1983

A study of the relationship of regional school accreditation status to achievement test scores in public elementary schools in Virginia

Richard Daniel Glancy
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A STUDY OF THE RELATIONSHIP OF REGIONAL SCHOOL ACCREDITATION STATUS TO ACHIEVEMENT TEST SCORES IN PUBLIC ELEMENTARY SCHOOLS IN VIRGINIA

The College of William and Mary in Virginia ED.D. 1983

A STUDY OF THE RELATIONSHIP OF REGIONAL SCHOOL ACCREDITATION STATUS TO ACHIEVEMENT TEST SCORES IN PUBLIC ELEMENTARY SCHOOLS IN VIRGINIA

A Dissertation

Presented to

The Faculty of the School of Education

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Doctor of Educational Administration

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by

Richard D. Glancy

February 1983

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Dedication

This dissertation is dedicated to my wife, Mary M. Glancy, and my parents, Mr. and Mrs. John James Glancy for their unfailing support during my studies.

ACKNOWLEDGMENTS

This study could not have been completed without the help of a number of people. To them I wish to express my sincere appreciation.

Professor Armand J. Galfo, my graduate advisor, and Dean James M. Yankovich and Professor Royce W. Chesser are owed a special debt of gratitude for their assistance, guidance, and encouragement during this study and all of my advanced graduate work.

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CHAPTER 1

INTRODUCTION

The process of regional accreditation of educational institutions has evolved in the United States during the last century. The first accreditation movements were designed as an attempt to strengthen the relationship between universities and high schools. In the later part of the nineteenth century, four independent regional accrediting associations were formed in order to promote academic preparation in secondary schools and improve admission requirements in member colleges and universities. By 1924 the number of regional accrediting associations had grown to six which included all of the major geographical regions of the continental United States.

Regional accreditation has remained unique in American public education because of its independence from government and because membership is sought by educational institutions on a voluntary basis. Today, six regional accrediting associations continue to develop standards for accreditation of colleges, universities, and secondary schools.

For the past twenty years, the Southern Association of Colleges and Schools (SACS) has pioneered the regional accreditation of elementary schools in Virginia and ten other southern states. As early as 1946, SACS formed a Commission of Curricular Problems and Research later known as the Commission on Research and Service to concern itself with the problems of the elementary schools. By 1953, the Commission on Research and

Service began the Cooperative Program in Elementary Education designed to improve elementary schools in the region.[1]

In 1953, SACS provided for the first time for elementary schools to become affiliated with the Association. The Cooperative Program in Elementary Education of SACS was authorized by the Association to accredit elementary schools based upon published standards. In 1963 SACS became the first regional association to accredit elementary schools.

The number of elementary schools accredited by SACS has grown conspicuously from 98 schools in 1960 to 5,536 schools in 1980.[2] In 1975, the North Central Association and the Assembly of Elementary Schools of the Middle States Association also began programs in regional accreditation of elementary schools.

Citizens and taxpayers cognizant of SACS accreditation within the southern region presumably view it as a form of consumer protection, which through the enforcement of certain standards, ensures a quality program within elementary schools of the region. This layman's view, though accurate, does not reveal the central purpose of the Commission on Elementary Schools' (SACS) program in education, i.e., school improvement.[3] One of the beliefs of SACS is that accrediting is a valuable

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[1]Commission on Elementary Schools Southern Association of Colleges and Schools, A Guide to the Evaluation and Accreditation of Elementary Schools (Atlanta: Commission on Elementary Schools Southern Association, 1979), pp. iii.

[2]Southern Association of Colleges and Schools, Proceedings (Atlanta: Southern Association of Colleges and Schools, Vol. 33, No. 3. Jan.-Feb. 1981), p. 6.

[3]Commission on Elementary Schools, Guide to Evaluation and Accreditation, p. 2.

experience for participating schools and is significant in improving schools.

Among the important outcomes of the accrediting process are the following:

1. identification of educational needs of children and how they can be met;
2. increased unity of staff and clarity of purpose;
3. sharper perception of strengths and weaknesses of the school program;
4. heightened public confidence;
5. increased willingness to support the schools; and,
6. more meaningful in-service activities.[4]

These stated beliefs are generally accepted by educators within the region, however, there is currently little evidence which suggests that these beliefs are any more than untested hypotheses.

Statement of the Problem

The purpose of this study was to examine the relationship between regional accreditation status and selected achievement test scores in public elementary schools in Virginia.

Need for the Study

An adequate description of the relationship between regional accreditation status and achievement test scores is of prime importance to

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[4]Commission on Elementary Schools, Guide to Evaluation and Accreditation, p. 3.

educational administrators who function in an environment characterized by dwindling financial resources and increasing demands for educational accountability and improved educational outcomes. Objective determination of the relationship between regional accreditation status and achievement test scores would provide useful evidence for decision making regarding the practice of regional accreditation and would provide a basis for further research of the possible outcomes of the regional accreditation process.

Inconstancy in the elementary regional accreditation program in Virginia in the past six years suggests that school superintendents and school boards may not have found sufficient evidence to justify continuation. During this time, eight Virginia school divisions have decided not to continue the elementary regional program of SACS in 238 public elementary schools. In 1976, all 127 Fairfax County elementary schools were officially listed as "not reporting" by SACS. The following year 27 of 28 accredited elementary schools in Prince William County and all accredited elementary schools in the city of Richmond (32) joined those schools not reporting. In 1978, 27 Prince William County schools were again accredited, but all schools in the cities of Radford (3) and Waynesboro (7) were dropped. In 1980, all of the elementary schools in Charlottesville (6), Chesterfield County (22), Hampton (24), and 17 of 21 schools in the city of Roanoke failed to report to SACS.[5]

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[5]Southern Association of Colleges and Schools, Proceedings (Atlanta: Southern Association of Colleges and Schools, March 1977, March 1978, March 1979, March 1981).

Since its inception elementary accreditation has been controversial. Proponents assert the importance of regional accreditation for elementary schools because it represents a commitment to quality education; citizens are assured of accountability and of value for their tax dollars since schools meet established standards; citizens know that their schools compare favorably with other schools in the region; standards provide for a good learning environment and balanced program; teachers are guaranteed a strong voice in conducting self-studies and evaluations, and school officials can draw on a large reservoir of professional help to monitor and improve continually the education provided to students.[6] Critics respond to assertions by stating that 1) the expense of financial and human resources in the accreditation process is excessive; 2) the qualities which are recognized through accreditation "are not even related to the educational process";[7] 3) "it establishes a floor for standards which signify adequacy rather than excellence . . . it can become the goal rather than the instrument of improvement . . . it merely verifies the existence of minimum standards."[8] Henry Dyer claimed in 1972 that one problem with evaluations resulting from accreditation

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[6]Commission on Elementary Schools Southern Association of Colleges and Schools, "Accreditation: Assuring Quality Through School Improvement" (Atlanta: Commission on Elementary Schools Southern Association, undated pamphlet).

[7]William L. Pharis, "Sour Grapes and Gold Stars: The Case Against Accrediting Elementary Schools," The National Elementary Principal, XLIII (May, 1964) p. 20.

[8]Roy A. Edelfelt, "Accrediting Elementary Schools: Ideas to Ponder," The National Elementary Principal, XLIII (May, 1964), p. 34.

processes was that too many people are trapped into mistaking means for ends.[9] He also added this explanation.

> It rivets attention so exclusively on the instrumentalities of education--the gadgetry, the gimmicks, the symbols of success--that the instrumentalities get treated as ends in themselves. It papers over the question whether all these things--the books, the buildings, the teachers, the language labs, the new curricula--are helping or hindering or having no impact at all on the intellectual, social, and personal development of the students exposed to them. The efficacy of the system is assessed in terms of how much tangible equipment the educational dollar is buying rather than in terms of the kind of changes in students the educational process is producing.[10]

Dyer concluded that evaluation such as he described ". . . imagines, on the basis of intuition uninhibited by data, that certain causative connections between certain means and certain ends must exist even though the relationships between the two have never been explicitly or adequately investigated."[11]

An explicit and adequate investigation of the relationship between elementary school regional accreditation status and achievement test scores could offer data which would be useful to Virginia superintendents

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[9]Henry S. Dyer, "School Evaluation: A Realistic Response to Accountability," North Central Association Quarterly, XLVI (Spring, 1972), p. 393.

[10]Ibid.

[11]Ibid.

and school boards contemplating regional accreditation. Such an investigation may also begin to test the beliefs of the Commission on Elementary Schools (SACS) and others who favor elementary accreditation. If there is a positive relationship between elementary school regional accreditation status and achievement test scores, this knowledge could provide some surety for continuance of the process. If, on the other hand, there is no relationship between these variables, perhaps regional accreditation processes should be updated, revised, or discontinued.

Theoretical Rationale

The primary purpose or goal of the Southern Association's regional elementary school accreditation program is school improvement. For purposes of this study that goal, school improvement, has been translated into a measurable indicator of goal achievement: achievement test scores. It would appear that an adequate description of the relationship between regional accreditation status and achievement test scores would involve comparing achievement test scores from schools with regional accreditation with scores from schools without regional accreditation.

The distinguishing features within the regional accreditation process which might be most responsible for school improvement are the self-study or self-evaluation and the formulation of accompanying plans and priorities. Schools desiring regional accreditation must meet the published standards of SACS and complete the following steps prior to initial accreditation:

1. determine readiness for accreditation;
2. file application for candidacy;

3. secure a consultant;
4. organize and conduct a self-study;
5. provide for a visiting committee;
6. formulate plans for school improvement and designate priorities;
7. make application for accreditation;
8. await action of the State Committee; and,
9. await action of the Commission on Elementary Schools and the Elementary Delegate Assembly of SACS.[12]

Typically, the process of regional accreditation requires two years of effort. Normally steps 4-6 above are completed utilizing the Elementary School Evaluative Criteria of the National Study of School Evaluation[13] or other evaluative instruments approved by the Commission on Elementary Schools, SACS. The Commission on Elementary Schools states that the self-study should:

1. be made within a framework of procedures that provides direction to faculties and data to the association;
2. be comprehensive by carefully examining the school's philosophy and objectives, the community, and all phases of the school's program;

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[12]Commission on Elementary Schools, Guide to Evaluation and Accreditation of Schools, pp. 5-11.

[13]National Study of School Evaluation, Elementary School Evaluative Criteria, (Arlington, Virginia: National Study of School Evaluation, 1973)

3. provide for interaction and introspection by encouraging deliberation, discussion, research, and creative approaches to school improvement;
4. begin with agreements on what is desirable in each area under consideration and then determining the degree to which these desirable principles are accepted and implemented by the school;
5. create an increased awareness of existing conditions and practices through a careful systematic analysis of each area under study;
6. provide each school faculty with a design to assess the status of the area being studied in terms of strengths and improvements needed to achieve what is desirable;
7. recognize achievements and efforts toward school improvement by providing opportunities to report in the self-study not only projects under way but plans for future improvements;
8. develop short- and long-range plans for the solution of problems and the improvement of areas identified as needing further study and list these plans on a priority basis; and,
9. indicate the current status of the school as compared to the optimum indicated in the school's stated philosophy and objectives.[14]

The Elementary School Evaluative Criteria were collaboratively developed by a group of prominent elementary school educators and piloted

in eighteen elementary schools selected on the basis of geographic location, enrollment, program organization, and socio-economic make up.[15] It appears that coincidentally or by design several suggestions and mandates made by SACS in its accreditation process are in synchronization with theoretical principles of contemporary management. For example, the Southern Association suggests that principals, teachers, central office personnel, board members, and school patrons should form the committee for self-study.[16] Blake and Mouton, who have offered a theory which conceptualizes the task dimension and the people dimension of supervisory behavior, recently suggested that "fulfillment through contribution is the key motivation that gives character to human interaction and supports productivity," and that "shared participation in problem-solving and decision-making stimulates active involvement in productivity and creative thinking."[17] As early as 1950, Tannenbaum and Massarik explained the importance of subordinate participation in goal setting. . . . [S]ubordinates who have participated in the process leading toward a determination of matters directly affecting them may have a great sense

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[14]Commission on Elementary Schools, Guide to Evaluation and Accreditation of Schools, p. 7.

[15]National Study of School Evaluation, Elementary School Evaluative Criteria, p. 13-15.

[16]Commission on Elementary Schools, Guide to Evaluation and Accreditation of Schools, p. 7.

[17]Robert R. Blake, and Jane Mouton, "Principles of Behavior for Sound Management," Training and Development Journal, Vol. XXXIII, No. 10 (October, 1979).

of responsibility with respect to the performance of their assigned tasks . . ."[18]

As is indicated above, the self-study required for regional accreditation involves a comprehensive examination of the school's objectives and development of short-range and long-range plans. Blake and Mouton assert the principle that management should be by objectives.[19] Furthermore, the self-study depends upon an assessment of the status of each area of the school's operation compared to the optimum indicated in the school's objectives. In essence then the self-study instrument is used to determine where the school is in terms of its objectives so that plans can be made as to where the school ought to be in the future, in terms of its objectives.

The process of regional elementary school accreditation involves a considerable investment of school resources and time. The process has three distinctive features which should enable school improvement:

1. comprehensive assessment through self-evaluation,
2. goal direction by long- and short-range plans,
3. collaboration or participation by the school community.

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[18]R. Tannenbaum and F. Massarik, "Participation by Subordinates in the Managerial Decision-Making Process," Canadian Journal of Economics and Political Science, (August, 1950), p. 412.

[19]Blake and Mouton, "Principles for Sound Management."

General Hypothesis

The general hypothesis of this study was that there is a relationship between regional accreditation status and selected achievement test scores in public elementary schools in Virginia.

Definition of Terms

Accredited - The term accredited denotes schools which are regionally accredited.

Regionally accredited schools - Regionally accredited schools are defined as public elementary schools in Virginia which were added to the regionally accredited list of SACS during the years 1975 (n 56), 1976 (n 48) and 1977 (n 55). The initial pool of schools in this category is 159 (see Table 1.1). To remain eligible for inclusion in the present study, schools had to also meet the following requirements:

1. have remained fully accredited by SACS during the period 1977 through 1981 - 17 schools of the initial pool failed to meet this requirement;

2. have participated in the Virginia testing program in grade 4 during the period 1977 through 1981 with test scores available from the Virginia Department of Education - 44 schools failed to meet this requirement;

3. have not been a school for special education - 2 schools failed to meet this requirement; and,

4. have actually become accredited in 1975, 1976, or 1977 - 3 schools failed to meet this requirement.

TABLE 1.1

SUMMARY OF REGIONALLY ACCREDITED VIRGINIA ELEMENTARY SCHOOLS

School Year	Total* Virginia Public Elementary Schools	Number** Regionally Accredited Previous Year	Number** Schools Added During Year	Number** Schools Dropped During Year	Total** Schools Regionally Accredited	Total Schools not Regionally Accredited	Percentage of Public Schools Regionally Accredited in Virginia
1974-75	1237	356	73	3	426	811	.34
1975-76	1248	426	56	6	476	772	.38
1976-77	1245	476	48	134	390	855	.31
1977-78		390	55	63	382		
1978-79	1220	382	81	18	445	775	.36
1979-80	1204	445	41	7	479	725	.40
1980-81	1180	479	32	78	433	747	.37

*The Department of Education Commonwealth of Virginia, Fall Membership in Virginia's Public Schools, Richmond: Division of Educational Research and Statistics, 1973 through 1980.

**Southern Association of Colleges and Schools, Proceedings, Atlanta: Southern Association of Colleges and Schools, March, 1975 through March, 1981. Numbers have been adjusted slightly to exclude private schools, laboratory schools, and schools operated by the federal government on military installations.

In addition, not more than three schools in this category could represent any single Virginia school division. A sample of three schools was selected from each school division with more than three schools attaining accreditation in 1975 - 1977. As a result, forty-seven schools were deleted from the original pool: Arlington (-9), Campbell (-1), Halifax (-5), Pittsylvania (-5), Roanoke County (-4), and Virginia Beach (-23). There were forty-six regionally accredited elementary schools included in this study (see Appendix A).

Non-accredited - The term non-accredited denotes schools which are not regionally accredited.

Non-regionally Accredited Schools - Non-regionally accredited elementary schools are defined as all public elementary schools in Virginia that had not been regionally accredited by SACS prior to 1980. In addition, these schools had to meet requirements 2. and 3. listed above for regionally accredited schools. There were 265 non-regionally accredited elementary schools included in this study (see Appendix B).

