To the Graduate Council:

I am submitting herewith a dissertation written by Rena Vay Crockett entitled "An Assessment of the Secondary Science and Mathematics Curricula in Selected Rural East Tennessee Counties." I recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Education, with a major in Curriculum and Instruction.

A. Paul Wishart, Major Professor

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and recommend its acceptance:

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AN ASSESSMENT OF THE SECONDARY SCIENCE AND MATHEMATICS CURRICULA IN SELECTED RURAL EAST TENNESSEE COUNTIES

A Dissertation

Presented for the

Doctor of Education

Degree

The University of Tennessee, Knoxville

Rena Vay Crockett

December 1978

1371135

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DEDICATION

To the men in my life: my brother, Mike Crockett, and my husband, Glynne Hamrick, who have taught me the bittersweet joy of loving and being loved.

ACKNOWLEDGMENTS

I would like to thank the members of my committee, Drs. A. Paul Wishart, Woodrow Wyatt, Wilbur Slawson, and Karen Hughes for their patience, support, and guidance throughout this study.

I am grateful for the assistance and cooperation offered to me by the central office staff, teachers, parents, and students of Claiborne, Grainger, and Union counties. Without their support this study would not have been possible.

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ABSTRACT

Individual and community needs assessment is an indispensable step in the formulation of goals for education and in the establishment of priorities. The purpose of this study was to develop a plan suitable for small, rural school district assessment and to use the plan to determine the perceptions of educators, parents, and students toward the secondary science and mathematics curricula, toward the guidelines and procedures for program development and evaluation, toward teacher preparation and performance, and toward increased involvement of educators, parents, and students in curriculum development and evaluation.

The initial step of the research involved the development of a systematic process to conduct the needs assessment and the construction of a survey instrument to use in collecting the data. The perceptions of educators, parents, and students in Claiborne, Grainger, and Union counties of the East Tennessee Development District were obtained through use of the survey instrument.

Analysis of the data collected centered on comparisons of the perceptions of current status of secondary science and mathematics programs and educational expectations of the three population groups within each school district to determine if educators, parents, and students differed in their opinion of perceived needs or in their opinion of how effectively educational needs are being met with the

current curriculum. In addition, the study was designed to determine if perceived needs of the three population groups within each school district differed from the actual content of the curriculum.

It was found that educators, parents, and students within each of the school districts agreed strongly on educational expectations; however, the three population groups differed in their perceptions of how well their expectations were being met by the science and mathematics curricula within the respective school districts. Educators and parents tended to be less satisfied than students with the quality of instruction in science and mathematics.

Opinions of the population groups in all three school districts indicated that educators, parents, and students should be more involved in curriculum development and evaluation than they are presently and that steps should be taken to devise a written plan that explains the steps in developing curriculum.

Regarding teacher performance and preparation, it was found that the three population groups within each school district believed that more opportunity and incentive should be provided for science and mathematics to further their formal educational experiences and that teachers should be provided with curriculum guides in science and mathematics to assist them in improving classroom instruction.

It was concluded that needs assessment can be a valuable tool for program improvement in small, rural school districts and that the assessment plan used in the study provides economical and feasible procedures for identifying student needs in small, rural school districts.

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CHAPTER I

INTRODUCTION

An ever-present aim of education is one of providing meaningful instruction for students and giving them a lasting framework to use in interpreting new information encountered in the process of living. While this may appear to be an elusive goal, nevertheless it has been a cornerstone for educational philosophy which supports not just preparation for "getting along" or existing but for maximizing an individual's contributions and rewards. Tankard (1974, p. 196) stated:

> Education is quality education to the extent that it meets the needs of the students being served and to the extent that it helps solve their problems and fosters their optimum growth and development.

In striving to accomplish this aim, public education is constantly required to meet new and sometimes unexpected challenges in order to show improvement and to remain purposeful, for during any time period, several educational focal points demand attention and financial support. There are periodic shifts in what is considered important for students to learn; alternative and supplemental educational programs have become an integral part of many school districts, and these programs are not without impact on the primary academic subject areas. It becomes obvious that school districts cannot give all areas of their instructional program equal time, money, and personnel or material resources without running the risk of misplaced emphasis. For this reason, it is imperative that

school districts determine their most important goals for education and establish program objectives which are best suited for accomplishing their educational goals. For a school program to remain flexible, it is necessary for its goals and objectives to be constantly assessed to determine their appropriateness in accomplishing the educational expectations of educators, parents, and students.

I. STATEMENT OF THE PROBLEM

Individual and community needs assessment is an indispensable step in the formulation of goals for education and in the establishment of priorities. Large public school districts are becoming more aware of the positive influences of needs assessment in the planning, implementation, evaluation, and modification of their educational programs, and they are employing the process to obtain feedback from educators, parents, and students. The use of needs assessment in small, rural school districts has the same potential for improving educational programs as it does in larger school districts, yet it is a tool that is not employed widely. A plan for needs assessment is needed by small, rural school districts to aid in ascertaining district needs. This assessment, in turn, could be used to formulate more effective goals and objectives for the overall educational program.

The purpose of the study was to develop a plan suitable for small, rural school district assessment and to use the plan to determine the perceptions of educators, parents, and students toward the secondary science and mathematics curricula, toward the guidelines

and procedures for program development and evaluation, toward teacher preparation and performance, and toward increased involvement of educators, parents, and students in curriculum development and evaluation.

Within each of the selected school districts, the study was designed to determine if:

1. Educators, parents, and students differed in their opinion of perceived needs.

2. Educators, parents, and students differed in their opinion of how effectively educational needs are being met with the current curriculum.

3. Perceived needs of educators, parents, and students differed from the actual content of the curriculum.

II. DEFINITIONS

The following operational definitions were adopted for the purposes of this study:

1. Need referred to the gap between what is and what should be.

2. Needs assessment was defined as a formal collection of gaps, the placing of gaps in a priority order, and selecting the gaps of highest priority for action and resolution. (Kaufman, 1976, p. 20)

3. Goals were defined as statements of broad general direction or general intended purposes.

4. Perceived needs referred to identified standards for school programs held by educators, parents, and students.

5. Competency-based education referred to a system of education

which places high emphasis on the specification, learning, and demonstration of those competencies which are of central importance to the effective practicing of a given profession or career. (Schneider, 1973, p. 51)

III. ASSUMPTIONS

In conducting and analyzing the results of this study, the following assumptions were made:

1. The process of a needs assessment is a valuable tool in program development, implementation, evaluation, and modification.

2. Input from professional educators, as well as from students and parents, is necessary if the assessment is to reflect the needs of those most effected by program quality and change.

3. Questions asked on the survey instrument required knowledge generally possessed by all three subject groups--educators, parents, and students.

IV. PROCEDURES

Since this study was designed to assess the secondary science and mathematics curricula in three rural counties in East Tennessee, the initial step of the research involved the development of a systematic process to conduct the needs assessment. The process was simplified into eight phases suggested by Linn (1976, p. 27):

1. Obtain initial commitment.
2. Clarify direction and intent of the needs assessment.
3. Plan the needs assessment process.
4. Collect and summarize information.

5. Analyze information.

6. Report findings.

7. Judge evidence.

8. Plan program improvement.

The central office administration in each county school district selected for the study committed their support and cooperation in developing and implementing a plan for assessing their secondary science and mathematics curricula, their guidelines and procedures for program development and evaluation, and teacher preparation and performance.

Responsible educators from the districts in the study agreed on the following areas for emphasis in the needs assessment:

1. Skills and concepts for science and mathematics instruction.

2. Guidelines and procedures for developing, implementing, evaluating, and revising science and mathematics curricula.

3. Improvement of teacher qualifications and performance.

4. Increased involvement and participation of students, teachers, parents, and community members in curriculum development and evaluation.

A survey instrument was designed to incorporate these focal areas and provide a means of obtaining the opinions of educators, parents, and students regarding these aspects of curriculum and instruction. Analysis of the data collected centered on comparisons of the perceptions of current status of secondary science and mathematics programs and educational expectations of the three subject groups.

Using the completed comparisons of current status and educational

expectations for science and mathematics programs in the three counties, recommendations were given for establishing guidelines and procedures to aid in planning and implementing programs.

