement. It is concluded that those school districts that do not possess the characteristics of quality education that comprise the ECC compensate, in their quest for a quality program, by employing, to a greater degree, the cost factors. This, in effect, means spending more money.

Implications and Recommendations

1. Implications.--The conclusion has been drawn that there are some characteristics of quality education that are not seen in the same way by teachers and administrators. It has also been concluded that the characteristics upon which there is least agreement are those closest to the teaching process, mainly the characteristics in Category VII (Teacher and teaching methods). Those characteristics upon which there is highest agreement are those dealing with the community. It may be that those characteristics pertaining to the community and its people present themselves equally to teachers and administrators; and the degree to which an individual is knowledgeable about community factors may be more related to the extent of his participation in community activities or the length of his residency than to anything relating to the

position held by the respondent.

The low level of agreement by teachers and administrators on those educational characteristics involving the teacher and teaching methods may be the result of teachers responding with their perceptions based upon the activities of a single classroom, while administrators' responses are based upon a building or the entire system. It may be too that administrators and teachers are interpreting these characteristics differently.

It appears that the very core of education is wrapped up in the factors of this one category, and for the certified personnel of a school district to hold differing perceptions of them would certainly be detrimental to the education of children. It seems that in order to have a truly quality educational program, it is necessary for all personnel to see educational characteristics in a similar way, so that the school district as a whole could move forward with a united front toward a better program of education.

Recommendations.--The fact that, in general, teachers and administrators have similar perceptions of educational quality gives the professional personnel of a school district a springboard from which to plunge into a program of self-improvement. Using the ECC characteristics as a guide, meetings should be devoted to those characteristics upon which there is the most disagreement. It does not seem unrealistic to assume that discussion of differing perceptions of educational factors will lead, not only to improved understanding, but to improved performance as well.

It is recommended that the ECC be used by school districts as a diagnostic instrument to provide a basis for a program of

in-service training.

2. Implications.--The conclusion has been drawn that, on the basis of this study, there is little relationship between school achievement and teachers' perceptions of educational quality characteristics. School achievement as defined for this study is the school district mean score of all sixth grade students on the Stanford Achievement Test. It may be that the perceptions of quality held by the majority of teachers (secondary and elementary) have little relationship to sixth grade achievement. It may also be, however, that the perceptions of teachers are based upon too limited a view of the characteristics to relate accurately to any measure of achievement.

It is not implied that teacher perceptions of educational quality characteristics are not related to some desirable outcomes of education. But they do not relate to educational achievement as defined in the design of this study or the earlier study by Springer.

Recommendations.--It is recommended that a study be carried out under a design similar to the one used to guide this research, using only elementary school teachers as respondents. It is further recommended that a study be undertaken to determine the relationship between the perceptions of secondary school personnel and some measure of secondary school achievement.

3. Implications.--It has been concluded that there is a strong relationship between achievement and administrator perceptions of those educational quality characteristics related to "Administration and supervision," and "Teacher and teaching methods." That these characteristics of quality are important in the

educational program is supported by Kraft, who concluded that his respondents were " . . . more in agreement as to the relevance of the factors under the category of 'Teacher and the teaching methods' than in any other category."[11] His respondents also agreed that each of the individual characteristics included in these two categories either directly or indirectly affected the quality of an educational program. That administrator perceptions of quality are related to achievement is supported by Springer's study. He found high positive correlation between achievement and administrator total quality score and between achievement and the aforementioned category quality scores. He also found a lower but still significant correlation between achievement and two other CQS.[12]

This evidence coupled with the positive relationship between the perceptions of administrators and expenditure per pupil--an accepted measure of educational quality--determined in the present study, leads to the belief that administrator perceptions of quality education characteristics may be an accurate measure of educational quality.

Recommendations.--It is recommended that the ECC be used by school administrators as an aid to help them determine the quality of their educational program. As a diagnostic instrument, it can help them to pinpoint the weaknesses in their program.

It is recommended that further research be conducted with administrators and the ECC. Such research might take the form of a

---

[11]Kraft, op. cit., p. 93.

[12]Springer, op. cit., p. 78.

study to determine the relationship between the perceptions of central office administrators and those of building principals. Other research might correlate the ECC with another measure of quality--achievement at the secondary level or some other quality measure.

4. Implications.--It was decided to suspend judgment concerning the ability of the ECC to discriminate between the cost factors. Earlier studies concluded that the ECC was able to discriminate between the first and fourth quartiles of cost factors. In the present study and the one by Springer, however, in which cost factors in all four quartiles were used, the evidence was rather inconclusive. Although surely the latter two studies presented a stiffer challenge to the instrument's ability, its failure to provide more conclusive results may have been because of the smaller samples in these studies. In his Michigan study, Berg was able to select, and received usable data from, 41 school districts, while Mueller's national sample consisted of 25 districts. In the latter two studies, in which the school districts were placed in all four quartiles of cost factors, Springer received usable data from only 16 districts, and the present study, only 19.