Achievement Test Scores - Achievement test scores are defined as the results of the Virginia testing program from 1977 to 1980 in grade 4 in public elementary schools in Virginia. The standardized, norm-referenced tests used in the Virginia testing program until 1980 were produced by Science Research Associates (SRA) as part of the SRA Assessment Survey and known as the SRA Achievement Series, Multilevel Blue, Form E. Scores included the school mean raw scores for each of the following subtests: reading, mathematics, language arts, social studies, science, and use of sources.

Student Ability - Student ability is defined as the mean raw score for each public elementary school in Virginia in 1977 on the Short Test of Educational Ability, Level 3 (STEA) which is published by SRA and used in the Virginia testing program.

School Socio-economic Status (SES) - School socio-economic status is defined as the percentage of students within each elementary school in Virginia who were eligible for the free or reduced price lunch program in October, 1977. The number of students eligible for free and reduced price lunch was acquired from responses to Virginia Department of Education, Superintendent's Memo No. 2, "School Lunch Report - Estimated Number of Children Eligible for Free and Reduced Price Lunches," October 3, 1977. The family size and income scale used to determine eligibility for free or reduced price lunches is shown in Appendix C.

School Size - School size is defined as school fall enrollment as published in "Fall Membership in Virginia's Public Schools, 1977-78"[20] by the Division of Research and Statistics, Department of Education, Commonwealth of Virginia.

Expenditure Per Pupil - Expenditure per pupil is defined as school division (district) expenditures per pupil in Average Daily Membership as published in the "Annual Report 1977-78"[21] of the Superintendent of Public Instruction, Commonwealth of Virginia.

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[20]Division of Research and Statistics, Department of Education, Commonwealth of Virginia, "Fall Membership in Virginia's Public Schools, 1977-78," Department of Education, Commonwealth of Virginia, 1978.

[21]Superintendent of Public Instruction, "Annual Report 1977-78," Department of Education, Commonwealth of Virginia, 1978.

Sample and Data Gathering Procedures

Of the 46 accredited schools in the present study, 17 became accredited in 1975, 11 in 1976, and 18 in 1977. These accredited schools represented 29 localities in Virginia, i.e., 18 counties and 11 cities and towns. Non-accredited schools represented 56 localities, i.e., 48 counties and 7 cities. See Table 1.2 for census data of represented localities.

TABLE 1.2

Population of School Localities

Population (1970 Census)	Number of Localities With Regionally Accredited Schools in Study			Number of Localities With Non-Regionally Accredited Schools in Study		
	Counties	Cities	Towns	Counties	Cities	Towns
Less than 3,000	-	-	1	-	-	-
3,001-10,000	4	2	1	12	1	-
10,001-30,000	7	2	-	27	3	-
30,001-50,000	4	1	-	7	1	-
50,001-100,000	2	1	-	1	1	-
100,001-200,000	1	2	-	1	1	-
Over 200,000	-	1	-	-	-	-
Totals	18	9	2	48	7	0
Total Number of Localities with Schools in Study	29 with regionally accredited schools			56 with non-regionally accredited schools		
Grand Total of Localities with Schools in Study	85					

The source of achievement test scores and student ability scores was the Virginia testing program files of the Department of Education, Commonwealth of Virginia. Measures of socio-economic status, school size, and expenditure per pupil were gathered from regularly published and/or accessible reports of the Department of Education, Commonwealth of Virginia.

Limitations

The most serious limitation to the present study is that it was an ex post facto analysis. Since regional accreditation is a naturally occuring phenomenon through which schools voluntarily seek accredited status, neither experimental manipulation nor random assignment was used by the researcher. Campbell and Stanley warn that in those cases in which the experimental group has sought exposure to a treatment "the assumption of uniform regression between experimental and control groups becomes less likely, and selection-maturation interactions (and other selection interactions) become more possible."[22]

This study assumed that standardized achievement test scores are an appropriate measure of comparison between regionally accredited and non-regionally accredited elementary schools even though standardized achievement tests are not designed for such comparisons. Peter Airasian made this statement about the use of standardized achievement tests for assessment of general effectiveness:

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[22]Donald T. Campbell and Julian C. Stanley, Experimental and Quasi-Experimental Designs for Research (Chicago: Rand McNally, 1963), p. 50.

> On the one hand it is a misuse to employ standardized achievement tests as the sole criterion for making decisions about promotion, tenure, school effectiveness, and high school graduation, since inherent in the use of these tests for such decisions are a variety of problems. . . . On the other hand, the public has a right to know, measure, and evaluate individuals and aspects of its schools. Moreover, at present the most politically viable, if not the most technically appropriate, index for such public disclosure is standardized achievement test results.[23]

Instruments for measuring school improvement resulting from regional accreditation have not been developed. The most technically appropriate measure of comparison between accredited and non-accredited elementary schools appears to be achievement test scores.

Some variables which might affect student achievement are beyond the scope of this study. It is possible that school climate, teacher personality, administrative leadership, peer group influence, teacher turnover, or pupil turnover could account for differences in achievement between accredited and non-accredited schools.

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[23]Peter W. Airasian, "A Perspective on the Uses and Misuses of Standardized Achievement Tests," (Washington, D.C.: National Council on Measurement in Education, 1979), Eric Document 187 730, p. 10.

CHAPTER 2

REVIEW OF THE LITERATURE

Because of its recency, only a few studies have explored regional elementary school accreditation and very few of those have dealt with possible relationships between elementary accreditation and other school variables. Therefore, this review relies upon research conducted in the related area of secondary accreditation with emphasis being given to studies of elementary accreditation. With one exception (Satefiel, 1976, 1977), all of the studies reviewed here are unpublished doctoral dissertations.

In her doctoral dissertation, Jurkowitz described six broad categories for previous studies which have treated regional accreditation of secondary schools; five of those broad categories[1] were used to organize this review. In the categorization and listing which follows, it can be assumed that the study treated secondary accreditation unless the citation is followed by an E denoting a study treating elementary accreditation:

1. Studies of the characteristics of principles or standards used in accreditation: Statler (1960), Morrow (1962).
2. Historical studies: Philpot (1968 E), Swenson (1976) E.
3. Studies using the accredited schools of a particular region or state to study either characteristics of

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[1]Carolyn Jurkowitz, "Evaluating Educational Quality: A Study of High School Accreditation by Regional Associations," Unpublished doctoral dissertation, Case Western Reserve University, 1978, p. 3.

accredited schools or the relationship between accredited status and selected other school variables: Vardeman (1959), Barnard (1959), Jantze (1961), Edwards (1964), Bennett (1969), Ossian (1971), Anderson (1973), Saterfiel (1976, 77) E.

4. Studies investigating either educator attitudes toward and reactions to accreditation or the relationship between accreditation and teacher behavior: Martin (1959), Pellegrin (1962) E, Rubinowitz (1966), E, Dufford (1968), Hand (1974) E, Jurkowitz (1978), Jones (1978) E.
5. Studies attempting to establish the relationship between the accreditation process and educational change in schools: Cope (1952), Boersma (1967), Carpenter (1969), Holliman (1969), Hughes (1974), Ricart (1956), Williams (1957), Fox (1969), Worthington (1970).

It should be noted that only seven previous studies have treated regional elementary accreditation: Pellegrin (1962), Philpot (1968), Swenson (1976), Saterfiel (1976-77), Rubinowitz (1966), Hand (1974) and Jones (1978). Brief review of those studies shows that two are historical studies; four investigate attitudes or perceptions of accreditation; and only one, Saterfiel (1976-77), treats the relationship between accredited status and selected other school variables.

The review which follows is organized by the broad categories above with emphasis given to studies of elementary accreditation and to categories 3 and 5 which have primary impact upon this study.

Studies of the Characteristics of Principles or Standards Used in Accreditation

In a study to determine the status of secondary school standards in the United States, Statler made a questionnaire survey of state agencies and studied literature of regional associations. Statler noted that accreditation of secondary schools was controversial and that standards for accreditation appeared to be developed or modified without any apparent scientific study based upon experimentation.[2]

Morrow's study utilized an opinionaire and a panel of principal judges to measure the consistency of application of the principles used by the Southern Association of Colleges and Schools in accrediting secondary schools. Morrow found evidence which indicated that accreditation principles were consistently applied.[3]

Historical Studies

The purpose of Philpot's dissertation in 1968 was to review the development of the Southern Association's accrediting program for elementary schools through the analysis of data collected from the Association and from questionnaires, conferences, and interviews. Philpot noted the steady growth of the accreditation program in the region, and concluded that his survey showed evidence that accredited elementary

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[2]Ellsworth S. Statler, "An Analysis of Current Secondary School Standards of State Agencies and Regional Accrediting Associations," Dissertation Abstracts 21: 2164-A, No. 8, 1960.

[3]John E. Morrow, "A Study of the Principles Used by the Southern Association of Colleges and Schools in Accrediting Secondary Schools," Dissertation Abstracts 23: 4170-A, No. 11, 1962.

schools had more equipment, had more qualified teachers and principals, had more written policy statements than they would have had without the effort involved in seeking accreditation.[4]

Swenson studied the development of accreditation at the elementary school level through document analysis and consultations. One of Swenson's major conclusions was that elementary school accreditation is an educationally sound approach toward the goal of improvement, provided that it is viewed as a means to that end rather than an end in itself.[5]

Studies Using the Accredited Schools of a Particular Region or State to Study Either Characteristics of Accredited Schools or the Relationship Between Accredited Status and Selected Other School Variables

In 1959, two studies were conducted at the University of Alabama. Barnard investigated the relationship between school size, accreditation and other school variables in 290 white public secondary schools in Alabama, and Vardeman studied essentially the same variables in 184 public Negro high schools in Alabama. The purpose of these studies was to determine the relationship of school size and accreditation to the academic training of teachers, courses in science and mathematics, and enrollments in science and mathematics. Schools were classified as belonging to two accreditation classifications, i.e., 1. schools

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4James C. Philpot, "The History and Accomplishments of the Southern Association's Accrediting Program for Elementary Schools in Alabama," Dissertation Abstracts 19: 3436-A, No. 10, 1968.

5Kenneth H. Swenson, "The Development of Accreditation at the Elementary School Level." Unpublished doctoral dissertation, University of North Dakota, 1976.

accredited by the Southern Association and, 2. schools accredited by the Alabama Department of Education. Barnard and Vardeman each found that teachers in regionally accredited schools had higher levels of academic training than teachers in the state accredited schools. They also found increased mathematics and science course offerings in Southern Association schools as compared to state accredited schools.[6,7]

Jantze conducted an investigation to determine whether there were differences in scholastic achievement in the basic school subjects of Nebraska high school students in schools of various state accreditation classifications, various expenditure levels, and various sizes.[8] Though the presently described study did not include an examination of state accreditation practices, Jantze's investigation seems worthy of review. He used the scores from a single administration of the Iowa Test for Educational Development (ITED) as the criterion. After tabulating the achievement test scores for students by accreditation classification, expenditure level, and size of school, Jantze conducted an analysis of covariance, controlling for differences in aptitude and to determine differences in achievement. Jantze found evidence to conclude that in

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[6]Harry V. Barnard, "The Relationship of School Size and Accreditation to Certain Factors in Alabama's White Public Accredited Six-Year Secondary Schools," Dissertation Abstracts 20: 4565, No. 12, 1960.

[7]Martha H. Vardeman, "A Study of the Relationship Between Size and Accreditation of School and Certain Aspects of the Instructional Program in Public Negro High Schools, Alabama, 1958," Dissertation Abstracts 20: 4570, No. 12, 1960.

[8]Ralph D. Jantze, "An Analysis of the Relationship of Accreditation, Finance, and Size of Nebraska High Schools to Scholastic Achievement," Dissertation Abstracts 22: 1069-A, No. 4, 1961.

the sample of forty-six schools which he studied that scholastic achievement was significantly greater in higher accreditation classifications than lower classifications; scholastic achievement is greatest when per-pupil expenditures are greatest except in cases of small enrollment; and scholastic achievement increases as enrollment increases, up to a point, somewhere between 400-799, and then decreases. The primary weaknesses in Jantze's study with regard to the relationship between achievement and accreditation is his failure to equate achievement in accreditation groups prior to the institution of accreditation status. From Jantze's study one cannot determine whether the accreditation status influenced higher achievement or whether schools with high achievement were awarded a high level of accreditation.

In 1964 Edwards conducted a correlational study of the relationship between ratings by a committee of the North Central Association and four other measures; namely, test results, cost per pupil, grade point averages and attitudes of graduates not continuing their formal education. Edwards found no significant correlation between committee evaluations and test results, grade point averages, or cost per pupil.[9]

Bennett introduced his study by stating that educators "are hesitant to venture statements which might equate school quality with

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[9]Charles W. Edwards, "Relationships Between Evaluative Criteria Ratings and Other Measures of Effectiveness of Selected Iowa High Schools," Dissertaion Abstracts 25: 2293, No. 4, 1964.

accreditation. The two should be synonymous, but few attempts have been made to validate accrediting procedures and products.[10] He examined the relationship between pupil achievement on senior placement tests and accreditation status of Florida high schools. Accreditation status was defined in terms of five ratings then being used by the Southern Association. Scores used were mean scores in English, social studies, science, and mathematics. In this study, procedures were adopted which completely phased out the identity of each school. Scores were pooled into the five accreditation statuses. Schools were not compared. Bennett found a strong positive relationship between achievement scores and the level of regional accreditation after adjustments for apptitude scores.

Ossian selected fifty-six small secondary schools half of which had University of Michigan accreditation and half of which did not. University of Michigan accreditation includes the use of the Evaluative Criteria during self-study evaluation. Accredited schools were paired with nonaccredited schools of similar financial resources and total student population. The results of this study showed the effects of accreditation in a matched sample of accredited and non-accredited

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[10]John E. Bennett, "Accreditation Status in Florida Senior High Schools and Pupil Performance on Senior Placement Tests, 1967-68. "Unpublished doctoral dissertation, The University of Florida, 1969, p. 1.

schools. Ossian warned that conclusions from his research should be interpreted only in terms of schools of similar circumstances.[11]

Ossian's study was limited to a comparison of the five following variables: 1. program of studies; 2. physical facilities; 3. allocation of funds; 4. type and amount of special student services; and, 5. the workload, experience, compensation and academic preparation of professional staff. The research characterized these variables generally as input measures.

After pretesting in eight schools, the researcher used three questionnaires for collection of data. Principals responded to questions about facilities, program of studies and special services. Professional staff members answered questions about their preparation, experience, workload and compensation. The researcher completed the third questionnaire using data from annual report forms.

Ossian found that accredited schools offered significantly more units of credit especially in foreign language and industrial education. Accredited schools provided significantly more guidance and testing and consistently higher funding for library services. Also, accredited schools employed significantly more professional staff members.

Anderson's study was another attempt to show a relationship between state accreditation standards and school achievement. He wished to find

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[11]James E. Ossian, "A Study of Selected Differences Between Twenty-eight Small Public Secondary Schools Accredited by the University of Michigan and Twenty-eight Comparable Schools not Accredited by the University." Unpublished doctoral dissertation, The University of Michigan, 1971, p. 12.

whether any variables related to the accreditation standards for elementary schools established by the South Carolina State Department of Education were predictive of general academic achievement of students as measured by the California Test of Basic Skills.[12]

The entire question of describing the relationship between accreditation and achievement was really quite simple to Anderson. All one must do is to quantify accreditation standards and statistically compare the numerical median achievement test scores in each school. In other words, the degree to which each elementary school met accreditation standards became the independent variable in this study; achievement test scores were the dependent variables.

This study was limited to all schools in South Carolina containing at least grades one through four. Achievement test scores were available from ninety percent of the fourth graders attending those schools in 1972-73. Independent variables were taken from principal's annual accreditation reports and included such factors as acres per pupil, books per pupil, instructional cost per pupil, library cost per pupil, and pupil teacher ratio.

Anderson concluded that his evidence showed a very small correlation between any of the individual factors relating to accreditation and student achievement. The largest correlation he found was .2455. He concluded that South Carolina accreditation standards are not predictive of student achievement. Saterfiel began his study by citing the trend of state legislatures to search for school accountability in terms of

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[12]John T. Anderson, "A Study of Accreditation Standards as Predictors of Student Achievement." Unpublished doctoral dissertation, University of South Carolina, 1973, p. 6.

student achievement. The specific questions posed by Saterfiel were as follows:

1. What relationship does the socio-economic status of the students have to their achievement in reading and mathematics?
2. What relationship do school accreditation variables have to student achievement in reading and mathematics when the socio-economic status of students is controlled?
3. What relationship do school accreditation variables have to student achievement in reading and mathematics when the socio-economic status of student is not controlled?[13]

Subjects included thirty-eight eighth grade schools and seventy-four fifth grade schools or attendance centers. The percentage of students eating free lunch was used as the measure of socio-economic status. Accreditation variables included the level of state accreditation and Southern Association accreditation in addition to other numerical variables such as number of library books, and total expenditure.