V. LIMITATIONS

This study was limited by the following:

1. The educational programs in Claiborne, Grainger, and Union counties represent small, rural school district populations with unique characteristics.

2. The design of the survey instrument focused on the perceptions of educators, parents, and students toward the science and mathematics curricula only.

VI. SIGNIFICANCE OF THE STUDY

Since the inception of public education, its role in society has been expanding, and this expansion has been accompanied by growing expectations of what formal schooling should accomplish. Lyndon B. Johnson expressed his belief in education like this:

> Because all things that we frown upon and that give us problems in this country, ultimately are traceable to the dropout or the lack of education or to environment or to health problems or something else which could be cured by giving to every person the right to acquire all the education that he or she could take. (Davis, 1976, p. 245)

This statement represents the basic belief in education of many Americans; yet this belief is currently accompanied by disillusionment. Public education has come under heavy fire, and there is evidence that substantial numbers in lay and professional communities are dissatisfied with their educational system. They have voiced their criticism in a

very dramatic way with their reluctance to put more money into education until they can be shown more and better results. (Lewis, 1975, p. 48) Educators are now expected to become accountable for what they do, and today's watchword, accountability, begins with needs assessment so that more precise goals can be formulated and progress toward these goals can be carried out in the most effective manner. Kaufman (1976, p. 16) stated:

> Currently we cannot evaluate and revise responsively and humanistically because we do not really know what is to be accomplished, why it should be accomplished, to what extent it should be accomplished, and with whom it should be accomplished.

The drive to become accountable has brought about a recent legislative trend toward competency-based education, and the accompanying minimal competency testing has created a situation in which a variety of local school districts and state educational agencies are concurrently developing programs to meet the standards set by their state's legislation. A report from the San Mateo Educational Resources Center (1977, p. 6) stated:

> If the legislation is to be implemented within the required time frame. . . .districts must be provided with the necessary resources to begin this implementation immediately.

The procurement of the necessary resources in both large and small school districts is complicated by increasing financial constraints, particularly in the area of instruction. Faced with rising costs for fixed expenditures such as teacher salaries and physical plant maintenance, declining enrollments, and a stagnant tax base school districts are cutting expenditures for instructional programs in an

effort to balance the budget. Balancing the budget and becoming accountable appear to be efforts that are in direct conflict, for it seems that school districts are being forced to do more with less. The educational community is painfully aware of the consequences of cutting expenditures for instruction. Lewis (1975, p. 48) stated that "the permanent damage done by cutting back on educational services cannot be remedied." It therefore becomes obvious that school districts must evaluate their instructional program to insure the necessity and appropriateness of each aspect of the program.

Although both large and small school districts are currently experiencing financial pressures, the problem is even more acute in small, rural school districts where the budget has already been stretched to the limit. In many instances the instructional program of small, rural school districts is minimal, and the program cannot be reduced without threatening the success of the push for accountability. Consequently, making the most of available resources becomes necessary and makes program assessment for planning, evaluation, and improvement essential. Brittingham and Netusil (1974, p. 1) stated:

> One of the most crucial problems facing the small, rural school district in an era of declining enrollments and limited budgets is the paucity of resources which can be devoted to planning and development.

It becomes obvious, therefore, that small, rural school districts need assistance in the evaluation process both in the development of a simple, economical plan for assessment and in the implementation of the plan.

Because the major focus for educational studies over the past

few decades has been in an urban setting, there is a lack of applicable information available for rural education. (Lamb, 1977, p. 4) Education in a small, rural school district serves a population with unique characteristics and generalization of research findings from an urban setting to a small, rural setting is essentially inappropriate and inadvisable. Moe and Tamblyn (1974, p. 32) offered the following observation:

> If the propositions are accepted that people learn in terms of their past experiences and from environmental influences and that rural children and youth have unique experiences and environmental influences, it must be granted that the education of rural children and youth represents unique and identifiable problems.

It was these considerations which motivated the conception of this study and prompted the focus on the evaluation of certain educational programs in selected small, rural school districts.

VII. ORGANIZATION OF THE STUDY

Chapter II will be a review of the most significant literature relating to the purposes of this study.

Chapter III will describe the methods and procedures used in conducting this study.

Chapter IV will be a presentation and analysis of the data.

Chapter V will present the conclusions and recommendations of the study.

CHAPTER II

REVIEW OF LITERATURE

I. INTRODUCTION

The task of curriculum development has grown more complex as the number of goals for education has increased. The curriculum developer's job in deciding how a skill, concept, or behavior is to be taught, to whom, and at what time is laden with inherent difficulties. The "what" of curriculum development expands as educational institutions assume more responsibility for instruction in areas previously taken care of by other institutions (e.g. the family or the church); the "who" of curriculum development becomes more heterogeneous as education extends its boundaries to include a segment of the student population previously kept at home and not educated formally (e.g. the handicapped or slow learners); the "when" of curriculum development grows more involved as more research is done in the phases of intellectual development and on sequencing of subject matter in the curriculum; and finally, the "how" of curriculum development reaches baffling proportions as new teaching methods are constantly being developed. The process of education in a pluralistic society would be greatly simplified if the who, what, when, and how of the educational endeavor could be determined and somehow written in concrete, then those involved in improving the system could spend energy perfecting a static process; however, because curriculum development requires responsiveness to the needs of

the students and the communities they represent, curriculum development is a dynamic process, for as the needs of the client change so must the curriculum.

Since, by definition, a goal is "a universal continuing purpose that provides a broad sense of direction," the identification of goals for education therefore becomes an indispensable step in charting future directions for the curriculum. (Lee, 1973, p. 29)

General review of the literature and an extensive search of the files of the Educational Resources Information Center failed to produce studies specifically designed for an assessment of science and mathematics curricula. This required development of an assessment plan through modification of existing assessment models for general curriculum.

Because this study involves the process of needs assessment as a vital part in the development of goals, particularly as they relate to science and mathematics, the review of the literature will proceed from the general to the particular corresponding to the line of thought yielding the final plan for assessing the science and mathematics curricula for small, rural school districts. The review of literature will include the following:

1. The role of goals in curriculum development.
2. How goals are determined.
3. Definition of needs assessment.
4. Purpose of needs assessment.
5. Steps in the planning of a needs assessment.

6. How to choose a focal area for a needs assessment.

7. Who participates in a needs assessment.

8. How a needs assessment is interpreted and used.

II. LITERATURE

Role of Goals in Curriculum Development

Bode (1972, p. 40) stated that "the most important education problem today is the problem of direction." This is not a new problem, for historically, goals for education have reflected various needs and focal points. In 1859, Herbert Spencer posed the question "What knowledge is most worth?" He felt that science would be more likely to prepare children and youth for complete living than other subject areas. Spencer's perception of the role of science in education and his classification of life's activities into the following categories represent early goals for education:

1. Those activities ministering directly to self-preservation.

2. Those activities required in securing the necessities of life.

3. Those activities aiding in the rearing and discipline of offspring for effective parenthood.

4. Those activities involved in maintaining one's social and political responsibilities and relations.

5. Those activities which occupy the leisure part of life and contribute to the production and enjoyment of the arts.

6. Those activities contributing to moral and intellectual discipline. (Tanner and Tanner, 1975, p. 168)

Spencer's early goals for education were followed in 1918

by the seven Cardinal Principles of Secondary Education established by the Commission on the Reorganization of Secondary Education. (U.S. Bureau of Education, 1918) Although stated in slightly different terms--health, command of fundamental processes, worthy home membership, worthy use of leisure, and ethical character--the seven Cardinal Principles were reminescent of Spencer's classification of life's activities.

The Cardinal Principles served as the predominant set of goals and objectives for education until 1938 when the Educational Policies Commission established four broad general areas of educational goals. These goals focused on the following outcomes:

1. Self-realization.
2. Human relationships.
3. Economic efficiency.
4. Civic responsibility.

Formulation of goals must remain in keeping with the time in which they are to serve. In 1966 a special commission of the American Association of School Administrators was established in order to develop goals for education which would facilitate adjustment in a world of rapidly changing needs. The special commission identified nine "imperatives" to focus on the following (Imperatives in Education, 1966, p. 4):

1. To make urban life rewarding and satisfying.
2. To prepare people for the world of work.
3. To discover and nurture creative talent.
4. To strengthen the moral fiber of society.