All evidence points to the achievement variable as the reason for the smaller samples. Apparently, school superintendents, being very reluctant to allow their standardized achievement test results to be seen by others, decided that it was easier not to accept the invitation to participate.

Recommendations.--It is recommended that a study be undertaken to determine the ability of the ECC to discriminate between

all four quartiles of cost factors. It is recommended, further, that the relationship between the ECC and achievement not be made a part of this study, in the hope of being able to enlist the participation of a larger number of school districts.

5. Implications.--It has been concluded that the relationship between achievement and expenditure per pupil is strong, and supports the multitude of previous studies which have concluded that no matter how quality is defined, there is a positive relationship between it and the amount of money spent on education.

Recommendations.--It is recommended that caution be used in employing expenditure per child as a measure of quality. The relationship in this study is strong (.50) but not so strong as to insure that high expenditure will automatically result in an equally high achievement level. High expenditure for such non-instructional items as maintenance, bus service, and the like, will have little effect on achievement. The evidence points to judicious spending as a truer indication of the quality of a program.

6. Implications.--Although there is much conflicting evidence to be found in the literature, the results of this study and others cited seem to indicate that, at least at the elementary school level, size is not a good measure of quality. There is some evidence that, at least up to a point, size is an indication of the quality of secondary programs. A certain number of pupils is necessary to permit a school system to offer economically a wide variety of courses, purchase expensive laboratory equipment, and so on. At the elementary school level, this relationship may not hold.

Recommendations.--It is recommended that a study be conducted to determine the relationship between the size of elementary schools and a measure of quality. It could be a part of an ECC-achievement-cost factor study, using only elementary school teachers and administrators as respondents.

7. Implications.--The assessment of property for tax purposes lacks uniform, equitable and objective bases in the fifty states for comparison purposes. The average rate of assessment of property for tax purposes in the United States is 29.5% of the actual market value, and ranges from 5.6% in South Carolina to 65.5% in Rhode Island. Such variation makes comparisons of millage rates (effort) and property valuation (ability) a risky venture at best.

Recommendations.--In future studies of national samples, it is recommended that consideration be given to the use of expenditure per child as the only cost factor.

8. Implications.--Comments received on returned ECCs in addition to personal observation have brought up certain questions about the Educational Characteristics Criterion itself. For example, Characteristic 18: "Teachers often avail themselves of professional help." Many comments were written on the ECC concerning this question, many asking, "What kind?" Many ECCs had to be discarded because this factor did not receive a response.

Characteristic 41: "A high percentage of high school students own personal cars." A response of "4" (Most Characteristic) would tend toward a high ECC score. It is generally thought that those students who own cars tend to get lower grades.

Characteristics 44 and 46-50 concern themselves with the ethnic-racial-religious composition of the community. It seems almost as though no matter how communities are composed, honest responses would always lead to similar scores.

Characteristic 55: "Parents condone or encourage early dating for their children." Again, a "Most Characteristic" (4) response would lead to a higher ECC score. Is it also indicative of higher quality in a school district?

Recommendations.--It is recommended that the relationship between each of the 55 educational characteristics and achievement be ascertained. This should form the basis for a general review of the ECC with appropriate changes in its composition being made as needed.

9. Implications.--Since, in general, there is a higher relationship between achievement and the ECC scores when the cost factors have been made independent, it may be that school districts are spending more money in an attempt to compensate for their lack of the characteristics of educational quality. Although further research is necessary, the implications here are very important. It may be that use of the ECC as an instrument to measure the quality of school programs and to diagnose its shortcomings may save money or help to spend it more judiciously. Improvement of the program may not increase the school budget at all, as the ECC may point out weaknesses in characteristics of quality education that are not cost related. At any rate, the ECC should provide a means to help school districts spend more judiciously rather than rely

upon a blind general increase of expenditure in an attempt to improve the quality of the educational program.

Recommendations.--It is recommended that a study be undertaken to investigate further this aspect of the ECC. It is suggested that future study designs include a plan to determine if the variance between the correlations and the partial correlations are significant.

BIBLIOGRAPHY

Adams, Don. "Education and the Wealth of Nations," Phi Delta Kappan, 47:169-174, December, 1965.

Atkinson, Carroll and Maleska, Eugene T. The Story of Education. Philadelphia: Chilton Books, Publishers, 1962.

Ayers, Leonard P. An Index Number for State School Systems. New York: Russell Sage Foundation, 1920.

Bagley, W. C. Determinism in Education. Baltimore: Warwick and York, 1925.

Berg, Arthur D. "The Determination of the Discrimination and Reliability Indices of the Educational Characteristics Criterion with Implications Concerning Educational Cost-Quality Relationships." Unpublished Ph. D. Thesis, Michigan State University, 1962.

Bigge, Morris L. Learning Theories for Teachers. New York: Harper and Row, Publishers, 1964.