Saterfiel first conducted a canonical correlation and found that the socio-economic variable had the highest correlation to achievement in reading and mathematics. Next, multiple regression was used to study relationships. The socio-economic variable accounted for 75.5% of the variance in test scores. For purposes of the present study, it is interesting to note that for fifth grade mathematics scores in Saterfiel's study, the socio-economic variable and the regional accreditation

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[13]Thomas H. Saterfiel, "The Relationship Between Student Achivement and Accreditation Variables Associated with the Student's School," Bureau of Educational Research and Evaluation, Mississippi State University, Mississippi, 1976-1977, p. 2.

variable entered at a significant level. Socio-economic status accounted for 63% of the variance and regional accreditation accounted for 3%. Similar results were obtained in regression of eighth grade scores; socio-economic status accounted for 62% and regional accreditation 9%.

When Saterfiel dropped the SES variable from the regression equation for eighth grade mathematics scores, the level of state accreditation entered the equation at a significant level and accounted for 5% of the variance.

Saterfiel concluded that SES must be considered as a covariant in any model of student achievement used to determine the accountability of a school. One of Saterfiel's major implications was that there is some degree of support for the position that traditional school accreditation practices are associated with a difference in achievement test scores in mathematics, and to a lesser extent in reading.

Studies Investigating Either Educator Attitude Toward and Reactions to Acceditation or the Relationship Between Accreditation and Teacher Behavior

Typically the studies in this category employed questionnaires (Martin, Pellegrin) attitude scales or Likert scales (Rubinowitz, Dufford, Hand, Jones), and other surveys (Jurkowitz), to determine the perceptions or attitudes of principals or teachers toward accreditation processes or procedures. These studies have shown, generally, that regional accreditation practices and the use of the Evaluative Criteria are perceived as being valuable or at least adequate by principals and teachers. Dufford found that teacher attitudes did not improve during the evaluation and

even tended to become more negative toward the end of the year of evaluation.[14] Jurkowitz noted that most administrators in her study did name the improvement of educational quality as their major reason for undergoing accreditation.[15]

Jones' study is representative of studies in this category. The basic purpose of the study was to determine the perceptions of elementary school principals toward the Southern Association Accreditation process as it was applied in the Birmingham Public Schools. Principals were assumed to be a valid source of information of the accreditation process. The study was limited to perceptual data from principals; there was no attempt to evaluate facilities, curriculum, or personnel. Validation and field testing of the principal's survey instrument was not accomplished beyond a panel of experts.

A total of seventy-eight elementary school principals formed the total population for the questionnaire. In addition, twenty-eight principals which formed a sample of the total population participated in a structured interview.

Factor analysis of survey data revealed two factors which were named "Products of the Accredition Process" and "Accreditation Process." The researcher concluded that principals as a group tended to perceive the accreditation process generally in a positive manner. They tended to

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[14]William E. Dufford, "The Relationship Between Behavior Patterns of Principals and Changes in Certain Characteristics of Teachers Involved in Evaluation of Accreditation." Unpublished doctoral dissertation, The University of Florida, 1968.

[15]Jurkowitz, op. cit.

feel more positive about the products of the process than they did about the process itself.[16]

The results of this study are only generalizeable to the Birmingham public schools. The study itself has one major weakness which tends to negate the findings and preclude replication. The sample of elementary principals was a sample for convenience; members of the sub-sample of twenty-eight principals were under the direct supervision of the researcher in his capacity as Director of Elementary Education at the time of the study. The responses of principals must be seen in light of this fact.

Studies Attempting to Establish the Relationship Between the Accreditation Process and Educational Change in Schools

Cope's study is representative of studies at the secondary level. The purpose of his investigation was to appraise school improvements which may have resulted from the use of Evaluative Criteria.

Forty-three reports of visiting committees were analyzed and the findings were summarized. Cope constructed a questionnaire based upon the summarization of visiting committee reports. In addition, interviews were conducted with administrators and teachers in fifteen of the sample schools and observations and evaluations were conducted by the investigator of two hundred-nineteen teachers in the same fifteen schools. The

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[16]Andrew L. Jones. "An Analysis of the Perceptions of Elementary Principals Toward the Southern Association Accreditation Process Applied in the Birmingham Public Schools With Implications for Continued Elementary School Improvement." Unpublished doctoral dissertation, The University of Alabama, 1978, p. 80.

meticulous case study of these fifteen sub-sample schools provided the primary data for this study.

Only public high schools in Tennessee which were members of the Southern Association of Colleges and Schools and which had been evaluated by a visiting committee during the period 1949-1951 were selected for inclusion. The study was limited to the following school program areas: 1. curriculum; 2. pupil activity; 3. library services; 4. guidance, 5. staff and administration; and, 6. school plant. Because of these limitations broad generalization was not possible.

Basically, Cope made observations in fifteen schools to determine whether improvements recommended by visiting committees had resulted in corresponding changes in the school program. Cope found that none of the fifteen schools had developed a comprehensive follow-up program in conformance with suggestions outlined in the Evaluative Criteria. He intuitively concluded that the "greatest values resulting from the evaluation programs are probably those not easily observed or measured such as greater unity in the staff, more attention to the individual child, and a better understanding of the total school program as it is related to the community."[17]

Cope attempted to explore the direct relationship between school improvements and the use of the Evaluative Criteria. The measures used were limited to his own observations and interpretations and to the perceptions of teachers, principals, and administrators. He did find

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[17]Quill E. Cope, "An Appraisal of School Improvements Resulting from the Use of Evaluative Criteria in Selected High Schools in Tennessee." Unpublished doctoral dissertation, New York University, 1952.

evidence that the regionally accredited schools which he studied did tend to have expanded their resources and services as a result of using the Evaluative Criteria. He did not attempt to compare regionally accredited schools with similar schools not having regional accreditation.

Boersma's research is cited as a reference in the Elementary School Evaluative Criteria (1973). He attempted to determine the effectiveness of the Evaluative Criteria, 1960 Edition, through an analysis of teacher's perceptions with respect to outcomes in fifteen areas of school operation.

After studying the Evaluative Criteria and describing the process in great detail in his dissertation, Boersma selected eleven of forty-three high schools to be a part of his study based upon the following cirteria. He selected only public schools, and only one public school per district. Most importantly, he selected only schools which did not begin self-study using the Evaluative Criteria prior to September, 1966. The eleven schools were placed in four divisions according to their student enrollment and number of classroom teachers. In addition four high schools were chosen as a control group, each one serving as a control in one of the four divisions. Control schools had not used Evaluative Criteria for at least ten years.

Using criteria designed to insure classroom experience, the researcher selected 383 teachers from the Evaluative Criteria schools and 131 teachers from control schools to participate in the study. He administered two written questionnaires, one before the self-study evaluation, and one after the self-study evaluation, to each of the 514 teachers in 15 schools. The questionnaire, which the researcher had field tested,

contained twenty-one questions to obtain information about teacher's perceptions of the educational program before and after self-study evaluation. The only difference between the questionnaires in Evaluative Criteria and control schools was that questonnaires for the Evaluative Criteria schools contained an additional part designed to solicit teacher's opinions concerning the effectiveness of the Evaluative Criteria as it was used in their schools. The researcher compared the responses in the pre- and post-questionnaires in order to determine the effectivness of the Evaluative Criteria

The researcher noted that the schools in the study did not constitute a representative sample and that results were only applicable to those schools who participated and those similar.

Boersma found that teachers in schools using the Evaluative Criteria perceived themselves as being increasingly more familiar with the written philosophy and objectives of the school; they felt there was increased discussion and agreement by the faculty regarding the philosophy and objectives; and they increasingly employed course objectives for the courses they taught. They also felt there was an increase in their ability to assess the quality of the total educational program. Boersma's final conclusion, however, indicated that the Evaluative Criteria does not influence school improvement. " . . . little evidence is presented in support of the Evaluative Criteria as a stimulus for school improvement in the eleven experimental schools of this study."[18]

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[18]Wendell C. Boersma, "The Effectiveness of the Evaluative Criteria as a Stimulus for School Improvement in Eleven Michigan High Schools." Unpublished doctoral dissertation, The University of Michigan, 1967, p. 149.

Like Cope, Boersma was interested in analyzing the school before and after the employment of the Evaluative Criteria. While Cope's study was based primarily upon concrete statements, evaluations, and observations, Boersma attempted to study only the perceptions of teachers with respect to the outcomes of the use of the Evaluative Criteria.

In 1969, Carpenter conducted a study to determine the effectiveness of the North Central Association self-study and team visit in bringing about change in secondary schools. His investigation was based upon interviews, questionnaires, and document analysis for each of 57 schools in 12 states. Carpenter found that teacher and principal attitudes toward and perceptions of the evaluation process are related to the percentage of improvement recommendations implemented.[19]

Holliman wished to determine the degree of improvements occurring in secondary schools as a result of school evaluations. He used questionnaires with 189 principals in Texas. Holliman's respondents reported that "self-evaluation stimulated substantial improvement in the areas of faculty recognition of program strengths and weaknesses, use and quantity of audio-visual aids, library activities, interest of the teachers in the overall school program, faculty morale, faculty leadership, new teaching procedures, faculty in-servce, faculty-administration professional relationships, and opportunities for the faculty to suggest curriculum

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[19]James L. Carpenter, "Accreditation Evaluation and Institutional Change: A Study of the Implementation of Recommendations in Selected North Central Association Secondary Schools," Dissertation Abstracts 30: 4174-A, No. 10, 1970.

changes."[20] In a similar study, Hughes investigated the effect that evaluation had on the curriculum of secondary schools in Oregon. The majority of principals interviewed by Hughes believed that the Evaluative Criteria evaluations had been worth the time, effort, and money expended. Principals cited one benefit of the evaluaton as the stimulation of curricular change and improvement.[21] In four additional similar studies the findings were much the same. Ricart reported that the principals he interviewed felt that evaluations had been an effective force in stimulating schools toward continuous self-improvement.[22] Williams found that "an enriched educational program followed the evaluations. Additional courses, better integrated curricula, new equipment, additional personnel, . . . and the inauguration of in-service training programs provided an impetus which would probably have been lacking."[23] Fox found differences in salary structures, level of educational attainment within faculties, counseling and guidance facilities, and annual library expenditures. All differences favored the accredited overseas

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[20]Billy C. Holliman, "Educational Improvements Resulting from School Self-Evaluations as Reported by Selected Principals in Texas," Dissertation Abstracts 30: 5196-A, 5197-A, No. 12, Pt. 1, 1970.

[21]Herman W. Hughes, "An Investigation Into the Actions Taken on Visiting Committee Recommendations Resulting from the Use of the Evaluative Criteria in Seventeen Public Secondary Schools in Oregon," Dissertation Abstracts 35: 4914-A, No. 8, 1975.

[22]John E. Ricart, Jr., "A Survey of Actions Taken on Recommendations Resulting from the Evaluations of the Pittsburgh Public Secondary Schools." Unpublished doctoral dissertation, University of Pittsburgh, 1956.

[23]James R. Williams, "An Analysis of Recommendations Resulting from Evaluations of Selected Secondary Schools of Allegheny Country," Dissertation Abstracts 17: 2199, No. 101, 1957.

schools.[24] Finally, Worthington's review of questionnaires from secondary principals revealed that large numbers of changes take place as a result of evaluation, the highest percentage of changes being in guidance, individual staff and administration.[25]

In 1981, Worley conducted a study to determine whether North Central Association self-study would increase the health of a school organization. He theorized "as school personnel work together to solve problems of the organization, interpersonal process norms--openness, trust, inquiry, collaboration, consensus, individuality, etc.--will tend to improve, which will effect the health of the organization."[26] Ten elementary schools in Arkansas which were conducting a self-study in conjunction with regional accreditation in 1980-81 and eight control schools which were not conducting self-study were selected. Teachers in all schools were pre-tested and post-tested with the Organizational Health Instrument (OHI). Worley reported a very strong significant positive relationship between North Central Association self-study and the organizational health of an educational organization.

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[24]Burton B. Fox, "The Question of Accreditation Overseas: A Comparative Study of Accredited and Non-Accredited Schools in Latin America," Dissertation Abstracts 30: 4679-A, No. 11, 1970.

[25]John F. Worthington, Jr., "An Analysis of the Reaction of Principals to Middle States Evaluation Based on the Evaluative Criteria 1968," Dissertation Abstracts, 31: 352-A, No. 7, 1971.

[26]J. Floyd Worley, "The Relationship Between North Central Association Self-Study and Organizational Health." Unpublished doctoral dissertation, The University of Arkansas, 1981, p. 6.

Summary

Very few studies have treated the subject of elementary school regional accreditation practices and processes; consequently this review relied heavily upon studies of secondary school regional accreditation and also studies of state accredition. With few exceptions, the studies of school accreditation have been limited to surveys of the beliefs, attitudes, and perceptions of principals and teachers. These studies are inconclusive in their attempts to show whether or not regional accreditation and associated activities cause school improvements, or even whether regional accreditation is related to school improvements. Most studies indicate that regionally accredited schools have better trained and qualified teachers, more equipment, more library books, better salary scales, and better guidance services (Philpot, Barnard, Vardeman, Ossian, Holliman, Ricart, Williams, and Worthington). Other studies have indicated that regional accreditation is perceived as being worthwhile by principals and/or teachers (Jones, Hughes). Still others have reported no relationship between regional accreditation practices and school improvement (Edwards, Boersma). The majority of these studies tested possible relationships between accreditation and various quantitative input variables, i.e., finance, curriculum, teacher training and salary, number of teachers, and special student services. In cases in which quantitative differences were found between accredited and non-accredited schools; those differences might be explained in terms of the quantitative standards for regional accreditation which demand that accredited schools employ special service personnel and para-professionals, pay

teachers on the basis of a single salary schedule, provide in-serice training and staff development, employ sufficient teachers to maintain a 22:1 pupil-professional staff ratio, spend at least $10. per pupil for instructional materials, and have at least ten books per child in the library book collection.[27]

Studies such as those by Jantze, Bennett, and Saterfiel attempted to equate school accreditation and school accountability or school qualitative output variables, i.e., achievement test scores. They found differences in student achievement in various echelons of regionally accredited and state accredited schools, and Worley found a strong positive relationship between regional self-study and the organizational health of schools. The primary biases in those studies treating the relationship between regional accreditation and achievement scores include: failure to equate achievement scores in groups to be compared prior to the inception of the study of accreditation; failure to recognize the self-selective nature of regional accreditation; and, failure to treat accreditation and school outcome variables over a period of time and with more than one observation. The present study focuses upon qualitative measures, achievement test scores, and attempts to address the limitations noted above in hope that a clearer description of the relationship between regional accreditation and achievement test scores will emerge.

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[27]Commission on Elementary Schools, SACS, Guide to Evaluation and Accreditation, pp. 37-43.

CHAPTER 3

METHODOLOGY

Population and Selection of Sample

The intent of this study was to examine the relationship between regional accreditation status and selected achievement test scores in public elementary schools in Virginia. Two groups or pools of schools were selected from all elementary schools in Virginia: i.e, regionally accredited schools and non-regionally accredited schools. Virginia was selected as the site for this research because of the popularity of regional accreditation in elementary schools and because of the availability of test scores from the annual statewide testing program.

Forty-six regionally accredited schools were selected from an initial pool of 159 regionally accredited schools, and 265 non-regionally accredited schools were identified for inclusion in the study. Specific criteria used in the selection of accredited and non-accredited schools are given in Chapter 1; accredited schools are listed in Appendix A and non-accredited schools are listed in Appendix B.