5. To deal effectively with psychological tensions.
6. To keep democracy working.
7. To make the best use of leisure time.
8. To make intellectual use of natural resources.
9. To work with other people of the world for human betterment.

It is evident from the preceding historical development of educational goals that a goal has literally been "a universal continuing purpose" as referred to by Lee (1973). Upon closer inspection of the goals for education beginning with Spencer's in 1859 to those of the American Association of School Administrators in 1966, it is also evident that while goals for education have been modernized for changing times, they have also retained similar undertones (e.g. the emphasis on work, morality, and citizenship). While goals provide guidelines for the development of educational programs, they are not able to stand alone; they must be accompanied by specific courses of action designed to accomplish the purposes of the goals. It is not possible to have a successful educational program built on goals without specific courses of action and vice versa. This fact reiterates the need for school districts to translate their goals for education into manageable objectives and gives the purposes of this study value in assisting small, rural school districts in the translation of educational goals into specific objectives for science and mathematics. Development of general intended purposes for education loses its significance in the face of curricula that are poorly designed in relation to overall goals.

Determination of Goals

Sanders (1977, p. 14) stated:

> It is logical that appropriate direction for school districts may be facilitated, at least in part, from the wise use of such techniques as needs assessment and goal prioritization. A school district can hardly be expected to proceed in the proper direction unless it first identifies how effective the present program is, what changes should be made, and how to effect these changes.

Hays and Linn (1976, p. 2) believed that the process of goal determination can be greatly facilitated through the process of needs assessment, for needs assessment is a process of critical importance to educational organizations to help clarify their content, determine their current status, and identify areas of strength and weakness. Similarly, Bell (1974, p. 32) emphasized that since we have so many problems and since our resources are limited, it is essential that we look at the performance of our educational institutions. Kaufman (1972, p. 5) suggested the desirability of documenting needs through needs assessment for the purpose of setting valid goals.

These sources represent only a few of those found in the literature which support the need for determination of valid goals through the process of needs assessment and indirectly support the rationale behind this study's purposes in facilitating improvement of the science and mathematics curricula in small, rural school districts through the process of needs assessment.

Definition of Needs Assessment

The term "needs assessment" has been used in a variety of ways and each person has a different perception of its meaning. The

following definitions of "needs assessment" are representative of those definitions found in the literature.

Lee (1973, p. 28) stated:

> Needs assessment is a process by which the unfulfilled educational requirements of a population of students are identified. It is a means of determining the educational objectives most appropriate for a particular situation.

Coffing and Hutchinson (1974, p. 2) suggested that the meaning of "needs assessment" could be best represented by the question, "Who needs what as defined by whom?" Kaufman (1976, p. 20) said that a need was "a gap between what is and what should be," and that a needs assessment could be a means of selecting the gaps of highest priority for action and resolution.

These definitions have in common the documentation of discrepancies to be remedied through educational planning, for as Hoenes (1976, p. 1) suggested, school districts must decide "what is" and "what ought to be" and be willing to take the necessary steps to bridge the gap between the "status quo" and an improved educational program.

Purpose of a Needs Assessment

A New Jersey State Department of Education publication (1974, p. 3) cited the following reasons for doing a needs assessment:

1. It provides for greater citizen involvement and provides a way to systematically tap the views of citizens.

2. It serves as an ideal approach for school districts which have problems but cannot pinpoint exactly where they lie and aids the district in defining verifiable educational goals and clears a smoother path toward achieving those goals.

To put the process of needs assessment into perspective with the needs of local school districts, Morgan (1975, p. 8) gave reasons for needs assessment assuming greater importance at the local level. He reported that some of the impetus for local needs assessment has been provided by state programs that require local input as a component of state-wide assessment efforts. In addition, special state and federal funding programs are increasingly requiring that project proposals be based on a systematic assessment of local needs. In regard to the current study, results of the assessment of the districts' science and mathematics curricula could be used as documentation of need on grant applications for funding to supplement regular budgetary sources.

Already public pressures concerning the improvement of educational quality and demands for accountability have resulted in the enactment of legislation to require minimal competency testing for graduation from public high school in a majority of states. (Educational Research Services Bulletin, 1976) Fiske (1977, p. B12) reminded the public that the idea of establishing exams above and beyond regular course work was an old one that has been revived recently to meet widespread public demands for accountability.

Public sentiment in favor of competency testing as part of high school graduation requirements has encouraged legislative action on the matter of competency testing, and this trend has created a situation in which programs are being developed concurrently by local school districts and state education agencies. While former goals for education were valid for development of educational programs, they were not necessarily designed to meet demands for accountability and

the new challenges of competency testing. It, therefore, becomes important for educational goals to be reassessed in light of new challenges to public education. The results of the current study will aid the school districts in determining the appropriateness of objectives of science and mathematics curricula in meeting the demands of competency testing. Huff (1975, p. 16) stated:

> The extent to which the elements of educational programs must change to accommodate competency-based education very much depends on the extent to which goals and processes of competency-based education differ from those of traditional programs.

The only way that a local school district will be able to determine the nature of the changes it needs to make in order to prepare its students for competency testing is to determine its current status through a needs assessment and decide if current courses of action for goal achievement are compatable with the goals and processes of competency-based education.

Steps in the Planning of a Needs Assessment

If school districts are to receive the most from financial, material, and personnel resources invested in a needs assessment, it is imperative that the process be planned carefully to minimize wasted time, energy, and resources and to insure inclusion of those aspects of the educational program most in need of evaluation.

In a paper presented at the annual meeting of the American Association of School Administrators, Williams (1977, p. 9) stated:

> If we as local school leaders are truly interested in upgrading the curriculum which includes strengthening those programs that are working, eliminating those that are not, and adding those that research data indicate are worthwhile, it behooves us to initiate comprehensive planning.

Price (1977, p. 11) suggested that in planning a needs assessment care should be taken to develop a process which meets the following criteria:

1. It should involve a broad spectrum of the persons affected.

2. In determining a need, the concerns of the people should be matched with the best information that can be made available.

3. The assessment should be open-ended, looking at all types of educational concerns from many populations.

4. The focus of the assessment should be on student needs or deficiencies, not institutional needs.

5. Needs should be reported in such a way to provide maximum assurance that action will be taken to meet the need.

Lee (1973, p. 28) suggested three phases of a needs assessment. They were:

1. Identification of desired educational outcomes for the educational program.

2. Assessment of the degree to which the students are achieving the desired outcomes.

3. Initiation of problem-solving to meet needs.

The phase of a needs assessment suggested by Lee (1973) involving the identification of desired educational outcomes for the educational system is perhaps the most crucial in providing a framework on which a school district can build an improved program. It is this phase of needs assessment that the current study focuses on.

Selection of a Focal Area for a Needs Assessment

The administration and supervision of activities supporting the educational endeavor of a school district requires constant monitering for the purpose of efficient evaluation and modification. If the process of needs assessment is to be used to the best advantage for evaluation and modification, it must, by necessity, focus on an area of primary importance in its immediate and lasting impact on the students of the school district. Berrie (1976, p. 1) stated that essentially the only criteria for an educational needs assessment is that the focus be oriented toward the student. While this statement may not be in danger of dispute, it is perhaps an oversimplification, for the growing and changing needs of the student complicate the process of needs assessment.

The entire process of determining direction for a school district rests on the ability of those involved in decision-making to determine what is to be accomplished and how it is to be accomplished. A look at educational trends in past decades shows the difficulty the educational community has had in deciding what is most important and most useful in meeting student needs. Granted, student needs change; however, it appears that the extreme swings of the educational pendulum sometimes neglect vital and continuing needs of students. A current trend in education is an appropriate demonstration of this kind of neglect--the "back to basics" movement.

A problem encountered by the "back to basics" movement has involved a question of "which basics?" (Lemke, 1977, p. 14) Though commonly accepted to be readin', ritin', and 'rithmetic, there is

disagreement among the educational profession and the lay public regarding those subject areas viewed as "basic." There is a fear that premature action and overemphasis in the areas of language arts and mathematics will produce neglect in the other academic areas as, for example, social studies and science. (Andrisano, 1976, p. 155; Douglas, 1975, p. 169; Harbeck, 1976, p. 60; Van Til, et al., 1977, p. 14) It is this fear of neglect in the area of science and advanced mathematics that partially prompted the need for the current study to ascertain the standing of these subject areas in the minds of educators, parents, and students.