Bloom, Benjamin S., and Statler, Charles R. "Changes in the States On the Tests of General Educational Development from 1943 to 1955," School Review, 65:204-221, Summer, 1957.

Buley, Hilton C. "Personal Characteristics and Staff Patterns Associated with the Quality of Education." Unpublished Ed. D. Project, Teachers College, Columbia University, 1947.

Burke, Arvid J., Director. What Do Good Schools Do For Our Children? Albany: New York State Educational Conference Board, 1954.

Buros, Oscar Kristen, ed. The Sixth Mental Measurement Yearbook. Highland Park, New Jersey: The Gryphon Press, 1966.

Campbell, James A. "Small Item Expenditure and School Quality--A Cost-Quality Study." Unpublished Ed. D. Project, Teachers College, Columbia University, 1956.

Carr, William G "What's Past Is Prologue," N.E.A. Journal, 46:604-605, December, 1957.

Clark, Harold F. Cost and Quality in Public Education. Syracuse: Syracuse University Press, 1963.

Committee for the White House Conference on Education. A Report to the President. Washington, D. C.: Superintendent of Documents, U. S. Government Printing Office, 1956.

Conant, James B. The Child, The Parent and The State. Cambridge, Massachusetts: Harvard University Press, 1959.

Ebel, Robert L. "Standardized Achievement Tests--Uses and Limitations," The National Elementary Principal, 41:29, 1961.

Educational Policies Commission. National Policy and the Financing of Public Schools. Washington, D. C.: National Education Association, 1959.

Ehlers, Henry, and Lee, Gordon C. Crucial Issues in Education. New York: Holt, Rinehart and Winston, 1964.

Ferrell, Doctor T. Relation Between Current Expenditures and Certain Measures of Educational Efficiency in Kentucky County and Graded School Systems. Contributions to Education, Number 216. Nashville, Tennessee: George Peabody College for Teachers, 1936.

Firman, William D. "The Relationship of Cost to Quality in Education." A paper presented to the Committee on Educational Finance, National Education Association, St. Louis, Missouri, 1963.

_____, et al. Procedures in School Quality Evaluation: A Second Report of the Quality Measurement Project. Albany: New York State Education Department, 1961.

Fischer, John H. "The Priorities Question in Education," Teachers College Record, 61:1-9, 1959.

Freeman, Roger L. School Needs in the Decades Ahead. Washington, D. C.: The Institute for Social Science Research, 1958.

_____. Taxes for the Schools. Washington, D C.: The Institute for Social Science Research, 1960.

Furno, O. F. "The Projection of School Quality from Expenditure Level." Unpublished Ed. D. Project, Teachers College, Columbia University, 1956.

Gardner, John W. "A National Assessment of Educational Progress." Unpublished Report, The Carnegie Corporation, April 23, 1965.

Goodman, Samuel M., Director. The Assessment of Quality. Albany: New York State Education Department, 1959.

Grace, A. G., and Moe, G. A. State Aid and School Costs: Report of the Regents' Inquiry. New York: McGraw Hill Book Company, 1938.

Griffis, James T. Educational Production at Three Cost Levels. Houston, Texas: Gulf School Research Development Association, 1955.

Grimm, Lester R. Our Children's Opportunities in Relation to School Costs. Springfield: Department of Research, Illinois Education Association, 1938.

Grogan, Robert S. "Determination of Staff Characteristics That Should Be Assessed in Future Studies." Unpublished Ed. D. Project, Teachers College, Columbia University, 1961.

Hall, Harold D. "Relationships of Selected Characteristics of Organization to Practice in School Systems: An Exploratory Measure of the Extent and Diffusion of Administrative Procedures and Staffing Practices and Their Relationships to Selected Characteristics of School Systems." Unpublished Ed. D. Thesis, University of Illinois, 1956.

Hand, Harold C. "The Camel's Nose," Phi Delta Kappan, 47:9-12, September, 1965.

Hanson, Kenneth H. Public Education in American Society. Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1956.

Harris, Sidney J. "Perception Warps What Eyes Behold," The State Journal, Lansing, Michigan, December 28, 1965.

Hirsch, Warner Z. Analysis of the Rising Cost of Public Education. Washington, D. C.: Joint Economic Committee, Congress of the United States, 1959.

_____. Measuring Factors Affecting Expenditure Levels of Local Government Services. St. Louis: Metropolitan St. Louis Survey, 1959.

Johns, R. L., and Morphet, E. L., eds. Problems and Issues in Public School Finance. New York: National Conference of Professors of Educational Administration, Bureao of Publications, Teachers College, Columbia University, 1952.

Kelley, Truman L., et al. Stanford Achievement Test, Directions for Administering. New York: Harcourt, Brace and World, Inc., 1964.

Kraft, Leonard E. "The Perceptions Held by Professors of Education, Professors in Areas Other Than Education, and School Board Members on Ninety Factors Which May or May Not Affect the Quality of an Educational Program. Unpublished Ed. D. Thesis, Michigan State University, 1962.