Procedures for Data Collection

The data for this study were collected directly from regularly published and/or accessible reports and files of the Department of Education, Commonwealth of Virginia. A computer tape of school mean raw achievement test scores and ability scores for the years 1977 through 1980 was created from individual student scores by the Department of Education, Commonwealth of Virginia and provided to the researcher. The

following data were collected for each of the 311 schools included in the study:

a) 1977 student ability score (school mean raw score on STEA in grade 4)

b) 1977-1980 achievement test scores (school mean raw score in reading total, language arts total, mathematics total, social studies, science, and use of sources on the SRA Achievement Series, Multilevel Blue, Form E, in grade 4)

c) 1977 school SES indicator (percentage of students eligible for free or reduced price lunches)

d) 1977 expenditure per pupil (school district expenditure in Average Daily Membership)

e) 1977 school size (enrollment)

Instrumentation

The SRA Achievement Series (ACH), multilevel edition, is a standardized, norm-referenced achievement series which was developed by Science Research Associates between 1968 and 1972 and used in the Virginia testing program in 4th grade in 1973 through 1980. The tests provide measures of student academic progress in reading, mathematics, language arts, social studies, use of sources, and science. Raw scores from these subtests of the SRA Achievement Series, Multilevel Blue, Form E, provided the primary data for this study.

In developing the content for the SRA Achievement Series the authors carefully followed a six step process which included a curriculum survey,

content classifications, item development, pretesting of items, selection of items, and development of final form.[1] After reviewing the tests Frederick Brown decided that SRA test items "represent no radical departures from those included in other achievement test batteries and, in general, are of quite acceptable quality."[2] With regard to the question of content validity, Brown warned that the publisher of the SRA Achievement Series had determined that answers were in the hands of test users. Correlations between the SRA Achievement Series and other achievement measures were not given by the publisher.[3]

The SRA Achievement Series was standardized in 1971 with usable test results from a random sample of 155,567 students from 816 schools in 224 school districts throughout the United States.[4] Reliability correlation coefficients were determined using the Kuder-Richardson-20 (KR-20) formula. Representative KR-20 reliability estimates for the SRA Achievement Series, Multilevel Blue, Form E subtests were given as reading total .95, language arts total .95, mathematics total .92, social studies .89, science .88, and use of sources .91.[5]

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[1]Science Research Associates, Technical Report: SRA Assessment Survey (Chicago: Science Research Associates, Inc., 1974), pp. 4-9.

[2]Oscar K. Buros, Editor, The Eighth Mental Measurements Yearbook (Highland Park, New Jersey: The Gryphon Press, 1978), p. 6.

[3]Ibid., p. 7.

[4]Science Research Associates, Technical Report, p. 11.

[5]Science Research Associates, Inc., Using Test Results: A Teacher's Guide (Chicago: Science Research Associates, Inc., 1972), p. 6.

The SRA Short Test of Educational Ability (STEA) is a single score ability test designed to provide a reliable estimate of general educational ability from a short, easily administered test.[6] The STEA, Level 3, test provides for measurement of verbal, number, and reasoning abilities most closely associated with academic performance. The STEA was standardized at the same time as the SRA Achievement Series. Reliability was reported as .90 in grade 4, and correlations between STEA, Level 3 and the SRA Achievement Series were given as reading total .82, mathematics total .70, language arts total .71, social studies .78, science .75, and use of sources .75.[7]

Design

This study was an ex post facto analysis as described by Campbell and Stanley.[8] An experimental design was not attainable because random assignment of schools was not possible and because the researcher was not able to control the treatment-regional accreditation. The design employed in this study can be diagramed as follows with X representing regional accreditation; O representing achievement test scores; and the parallel rows of dashes separating groups representing groups not equated by random assignment:

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[6]Science Research Associates, Inc., Interpretive Manual STEA, Levels 3-5 (Chicago: Science Research Associates, Inc., undated), p. 1.

[7]Ibid., p. 10.

[8]Donald T. Campbell and Julian C. Stanley, Experimental and Quasi-Experimental Designs, p. 64.

	1975	1976	1977	1978	1979	1980
Regionally Accredited Schools (N = 46)	X	X	XO	O	O	O
Non-regionally Accredited Schools (N = 265)			O	O	O	O

Data Analyses

This study examined the relationship between regional accreditation status and achievement test scores in public elementary schools in Virginia by comparing the achievement test scores of regionally accredited schools with achievement test scores of non-regionally accredited schools.

Data from 1977 (student ability score (STEA); achievement test scores in reading total, mathematics total, language arts total, social studies, science, and use of sources; school SES; expenditure per pupil; and school size) were analyzed using a hierarchical cluster procedure designed to help classify schools with similar attributes. The cluster procedure was selected because the review of related research did not reveal a strong theoretical basis for equating, matching, categorizing, or classifying regionally and non-regionally accredited schools prior to the analysis of scores. The most frequently used classifications for analysis of schools, i.e., achievement test scores, ability scores, SES, school size, and expenditure per pupil were all employed in the cluster procedure in the present study in order to determine schools with similar attributes. Anderberg made this statement with regard to cluster analysis:

> In cluster analysis little or nothing is known about the category structure. All that is available is a collection of observations whose category memberships are unknown. The operational objective in this case is to discover a category structure which fits the observations. The problem is frequently stated as one of finding the "natural groups." In a more concrete sense, the objective is to sort the observations into groups such that the degree of "natural association" is high among members of the same group and low between members of different groups. The essence of cluster analysis might be viewed as assigning appropriate meaning to the terms "natural groups" and "natural association."[9]

The cluster analysis employed was publised by SAS in 1979.[10] An option was employed allowing 50 optimally homogeneous clusters of schools to be classified on the basis of data from the year 1977.

Following the formation of 50 optimally homogeneous clusters, those clusters composed solely of either regionally accredited or non-regionally accredited schools were dropped. Clusters composed of a mix of regionally and non-regionally accredited schools were retained for disciminant analysis.

Achievement test scores for 1978, 1979, and 1980 from schools classified in the cluster procedure were subjected to discriminant

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[9]Michael R. Auderberg, Cluster Analysis for Applications (New York: Academic Press, 1973), p. 2-3.

[10]SAS Institute, Inc. SAS User's Guide (Cary, North Carolina, SAS Institute, Inc., 1979), p. 157.

analysis. The analysis was weighted to compensate for different numbers of accredited and non-accredited schools. SPSS was employed to perform discriminant analysis.[11]

Specific Hypothesis

Based upon SACS' belief that regional accreditation is significant in improving elementary schools and previous research by Jantze, Bennett, Saterfiel, and Worley; and after insuring the maximum homogeneity of group through cluster analysis of 1977 data it was hypothesized that 1978, 1979, and 1980 achievement test scores from regionally accredited elementary schools would be significantly higher than 1978, 1979, and 1980 achievement test scores from non-regionally accredited elementary schools.

Summary

The purpose of this study was to examine the relationship between regional accreditation status and achievement test scores in public elementary schools in Virginia through a comparison of accredited and non-accredited elementary schools.

The primary instrumentation for the study was the SRA Achievement Series (ACH), a norm-referenced achievement battery used in the Virginia testing program. Content validity of the SRA Achievement Series lies primarily in the hands of test users.

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[11]Norman H. Nie, et al., SPSS: Statistical Package for the Social Sciences (New York: McGraw-Hill, 1975), p. 434.

This study employed an ex post facto design and used a cluster analysis procedure in order to insure the maximum homogeneity of accredited and non-accredited schools prior to the analysis of scores. Achievement test scores for 1978, 1979, and 1980 were subjected to discriminant analysis; and it was hypothesized that scores from accredited elementary schools would differ significantly from scores of non-accredited elementary schools.

CHAPTER 4

RESULTS

The purpose of this study was to test the hypothesis that 1978, 1979, and 1980 achievement test scores from regionally accredited elementary schools were significantly higher than 1978, 1979 and 1980 achievement test scores from non-regionally accredited elementary schools. To accomplish this purpose, 46 regionally accredited and 265 non-regionally accredited elementary schools selected for study were first classified through a clustering procedure using a collection of 1977 data. 1977 data consisted of the following ten variables:

1. S.T.E.A.-school mean raw score on Short Test of Educational Ability;
2. Reading-school mean raw score on reading (total) portion of the SRA Achievement Series;
3. Math-school mean raw score on mathematics (total) portion of the SRA Achievement Series;
4. S.E.S.-percentage of students eligible for free and/or reduced price lunches;
5. Language Arts-school mean raw score on language arts (total) portion of the SRA Achievement Series;
6. Social Studies-school mean raw score on the social studies subtest of the SRA Achievement Series;
7. Science-school mean raw score on the science subtest of the SRA Achievement Series;

8. Use of Sources-school mean raw score on the use of sources subtest of the SRA Achievement Series;
9. Enrollment-school pupil enrollment; and,
10. Expenditure-school district expenditure per pupil.

For the purpose of cluster analysis all values for the ten variables were converted to standard form with a mean equal to 0 and standard deviation equal to 1; after the analysis, standard scores were converted to t-scores with a mean equal to 50 and standard deviations equal to 10. All values reported here are in the form of t-scores.

By design, cluster analysis produced a total of 50 clusters; 22 clusters contained only non-accredited schools and 1 cluster contained a single accredited school. These 23 clusters of like schools were dropped from further analysis. In addition, 1 accredited and 3 non-accredited schools were dropped because of missing data. A total of 2 regionally accredited and 71 non-regionally accredited schools were eliminated following cluster analysis.

Cluster analysis resulted in the numeric formation of 27 clusters composed of 44 regionally and 194 non-regionally accredited schools. Schools within each cluster possessed similar values for the 10 variables from 1977. Table 4.1 shows the number of accredited and non-accredited schools in each cluster. Table 4.2 gives the mean t-score for each of the 10 variables in each of the 27 clusters. In addition, the mean t-score for each of the 10 variables in each of 238 schools in 27 clusters is given in Appendix D.

TABLE 4.1

RESULTS OF CLUSTER ANALYSIS

Cluster Number	Number of Accredited Schools in Cluster	Number of Non-Accredited Schools in Cluster	Total Schools in Cluster
1	2	21	23
2	2	1	3
3	3	5	8
4	1	12	13
5	1	7	8
6	2	7	9
7	1	3	4
8	1	5	6
9	1	18	19
10	2	2	4
11	1	5	6
12	2	10	12
13	1	1	2
14	2	2	4
15	2	11	13
16	1	3	4
17	2	5	7
18	3	4	7
19	2	12	14
20	4	12	16
21	1	2	3
22	2	19	21
23	1	15	16
24	1	5	6
25	1	4	5
26	1	2	3
27	1	1	2
Total	44	194	238

TABLE 4.2

MEAN T-SCORES FOR 10 VARIABLES IN 27 CLUSTERS

(Mean = 50, standard deviation = 10)

Cluster Number	STEA	Reading	Math	SES	Language Arts	Social Studies	Science	Use of Sources	Enrollment	Expenditure
1	45	45	44	47	45	45	44	43	47	46
2	42	47	41	49	45	51	51	48	51	41
3	42	42	42	50	40	39	41	40	51	48
4	44	44	44	54	46	44	45	46	43	49
5	42	40	50	71	46	43	45	44	42	49
6	49	48	50	65	54	49	49	50	44	51
7	40	38	40	53	39	38	37	38	67	54
8	33	31	33	58	31	32	31	32	41	49
9	41	38	38	55	37	37	38	38	41	45
10	38	38	36	68	34	37	36	38	53	62
11	40	35	37	69	35	35	37	36	44	47
12	56	57	59	39	56	58	57	56	57	60
13	60	58	68	47	62	60	62	64	46	58
14	62	58	61	40	57	57	55	56	51	46

TABLE 4.2 (Continued)

MEAN T-SCORES FOR 10 VARIABLES IN 27 CLUSTERS

(Mean = 50, standard deviation = 10)

Cluster Number	STEA	Reading	Math	SES	Language Arts	Social Studies	Science	Use of Sources	Enrollment	Expenditure
15	57	54	55	49	53	52	55	54	41	54
16	54	56	67	40	62	53	54	56	51	44
17	51	50	45	40	50	50	49	50	55	59
18	50	47	51	52	46	49	46	47	57	62
19	47	46	47	46	47	46	46	46	63	44
20	54	52	49	45	51	52	52	52	63	48
21	53	56	51	38	52	56	56	53	70	41
22	50	52	51	46	50	51	50	51	42	43
23	53	56	52	47	56	56	56	56	50	46
24	60	62	66	41	65	62	61	65	44	42
25	64	59	54	39	62	63	66	62	71	47
26	66	68	62	49	67	65	65	64	58	46
27	69	69	67	36	62	64	62	63	46	115

Following cluster analysis, the achievement test scores for 1978, 1979, and 1980 were weighted according to the number of schools in each category (accredited and non-accredited) in each cluster. The formula for the weight assigned to the scores was:

$$\frac{1}{\text{number of schools in category in cluster} \times 3 \text{ years}} = \text{weight}$$

In order to illustrate the weighting formula, the schools in cluster #3 were weighted as follows:

$$\frac{1}{3 \text{ accredited schools} \times 3 \text{ years}} = .111111$$

$$\frac{1}{5 \text{ non-accredited schools} \times 3 \text{ years}} = .066667$$

There were 3 accredited schools in cluster #3 with scores in each of 3 years resulting in a total of 9 sets of scores. Each set of scores was weighted .111111, one ninth. There were also 5 non-accredited schools in cluster #3 with scores in each of 3 years, i.e., a total of 15 sets of scores. Each set of scores was weighted .066667, one-fifteenth. The sum of all weighted scores in each category in each cluster is 1.

The SPSS weighting procedure employed in this study allowed each individual school's score to be considered in terms of the total number of schools in each cluster. When the scores were processed, the value of the weight determined how heavily those scores were considered for any given statistical procedure.

Through cluster analysis accredited schools were classified with schools possessing similar characteristics, but the number of accredited

and non-accredited schools remained uneven. The purpose of weighting was to compensate for the uneven number of cases while utilizing all available data.

In the first discriminant analysis all scores from all 3 years were utilized. Scores from 238 schools for 3 years or 714 unweighted cases were processed. Eighteen (18) sets of scores from non-accredited schools had at least one missing discriminating variable and were excluded from the analysis. Six hundred and ninety-six (696) unweighted cases were used in the discriminant analysis. Since the weighting procedure had the effect of reducing the number of accredited and non-accredited schools to 27 (one each for each cluster), a multiplier of 1.63 was employed prior to discriminant analysis in order to bring the number of accredited and non-accredited schools back to 44 which was the original number of accredited schools following cluster analysis. Discriminant analysis for all three years involved the following:

	Unweighted	Weighted
Non-regionally accredited schools	564	42.4
Regionally accredited schools	132	44.0
Total	696	86.4

The number of non-accredited weighted cases was not 44 due to the missing values mentioned above. Discriminant analysis statistically compared scores from 44 accredited schools with 42.4 non-accredited schools.

The group means for accredited schools were slightly higher than the group means for non-accredited schools for each subtest. Group means and standard deviations are given in Table 4.3.

TABLE 4.3

GROUP MEANS AND STANDARD DEVIATIONS

GROUP MEANS	Reading	Language Arts	Math	Social Studies	Science	Use of Sources
non-regionally accredited	39.54	50.79	31.55	23.41	23.77	22.76
regionally accredited	40.33	52.48	32.49	24.03	24.22	23.56

GROUP STANDARD DEVIATIONS	Reading	Language Arts	Math	Social Studies	Science	Use of Sources
non-regionally accredited	6.44	6.58	5.06	3.64	3.46	3.89
regionally accredited	6.40	6.43	4.89	3.51	3.37	3.65

A stepwise selection method, minimum Wilks' lambda, was employed in the analysis so that variables with the best discriminating power would be selected. When the Wilks method is employed "the criterion is the overall multivariate F ratio for the test of differences among group centroids. The variable which maximizes the F ratio also minimizes Wilks' lambda, a measure of group discrimination. This test takes into consideration the differences between all the centroids and the cohesion (homogeneity) within the groups."[1] Language arts scores were included in the analysis in step 1 and reading scores were included with language arts scores in step 2. No other variables qualified for entry into the analysis following step 2.

Language arts and reading scores were combined to form a canonical discriminant function. The statistics related to this function are presented in Table 4.4.

Discriminant analysis also produced graphs of the scores involved in the discriminant function. Figure 1 gives a separate graph or histogram for the scores in the canonical discriminant function for both non-accredited and accredited groups. The two graphs in Figure 4.1 depict considerable overlap of groups. The same overlap is evident in Figure 4.2 which shows a stacked histogram of the discriminant function for both groups.

Discriminant analysis classified scores from each case by predicting membership in either the accredited or non-accredited group. Of the 42.4

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[1]Norman H. Nie, et al., SPSS: Statistical Package for the Social Sciences (New York: McGraw Hill, 1975), p. 447.