The importance of reading with comprehension, communicating effectively both orally and in writing, and computing accurately is not to be underestimated; however, this does not necessarily justify neglecting the development of other skills and concepts used in the process of living. Pella (1975, p. 14) pointed out:

> The things people do, the things people use, the things people value, the things people depend upon, the things people in responsible positions use in making decisions are more science related than ever before.

This statement coupled with trends in science and mathematics education produces cause for alarm among those who view these academic areas as essential. Pella (1975, p. 21) stated:

> It is proposed that scientific literacy cannot exist as a single entity. Rather it must be a part of general literacy to be of any value, therefore, literacy in science must move along with literacy in social studies, with literacy in humanities, with literacy in technology, or the seeds will be falling on solid rock in an arid region.

A similar concern was voiced by Johnson (1970, p. 67) regarding

mathematics when he said:

> One of the changes in modern society which makes evaluation in mathematics such a critical need is the criticism of mathematics programs because of the level of computational skill of students as measured by standardized tests.

Reports of declining science and mathematics enrollments, declining achievement scores for science and mathematics, and reduced course offerings for science and mathematics raise a question in the minds of educators regarding the reasons behind these declines. (Carpenter, 1975, p. 453; Baldwin, 1975, p. 9; Strassenburg, 1975, p. 198; Herron, 1977, p. 26) This shift in educational emphasis and performance should be accompanied by an assessment of the expectations of educators, parents, community members, and students to determine if this trend is truly representative of student needs. This concern was a primary influence on the selection of a focal area for the needs assessment of the current study.

Who Participates in a Needs Assessment

Lucco and Meekins (1977, p. 1) stated:

> A pervasive problem facing American public education as it embarks upon the last quarter of the twentieth century is the task of re-establishing public confidence and support, particularly that of its client population.

If public education is to re-establish this public confidence and support, it can no longer afford to make decisions based only on the knowledge and perceptions of educational professionals, but it must include response from all those who share in the responsibility of education. Resolution No. 77-54 (1977) of the National Educational Association took the following attitude toward pubic involvement

in the educational issues of accountability and assessment as vital parts of ongoing educational improvement:

> The Association believes that classroom teachers can be accountable only to the degree that they share responsibility in educational decision-making and to the degree that other parties who share this responsibility--legislators, other government officials, school boards, administrators, parents, students, taxpayers--are also held responsible.

Cawelti (1974, p. 38) suggested that school board members are able to expedite the process of change in school programs by helping yearly to develop specific courses of action designed to achieve instructional goals. More efforts should be made to acquaint school boards with the process of curriculum development, implementation, evaluation, and modification and with the opinions held by educators, parents, and students toward the operation of the school system. (Goodrich, 1977, p. iv)

Sullivan (1971, p. 62) supported the idea that teachers are interested in having input into program assessment as he said:

> Teachers want to know what learning outcomes are to be acquired by their students from a program of instruction; teachers require instructional materials and procedures that enable the achievement of these outcomes in as efficient a manner as possible, and teachers want and require efficient means for determing whether or not their students have achieved these learning outcomes.

Those engaged in the determination of goals through needs assessment must consider the perceptions of students as a vital part of the entire process. Minkoff (1977, p. iv) reported results of a study which showed significantly positive perceptions of student voice in high school decision-making by students and teachers, and the study showed significant desire by the students to participate in decisions which affected their education.

Thus, research studies and the perceptions of members of the educational profession, the lay public, and students support the need to include input from a cross section of individuals representing all levels of the educational process from policy-makers in government to the student in the classroom.

How a Needs Assessment is Interpreted and Used

Needs assessment requires not just the reporting of results to all participants; it also includes a process by which results of the survey are utilized for determining school priorities. Needs assessment should be an ongoing process, which if used properly, can serve to improve district's educational process at many levels. The following examples illustrate some of the uses of needs assessment.

In Greenwich, Connecticut, Greenwich High School underwent a school level needs assessment in which needs were evaluated and programs established by a team comprised of administrators, teachers, students, and parents. The central purpose of the school-level program team was to identify building needs and secure board of education financial support and a board commitment to action. One priority identified through this process was the need to return to basic writing skills. Actions resulting from this discovery included the development of a Learning Program Improvement Plan combined with the hiring of four writing tutors to assist the language arts teachers and to meet with individual students to discuss student writing assignments. (Bird, 1976, p. 4)

A Rome, Georgia school district initiated a needs assessment

program for the purpose of staff development. Prior to the actual assessment, a course for credit on needs assessment was offered during the summer for teachers. In addition, principals in the district attended workshops throughout the summer to examine district goal statements and develop a survey questionnaire on staff development. Results of the survey indicated greatest need for staff development in mathematics and language arts. The outcome of the completed evaluation was that staff development in these two areas was emphasized in workshops and courses offered the following year. (Jones, 1977, p. 9)

A commercial high school in Chicago offers office occupational training for eleventh and twelfth grades, and it has become involved in the development of several needs assessment techniques. Since all of the school's seniors work one-half day as part of their work experience program, the potential employers are surveyed to determine the number of students desired in certain skill areas. A follow-up graduate survey reflects student evaluations of the quality of their training, as well as assessment of guidance and extracurricular programs. In addition, an employer feedback survey, a summary report by teacher coordinators, and a survey evaluating outside audio-visual equipment resources of students are collected as a part of the annual assessment data. Results are used not only for the current year's program evaluation, but are analyzed in combination with previous years' results for trends in employer demands, program weaknesses, and needs for new skills areas. (O'Malley, 1977, p. 6)

A study conducted in the Memphis City Schools involved the

development of a model for conducting needs assessment and goal setting. A survey instrument ascertaining expectations regarding learner behaviors as outcomes of educational programs was completed by students, parents, professional staff members of the Memphis City Schools, and other adults of the Memphis community. The groups rated fifty-seven survey items according to the degree of importance for students and according to how satisfactorily that objective was being carried out. A second survey instrument consisted of goal statements formulated from the results of the first survey, and this second survey was administered to parents, students, educators, and other adults to obtain a ranking of the goal statements. The results of the goal setting and prioritization processes resulted in fifteen goals for education with priority rankings being presented to the Board of Education of the Memphis City Schools. (Russell, 1975, p. iv)

III. SUMMARY

Trends in both science and mathematics education call for scrutiny of current goals in these curricular areas to determine whether instructional objectives are adequate in meeting the needs of students and the expectations of both the professional and lay communities. Declining enrollments and lower achievement scores in science and mathematics are causes for concern among those who consider these academic areas to be essential to well-balanced intellectual development and to improved preparation for coping in a dynamic, technological society.

Public expression of dissatisfaction coupled with demands for educational accountability have forced educators to become more conscientious in the development, implementation, evaluation, and modification of curricula and to include a greater cross-section of the professional and lay communities in these processes.

Whether needs assessment is undertaken for the purpose of staff development, school level program evaluation, or district-wide evaluation, it remains a valuable bridge between current status and desired status of educational programs. When conducted carefully and used prudently, a needs assessment can maximize the accomplishments of those participating in them and lead to an improved educational program that meets the needs of students more effectively.

CHAPTER III

METHODS AND PROCEDURES

I. INTRODUCTION

This study was conducted in Claiborne, Grainger, and Union counties of the East Tennessee Development District. Provisional estimates of a 1975 census showed that these counties consisted of rural, agrarian populations of 22,647, 15,536, and 10,176, respectively. The Tennessee Statistical Abstract (1977) reported the following average family incomes for the counties in the study: $4,266 for Claiborne County, $5,086 for Grainger County, and $5,005 for Union County. The county's statistical report filed with the State Department of Education for the 1975-76 school year showed a net student enrollment of 5133 with a $765 expenditure per average daily attendance for Claiborne County; a net student enrollment of 3359 with a $599 expenditure per average daily attendance for Grainger County; and a net student enrollment of 2306 with a $598 expenditure per average daily attendance for Union County. The expenditure per average daily attendance in two of the nearest metropolitan school districts averaged $933. (Tennessee Statistical Abstract, 1977)

Through personal contact with the superintendent of each county and submission of a letter of introduction (See Appendix A.) and a written proposal, permission was obtained to conduct the study. (See Appendix B.) The following procedures were utilized in this research.