Kuenzli, Alfred. The Phenomenological Problem. New York: Harper and Row, Publishers, 1959.

Lazarus, Ralph. We Can Have Better Schools. New York: Committee for Economic Development, 1959.

Learning to Read, A Report of a Conference of Reading Experts. Princeton, New Jersey: Educational Testing Service, 1962.

McLure, William P. Let Us Pay for the Kind of Education We Need: Report of a Study of State and Local Support of Mississippi's Schools. University, Mississippi: Bureau of Education Research, University of Mississippi, 1948.

Melby, Ernest O. Education For Renewed Faith in Freedom. Columbus, Ohio: The Ohio State University Press, 1959.

Mort, Paul R., Director. The Financing of the Public Schools of Maine. Augusta, Maine: Maine School Finance Commission, 1934.

_____. Reconstruction of the System of Public School Support in the State of New Jersey. Report of the Governor's School Survey Commission, II. Trenton, New Jersey: The Commission, 1933.

_____. Schools for Our Children. Report of a Survey of the Structure and Operation of the Rhode Island Public School System. Providence, Rhode Island: Commission on the Legal Structure of Rhode Island Public Education, 1941.

_____, and Cornell, Francis G. American Schools in Transition. New York: Teachers College, Columbia University, 1941.

_____, and Cornell, Francis G. Guide for Self-Appraisal of School Systems. New York: Bureau of Publications, Teachers College, Columbia University, 1937.

_____, Vincent, William S., and Newell, Clarence A. The Growing Edge: An Instrument for Measuring the Adaptability of School Systems. New York: Metropolitan School Study Council, Teachers College, Columbia University, 1946.

Mueller, Van Dyck. "A Study of the Relationships Between Teacher-Administrator Perceptions of Educational Quality as Measured by the Educational Characteristics Criterion (ECC) and Selected Cost Factors." Unpublished Ed. D. Thesis, Michigan State University, 1964.

National Education Association. "Better Schools Cost More," National Education Association Research Bulletin, 37:41-44, April, 1959.

National Education Association. "We've Got It Started: Elementary and Secondary Education Act of 1965," N.E.A. Journal, 54:33-39, September, 1965.

Norton, John K. The Ability of States to Support Education. Washington, D. C.: National Education Association, 1926.

_____, ed. Changing Demands on Education and Their Fiscal Implications. Washington, D. C.: National Committee for Support of the Public Schools, 1963.

Pierce, Truman M. Controllable Community Characteristics Related to Quality Education. New York: Bureau of Publications, Teachers College, Columbia University, 1947.

Powell, Orrin E. Educational Returns at Varying Expenditure Levels. New York: Bureau of Publications, Teachers College, Columbia University, 1933.

Public Law 89-10. Eighty-Ninth Congress, H. R. 2362, S 370, 1965.

Rickover, Hyman G. "Education For All Children," Hearings Before the Committee on Appropriations, House of Representatives, Eighty-Seventh Congress, 1962, pp. 139-142, 154-157.

Ross, Donald H. Administration for Adaptability. New York: Metropolitan School Study Council, Teachers College, Columbia University, 1958.

Rudman, Herbert C. "How Good Are Standardized Achievement Tests?" The National Elementary Principal, 44:37, November, 1964.

_____, and Hecker, Stanley E. "The Determination and Measurement of Factors Which Directly or Indirectly Affect the Quality of an Educational Program. Unpublished Report, Michigan State University, 1961.

Springer, Owen. "A Study of the Relationships Between the Educational Characteristics Criterion (ECC), the Stanford Achievement Test, and Selected Cost Factors." Unpublished Ed. D. Thesis, Michigan State University, 1964.

Stoddard, George D. "The Issues That Divide Us," School and Society, 86:236-237, May 24, 1958.

Stone, James C. "Teacher Education by Legislation," Phi Delta Kappan, 47:287, February, 1966.

Strayer, George D., Director. A Report of a Survey of Public Education in the State of West Virginia. Charleston, West Virginia: State of West Virginia, Legislative Interim Committee, 1945.

Thorndike, Edward L. Education as Cause and as Symptom. New York: The Macmillan Company, 1939.

United States Department of Commerce, Bureau of Census. Taxable Property Values. Washington, D. C : U. S. Government Printing Office, 1963.

United States Department of Health, Education, and Welfare. Education for Freedom and World Understanding, Bulletin OE10016. Washington, D C.: U. S. Government Printing Office, 1962.

Vincent, William S Emerging Patterns of Public School Practice. New York: Bureau of Publications, Teachers College, Columbia University, 1945.

Woollatt, Lorne H. The Cost-Quality Relationship on the Growing Edge. New York: Bureau of Publications, Teachers College, Columbia University, 1949.