TABLE 4.4

STATISTICAL SUMMARY OF DISCRIMINANT ANALYSIS OF SCORES FOR 1978, 1979, AND 1980

Variables Entered

Step	Entered	Wilks' Lambda	Significance
1	Language Arts	0.983	0.2305
2	Reading	0.961	0.1898

Canonical Discriminant Function

Eigenvalue	Percent of Variance	Canonical Correlation	Wilks' Lambda	Chi-Squared	Significance
0.04063	100.00	0.198	.961	3.32	0.1898

Group Means (centroids)

Group	Function
non-regionally accredited	-0.20292
regionally accredited	0.19562

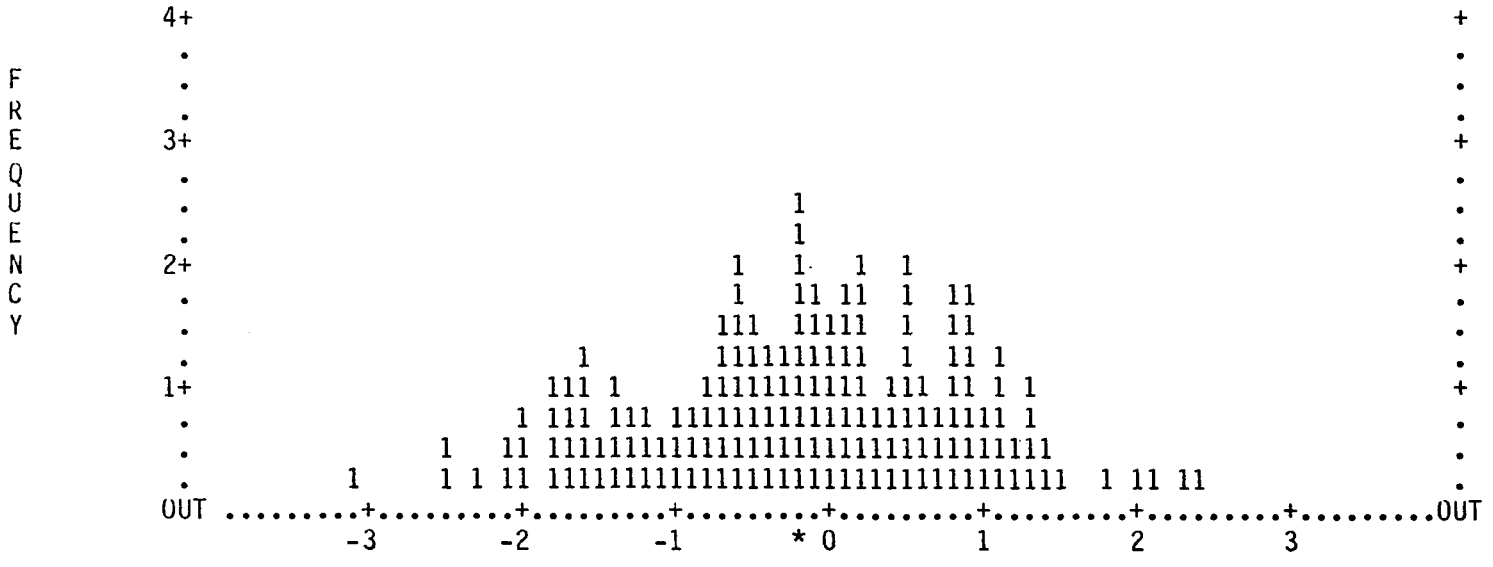
Standardized Canonical Discriminant Function Coefficients

Variable	Function
Reading	-1.95
Language Arts	2.45

FIGURE 4.1

HISTOGRAMS FOR THE CANONICAL DISCRIMINANT FUNCTION

Histogram for the non-regionally accredited group



CENTROID
(-0.20292)

FIGURE 4.1 (Continued)

HISTOGRAMS FOR THE CANONICAL DISCRIMINANT FUNCTION

Histogram for the regionally accredited group

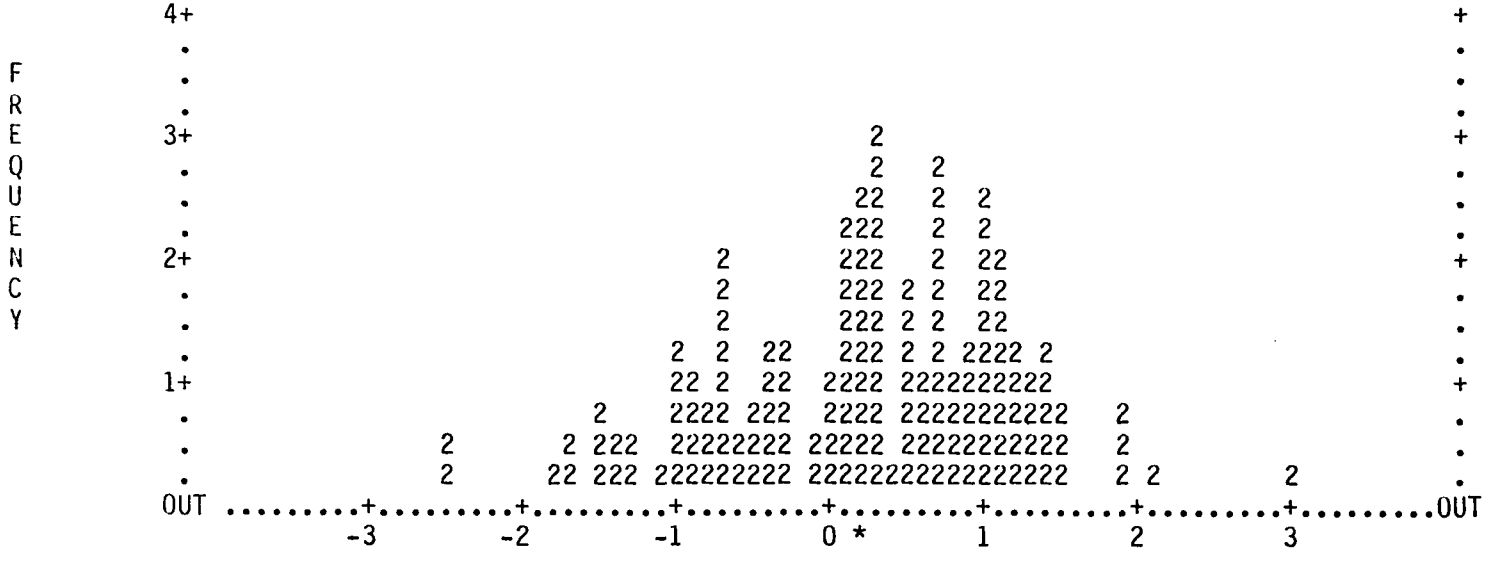
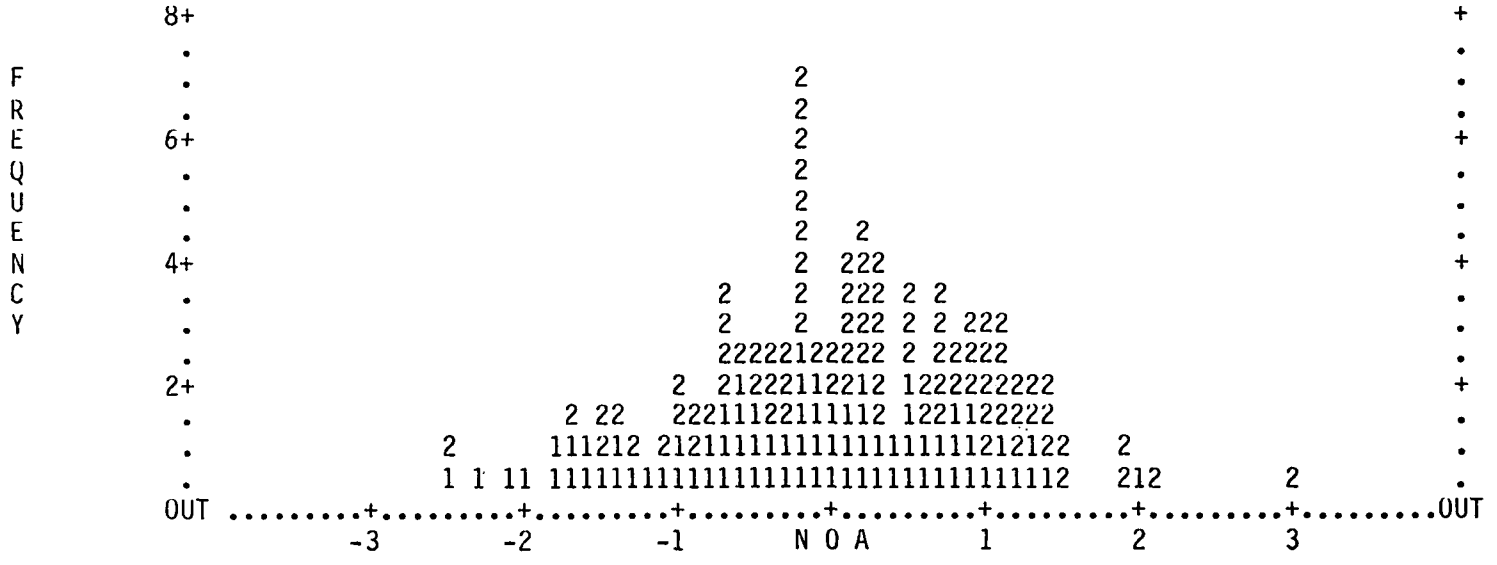


FIGURE 4.2

STACKED HISTOGRAMS OF THE CANONICAL DISCRIMINANT FUNCTION

FOR THE NON-REGIONALLY AND REGIONALLY ACCREDITED GROUPS



cases in the non-regionally accredited group 24 (55.6%) were predicted to be members of the regionally accredited group. Of the 44 cases in the regionally accredited group 18 (39 %) were predicted to belong to the non-regionally accredited group and 26 (60.2%) were correctly classified. The total percentage of cases correctly classified was 57.93%.

The results of discriminant analysis of scores for each year were similar to the results for all years. For 1978, scores from 238 schools (unweighted) were processed. Six (6) of these sets of scores from non-regionally accredited schools had at least one missing discriminating variable and were excluded from the analysis. For 1979, scores from 238 schools (unweighted) were processed and there were 3 sets of scores eliminated from further analysis due to missing variables. For 1980, 238 cases were processed and 9 were eliminated because of missing data. In the analysis by year, the weighting procedure had the effect of reducing the number of accredited and non-accredited schools to 9. A multiplier of 4.89 was employed prior to discriminant analysis in order to bring the number of accredited and non-accredited schools back to 44 which was the original number of accredited schools following cluster analysis. Discriminant analysis by year involved the following:

1978

		Unweighted	Weighted
non-regionally accredited schools		188	41.4
regionally accredited schools		44	44
	Total	232	85.4

1979

		Unweighted	Weighted
non-regionally accredited schools		191	43.6
regionally accredited schools		44	44
	Total	235	87.6

1980

		Unweighted	Weighted
non-regionally accredited schools		185	42.3
regionally accredited schools		44	44
	Total	229	86.3

The number of non-accredited weighted cases was not 44 because of missing values.

In all three years the group means for regionally accredited schools were slightly higher than the group means for non-regionally accredited schools for each subtest. Group means and standard deviations are given for each year in Table 4.5.

The Wilks stepwise selection method was again employed in the analysis by year. For 1978, language arts scores were entered into the analysis in step 1 and science scores in step 2. For 1979, no variables qualified for analysis and it was abandoned. For 1980, mathematics scores were entered in step 1, science scores in step 2 and language arts scores in step 3. Tables 4.6 and 4.7 give statistical summaries for discriminant analysis of scores in 1978 and 1980. The histograms for scores in the canonical discriminant functions for 1978 and 1980 were very similar to histograms already presented for all years and hence are not presented here.

TABLE 4.5

GROUP MEANS AND STANDARD DEVIATIONS BY YEAR

			Reading	Language Arts	Math	Social Studies	Science	Use of Sources
1978	Group Means	regionally accred.	39.64	51.66	31.49	23.67	23.84	22.89
		non-regionally accred.	38.38	49.37	30.50	22.68	23.11	21.83
	Group Standard Deviations	regionally accred.	6.76	6.62	4.94	3.58	3.59	3.67
		non-regionally accred.	6.00	6.43	4.64	3.38	3.27	3.57
1979	Group Means	regionally accred.	40.11	52.05	32.24	23.95	24.19	23.64
		non-regionally accred.	40.00	51.21	31.94	23.69	23.91	23.03
	Group Standard Deviations	regionally accred.	6.51	6.74	5.08	3.61	3.17	3.78
		non-regionally accred.	6.76	6.78	5.27	3.75	3.61	3.93
1980	Group Means	regionally accred.	41.23	53.74	33.75	24.46	24.64	24.16
		non-regionally accred.	40.21	51.76	32.18	23.85	24.27	23.39
	Group Standard Deviations	regionally accred.	5.78	5.71	4.37	3.30	3.28	3.37
		non-regionally accred.	6.37	6.28	5.09	3.65	3.37	3.99

TABLE 4.6

STATISTICAL SUMMARY OF DISCRIMINANT ANALYSIS OF 1978 SCORES

Variables Entered

Step	Entered	Wilks' Lambda	Significance
1	Language Arts	0.969	0.1087
2	Science	0.948	0.1086

Canonical Discriminant Function

Eigenvalue	Percent of Variance	Canonical Correlation	Wilks' Lambda	Chi-Squared	Significance
0.05539	100.00	0.229	.948	4.44	0.1085

Group Means (centroids)

Group	Function
non-regionally accredited	-0.23986
regionally accredited	0.22552

Standardized Canonical Discriminant Function Coefficients

Variable	Function
Language Arts	2.38
Science	-1.75

TABLE 4.7

STATISTICAL SUMMARY OF DISCRIMINANT ANALYSIS OF 1980 SCORES

Variables Entered

Step	Entered	Wilks' Lambda	Significance
1	Mathematics	0.973	0.1282
2	Science	0.956	0.1541
3	Language Arts	0.920	0.0760

Canonical Discriminant Function

Eigenvalue	Percent of Variance	Canonical Correlation	Wilks' Lambda	Chi-Squared	Significance
0.08658	100.00	0.282	0.920	6.87	0.0760

Group Means (centroids)

Group	Function
non-regionally accredited	-0.29667
regionally accredited	0.28506

Standardized Canonical Discriminant Function Coefficients

Variables	Function
Language Arts	1.67
Mathematics	0.72
Science	-1.89

Of the 41.4 cases in the non-accredited group in the analysis for 1978, discriminant analysis predicted that 24 (58.7%) were members of that group and 17 (41.3%) were predicted to be members of the accredited group. Of the 44 regionally accredited cases in 1977, 21 (46.6%) were predicted to be members of the non-accredited group and 23 (53.4%) were correctly classified. The total number of cases correctly classified in the analysis of 1978 scores was 55.97%.

Predictions made on the basis of analysis of 1980 scores were somewhat better than those for 1978. Of the 42.3 cases in the non-accredited group 25 (58.9%) were correctly classified and 17 (41.1%) were classified as accredited. Seventeen (17) (38.6%) of the 44 accredited schools were classfied as non-accredited and 27 (61.4%) were correctly classified. A total of 60.18% of 1980 cases were correctly classified.

Summary

Through cluster analysis 50 clusters of optimally homogeneous schools were formed. Clusters with all non-accredited schools or all accredited schools were dropped from further analysis. Cluster analysis resulted in the formation of 27 clusters composed of 44 accredited and 194 non-accredited schools. Schools in each cluster were assigned a weight based upon the number of schools in each category (accredited and non-accredited) in each cluster. The purpose of cluster analysis was to classify accredited schools with non-accredited schools possessing nearly similar characteristics. Through weighting the scores from each school the number of accredited and non-accredited schools was equalized and all available data was utilized in the analysis.

Group means for all scores for accredited schools were slightly higher than those for non-accredited schools in the analysis for all years and the analysis by year.

Language arts and reading scores formed the canonical discriminant function in the analysis for all years. Group means (centroids) and histograms indicated considerable overlap of groups.

The results of discriminant analysis of scores for each year were similar to the results for analysis of all years. Language arts and science scores entered the analysis of 1978 scores, but no variables qualified for analysis in 1979. Mathematics, science, and language arts formed the discriminant function in the analysis of 1980 scores. The best classification predictions resulted from analysis of 1980 scores which caused 60.18% of all schools to be correctly classified.