II. THE SAMPLING PROCEDURE

The literature cited in Chapter II, supporting the need to include a cross-section of individuals from the educational, student, and lay communities, influenced the selection of the subpopulation groups included in this study. The subpopulation groups were:

1. Supervisor of Instruction.
2. County school board members.
3. Principals of those county schools having grade 7 or higher.
4. Secondary (grades 7-12) science and mathematics teachers.
5. Non-science/non-mathematics teachers.
6. Parents of students in grades 7-12.
7. Students in grades 9-12.

Subpopulation groups included in items 1-5 above will hereafter be referred to as the educator population. This population consisted of the supervisor, all the school board members, all head principals of schools with grades 7 or higher, all secondary science and mathematics teachers, and a random sample representing 15% of the remaining full-time teachers of grades one or higher at each school selected for the study. All schools with grade 7 or higher were included. The size of the population for each county is shown in Table I.

The parent population consisted of a random sample of parents of children in grades 7-12. Four parents per grade level were chosen to yield the parent population for each county shown in Table I.

The student population consisted of a random sampling representing 5% of the student population in each grade level 9-12. Student population totals for each county are shown in Table I.

TABLE I

SURVEYS DISTRIBUTED BY POPULATION GROUP FOR EACH COUNTY

	EDUCATOR							
SCHOOL	Supervisor	Board Members	Principals	Science/Math Teachers	Other Teachers	PARENT	STUDENT*	TOTAL
CLAIBORNE COUNTY	1	7						8
Clairfield Elementary			1	2	3	8	0	14
Claiborne County High			1	8	7	16	45	77
Forge Ridge Consolidated			1	3	4	24	20	52
H. Y. Livesay Middle			1	6	3	8	0	18
Midway Elementary			1	1	2	8	0	12
Powell Valley Elementary			1	2	3	8	0	14
Powell Valley High			1	4	3	16	26	50
Soldiers Memorial Middle			1	4	5	8	0	18
Total	1	7	8	30	30	96	91	263

TABLE I (continued)

SCHOOL	EDUCATOR					PARENT	STUDENT*	TOTAL
	Supervisor	Board Members	Principals	Science/Math Teachers	Other Teachers			
GRAINGER COUNTY	1	9						10
Bean Station Elementary			1	1	1	8	0	11
Joppa Elementary			1	2	4	8	0	15
Rutledge Elementary			2	2	4	8	0	16
Rutledge High			1	5	3	16	34	59
Washburn High			1	5	2	16	9	33
Total	1	9	6	15	14	56	43	144

TABLE I (continued)

SCHOOL	EDUCATOR					PARENT	STUDENT*	TOTAL
	Supervisor	Board Members	Principals	Science/Math Teachers	Other Teachers			
UNION COUNTY	1	7						8
Big Ridge Elementary			1	2	3	8	0	14
Horace Maynard High			1	7	5	20	48	81
Luttrell Elementary			1	1	2	8	0	12
Maynardville Elementary			1	1	6	8	0	12
Sharps Chapel Elementary			1	1	2	8	0	12
Total	1	7	5	12	18	52	48	143

* Zeros represent schools with grades 7-8; only students in grades 9-12 were surveyed.

III. DEVELOPMENT OF THE SURVEY INSTRUMENT

Review of the literature failed to produce a survey instrument specifically designed to accomplish the purposes of this study; it therefore became necessary to develop an instrument through modification of applicable items from other surveys and through construction of original items.

Items on the survey instrument were preceded by a brief letter outlining the purposes of the study and how the results were to be used. Because of additional involvement of educators in the distribution of instruments directly to students and indirectly to parents, a more detailed explanation of the study was attached to all educator survey instruments. (See Appendix C.)

Part I of the survey instrument contained questions relating to demographic data. Different kinds of information were desired from the three populations. To determine the background of the opinions supplied by the educators, questions were asked concerning their position, years experience, and subject/subjects taught. To yield insight into their opinions, the parents were asked about the number of years they had been directly associated with the county schools through enrollment of their children. Finally, students were asked information concerning their grade level and academic area of interest.

From knowledge regarding the science and mathematics curricula in Claiborne, Grainger, and Union counties it was determined that recommendations for improvement in these academic subjects could best be formulated through assessment of the following:

1. Basic skills and concepts of science and mathematics.

2. Guidelines and procedures for program development and evaluation.

3. Teacher preparation and performance.

4. Educator, parent, and student involvement in program development and evaluation.

Survey items designed to measure population group expectations and perceived current status of basic skills and concepts in science and mathematics were developed on the basis of the courses currently offered in the three counties. Part II of the final survey instrument contained the following areas of emphasis:

1. General Science--items 1, 3, and 5.

2. Earth Science--items 4 and 6.

3. Biology--items 2, 8, and 9.

4. Physics--items 10 and 11.

5. Chemistry--items 7 and 12.

6. Algebra/Geometry--items 13, 17, and 18.

7. Basic mathematics--items 14, 15, and 16.

Items 1, 5, 6, 8, 9, 15, 16, and 18 were modified from a survey instrument used in a needs assessment and goal setting study in the Memphis City Schools. (Russell, 1975, pp. 204-206) The remaining items in Part II were constructed by the investigator.

Part III of the survey instrument focused on the following:

1. Guidelines and procedures for program development and evaluation--item 1.

2. Placement of responsibility for program development and evaluation--items 2, 3, and 8.

3. General curricular priorities--items 4, 5, 6, 7, and 9.

Items on Part IV of the survey instrument were designed to obtain the opinions of educators, parents, and students in each of the counties toward adequate availability of the following components of well-balanced science and mathematics curricula:

1. Curriculum development and evaluation--items 1, 2, 7, 8, 15, 16, 19, 20, and 21.

2. Library reference materials--item 3.

3. Audiovisual materials--item 4.

4. Supplemental materials for above and below average students--items 5 and 6.

5. Laboratory facilities--items 9 and 10.

6. Curricular goals and objectives--items 11, 14, 17, and 18.

7. Teacher performance and preparation--items 12, 13, 22 and 23.

Items on Parts III and IV were modified from a survey instrument used for an evaluation of the Oak Ridge City Schools.

Pilot Study

The survey instrument was field tested to assure that both the directions and the items were clear, concise, and understandable. The field test was conducted in an East Tennessee comprehensive high school through the cooperation and assistance of its teachers, students, and parents of students attending the school. (See Appendix D.)

From the results of the pilot study, the instrument was edited to 50 items for the educators and 40 items for the parents and students. In addition, it was determined that items 1-9, Part III would achieve better responses if participants completing the survey were asked to indicate their first, second, and third choices from the six alternatives given for each item rather than allowing them only one choice. (See Appendix E.)

IV. DISTRIBUTION OF THE SURVEY INSTRUMENTS

To aid in the distribution of the survey instruments to each of the schools participating in the study, individual packets were assembled which included the appropriate number of instruments for each of the population groups, instructions for distribution and method of achieving random selection, and parental consent forms for student participation.

Claiborne County

Survey instruments for the supervisor and the seven board members were delivered directly to the Superintendent of Schools' office. The central office was then responsible for mailing the instruments to each of the board members with a cover letter from the Superintendent. (See Appendix F.) A self-addressed, stamped envelope was included with instructions for promptly returning the instrument to the central office.

Survey instruments for the principal, teachers, parents, and students were delivered directly to the principal of each school. The packet was accompanied by a letter from the Superintendent. (See Appendix G.)

Two weeks following delivery of the packets, a telephone follow-up was made to each of the principals to monitor progress or to determine if the packets had been returned to the central office as instructed.

Grainger County

Survey instruments for both the supervisor and the nine board members were delivered directly to the Superintendent of Schools' office. The instruments were given to the board members at a monthly board meeting along with a self-addressed, stamped envelope for return directly to the investigator.

Packets of survey instruments for each of the schools were delivered to the principals during a pre-school inservice meeting. Two weeks later a telephone follow-up was made to determine the status of the instruments. The packets were then collected from the principals during a county-wide principal's meeting.