APPENDICES

APPENDIX A

LETTER SENT TO SUPERINTENDENTS INVITING PARTICIPATION IN THE STUDY

MICHIGAN STATE UNIVERSITY EAST LANSING · MICHIGAN 48823

COLLEGE OF EDUCATION · DEPARTMENT OF ADMINISTRATION AND HIGHER EDUCATION

ERICKSON HALL
February 22, 1966

Superintendent of Schools
Elementary School District

Dear Sir:

Would you be willing to take part in a research project involving the Stanford Achievement Test; a test which I co-authored?

I have conducted several studies, over the past several years, concerned with the measurement of the quality of educational programs. One more study is necessary to complete the research on the instrument designed to measure the quality of education. This instrument, known as the Educational Characteristics Criterion (ECC), measures educational quality in terms of values and goals of education that are felt to be important by school administrators and teachers.

Previous studies with the ECC have shown it to be extremely reliable in identifying educational quality when quality is associated with the cost factors of size of school district, effort, ability to pay, and expenditure per pupil. Basically, these studies have supported previous studies completed since 1920 which conclude that the more money spent, the better the quality of the educational program will be.

A recent pilot study conducted with the ECC in selected Michigan schools used school achievement measured by the Stanford Achievement Test as a measure of quality. This study indicated that the ECC may be able to predict school achievement (quality) independent of cost factors. The purpose of this study is to determine the relationships that exist between the ECC, school achievement, and cost factors based upon a national sample. This brings us back to why I need your help.

Your school district is part of a carefully drawn sample, selected from a population of all of the school districts in the United States that are currently using the Stanford Achievement Test. Initially, I am asking each district in this sample to provide me with selected financial data. After this data has been received, it will be ordered and the number of districts in each cost quartile will be determined. From among these districts a second sample will be drawn and the districts selected will be invited to participate in the second phase of the investigation.

The administrators and teachers in the districts selected will be asked to complete the Educational Characteristics Criterion (the instrument under investigation). This instrument takes about thirty minutes to do, and may be completed at the convenience of the individual participant.

In order to correlate the ECC scores with school achievement, it will be necessary for the superintendents of participating districts to supply me with grade summary sheets for the Stanford Achievement Test.

Would you be willing to cooperate with me in this important study? Please have confidence that any information given to me will never be referred to in connection with the name of your school district; all school districts will be identified by a code number. The grade summary sheets will be returned to you as soon as the information has been recorded.

If you feel that you can cooperate with me in this project, please fill out the enclosed information sheet and return by March 8, 1966, so that the sample for the second phase of the study can be drawn and the research completed.

Thank you very much for your consideration.

Sincerely yours,

Herbert C. Rudman
Professor of Education

HCR:dp
enclosure

APPENDIX B

PRELIMINARY INFORMATION SHEET

PRELIMINARY INFORMATION SHEET

Name of Superintendent _____

Name of School District _____

Address _____ City and State _____

Number of Teachers _____

Number of Administrators _____
(superintendents, principals, supervisors)

Cost Data (1965-1966 school year)

1. Average Daily Membership, ADM
   Grades K-12 or 1-12 _____

2. State Equalized Assessed Property
   Valuation Per Pupil (Final
   appraisal of all property
   divided by ADM) _____

3. Tax Rate in Mills for Current
   Operation of School District _____

4. Current Operating Expenditure Per
   Pupil (Total expenditures
   excluding capital outlay and
   debt service divided by ADM) _____

Grades for which the Stanford Achievement Test is used:

(Please circle) 1 2 3 4 5 6 7 8

I would like a copy of the study abstract. yes no

Please Return to: Dr. Herbert C. Rudman
College of Education
Michigan State University
East Lansing, Michigan 48823

APPENDIX C

EDUCATIONAL CHARACTERISTICS CRITERION (ECC)

EDUCATIONAL CHARACTERISTICS CRITERION

Herbert C. Rudman
Michigan State University

	Factor	Most Characteristic	Somewhat Characteristic	Slightly Characteristic	Least Characteristic
1.	Teachers have intimate knowledge of children.	4	3	2	1
2.	Teaching practices reflect concern for individual differences.	4	3	2	1
3.	Teaching practices reflect a knowledge of individual differences	4	3	2	1
4.	Teachers perceive a coherent and coordinated structure to the educational program.	4	3	2	1
5.	Concensus exists among the staff concerning the goals of the educational program.	4	3	2	1
6.	A structure has been developed that permits continual curriculum improvement.	4	3	2	1
7.	Evidence exists of instructional and/or curricular experimentation.	4	3	2	1
8.	Students show a positive attitude toward scholastic work.	4	3	2	1
9.	Students evidence accurate knowledge of self.	4	3	2	1
10.	Professional staff of the school system are involved in in-service education.	4	3	2	1
11.	Teachers thoroughly understand the information gathered on students and use this information to make sound educational decisions.	4	3	2	1
12.	All teachers are certified to teach at the grade level or subject they are now teaching.	4	3	2	1
13.	Teachers have complete freedom to teach what they consider to be important.	4	3	2	1
14.	A great variety of instructional techniques are presently used in the classrooms.	4	3	2	1
15.	A great variety of instructional materials are presently used in the classrooms.	4	3	2	1