CHAPTER 5

SUMMARY, CONCLUSIONS

For over twenty years the Southern Association of Colleges and Schools (SACS) has offered an increasingly popular, albeit controversial, program of regional accreditation for those elementary schools and school districts willing to meet certain established standards, conduct a self-evaluation, and formulate plans and priorities. According to the stated beliefs of SACS, accrediting is a valuable experience which is a significant factor in improving schools. The distinguishing features of regional elementary accreditation which would likely account for school improvement are the detailed self-study evaluation using Elementary School Evaluative Criteria, the formulation of accompanying plans and priorities, and collaboration or active participation by all members of the school community.

For purposes of this study the Southern Association's belief that accrediting results in school improvement was translated into a measurable indicator of school improvement, achievement test scores. Scores from accredited and non-accredited elementary schools in Virginia were compared in order to determine if there is a relationship between regional accreditation and achievement test scores.

Early in the history of regional accreditation the idea of the regular use of standardized tests as a means for evaluating schools was tried and abandoned. From the mid to late 1930s the Cooperative Study of Secondary School Standards, the forefather of the National Study of School Evaluation, conducted extensive effort and study toward producing the first edition of Evaluative Criteria. The Cooperative Study found no

agreement between the results of the testing program and the results from any other methods of evaluation, and they found that those persons connected with the study felt that carefully formulated committee judgments were a more satisfactory method of measurement than any more objective method.[1] Based upon extensive study, the Cooperative Study recommended that testing should not be used as a means of accreditation or widespread school comparisons. They based their recommendations on three factors:

> First, such a regular use of tests on a large scale would probably bring about a rigid curriculum - each curriculum tending to become oriented toward success in testing programs rather than toward true pupil needs. Second, test results, even when carefully analyzed and adjusted to allow for disturbing factors other than quality of school experience, seem to have little validity for identifying superior and inferior schools. Third, a better method of evaluation is available; qualitative judgments of a school's own staff on a variety of aspects of the school when carefully made by means of a checklist-evaluation technique and checked by a visiting committee, are much easier to make, more flexible in their application, and more valid as indicators of school excellence.[2]

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[1]Cooperative Study of Secondary School Standards, Evaluation of Secondary Schools: General Report (Washington, D.C.: Cooperative Study of Secondary School Standards), 1939.

[2]Ibid. p. 207.

Today, though basic achievement tests which are normally scheduled in the school form a small segment of self-evaluation employing Evaluative Criteria, no standardized achievement tests are used for accrediting or for comparisons of accredited schools. The original recommendations of the Cooperative Study seem to be well established.

The present study did not attempt to establish standardized achievement tests as a method of accrediting nor did it attempt to compare only accredited schools on the basis of achievement tests. It was assumed that standardized achievement tests are an appropriate measure of comparison between accredited and non-accredited elementary schools and that study of achievement test scores might disclose a relationship between regional accredition and achievement.

Most previous research treating school accreditation has been limited to historical studies and surveys of principals and teachers. Some research has indicated that accredited schools fare better quantitatively than non-accredited counterparts. However, for the most part, the research of school accreditation has been inconclusive in showing that accreditation processes or practices are related to school improvements. Studies which attempted to show a relationship between accreditation and qualitative output variables were seriously delimited because possible self-selection bias was not accounted for and because accreditation and outcome variables were only studied for one or two years.

To diffuse possible self-selection bias to the greatest possible extent and to insure a logical classification for accredited and non-accredited elementary schools, ten variables were entered into a cluster

analysis. Cluster analysis produced 27 clusters or natural groups of elementary schools; the schools within the same cluster possessed optimally homogeneous characteristics while schools in different clusters possessed optimally hetereogeneous characteristics. A total of 44 accredited and 194 non-accredited elementary schools were successfully classified with cluster analysis.

Achievement test scores from each of the clustered schools for 1978, 1979, and 1980 formed the first discriminate analysis. The results showed that group means from accredited schools were slightly higher than group means for non-accredited schools on each achievement subtest. Language arts and reading scores had the best discriminating power and were included in the analysis; no other variables qualified for entry. Language arts scores were found to be significant at the .2305 level and when combined with reading scores were significant at the .1898 level. The eigenvalue of the canonical discriminant function formed by language arts and reading scores was .04063 with a canonical correlation of .198. Histogram plots of the canonical discriminant function showed considerable overlap of accredited and non-accredited groups. Discriminant analysis correctly predicted group membership for a total of 57.93% of the cases.

In the second discriminant analysis, achievement test scores from each of the clustered schools were analyzed by year. The results were very similar to the analysis for all years. In the analysis of 1978 scores the results showed that the group means for each achievement subtest of accredited schools were slightly higher than group means for non-accredited schools. Language arts scores were significant at the .1087 level and when combined with science scores were significant at the .1086

level. The eigenvalue of the canonical disciminant functfon was .05539 with a canonical correlation of .229. The total percentage of cases correctly classified was 55.97%.

The analysis of 1979 scores showed the group means on achievement subtests for accredited schools to be faintly higher than group means for non-accredited schools. In the analysis of 1979 scores none of the discriminating variables was sufficient to qualify for analysis and the analysis was abandoned.

The analysis of 1980 scores also showed that group means on achievement subtests were slightly higher for accredited schools than for non-accredited schools. Mathematics, science, and language arts scores entered the canonical discriminant function. Mathematics scores were significant at the .1282 level. Mathematics and science scores were significant at the .1541 level and mathematics, science and language arts scores were significant at the .0760 level. The eigenvalue of the canonical discriminant function was .08658 with a canonical correlation of .282. In the analysis of 1980 scores 60.18 percent of the cases were correctly classified through discriminant analysis.

Histograms of the canonical discriminant functions for the 1978 and 1980 analyses were similar to the histogram of the canonical discriminant function for the analysis for all years. There was notable overlap of accredited and non-accredited groups.

Discussion

Accredited schools selected for inclusion in this study gained their regionally accredited status in 1975(17), 1976(10), and 1977(17) which

means that scores from 1978 represented the third, second and first years of accreditation for those selected schools. The results of this study indicate weak discriminating power for 1978 scores. Scores from 1980 represent the fifth, fourth, and third years of accreditation of the selected schools. The results of the analysis of 1980 scores showed more discriminating power than scores for 1978, and there was no discrimination between accredited and non-accredited school scores for 1979. One possible explanation of these results is that accreditation effects achievement intermittently over time. The first year or two of accreditation may account for a slight increase in achievement test scores followed by a period during which achievement declines to normal levels. Achievement gain during the first years may be the result of the effort and plans of the initial self-study evaluation. By the fourth or fifth year achievement may again begin to increase having been inspired by the efforts of the five-year interim planning review which is required to maintain regional accreditation status. If this explanation is accurate then achievement gains during the ninth and tenth years following initial self-study evaluation might become even more significant because all schools wishing to remain accredited must engage in new self studies during those years.

Weak discrimination between accredited and non-accredited schools in this study could be explained by the possibility that non-accredited schools also engage in self-study or self-evaluation. Non-accredited schools may employ the Evaluative Criteria in their self-evaluations and

therefore derive benefits similar to accredited schools. The weak discrimination in this study also may have resulted from a weak data base employed in the study.

Conclusions

This study was designed to examine the relationship between regional accreditation and achievement test scores in public elementary schools in Virginia. It was hypothesized that 1978, 1979, and 1980 achievement test scores from regionally accredited elementary schools would be significantly higher than achievement scores from non-regionally accredited elementary schools. The results demonstrated that when cluster analysis is employed as a means of classifying schools, that scores from accredited schools are higher than scores from non-accredited schools but not significant at the .05 level.

Language arts subtest scores possessed the best disciminating power and were entered into the canonical discriminant function in the discriminant analyses for all years, for 1978, and for 1980. The canonical discriminant coefficients for language arts scores in the analyses of all years, 1978 and 1980 were 2.45, 2.38, and 1.67 respectively. The language arts subtest of the SRA Achievement Series is composed of tests in spelling and usage.

Mean achievement test scores from accredited schools in this study were shown to be consistently but only slightly higher than mean achievement test scores from non-accredited schools. In the analysis for all years and in the analysis by year, each of the subtest mean scores was slightly higher for the accredited group.

Implications for Future Research

The weaknesses inherent in ex post facto analysis tend to preclude further studies of this type. However, it is possible that research involving accreditation and achievement could be accomplished in the future employing a time series design. A need has been shown here for the study of the effects of accreditation upon achievement over at least a ten year period. This analysis would be best accomplished through incorporating cluster analysis into a time series design provided that achievement test data were avialable for a ten year period.

The specific outcomes which SACS believes result from school accreditation; i.e., identification of educational needs of children and how they can be met, increased unity of staff and clarity of purpose, sharper perception of strengths and weaknesses of the school program, heightened public confidence, increased willingness to support the schools, and more meaningful in-service activities, need to become the basis of further research in school accreditation.

Cluster analysis has the potential of verifying underlying theory or providing a natural classification of subjects when a theoretical framework is lacking. Perhaps cluster analysis should be used more frequently to find the natural classification of cases prior to the introduction of a particular treatment.

Scientific procedures and experiments should be developed and conducted by the Southern Association of Colleges and Schools and other

regional associations. Experimental evidence might provide the best assurance of continuation for accreditation practices.

APPENDICES

APPENDIX A

REGIONALLY ACCREDITED SCHOOLS

REGIONALLY ACCREDITED SCHOOLS

City/County	School	Grades	Year Regionally Accredited
Appomattox County	Appomattox Elementary	3-6	1977
Arlington	Jamestown Elementary	K-6	1976
	Walter Reed Elementary	K-6	1977
Bath County	Millboro County	K-7	1975
	Valley Elementary	K-7	1975
Campbell County	Bocock Elementary	K-5	1977
	Tomahawk Elementary	K-5	1977
	Yellow Branch Elementary	K-6	1975
Clarke County	D.G. Cooley Elementary	3-6	1976
	Boyce Elementary	K-6	1977
Charles City County	Charles City West Elementary	2-5	1975
Colonial Heights	Lakeview Elementary	K-6	1976
	North Elementary	K-6	1976
Danville	Woodberry Hills Elementary	K-4	1976
Dickensen County	Sandlick Elementary	1-7	1977
Frederick County	Senseny Road Eelementary	K-6	1976
Galax	Galax Elementary	K-7	1975
Gloucester County	Achilles Eelementary	K-4	1977
	Botetourt Elementary	K-4	1976
Halifax County	Clays Mill Elementary	K-4	1976
	South of Dan Elementary	K-4	1977
	Turbeville Elementary	K-7	1975
Hopewell	Du Pont Elementary	K-5	1977
Lynchburg	Miller Elementary	K-5	1975
	Bass Elementary	3-5	1975
Norfolk	Lindenwood Elementary	K-6	1977
	Poplar Halls Elementary	K-6	1977
	Robert Parks Elementary	4-6	1977
Northampton County	Exmore Willis Elementary	4-6	1976
Pittsylvania County	Coates Elementary	K-7	1975
	Mt. Hermon Elementary	K-7	1977
	Stony Mill Elementary	K-4	1975
Poquoson	Poquoson Elementary	K-4	1975
Prince William County	Sudley Elementary	K-5	1977
Roanoke County	Cave Spring Elementary	K-5	1975
	Glen Cove Elementary	K-6	1975
	Mount Vernon Elementary	K-5	1977
Russell County	Honaker Elementary	K-7	1975
Smyth County	Atkins Elementary	K-6	1975
Spotsylvania County	Livingston Elementary	K-5	1975
Tazewell County	Abb's Valley Elementary	K-6	1977

REGIONALLY ACCREDITED SCHOOLS (Continued)

City/County	School	Grades	Year Regionally Accredited
Virginia Beach	Creeds Elementary	K-7	1976
	Plaza Elementary	K-6	1977
West Point	West Point Elementary	K-7	1975
Williamsburg/James City County	Berkeley Elementary	4-6	1977
	Bruton Heights Elementary	4-6	1976

APPENDIX B

NON-REGIONALLY ACCREDITED SCHOOLS

NON-REGIONALLY ACCREDITED SCHOOLS

City/County	School	Grades
Accomack County	Chincoteague Elementary	1-6
	North Accomack Elementary	3-7
	South Accomack Elementary	3-6
Albemarle County	Greenwood Elementary	K-5
	Greer Elementary	K-5
	Hollymead Elementary	K-5
	Lewis Elementary	K-5
	Murray Elementary	K-5
	Red Hill Elementary	K-5
	Rose Hill Elementary	K-5
	Scottsville Elementary	K-5
	Stone Robinson Elementary	K-5
	Stony Point Elementary	K-5
	Yancey Elementary	K-5
Alleghany County	Boiling Spring Elementary	K-7
	Callahan Elementary	K-7
	Central Elementary	K-7
	Falling Spring Elementary	K-7
Augusta County	Beverly Manor Elementary	K-7
	Churchville Elementary	K-7
	Craigsville Elementary	K-7
	Crimora Elementary	K-7
	Deerfield Elementary	K-7
	Fisherville Elementary	K-7
	Cassell Elementary	K-7
	Ladd Elementary	K-7
	New Hope Elementary	K-7
	North River Elementary	K-7
	Riverheads Elementary	K-7
	Stuart's Draft Elementary	K-7
	Verona Elementary	K-7
	Weyer's Elementary	K-7
	Wilson Elementary	K-7
Bland County	Hollbrook Elementary	K-7
	Ceres Elementary	1-6
	Bastian Elementary	1-6
Brunswick County	Totaro Elementary	K-6
Buchanan County	Big Rock Elementary	K-7
	Council Elementary	K-7
	Justus Elementary	K-7
	Garden Elementary	K-7

NON-REGIONALLY ACCREDITED SCHOOLS (Continued)

City/County	School	Grades
Buckingham County	Dillwyn Elementary	4-7
	Gold Hill Elementary	4-7
Charlotte County	Bacon District Elementary	K-7
	Central Elementary	K-4
	Drakes Branch Elementary	K-7
	J.M. Jeffress Elementary	4-7
	Keysville Elementary	K-7
Chesapeake	Butts Road Elementary	K-4
	Camelot Elementary	K-6
	Georgetown Elementary	K-4
	Norfolk Highlands Elementary	K-4
	Parks Elementary	K-4
	Southwestern Elementary	K-6
	Western Branch Elementary	K-5
Covington	Jeter Watson Elementary	K-7
	Rivermont Elementary	K-7
Craig County	McCleary Elementary	K-7
Cumberland County	Cumberland Elementary	K-6
Dinwiddie County	Dinwiddie Elementary	4-7
	Midway Elementary	4-7
	Rohic Elementary	4-7
	Sunnyside Elementary	4-7
Essex County	Essex Intermediate	4-7
Falls Church	Mt. Daniel Elementary	K-6
	T. Jefferson Elementary	K-6
Fauquier County	Bradley Elementary	4-6
	Pearson Elementary	K-6
	P.B. Smith Elementary	K-6
	Southeastern Elementary	4-6
Fluvanna County	Central Elementary	4-6
	Columbia District Elementary	K-4
	Fork Union Elementary	K-4
	Palmyra Elementary	K-4
Franklin County	Boones Mill Elementary	K-6
	Callaway Elementary	K-6
	Dudley Elementary	K-6
	Ferrum Elementary	K-6
	Glade Hill Elementary	K-6
	Henry Elementary	K-6
	Rocky Mount Elementary	4-6
	Sontag Elementary	K-6

NON-REGIONALLY ACCREDITED SCHOOLS (Continued)

City/County	School	Grades
Frederick County	Apple Pie Ridge Elementary	K-5
	Bass Hoover Elementary	K-5
	Gainesboro Elementary	K-5
	Robinson Elementary	K-6
Giles County	Eggleston Elementary	K-7
	M. McClaugherty Elementary	K-5
	Narrows Elementary	K-7
	Pembroke Elementary	K-7
	Rich Creek Elementary	K-7
Grayson County	Bridle Creek Elementary	K-7
	Elk Creek Elementary	K-7
	Flatridge Elementary	K-7
	Independence Elementary	K-7
	Providence Elementary	K-7
Hanover County	Bethany Elementary	4-7
	Doswell Elementary	K-6
	Rockville Elementary	K-5
	Washington Henry Elementary	K-7
Henrico County	Adams Elementary	K-4
	Baker Elementary	K-5
	Carver Elementary	K-6
	Chamberlayne Elementary	K-5
	Crestview Elementary	K-5
	Davis Elementary	K-6
	Dumbarton Elementary	K-6
	Fair Oaks Elementary	K-5
	Glen Allen Elementary	K-5
	Glen Lea Elementary	K-5
	Highland Elementary	K-5
	Holladay Elementary	K-6
	Laburnum Elementary	K-5
	Lakeside Elementary	K-5
	Longan Elementary	K-6
	Longdale Elementary	K-5
	Maybeury Elementary	K-6
	Montrose Elementary	K-6
	Pemberton Elementary	K-6
	Pinchbeck Elementary	K-6
	Ratcliffe Elementary	K-5
	Ridge Elementary	K-6
	Sandston Elementary	K-5
	Seven Pines Elementary	K-6
	Short Pump Elementary	K-6