Union County

The survey instruments for the supervisor and the seven board members were delivered to the central office, and the instruments for the board members were subsequently distributed at a monthly board meeting, filled out, and returned to the central office.

Packets of survey instruments for each of the schools were distributed by the central office with the exception of the packet for Horace Maynard High School, which required special explanation and directions from the investigator. Survey packets were subsequently returned to the central office after a telephone follow-up.

CHAPTER IV

RESULTS AND DISCUSSION

I. INTRODUCTION TO ANALYSIS OF DATA

The survey results shown below represent the responses of 223 respondents from Claiborne County, 109 from Grainger County, and 95 from Union County. Table II summarizes the distribution of responses among educators, parents, and students in the three counties.

II. PRESENTATION AND ANALYSIS OF DATA

Responses from the three population groups in each county were transferred to a Fortran coding form, key punched, and tabulated by computer. Adjusted frequency percentages and mean response were determined for expectation and perceived current status of basic skills and concepts in science and mathematics for items 1-18, Part II; adjusted frequency percentages for first, second, and third choices regarding program development and evaluation and curricular priorities were calculated for items 1-9, Part III; and finally adjusted frequency percentages, mean response, and standard deviation were calculated on responses to items 1-23, Part IV concerning teacher performance and preparation, availability of instructional materials, and guidelines for curriculum development and evaluation. All calculations were performed by population group and for the total population in each county.

TABLE II

TOTAL SURVEY RETURNS BY POPULATION GROUP

	EDUCATOR	PARENT	STUDENT	TOTAL
CLAIBORNE COUNTY				
Distributed	76	96	91	263
Returned	64	75	84	223
Percent	84	78	92	85
GRAINGER COUNTY				
Distributed	45	56	43	144
Returned	30	45	34	109
Percent	67	80	79	76
UNION COUNTY				
Distributed	43	52	48	143
Returned	37	25	33	95
Percent	86	48	69	66

Adjusted Frequency Percentages and Mean Response For Expectation and Perceived Current Status Items (1-18, Part II)

Claiborne County

Educators. As shown in Table III, item 15, "To add, subtract, multiply, and divide with competency necessary for business and industry," rated the highest by the educators with 79% giving a response of "very high importance." Item 8, "To know the effects of drugs, alcohol, and tobacco," was rated with very high importance by 72% of the educators. Item 6, "To understand how people depend on their environment and use their resources," received a very high importance rating by 66% of the educators. Finally, items 3, 9, 13, and 14 received a very high importance rating in the 50% range.

For mean response, the highest tabulated items for the educators were those which had a mean rating for expectation greater than three, out of a possible four. These items indicated strong feelings of expectation from the educators and were considered to be items of very high importance. Table IV shows that 12 items had a mean response for expectation greater than three. The mean for perceived current status was subtracted from the mean for expectation to obtain the discrepancy value. For example, the first entry for educators in Table IV shows a mean expectation of 3.05, a mean perceived current status of 2.33, and a resulting discrepancy of 0.72. Table V shows that of twelve items with a mean expectation greater than three, items 3, 6, 8, 9, 14, 15, 16, and 17 had a discrepancy greater than 0.9 between expectation and perceived current status.

TABLE III

ADJUSTED FREQUENCY PERCENTAGES BY POPULATION GROUP AND TOTAL FOR ITEM (1-18, PART II) AND LEVEL OF RESPONSE

ITEM	EXPECTATION					PERCEIVED CURRENT STATUS			
	No Importance	Low Importance	High Importance	Very High Importance		Unsatisfactory	Fair	Satisfactory	Excellent
A STUDENT SHOULD BE ABLE:					CLAIBORNE				
1. To use the scientific method in solving problems.	2	19	53	27	Educators	8	52	38	2
	4	31	46	19	Parents	17	37	41	4
	4	24	62	11	Students	12	40	40	7
	3	25	54	18	Total	13	43	40	5
					GRAINGER				
	0	21	69	10	Educators	10	59	28	3
	6	32	57	7	Parents	17	53	35	0
	0	41	59	0	Student	0	62	26	3
	2	32	61	6	Total	10	58	30	2
					UNION				
	0	14	54	32	Educators	11	57	32	0
	4	36	44	16	Parents	20	40	36	4
	3	33	42	21	Students	12	45	36	6
	2	26	47	24	Total	14	48	35	3

TABLE III (continued)

ITEM	EXPECTATION					PERCEIVED CURRENT STATUS			
	No Importance	Low Importance	High Importance	Very High Importance		Unsatisfactory	Fair	Satisfactory	Excellent
A STUDENT SHOULD BE ABLE:					CLAIBORNE				
2. To understand the growth stages in plants and animals.	0	14	61	25	Educators	3	37	56	5
	1	31	53	15	Parents	1	35	60	4
	0	40	42	18	Students	5	39	48	8
	0	30	51	19	Total	3	37	54	6
					GRAINGER				
	0	27	67	7	Educators	10	59	28	3
	0	22	67	11	Parents	12	53	35	0
	3	29	53	15	Students	9	62	26	3
	1	26	62	11	Total	1	44	50	5
					UNION				
	0	8	61	31	Educators	3	44	50	3
	0	28	64	8	Parents	12	44	44	0
	6	19	62	13	Students	9	27	42	21
	2	17	62	18	Total	7	38	46	9

TABLE III (continued)

ITEM	EXPECTATION: No Importance	Low Importance	High Importance	Very High Importance		PERCEIVED CURRENT STATUS: Unsatisfactory	Fair	Satisfactory	Excellent
A STUDENT SHOULD BE ABLE:					CLAIBORNE				
3. To understand the delicate balance that exists in nature.	0	8	42	50	Educators	13	42	32	13
	4	27	51	19	Parents	11	32	52	5
	2	31	38	29	Students	14	38	40	7
	2	23	44	31	Total	13	37	42	8
					GRAINGER				
	0	17	67	17	Educators	10	43	47	0
	0	22	58	20	Parents	5	55	36	5
	6	18	50	26	Students	15	41	41	3
	2	19	58	21	Total	9	47	41	3
					UNION				
	0	6	39	56	Educators	6	42	50	3
	0	25	29	46	Parents	21	33	33	13
	12	18	39	30	Students	25	25	41	9
	4	15	37	48	Total	16	34	42	8

TABLE III (continued)

ITEM	EXPECTATION					PERCEIVED CURRENT STATUS			
	No Importance	Low Importance	High Importance	Very High Importance		Unsatisfactory	Fair	Satisfactory	Excellent
A STUDENT SHOULD BE ABLE:					CLAIBORNE				
4. To understand principles governing weather.	2	22	66	11	Educators	8	53	37	2
	1	37	52	9	Parents	11	44	45	0
	5	43	45	7	Students	25	47	23	5
	3	35	53	9	Total	15	48	35	2
					GRAINGER				
	0	37	57	7	Educators	13	40	47	0
	4	38	49	9	Parents	18	50	25	7
	12	45	33	9	Students	21	44	36	0
	6	40	46	8	Total	18	45	34	3
					UNION				
	0	22	53	25	Educators	8	47	42	3
	0	36	60	4	Parents	28	32	40	0
	6	21	45	27	Students	19	34	31	16
	2	26	52	20	Total	17	39	38	6

TABLE III (continued)

ITEM	EXPECTATION: No Importance	Low Importance	High Importance	Very High Importance		PERCEIVED CURRENT STATUS: Unsatisfactory	Fair	Satisfactory	Excellent
A STUDENT SHOULD BE ABLE:					CLAIBORNE				
5. To relate occurrences he/she observes around him/her to principles of science.	0	23	53	23	Educators	8	53	32	6
	3	31	55	12	Parents	5	41	52	1
	4	26	55	15	Students	12	32	48	8
	2	27	54	17	Total	9	41	45	5
					GRAINGER				
	0	20	60	20	Educators	10	60	27	3
	0	38	47	16	Parents	9	57	34	0
	6	25	63	6	Students	13	41	47	0
	2	29	55	14	Total	10	53	36	1
					UNION				
	0	6	69	25	Educators	3	61	33	3
	0	24	56	20	Parents	12	44	40	4
	13	22	50	16	Students	21	39	33	6
	4	16	59	20	Total	12	49	35	4