	Factor	Most Characteristic	Somewhat Characteristic	Slightly Characteristic	Least Characteristic
16.	Students are knowledgeable about the educational and social opportunities available to them.	4	3	2	1
17.	A complete comprehensive testing program including intelligence and achievement testing is available in the schools.	4	3	2	1
18.	Teachers often avail themselves of professional help.	4	3	2	1
19.	Complete freedom is granted to students to investigate any local, state, national or international issue.	4	3	2	1
20.	Availability to students of materials that reflect all shades of political and sociological points of view.	4	3	2	1
21.	Parents and patrons (those residents of a school district without school-age children) are highly knowledgeable about education.	4	3	2	1
22.	Lay members of the community are highly involved in the planning of educational goals with the school staff.	4	3	2	1
23.	Regulations governing student conduct are highly explicit and detailed.	4	3	2	1
24.	High degree of teacher participation in social and political activities of the community.	4	3	2	1
25.	The social status of teachers is very high in this community.	4	3	2	1
26.	Regulations governing personnel policies are highly explicit and detailed.	4	3	2	1
27.	Citizens are highly organized to discuss school problems.	4	3	2	1
28.	The perceptions of parents and patrons concerning the purposes of education are consistent and clear.	4	3	2	1
29.	The local newspaper has shown a high interest in local school affairs.	4	3	2	1
30.	There is no lag between the values taught in the school and what is practiced in the community.	4	3	2	1
31.	There exists a high level of cooperation among the teachers of the staff.	4	3	2	1

	Factor	Most Characteristic	Somewhat Characteristic	Slightly Characteristic	Least Characteristic
32.	The physical facilities of the school system (buildings and equipment) are completely adequate.	4	3	2	1
33.	The community and its residents are used for instructional purposes.	4	3	2	1
34.	Cultural experiences are readily available in the community.	4	3	2	1
35.	Teachers' judgments are almost always used in the determination of educational policies.	4	3	2	1
36.	A high percentage of the electorate in the community vote in school elections.	4	3	2	1
37.	There are outstanding community leaders in this community who exhibit great interest in school affairs.	4	3	2	1
38.	This is a highly stable community which does not have too many people leaving.	4	3	2	1
39.	The community exhibits a great concern for the development of aesthetic and artistic interests.	4	3	2	1
40.	A two-way communication channel readily exists between the home and the school.	4	3	2	1
41.	A high percentage of high school students own personal cars.	4	3	2	1
42.	A high percentage of homes own television sets.	4	3	2	1
43.	A great deal of homework is assigned to students.	4	3	2	1
44.	A high degree of ethnic, racial and religious homogeneity exists among the local population.	4	3	2	1
45.	The parents in this community expect their children to perform their share of family chores.	4	3	2	1
46.	This community is composed of people who are predominantly Protestant.	4	3	2	1
47.	This community is composed of people who are predominantly Catholic.	4	3	2	1
48.	This community is composed of people who are predominantly Jewish.	4	3	2	1

	Factor	Most Characteristic	Somewhat Characteristic	Slightly Characteristic	Least Characteristic
49.	The population of this community is equally divided between Protestants and Catholics.	4	3	2	1
50.	One or two ethnic groups comprise the largest number of residents in the community.	4	3	2	1
51.	Pupils consider an academic grade of at least "B" to be the norm for academic achievement.	4	3	2	1
52.	The professional staff of the schools in the community consider an academic grade of at least "B" to be the norm for academic achievement.	4	3	2	1
53.	A high value is placed on education by the parents and patrons (those residents of a school district without school-age children) of the community.	4	3	2	1
54.	Parents and patrons in the community consider an academic grade of at least "B" to be the norm for academic achievement.	4	3	2	1
55.	Parents condone or encourage early dating for their children.	4	3	2	1

APPENDIX D

INSTRUCTIONS FOR RESPONDING TO THE EDUCATIONAL CHARACTERISTICS CRITERION (ECC)

INSTRUCTIONS FOR RESPONDING TO THE EDUCATIONAL CHARACTERISTICS CRITERION

1. Your participation as a respondent to the Educational Characteristics Criterion (ECC) within the national sample of cooperating school districts is greatly appreciated. This is a phase of a comprehensive research project which is being conducted by the College of Education, Michigan State University.

2. It is important that your responses to the ECC represent your own individual perceptions, therefore it is recommended that you complete the ECC without prior discussion with other faculty members, preferably in private and quiet surroundings. All information will be treated confidentially and anonymously. Approximate respondent time is thirty minutes, however there is no time limit.

3. Use pencil and mark with firm pressure ON the number representing the characteristic that you perceive. Relate the statements to your experience as follows:

   (a) Teachers and Building Principals: Relate the statements to your building experience.

   (b) Central Administrators and Supervisors: Relate the statements to your school system.