NON-REGIONALLY ACCREDITED SCHOOLS (Continued)

City/County	School	Grades
Henry County	Axton Elementary	K-6
	Campbell Court Elementary	K-5
	Fieldale Elementary	4-7
	Figsboro Elementary	K-6
	Irisburg Elementary	K-6
	J.R. Smith Elementary	4-7
Isle of Wight County	Carrsville Elementary	K-5
	Smithfield Elementary	4-7
	Windsor Elementary	K-7
King George County	King George Elementary	K-5
	Potomac Elementary	K-5
Lee County	Elk Knob Elementary	K-6
	Elydale Elementary	K-7
	Ewing Elementary	K-7
	Jonesville Elementary	K-6
	Pennington Elementary	K-7
	Rose Hill Elementary	K-7
	Stickleyville Elementary	K-6
	St. Charles Elementary	K-7
Loudon County	Aldie Elementary	K-5
	Arcola Elementary	K-5
	Ashburn Elementary	K-5
	Banneker Elementary	K-5
	Catoctin Elementary	K-5
	Douglass Elementary	K-5
	Emerick Elementary	K-5
	Guilford Elementary	K-5
	Hamilton Elementary	K-5
	Hillsboro Elementary	K-5
	Lincoln Elementary	K-5
	Lovettsville Elementary	K-5
	Lucketts Elementary	K-5
	Middleburg Elementary	K-5
	Rolling Ridge Elementary	K-5
	Round Hill Elementary	K-5
	Sterling Elementary	K-5
	Sully School	K-5
	Waterford Elementary	K-5
Louisa County	Louisa Elementary	K-4
	Mineral Elementary	K-4
Madison	Criglersville Elementary	K-7
	Yowell Elementary	4-7
Manassas Park	Manassas Park Elementary	K-6

NON-REGIONALLY ACCREDITED SCHOOLS (Continued)

City/County	School	Grades
Mathews County	Cobbs Creek Elementary	K-4
	Jackson Elementary	K-4
Mecklenburg County	Boydton Elementary	4-7
	Chase City Elementary	4-7
	Clarksville Elementary	4-7
	La Crosse Primary	K-4
Montgomery County	Beeks Elementary	K-5
	Belview Elementary	K-5
	Bethel Elementary	K-5
	Christianburg Elementary	3-5
	Elliston-Lafayatte Elementary	K-5
	Harding Avenue Elementary	K-5
	River Elementary	K-5
New Kent County	New Kent Middle	4-7
Northumberland County	Callao Elementary	4-7
Nottoway County	Blackstone Primary	K-4
	Crew Primary	K-4
Page County	Grove Hill Elementary	K-7
	Lurray Elementary	K-7
	Shenandoah Elementary	K-7
	Springfield Elementary	K-7
Portsmouth	Brighton Elementary	3-5
	Churchland Elementary	2-6
	Churchland Academy	2-6
	Highland Biltmore Elementary	K-4
	Hodges Manor Elementary	4-6
	Olive Branch Elementary	304
	Park View Elementary	K-6
	Port Norfolk Elementary	K-6
	Shea Terrace Elementary	K-6
Prince George County	Beazley Elementary	4-6
	Walton Elementary	4-6
Pulaski County	Critzer Elementary	4-5
	Draper Elementary	K-5
	Dublin Elementary	K-5
	Hiwassee Elementary	K-5
	Newbern Elementary	K-5
	Riverlawn Elementary	K-5
	Snowville Elementary	K-5
Rappahannock County	Rappahannock County Elementary	K-7

NON-REGIONALLY ACCREDITED SCHOOLS (Continued)

City/County	School	Grades
Rockbridge County	Central Elementary	K-7
	Effinger Elementary	K-7
	Fairfield Elementary	K-6
	Glasgow Elementary	K-7
	Goshen Elementary	K-6
	Highland Belle Elementary	K-7
	Mt. View Elementary	K-6
	Natural Bridge Elementary	K-7
Rockingham County	Bergton Elementary	K-5
	Bridgewater Elementary	K-6
	Dayton Elementary	K-6
	Elkton Elementary	K-6
	Fulks Run Elementary	K-5
	Grottoes Elementary	K-6
	Keezletown Elementary	K-6
	Linville Elementary	K-5
	McGaheysville Elementary	K-6
	Mt. Clinton Elementary	K-6
Russell County	Castlewood Elementary	K-7
	Clinch Valley Elementary	K-7
	Dante Elementary	K-7
	Givens Elementary	K-7
	Lebanon Elementary	K-6
	Oak Grove Elementary	K-7
	Swords Creek Elementary	K-7
Scott County	Fairview Elementary	K-7
	Ft. Blackmore Elementary	K-7
	Hilton Elementary	K-7
	Nickelsville Elementary	K-7
	Weber City Elementary	K-7
Shenandoah County	Ashby Lee Elementary	K-4
	Fort Valley Elementary	1-6
Southampton County	Boykins Elementary	4-7
	Capron Elementary	4-7
	Courtland Elementary	3-7
	Hunterdale Elementary	K-7
	Ivor Elementary	3-7
	Newsom's Elementary	4-7
Spotsylvania County	Lee Elementary	K-5

NON-REGIONALLY ACCREDITED SCHOOLS (Continued)

City/County	School	Grades
Stafford County	Falmouth Elementary	K-4
	Ferry Farm Elementary	K-4
	Grafton Elementary	K-4
	Hartwood Elementary	K-4
	Moncure Elementary	K-4
	Stafford Elementary	K-4
Staunton	Bessie Weller Elementary	K-6
	Dixon Elementary	K-6
	T. Jefferson Elementary	K-6
	Westside Elementary	K-6
Suffolk	Mt. Zion Elementary	4-7
	Robertson Middle	4-7
	T. Jefferson Middle	4-5
Surry County	L.P. Jackson Elementary	4-7
Sussex county	Central Elementary	K-7
	Jefferson Elementary	K-5
Westmoreland County	Oak Grove Elementary	4-6

APPENDIX C

FAMILY SIZE AND INCOME SCALE FOR FREE AND REDUCED PRICE MEALS AND FREE MILK

FAMILY-SIZE AND INCOME SCALE FOR FREE AND REDUCED PRICE MEALS AND FREE MILK

This is the income scale used by Virginia school divisions to determine eligibility for free or reduced price meals and free milk in the 1977-78 school year.

Family Size	Maximum Family Income For Free Meals and Free Milk	Family Income For Reduced Price Meals
1	$ 3,930	3,931 - 6,120
2	5,160	5,161 - 8,050
3	6,390	6,391 - 9,970
4	7,610	7,611 - 11,880
5	8,740	8,741 - 13,630
6	9,860	9,861 - 15,380
7	10,890	10,891 - 16,980
8	11,910	11,911 - 18,580
9	12,840	12,841 - 20,030
10	13,760	13,761 - 21,470
11	14,680	14,681 - 22,890
12	15,590	15,591 - 24,310
Each additional family member	910	1,420

APPENDIX D

MEAN T-SCORES ON 10 VARIABLES

FOR 238 SCHOOLS IN 27 CLUSTERS

MEAN T-SCORES ON 10 VARIABLES FOR 238 SCHOOLS IN 27 CLUSTERS

(In the school code column the first digit or two digits in each code number indicates the cluster number. A 0 in the last digit indicates a non-regionally accredited school; a 1 in the last digit indicates a regionally accredited school).

(Mean = 50, Standard Deviation = 10)

School Code	STEA	Reading	Math	SES	Language Arts	Social Studies	Science	Use of Sources	Enrollment	Expenditure
1-0	50	48	45	47	48	47	45	49	47	43
1-0	50	48	43	42	50	47	45	44	50	47
1-0	48	51	44	44	48	52	43	47	42	47
1-0	46	46	48	47	46	45	44	47	53	47
1-0	56	50	49	44	45	45	44	41	47	40
1-0	42	51	41	42	41	46	38	42	40	47
1-1	44	45	43	35	44	44	46	42	42	48
1-0	46	45	37	41	44	43	44	48	52	47
1-0	48	47	45	51	43	46	46	45	53	44
1-0	47	46	40	50	43	41	41	43	51	47
1-1	41	42	40	49	44	42	44	42	44	52
1-0	41	40	43	46	43	40	46	40	43	47

MEAN T-SCORES ON 10 VARIABLES FOR 238 SCHOOLS IN 27 CLUSTERS (Continued)

(In the school code column the first digit or two digits in each code number indicates the cluster number. A 0 in the last digit indicates a non-regionally accredited school; a 1 in the last digit indicates a regionally accredited school).

(Mean = 50, Standard Deviation = 10)

School Code	STEA	Reading	Math	SES	Language Arts	Social Studies	Science	Use of Sources	Enrollment	Expenditure
1-0	43	44	39	48	39	43	44	38	40	50
1-0	49	48	44	47	44	43	49	38	42	50
1-0	44	44	42	54	47	42	43	39	50	48
1-0	46	40	46	53	46	42	45	40	47	51
1-0	42	39	56	49	45	43	42	45	48	44
1-0	45	44	53	51	46	44	44	43	45	48
1-0	44	45	51	47	47	43	46	42	45	40
1-0	37	44	41	53	46	47	40	39	45	44
1-0	43	45	45	41	42	47	39	42	47	47
1-0	41	40	41	44	40	45	42	44	48	43
1-0	37	46	44	43	46	48	44	44	49	43
2-0	45	47	36	45	49	50	54	49	54	40

MEAN T-SCORES ON 10 VARIABLES FOR 238 SCHOOLS IN 27 CLUSTERS (Continued)

(In the school code column the first digit or two digits in each code number indicates the cluster number. A 0 in the last digit indicates a non-regionally accredited school; a 1 in the last digit indicates a regionally accredited school).

(Mean = 50, Standard Deviation = 10)

School Code	STEA	Reading	Math	SES	Language Arts	Social Studies	Science	Use of Sources	Enrollment	Expenditure
2-1	41	46	42	58	50	45	55	47	48	39
2-1	40	48	44	50	35	57	45	49	51	45
3-0	45	47	45	54	39	40	45	40	52	60
3-0	41	39	39	55	41	35	37	36	53	49
3-0	45	44	42	55	36	35	41	39	48	50
3-0	41	42	43	51	42	42	40	40	42	51
3-1	46	41	44	43	39	41	38	40	57	45
3-1	37	38	38	45	41	37	40	37	56	44
3-1	40	39	42	49	41	40	43	42	62	44
3-0	44	45	45	46	42	40	43	43	66	43
4-0	37	46	42	47	49	40	37	46	44	47
4-0	41	44	50	51	53	47	47	48	46	50

MEAN T-SCORES ON 10 VARIABLES FOR 238 SCHOOLS IN 27 CLUSTERS (Continued)

(In the school code column the first digit or two digits in each code number indicates the cluster number. A 0 in the last digit indicates a non-regionally accredited school; a 1 in the last digit indicates a regionally accredited school).

(Mean = 50, Standard Deviation = 10)

School Code	STEA	Reading	Math	SES	Language Arts	Social Studies	Science	Use of Sources	Enrollment	Expenditure
4-0	46	45	47	48	45	44	48	46	45	49
4-0	43	44	44	55	46	44	49	45	44	47
4-0	46	46	47	54	50	46	50	46	43	56
4-0	39	48	42	60	47	47	49	44	42	52
4-0	44	44	41	61	43	41	38	44	39	49
4-0	39	39	41	57	45	44	39	43	41	52
4-0	47	43	45	52	43	44	44	46	41	50
4-0	50	45	45	55	45	41	43	44	42	47
4-0	44	40	42	50	42	46	31	46	40	47
4-0	49	48	43	56	51	49	47	49	44	50
4-1	45	42	44	53	43	45	41	46	44	39
5-0	42	37	44	73	43	38	41	42	42	45

MEAN T-SCORES ON 10 VARIABLES FOR 238 SCHOOLS IN 27 CLUSTERS (Continued)

(In the school code column the first digit or two digits in each code number indicates the cluster number. A 0 in the last digit indicates a non-regionally accredited school; a 1 in the last digit indicates a regionally accredited school).

(Mean = 50, Standard Deviation = 10)

School Code	STEA	Reading	Math	SES	Language Arts	Social Studies	Science	Use of Sources	Enrollment	Expenditure
5-0	37	39	46	71	41	43	42	39	45	51
5-0	39	41	50	66	42	44	46	43	37	45
5-0	44	46	51	67	47	48	47	46	42	46
5-1	43	43	50	73	46	45	47	48	49	48
5-0	41	41	47	71	47	46	51	49	40	52
5-0	45	38	56	73	49	41	41	43	39	52
5-0	44	40	55	71	51	42	43	43	40	52
6-1	52	47	52	63	48	42	45	42	42	60
6-0	48	45	46	66	47	48	48	49	46	50
6-0	50	46	45	68	49	51	43	44	45	51
6-0	50	47	49	65	51	48	49	48	40	52
6-0	47	49	47	60	55	50	52	55	48	46

MEAN T-SCORES ON 10 VARIABLES FOR 238 SCHOOLS IN 27 CLUSTERS (Continued)

(In the school code column the first digit or two digits in each code number indicates the cluster number. A 0 in the last digit indicates a non-regionally accredited school; a 1 in the last digit indicates a regionally accredited school).

(Mean = 50, Standard Deviation = 10)

School Code	STEA	Reading	Math	SES	Language Arts	Social Studies	Science	Use of Sources	Enrollment	Expenditure
6-0	48	50	48	61	60	51	50	54	51	48
6-0	50	50	59	69	56	51	51	51	43	52
6-0	56	49	50	67	62	52	50	53	44	52
6-1	45	42	57	62	56	46	50	51	40	48
7-1	40	40	42	48	40	39	39	38	70	65
7-0	42	37	40	54	40	37	38	41	64	52
7-0	35	35	38	55	38	37	36	36	67	51
7-0	45	42	40	56	40	41	37	36	69	47
8-0	36	35	35	52	29	36	31	37	42	47
8-0	37	35	36	57	34	35	33	37	42	47
8-0	35	28	31	55	37	34	32	34	45	48
8-0	28	33	36	54	27	31	32	31	36	47

MEAN T-SCORES ON 10 VARIABLES FOR 238 SCHOOLS IN 27 CLUSTERS (Continued)

(In the school code column the first digit or two digits in each code number indicates the cluster number. A 0 in the last digit indicates a non-regionally accredited school; a 1 in the last digit indicates a regionally accredited school).

(Mean = 50, Standard Deviation = 10)

School Code	STEA	Reading	Math	SES	Language Arts	Social Studies	Science	Use of Sources	Enrollment	Expenditure
8-1	36	28	31	58	26	28	28	28	43	58
8-0	29	29	31	69	32	28	27	26	40	48
9-0	36	42	38	58	37	41	42	40	35	39
9-0	37	37	42	56	35	40	40	39	39	42
9-0	33	36	39	55	34	36	37	37	34	43
9-0	38	38	35	63	37	35	42	37	39	46
9-0	41	39	34	60	38	39	39	36	42	42
9-0	40	40	34	58	40	38	40	38	40	47
9-0	39	37	38	64	37	39	36	40	40	46
9-0	45	37	36	64	38	38	34	38	41	47
9-0	46	34	33	54	34	35	42	43	41	40
9-1	44	39	37	45	39	38	37	39	44	45

MEAN T-SCORES ON 10 VARIABLES FOR 238 SCHOOLS IN 27 CLUSTERS (Continued)

(In the school code column the first digit or two digits in each code number indicates the cluster number. A 0 in the last digit indicates a non-regionally accredited school; a 1 in the last digit indicates a regionally accredited school).

(Mean = 50, Standard Deviation = 10)

School Code	STEA	Reading	Math	SES	Language Arts	Social Studies	Science	Use of Sources	Enrollment	Expenditure
9-0	40	41	44	49	39	37	39	40	41	47
9-0	39	37	42	53	42	34	33	34	42	39
9-0	44	34	44	49	45	39	33	36	43	45
9-0	46	39	35	48	34	37	39	40	51	47
9-0	38	38	37	45	34	38	37	33	46	43
9-0	37	38	40	61	36	40	39	40	42	51
9-0	41	37	42	60	32	38	38	41	39	52
9-0	51	37	40	53	31	31	40	36	40	47
9-0	40	37	42	56	33	34	38	35	47	45
10-0	37	37	35	60	32	39	38	40	55	60
10-1	43	40	36	66	32	33	34	34	55	57
10-1	42	36	36	71	34	37	37	35	51	57

MEAN T-SCORES ON 10 VARIABLES FOR 238 SCHOOLS IN 27 CLUSTERS (Continued)

(In the school code column the first digit or two digits in each code number indicates the cluster number. A 0 in the last digit indicates a non-regionally accredited school; a 1 in the last digit indicates a regionally accredited school).