TABLE III (continued)

ITEM	EXPECTATION: No Importance	Low Importance	High Importance	Very High Importance		PERCEIVED CURRENT STATUS: Unsatisfactory	Fair	Satisfactory	Excellent
A STUDENT SHOULD BE ABLE:					CLAIBORNE				
6. To understand how people depend on their environment and use their resources.	0	5	30	66	Educators	3	44	44	10
	0	17	37	45	Parents	11	21	56	12
	0	7	31	62	Students	7	29	48	17
	0	10	33	57	Total	7	30	49	13
					GRAINGER				
	0	7	40	53	Educators	10	43	43	3
	0	7	49	44	Parents	9	45	36	9
	0	6	47	47	Students	9	21	62	9
	0	6	46	48	Total	9	37	46	7
					UNION				
	0	6	42	53	Educators	6	47	44	3
	0	0	36	64	Parents	20	36	24	20
	3	12	45	39	Students	9	31	44	16
	1	6	41	51	Total	11	39	39	12

TABLE III (continued)

ITEM	EXPECTATION: No Importance	Low Importance	High Importance	Very High Importance		PERCEIVED CURRENT STATUS: Unsatisfactory	Fair	Satisfactory	Excellent
A STUDENT SHOULD BE ABLE:					CLAIBORNE				
7. To perform experiments and and understand the relationship between matter and energy.	0	27	56	17	Educators	11	49	38	2
	3	35	51	12	Parents	8	44	43	5
	4	36	43	18	Students	15	39	37	8
	2	33	49	16	Total	12	44	39	5
					GRAINGER				
	0	40	43	17	Educators	13	63	23	0
	2	32	57	9	Parents	14	67	16	2
	0	35	53	12	Students	6	44	44	6
	1	35	52	12	Total	11	59	27	3
					UNION				
	0	22	39	39	Educators	6	61	31	3
	8	40	28	24	Parents	24	56	16	4
	3	25	53	19	Students	6	30	48	15
	3	28	41	28	Total	11	49	33	7

TABLE III (continued)

ITEM	EXPECTATION					PERCEIVED CURRENT STATUS			
	No Importance	Low Importance	High Importance	Very High Importance		Unsatisfactory	Fair	Satisfactory	Excellent
A STUDENT SHOULD BE ABLE:					CLAIBORNE				
8. To know the effects of drugs, alcohol, and tobacco.	0	5	23	72	Educators	11	32	42	15
	0	1	15	84	Parents	15	35	41	9
	1	0	13	86	Students	21	31	21	26
	0	2	17	81	Total	16	33	34	17
					GRAINGER				
	3	7	27	63	Educators	0	23	57	20
	0	4	20	76	Parents	5	48	32	16
	0	6	21	74	Students	6	26	50	18
	1	6	22	72	Total	4	34	44	18
					UNION				
	0	3	39	58	Educators	3	50	44	3
	0	0	16	84	Parents	20	32	40	8
	6	9	9	76	Students	22	28	25	25
	2	4	22	71	Total	14	38	37	12

TABLE III (continued)

ITEM	EXPECTATION					PERCEIVED CURRENT STATUS			
	No Importance	Low Importance	High Importance	Very High Importance		Unsatisfactory	Fair	Satisfactory	Excellent
A STUDENT SHOULD BE ABLE:					CLAIBORNE				
9. To understand human growth, development, and reproductive processes.	0	3	38	59	Educators	6	48	44	2
	0	11	44	45	Parents	5	39	51	5
	1	7	42	50	Students	13	32	48	7
	0	7	41	51	Total	9	39	48	5
					GRAINGER				
	0	13	47	40	Educators	7	53	40	0
	4	16	42	38	Parents	9	44	42	5
	0	15	44	41	Students	3	35	47	15
	2	15	44	39	Total	7	44	43	7
					UNION				
	3	14	22	61	Educators	19	61	17	3
	0	4	36	60	Parents	8	52	32	8
	0	3	41	56	Students	9	18	52	21
	1	8	32	59	Total	13	44	33	11

TABLE III (continued)

ITEM	EXPECTATION					PERCEIVED CURRENT STATUS			
	No Importance	Low Importance	High Importance	Very High Importance		Unsatisfactory	Fair	Satisfactory	Excellent
A STUDENT SHOULD BE ABLE:					CLAIBORNE				
10. To understand principles of electricity and magnetism.	0	31	63	6	Educators	8	48	42	2
	1	23	59	16	Parents	7	41	53	0
	2	45	45	7	Students	11	52	32	5
	1	34	55	10	Total	9	47	42	2
					GRAINGER				
	0	53	37	10	Educators	13	47	40	0
	0	49	33	18	Parents	14	64	23	0
	3	56	41	0	Students	6	56	38	0
	1	52	37	10	Total	11	56	32	0
					UNION				
	3	28	44	25	Educators	11	56	33	0
	0	44	48	8	Parents	28	52	20	0
	3	48	39	9	Students	12	53	25	9
	2	39	44	15	Total	16	54	27	3

TABLE III (continued)

ITEM	EXPECTATION					PERCEIVED CURRENT STATUS			
	No Importance	Low Importance	High Importance	Very High Importance		Unsatisfactory	Fair	Satisfactory	Excellent
A STUDENT SHOULD BE ABLE:					CLAIBORNE				
11. To understand dynamics of nuclear and gravitational forces.	0	48	47	5	Educators	13	58	27	2
	8	45	40	7	Parents	8	52	39	1
	11	44	40	5	Students	21	46	30	2
	7	46	42	5	Total	14	52	32	2
					GRAINGER				
	3	67	27	3	Educators	17	63	20	0
	9	55	30	7	Parents	14	70	16	0
	0	68	26	6	Students	15	62	24	0
	5	62	28	6	Total	15	65	20	0
					UNION				
	11	39	28	22	Educators	17	58	25	0
	0	60	28	12	Parents	36	56	8	0
	19	34	38	9	Students	12	42	42	3
	11	43	31	15	Total	20	52	27	1

TABLE III (continued)

ITEM	EXPECTATION: No Importance	Low Importance	High Importance	Very High Importance		PERCEIVED CURRENT STATUS: Unsatisfactory	Fair	Satisfactory	Excellent
A STUDENT SHOULD BE ABLE:					CLAIBORNE				
12. To understand principles of simple chemical reactions.	0	33	51	16	Educators	5	55	37	3
	3	35	48	15	Parents	5	45	45	4
	2	46	39	13	Students	12	54	30	4
	2	38	45	14	Total	8	51	37	4
					GRAINGER				
	3	37	53	7	Educators	7	60	33	0
	5	51	37	7	Parents	17	50	29	5
	9	50	38	3	Students	9	41	47	3
	6	47	42	6	Total	11	50	36	3
					UNION				
	0	29	49	23	Educators	9	60	31	0
	0	40	52	8	Parents	20	68	12	0
	15	36	39	9	Students	10	48	39	3
	5	34	46	14	Total	12	58	29	1

TABLE III (continued)

ITEM	EXPECTATION					PERCEIVED CURRENT STATUS			
	No Importance	Low Importance	High Importance	Very High Importance		Unsatisfactory	Fair	Satisfactory	Excellent
A STUDENT SHOULD BE ABLE:					CLAIBORNE				
13. To solve simple mathematical equations.	0	5	43	52	Educators	3	41	44	11
	0	4	41	55	Parents	4	25	52	19
	1	10	29	61	Students	1	21	55	23
	0	6	37	56	Total	3	28	51	18
					GRAINGER				
	0	7	47	47	Educators	3	47	37	13
	0	9	40	51	Parents	5	33	53	9
	0	6	38	56	Students	0	18	47	35
	0	7	41	51	Total	3	32	47	19
					UNION				
	0	14	33	53	Educators	0	47	53	0
	0	21	20	68	Parents	4	28	44	24
	0	9	25	66	Students	3	12	41	44
	0	12	27	61	Total	2	30	46	22

TABLE III (continued)