4. Example of marking one item:

Factor	Most Characteristic	Somewhat Characteristic	Slightly Characteristic	Least Characteristic
1. Teachers have intimate knowledge of children.	4	3	X	1

   (Note: The "X" ON the "2" will indicate that your perception of the statement is that it is "slightly characteristic" of your building situation (if you are a teacher or building principal); or that it is "slightly characteristic" of your school system (if you are a central administrator or supervisor).

5. Upon completion of your responses to all ECC items, place the ECC in the envelope and SEAL the envelope flap. Do not put your name or other markings on the ECC envelope.

6. Return the envelope with enclosed ECC to your building principal or to the collection point prescribed by the principal or the superintendent. It is highly desired that you complete the ECC at your very earliest opportunity and return it within 24 hours, and if delayed, within 48 hours.

APPENDIX E

SUPPLEMENTARY INFORMATION FORM

(To be completed by the Superintendent)

SUPPLEMENTARY INFORMATION FORM

EDUCATIONAL CHARACTERISTICS CRITERION

Herbert C. Rudman
Michigan State University

1. School District_____ 2. State_____

3. Type of Organization Pattern Followed in School District (Please check the most appropriate organizational pattern).

a. 6 - 3 - 3 _____ c. 6 - 6 _____ e. 6 - 2 - 4 _____

b. 8 - 4 _____ d. 5 - 3 - 4 _____ f. Other _____

4. Approximate average pupil-teacher ratio ... ELEMENTARY (Please check appropriate response).

a. 50-1 _____ d. 35-1 _____ g. 20-1 _____

b. 45-1 _____ e. 30-1 _____ h. Less than 20-1 _____

c. 40-1 _____ f. 25-1 _____

5. Approximate average pupil-teacher ratio ... SECONDARY (Please check appropriate response).

a. 50-1 _____ d. 35-1 _____ g. 20-1 _____

b. 45-1 _____ e. 30-1 _____ h. Less than 20-1 _____

c. 40-1 _____ f. 25-1 _____

6. Type of Population Center

a. Rural _____

b. City _____

1. less than 2500 _____
2. 2500 - 4999 _____
3. 5000 - 9999 _____
4. 10,000 - 24,999 _____
5. 25,000 - 999,999 _____
6. 100,000 and over _____

7. Is your school program accredited by the state and/or regional accrediting agencies?

Yes_____ No_____

APPENDIX F

GENERAL INSTRUCTIONS FOR ADMINISTRATION AND MAILING OF THE EDUCATIONAL CHARACTERISTICS CRITERION (ECC)

TO: Superintendents of Cooperating School Districts in the Quality Research Project.

FROM: Dr. Herbert C Rudman, Project Director, College of Education, Michigan State University.

SUBJECT: General Instructions for Administration and Mailing of the Educational Characteristics Criterion (ECC).

I. CONTENTS OF THE PACKAGE OF MATERIALS

A. _____ envelopes, each containing one copy of the ECC and an instruction sheet for teacher respondents, with two extra copies.

B. _____ envelopes, stamped "ADMINISTRATOR", each containing one copy of the ECC, also stamped "ADMINISTRATOR", and an instruction sheet for administrative respondents (Superintendents, Principals, Supervisors), with one extra copy.

C. One business envelope containing:
   1. "Special 4th class" sticker for the return package.
   2. Address sticker for returning test materials to Dr. Herbert C. Rudman, College of Education, Michigan State University.

C. One Supplementary Information Form to be completed by the Superintendent.

II. DISTRIBUTION

A. Please contact each principal to notify him of the participation of your school district in this research project which is concerned with the identification and measurement of quality in an educational program.

B. Please give the principals instruction sheets, the ECC, and envelopes for each teacher he supervises (unless this can be more easily accomplished through your central office.

C. Give the principals and other administrator and supervisor respondents their instruction sheets, the ECC, and envelopes (marked "ADMINISTRATOR").

D. The Superintendent is requested to fill out the Supplementary Information Form in addition to responding to the ECC using materials marked "ADMINISTRATOR."

D. In case there is only one administrator, a Superintendent who also acts as Principal, it is desired that one "ADMINISTRATOR" ECC be given to the faculty individual who assists the Superintendent administratively more than any other faculty member. This individual would not fill out a teacher respondent ECC but would fill out only the "ADMINISTRATOR" ECC

III. COLLECTION

A. It is requested that the collection point of the ECC envelopes be clearly specified to all respondents. If the "Principal," "Principal's Secretary," etc. are assigned the duty of collection, the respondents should be notified as to place and time of collection.

B. All envelopes, used or unused, with the enclosed ECC's should be collected and checked against the total sent (see I. A. and B., CONTENTS).

C. Do not retain ECC's for absent teachers. All forms should be returned to your office within 48 hours at the latest. It is hoped that the 48 hour limit will result in better individual perceptions that may be less influenced by group discussion.