(Mean = 50, Standard Deviation = 10)

School Code	STEA	Reading	Math	SES	Language Arts	Social Studies	Science	Use of Sources	Enrollment	Expenditure
10-0	35	31	38	73	40	39	35	41	51	74
11-1	44	34	38	65	34	36	34	37	51	46
11-0	41	37	35	73	40	37	39	37	49	48
11-0	37	35	33	70	33	41	41	41	49	46
11-0	41	32	34	71	34	35	37	34	36	52
11-0	41	36	43	71	36	36	35	38	39	45
11-0	38	38	40	65	36	32	35	31	40	47
12-0	58	57	65	46	52	57	60	58	58	59
12-0	55	56	63	46	54	58	59	58	65	60
12-0	52	53	66	41	51	51	53	50	59	60
12-0	55	52	60	40	53	57	55	55	57	60
12-0	65	59	59	36	53	61	57	55	61	60

MEAN T-SCORES ON 10 VARIABLES FOR 238 SCHOOLS IN 27 CLUSTERS (Continued)

(In the school code column the first digit or two digits in each code number indicates the cluster number. A 0 in the last digit indicates a non-regionally accredited school; a 1 in the last digit indicates a regionally accredited school).

(Mean = 50, Standard Deviation = 10)

School Code	STEA	Reading	Math	SES	Language Arts	Social Studies	Science	Use of Sources	Enrollment	Expenditure
12-0	53	57	57	34	60	59	55	53	52	60
12-0	51	59	54	36	57	60	57	60	57	60
12-0	54	58	55	35	60	62	55	61	53	60
12-0	58	58	56	43	58	56	54	57	50	60
12-0	58	59	59	40	57	60	61	58	53	60
12-1	55	58	52	34	54	55	61	54	54	56
12-1	56	55	57	36	59	57	55	58	63	56
13-0	64	57	67	50	61	59	58	64	41	59
13-1	56	58	69	44	63	60	65	65	51	57
14-0	65	58	56	40	58	59	55	60	64	47
14-1	60	55	56	38	55	55	53	53	52	47
14-0	58	56	61	45	59	57	54	57	48	41

MEAN T-SCORES ON 10 VARIABLES FOR 238 SCHOOLS IN 27 CLUSTERS (Continued)

(In the school code column the first digit or two digits in each code number indicates the cluster number. A 0 in the last digit indicates a non-regionally accredited school; a 1 in the last digit indicates a regionally accredited school).

(Mean = 50, Standard Deviation = 10)

School Code	STEA	Reading	Math	SES	Language Arts	Social Studies	Science	Use of Sources	Enrollment	Expenditure
14-1	63	63	71	39	53	59	60	56	49	47
15-0	57	52	51	38	54	53	52	55	37	59
15-0	57	54	51	40	50	54	55	51	43	60
15-0	57	55	52	40	51	54	59	55	43	55
15-0	57	51	54	46	46	55	56	56	36	55
15-0	54	45	57	46	53	46	52	52	39	55
15-1	47	51	56	46	51	49	49	50	46	59
15-0	63	57	57	60	52	55	58	55	42	59
15-1	62	57	61	54	56	57	56	57	44	59
15-0	54	53	55	59	58	52	53	52	37	49
15-0	57	59	54	51	54	54	55	57	38	47
15-0	63	54	56	55	57	53	56	57	42	50

MEAN T-SCORES ON 10 VARIABLES FOR 238 SCHOOLS IN 27 CLUSTERS (Continued)

(In the school code column the first digit or two digits in each code number indicates the cluster number. A 0 in the last digit indicates a non-regionally accredited school; a 1 in the last digit indicates a regionally accredited school).

(Mean = 50, Standard Deviation = 10)

School Code	STEA	Reading	Math	SES	Language Arts	Social Studies	Science	Use of Sources	Enrollment	Expenditure
15-0	58	56	59	46	55	49	54	54	45	47
15-0	56	54	56	52	53	48	60	54	42	47
16-1	49	54	70	66	63	54	61	57	55	48
16-0	52	55	70	55	62	55	52	61	60	44
16-0	60	61	60	61	61	55	53	56	43	41
16-0	53	54	66	58	61	53	49	52	44	44
17-0	48	50	46	39	44	49	49	47	55	59
17-0	54	50	46	43	48	49	50	47	52	60
17-0	48	50	42	43	52	50	49	47	61	60
17-0	55	53	46	36	54	53	51	55	59	60
17-1	52	56	44	34	52	51	50	54	63	58
17-0	46	44	47	38	46	47	47	47	46	60

MEAN T-SCORES ON 10 VARIABLES FOR 238 SCHOOLS IN 27 CLUSTERS (Continued)

(In the school code column the first digit or two digits in each code number indicates the cluster number. A 0 in the last digit indicates a non-regionally accredited school; a 1 in the last digit indicates a regionally accredited school).

(Mean = 50, Standard Deviation = 10)

School Code	STEA	Reading	Math	SES	Language Arts	Social Studies	Science	Use of Sources	Enrollment	Expenditure
17-1	53	46	45	48	51	51	49	53	48	57
18-0	53	47	53	48	45	47	44	46	50	59
18-0	49	48	52	48	48	45	49	48	57	60
18-1	54	45	49	57	49	45	45	46	55	59
18-1	51	50	53	54	49	52	47	52	52	66
18-1	50	50	51	51	49	51	47	50	60	66
18-0	49	45	48	59	40	52	46	45	66	59
18-0	46	48	50	51	45	48	43	45	62	60
19-1	47	46	42	54	46	49	45	49	63	42
19-0	47	44	45	45	49	46	48	47	68	40
19-0	44	45	45	48	49	45	43	44	65	41
19-0	44	47	49	48	48	46	48	49	63	39

MEAN T-SCORES ON 10 VARIABLES FOR 238 SCHOOLS IN 27 CLUSTERS (Continued)

(In the school code column the first digit or two digits in each code number indicates the cluster number. A 0 in the last digit indicates a non-regionally accredited school; a 1 in the last digit indicates a regionally accredited school).

(Mean = 50, Standard Deviation = 10)

School Code	STEA	Reading	Math	SES	Language Arts	Social Studies	Science	Use of Sources	Enrollment	Expenditure
19-0	40	43	42	49	43	47	47	43	59	40
19-0	47	49	48	45	43	47	48	43	56	38
19-0	48	47	48	45	50	47	46	46	64	47
19-0	47	48	52	45	47	50	44	48	63	47
19-0	48	47	46	47	45	46	47	46	58	50
19-0	48	50	47	47	48	46	45	48	59	47
19-0	45	45	49	49	49	48	47	45	59	49
19-0	53	46	49	44	50	44	43	45	67	47
19-0	52	49	48	42	47	45	45	47	71	47
19-1	45	41	51	41	49	42	45	43	67	42
20-0	59	57	53	44	56	51	50	53	66	47
20-0	55	52	56	49	56	52	52	50	67	51

MEAN T-SCORES ON 10 VARIABLES FOR 238 SCHOOLS IN 27 CLUSTERS (Continued)

(In the school code column the first digit or two digits in each code number indicates the cluster number. A 0 in the last digit indicates a non-regionally accredited school; a 1 in the last digit indicates a regionally accredited school).

(Mean = 50, Standard Deviation = 10)

School Code	STEA	Reading	Math	SES	Language Arts	Social Studies	Science	Use of Sources	Enrollment	Expenditure
20-0	51	48	50	44	47	53	52	53	68	47
20-0	50	51	51	40	48	51	55	52	61	47
20-1	52	53	51	42	53	55	47	52	61	47
20-0	53	53	50	42	51	55	49	53	59	43
20-0	55	55	51	41	51	55	54	56	65	43
20-0	57	56	52	43	54	54	54	56	61	43
20-0	54	50	48	45	48	50	48	50	55	50
20-0	53	50	49	46	51	49	50	47	56	48
20-0	56	55	45	47	52	52	50	51	62	50
20-0	57	49	48	47	50	49	51	51	63	47
20-0	51	52	46	47	51	49	56	50	61	50
20-1	49	54	49	50	49	54	59	56	65	53

MEAN T-SCORES ON 10 VARIABLES FOR 238 SCHOOLS IN 27 CLUSTERS (Continued)

(In the school code column the first digit or two digits in each code number indicates the cluster number. A 0 in the last digit indicates a non-regionally accredited school; a 1 in the last digit indicates a regionally accredited school).

(Mean = 50, Standard Deviation = 10)

School Code	STEA	Reading	Math	SES	Language Arts	Social Studies	Science	Use of Sources	Enrollment	Expenditure
20-1	51	52	50	48	54	53	53	54	69	57
20-1	54	46	40	49	47	53	49	54	76	47
21-1	53	56	56	37	54	60	59	57	63	39
21-0	53	57	48	39	52	54	54	52	73	38
21-0	52	54	48	39	49	55	55	52	73	47
22-0	48	51	50	54	47	50	47	46	46	43
22-0	49	52	50	53	52	55	50	47	43	47
22-0	48	51	52	51	47	55	50	49	49	45
22-1	49	49	49	51	47	52	49	48	47	50
22-0	52	50	53	56	50	48	52	50	48	39
22-0	55	49	53	45	49	50	51	55	45	43
22-0	54	51	59	49	50	54	49	53	45	39

MEAN T-SCORES ON 10 VARIABLES FOR 238 SCHOOLS IN 27 CLUSTERS (Continued)

(In the school code column the first digit or two digits in each code number indicates the cluster number. A 0 in the last digit indicates a non-regionally accredited school; a 1 in the last digit indicates a regionally accredited school).

(Mean = 50, Standard Deviation = 10)

School Code	STEA	Reading	Math	SES	Language Arts	Social Studies	Science	Use of Sources	Enrollment	Expenditure
22-1	54	53	56	45	52	54	52	54	48	45
22-0	51	54	55	48	51	54	50	49	48	47
22-0	53	58	54	45	49	57	52	53	43	43
22-0	49	53	44	41	49	51	53	50	43	43
22-0	52	51	45	49	47	50	53	51	43	47
22-0	44	50	48	43	51	48	47	51	41	38
22-0	50	54	47	43	48	46	48	48	38	38
22-0	54	54	43	39	46	50	50	51	38	38
22-0	50	50	49	44	56	42	46	48	36	41
22-0	48	54	44	50	54	46	50	46	40	43
22-0	49	51	57	47	46	49	50	54	34	47
22-0	40	52	53	49	51	51	50	53	35	38

MEAN T-SCORES ON 10 VARIABLES FOR 238 SCHOOLS IN 27 CLUSTERS (Continued)

(In the school code column the first digit or two digits in each code number indicates the cluster number. A 0 in the last digit indicates a non-regionally accredited school; a 1 in the last digit indicates a regionally accredited school).

(Mean = 50, Standard Deviation = 10)

School Code	STEA	Reading	Math	SES	Language Arts	Social Studies	Science	Use of Sources	Enrollment	Expenditure
22-0	42	55	52	48	58	55	54	54	42	39
22-0	51	52	52	42	57	51	51	53	38	43
23-0	51	58	57	51	55	57	55	58	49	44
23-0	50	59	54	49	54	54	54	56	47	47
23-1	51	54	59	47	54	54	55	56	53	46
23-0	48	54	54	47	56	53	55	58	51	39
23-0	50	55	52	50	46	57	57	57	47	42
23-0	52	55	50	42	55	58	57	57	47	47
23-0	54	58	51	45	57	59	59	59	45	47
23-0	50	52	47	46	56	56	57	57	50	50
23-0	53	57	50	48	61	59	57	58	51	50
23-0	59	60	48	43	53	55	57	52	46	47

MEAN T-SCORES ON 10 VARIABLES FOR 238 SCHOOLS IN 27 CLUSTERS (Continued)

(In the school code column the first digit or two digits in each code number indicates the cluster number. A 0 in the last digit indicates a non-regionally accredited school; a 1 in the last digit indicates a regionally accredited school).

(Mean = 50, Standard Deviation = 10)

School Code	STEA	Reading	Math	SES	Language Arts	Social Studies	Science	Use of Sources	Enrollment	Expenditure
23-0	58	57	50	45	54	58	57	56	53	50
23-0	55	57	47	41	59	56	55	56	50	43
23-0	56	60	51	44	62	59	59	59	47	43
23-0	51	54	54	50	55	53	53	51	54	52
23-0	54	54	49	48	56	51	54	52	59	48
23-0	60	57	55	51	59	56	52	56	56	48
24-0	63	65	68	36	67	63	62	63	45	47
24-1	62	62	60	41	64	62	64	64	48	42
24-0	61	70	69	38	70	69	66	67	41	41
24-0	60	58	61	43	61	59	59	64	42	39
24-0	56	58	62	39	62	58	57	66	41	43
24-0	60	60	75	48	64	59	59	64	44	44

MEAN T-SCORES ON 10 VARIABLES FOR 238 SCHOOLS IN 27 CLUSTERS (Continued)

(In the school code column the first digit or two digits in each code number indicates the cluster number. A 0 in the last digit indicates a non-regionally accredited school; a 1 in the last digit indicates a regionally accredited school).

(Mean = 50, Standard Deviation = 10)

School Code	STEA	Reading	Math	SES	Language Arts	Social Studies	Science	Use of Sources	Enrollment	Expenditure
25-0	64	63	65	47	61	59	61	59	60	43
25-1	67	64	65	33	61	59	63	62	57	45
25-0	67	65	57	40	60	62	63	62	63	50
25-0	72	64	60	41	64	61	59	67	65	43
25-0	64	59	54	39	61	63	66	62	71	55
26-0	70	69	61	44	68	66	65	66	58	47
26-0	61	70	63	47	63	68	67	60	60	47
26-1	66	64	61	56	70	62	61	66	55	44
27-1	63	68	65	36	66	65	64	62	53	110
27-0	74	71	69	35	59	64	60	64	40	120

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Abstract

A STUDY OF THE RELATIONSHIP OF REGIONAL SCHOOL ACCREDITATION STATUS TO ACHIEVEMENT TEST SCORES IN PUBLIC ELEMENTARY SCHOOLS IN VIRGINIA

Richard Daniel Glancy, Ed.D

The College of William and Mary in Virginia, February 1983

Chairman: Professor Armand J. Galfo

The purpose of this study was to examine the relationship between regional accreditation status and selected achievement test scores in public elementary schools in Virginia. In this study the author translated the Southern Association of Colleges and Schools' (SACS) goal of school improvement into a measurable indicator of goal achievement, achievement test scores.

The process of SACS elementary accreditation involves a considerable investment of school resources. The process has three distinctive features which should enable school improvement: 1. comprehensive assessment through self-evaluation, 2. goal direction by long- and short-range plans, and 3. collaboration or participation by the school and community.

Forty-six regionally accredited schools which gained their status in 1975, 1976, and 1977 and 265 non-regionally accredited elementary schools were identified for inclusion in the study. Virginia was selected as the site for this research because of the popularity of SACS accreditation and because of the availability of achievement test scores from the annual statewide testing program.

Data from 1977 which included a student ability score, achievement test scores, a measure of school SES, expenditure per pupil, and school size were analyzed using a cluster procedure designed to help classify schools with similar attributes. An option was employed which allowed the formation of 50 optimally homogeneous clusters of schools. Following cluster analysis, 22 clusters of schools were dropped from further analysis because they contained solely non-accredited schools, and 1 was dropped because it contained a single accredited school. Achievement test data from schools in the remaining 27 clusters were subjected to discriminant analysis.

It was hypothesized that 1978, 1979, and 1980 achievement test scores from accredited elementary schools would be significantly higher than 1978, 1979 and 1980 scores from non-accredited elementary schools.

In the first analysis all achievement scores for all three years were utilized. The results showed that scores from accredited schools were consistently though not significantly higher than scores from non-accredited schools. Histograms depicted considerable overlap of groups. In the second analysis scores from each year were entered separately and the results were similar to the analysis for all years. Accredited school mean scores were consistently though not significantly higher than non-accredited school mean scores.