IV. MAILING

A. The return package should include all the envelopes and the Supplementary Information Form completed by the Superintendent. There should be one package bound with cover paper, cord, and tape if necessary. Postage and stickers are in the business envelope. The Supplementary Information Form should be placed in an envelope on top of the ECC envelopes inside the package.

B. Postage has been calculated at the "Special 4th Class" rate. If reimbursement for additional postage is required, please contact Dr. Herbert C. Rudman, College of Education, Michigan State University, East Lansing, Michigan 48823.

I wish to express my appreciation to you, your staff, and your teachers for the cooperation you have given in this project. An abstract of the results will be sent to you upon completion of the project.

Herbert C. Rudman
Project Director

APPENDIX G

LETTER OF INSTRUCTIONS SENT TO SUPERINTENDENTS OF PARTICIPATING SCHOOL DISTRICTS

Michigan State University East Lansing · Michigan 48823

College of Education · Department of Administration and Higher Education
Erickson Hall

Dear Mr. (Dr.) _____:

Thank you for agreeing to participate in the Quality Research Project involving the Stanford Achievement Test and the Educational Characteristics Criterion (ECC).

As you will recall, the second phase of the study involves two steps:

1. The completion of the Educational Characteristics Criterion (ECC) by your teachers and administrators. The ECC instruments with appropriate directions for their completion and return have been mailed under separate cover.

2. The correlation of the ECC with the Stanford Achievement Test scores. Would you please enclose the grade summary sheets or student profile sheets for your sixth grade, in the same package in which you return the ECC's. All Stanford Achievement Test data will be treated confidentially and will be returned to you.

Enclosed are stamps for returning the ECC instruments and test data. Your cooperation in returning all material by May 5 will be greatly appreciated.

Sincerely yours,

Herbert C. Rudman
Professor of Education

HCR/cs
enclosure

APPENDIX H

CHARACTERISTICS OF PARTICIPATING SCHOOLS

CHARACTERISTICS OF PARTICIPATING SCHOOLS

School Code	Community Type	Population	Organization	Pupil-Teacher Ratio
1	Rural	less than 2,500	8-4	23-1
2	Rural	10,000-24,999	6-6	25-1
3	Suburban	25,000-99,999	8-4	25-1
4	Rural	less than 2,500	6-3-3	23-1
5	Rural	less than 2,500	8-4	30-1
6	Suburban	25,000-99,000	6-3-3	22-1
7	Rural	less than 2,500	6-2-4	20-1
8	Rural	2,500-4,999	5-3-4	22-1
9	Rural	less than 2,500	6-2-4	22-1
10	City	25,000-99,999	6-2-4	25-1
11	Rural	less than 2,500	8-4	22-1
12	City	10,000-24,999	Not Known	30-1
13	Rural	2,500-4,999	5-3-4	30-1
14	City	10,000-24,999	Not Known	30-1
15	Rural	less than 2,500	8-4	25-1
16	Rural	less than 2,500	7-5	30-1
17	Rural	2,500-4,999	8-4	25-1
18	Rural	2,500-4,999	6-3-3	23-1
19	Suburban	10,000-24,999	5-3-4	20-1

APPENDIX I

DISTRIBUTION OF STANDARDIZATION SAMPLE SCHOOL SYSTEMS

DISTRIBUTION OF STANDARDIZATION SAMPLE SCHOOL SYSTEMS[1]

Region*	Type of System**								
	1	2	3	4	5	6	7a	7b	Total
1	-	16	7	-	-	14	1	3	41
2	-	14	2	-	1	18	-	7	42
3	2	26	4	2	3	23	2	5	67
4	-	12	1	-	3	11	-	1	28
5	1	9	3	-	16	6	-	-	35
6	1	6	3	2	-	8	-	2	22
7	1	2	-	1	1	8	-	-	13
8	-	-	-	-	4	10	-	-	14
9	-	-	-	-	-	1	1	-	2
Total	5	85	20	5	28	99	4	18	264

*Region 1: Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut.
Region 2: New York, New Jersey, Pennsylvania, Delaware, District of Columbia, Maryland.
Region 3: Ohio, Indiana, Illinois, Michigan, Wisconsin.
Region 4: Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, Kansas.
Region 5: Virginia, West Virginia, North Carolina, South Carolina, Georgia, Florida, Tennessee, Mississippi, Louisiana, Kentucky, Alabama, Arkansas.
Region 6: Arizona, New Mexico, Oklahoma, Texas.
Region 7: Montana, Wyoming, Colorado, Utah, Idaho.
Region 8: Washington, Oregon, California, Nevada.
Region 9: Alaska, Hawaii.

**Type of System:
1--single municipality, population under 2500
2--single municipality, population 2500-24,999
3--single municipality, population 25,000-99,999
4--single municipality, population 100,000 or over
5--county
6--district, union, etc.
7a--Catholic
7b--private or other church affiliation

[1]Kelley, et al., op. cit., p. 27.