ITEM	EXPECTATION					PERCEIVED CURRENT STATUS			
	No Importance	Low Importance	High Importance	Very High Importance		Unsatisfactory	Fair	Satisfactory	Excellent
A STUDENT SHOULD BE ABLE:					CLAIBORNE				
14. To compute with fractions and decimals with 75% accuracy.	0	10	35	56	Educators	10	38	43	10
	1	5	39	54	Parents	6	28	57	10
	0	7	43	50	Students	5	27	48	20
	0	7	39	53	Total	6	30	49	14
					GRAINGER				
	0	0	60	40	Educators	7	63	17	13
	2	9	40	49	Parents	7	40	47	7
	0	9	56	35	Students	9	26	53	12
	1	6	50	42	Total	7	42	40	10
					UNION				
	0	8	39	53	Educators	3	50	47	0
	0	0	42	58	Parents	4	42	38	17
	6	12	21	61	Students	13	26	29	32
	2	8	33	57	Total	7	40	38	15

TABLE III (continued)

ITEM	EXPECTATION					PERCEIVED CURRENT STATUS			
	No Importance	Low Importance	High Importance	Very High Importance		Unsatisfactory	Fair	Satisfactory	Excellent
A STUDENT SHOULD BE ABLE:					CLAIBORNE				
15. To add, subtract, multiply, and divide with the competence necessary for business and industry.	0	0	21	79	Educators	7	36	48	10
	0	4	24	72	Parents	7	21	55	18
	0	4	20	76	Students	5	23	33	39
	0	3	22	76	Total	6	26	44	24
					GRAINGER				
	0	3	33	63	Educators	3	53	33	10
	2	4	20	73	Parents	7	31	55	7
	0	3	21	76	Students	3	15	44	38
	1	4	24	72	Total	5	32	45	18
					UNION				
	0	3	33	64	Educators	0	56	44	0
	0	0	12	88	Parents	8	40	28	24
	0	6	28	66	Students	6	9	31	53
	0	3	26	71	Total	4	35	35	25

TABLE III (continued)

ITEM	EXPECTATION					PERCEIVED CURRENT STATUS			
	No Importance	Low Importance	High Importance	Very High Importance		Unsatisfactory	Fair	Satisfactory	Excellent
A STUDENT SHOULD BE ABLE:					CLAIBORNE				
16. To use standard units of measurement including the metric system.	0	11	48	41	Educators	15	49	30	7
	1	11	44	44	Parents	10	33	48	10
	5	5	56	35	Students	15	43	33	8
	2	9	50	40	Total	13	41	37	8
					GRAINGER				
	0	10	63	27	Educators	7	67	20	7
	0	24	40	36	Parents	12	44	35	9
	3	9	50	38	Students	18	32	44	6
	1	16	50	34	Total	12	47	23	7
					UNION				
	0	14	36	50	Educators	8	56	36	0
	0	4	24	72	Parents	8	44	40	8
	6	18	42	33	Students	13	19	61	6
	2	13	35	50	Total	10	40	46	4

TABLE III (continued)

ITEM	EXPECTATION					PERCEIVED CURRENT STATUS			
	No Importance	Low Importance	High Importance	Very High Importance		Unsatisfactory	Fair	Satisfactory	Excellent
A STUDENT SHOULD BE ABLE:					CLAIBORNE				
17. To interpret graphs, tables, and percent in practical situations.	0	14	52	33	Educators	23	42	26	7
	0	13	56	31	Parents	5	44	48	3
	0	33	56	11	Students	10	63	24	4
	0	21	55	24	Total	12	51	33	4
					GRAINGER				
	0	23	57	20	Educators	10	67	23	0
	0	24	53	22	Parents	12	44	40	5
	6	38	47	9	Students	9	47	35	9
	2	28	52	17	Total	10	51	34	5
					UNION				
	0	14	53	33	Educators	11	56	33	0
	0	12	32	56	Parents	12	36	44	8
	9	22	38	31	Students	16	38	38	9
	3	16	42	39	Total	13	44	38	5

TABLE III (continued)

ITEM	EXPECTATION					PERCEIVED CURRENT STATUS			
	No Importance	Low Importance	High Importance	Very High Importance		Unsatisfactory	Fair	Satisfactory	Excellent
A STUDENT SHOULD BE ABLE:					CLAIBORNE				
18. To interpret geometry in practical situations.	2	32	47	19	Educators	17	52	32	0
	1	16	64	19	Parents	7	38	50	6
	6	28	54	12	Students	9	52	30	9
	3	25	55	17	Total	10	47	37	5
					GRAINGER				
	3	41	52	3	Educators	7	76	14	3
	7	36	50	7	Parents	17	52	29	2
	3	56	35	6	Students	12	44	41	3
	5	44	46	6	Total	12	56	29	3
					UNION				
	6	17	49	29	Educators	17	57	26	0
	0	24	52	24	Parents	24	52	24	0
	6	33	36	24	Students	10	39	35	16
	4	25	45	26	Total	16	49	29	6

TABLE IV

MEAN RESPONSE BY POPULATION GROUP TO ITEMS (1-18, PART II)
ACCORDING TO EXPECTATION AND PERCEIVED CURRENT STATUS

ITEM	POPULATION GROUP	EXPECTATION	PERCEIVED CURRENT STATUS	DIFFERENCE
A STUDENT SHOULD BE ABLE:	CLAIBORNE			
	EDUCATORS	3.05	2.33	0.72
1. To use the scientific method in solving problems.	PARENTS	2.80	2.32	0.48
	STUDENTS	2.80	2.43	0.37
	TOTAL	2.87	2.36	0.51
	GRAINGER			
		2.90	2.24	0.66
		2.66	2.23	0.43
		2.59	2.24	0.35
		2.70	2.24	0.46
	UNION			
		3.19	2.22	0.97
		2.72	2.24	0.48
		2.82	2.36	0.46
		2.94	2.27	0.67
2. To understand the growth stages of plants and animals.	CLAIBORNE			
	EDUCATORS	3.11	2.62	0.49
	PARENTS	2.81	2.67	0.14
	STUDENTS	2.77	2.60	0.17
	TOTAL	2.88	2.63	0.25
	GRAINGER			
		2.80	2.63	0.17
		2.89	2.43	0.46
		2.79	2.74	0.05
		2.84	2.58	0.26
	UNION			
		3.22	2.53	0.69
		2.80	2.32	0.48
		2.81	2.76	0.05
		2.97	2.55	0.42

TABLE IV (continued)

ITEM	POPULATION GROUP	EXPECTATION	PERCEIVED CURRENT STATUS	DIFFERENCE
A STUDENT SHOULD BE ABLE:	CLAIBORNE			
	EDUCATORS	3.42	2.45	0.97
3. To understand the delicate balance that exists in nature.	PARENTS	2.84	2.52	0.32
	STUDENTS	2.93	2.41	0.52
	TOTAL	3.04	2.46	0.58
	GRAINGER			
		3.00	2.37	0.63
		2.98	2.41	0.57
		2.97	2.32	0.65
		2.98	2.37	0.61
	UNION			
		3.50	2.50	1.00
		3.21	2.38	0.83
		2.88	2.34	0.54
		3.20	2.41	0.79
4. To understand principles governing weather.	CLAIBORNE			
	EDUCATORS	2.86	2.32	0.54
	PARENTS	2.69	2.35	0.34
	STUDENTS	2.55	2.07	0.48
	TOTAL	2.69	2.24	0.45
	GRAINGER			
		2.70	2.33	0.37
		2.62	2.21	0.41
		2.39	2.15	0.24
		2.57	2.22	0.35
	UNION			
		3.03	2.30	0.64
		2.68	2.12	0.56
		2.94	2.44	0.50
		2.90	2.33	0.57

TABLE IV (continued)

ITEM	POPULATION GROUP	EXPECTATION	PERCEIVED CURRENT STATUS	DIFFERENCE
A STUDENT SHOULD BE ABLE:	CLAIBORNE			
	EDUCATORS	3.00	2.37	0.63
5. To relate occurrences he/she observes around him/her to principles of science.	PARENTS	2.76	2.49	0.27
	STUDENTS	2.82	2.52	0.30
	TOTAL	2.85	2.47	0.38
	GRAINGER			
		3.00	2.23	0.77
		2.78	2.25	0.53
		2.69	2.34	0.35
		2.81	2.27	0.54
	UNION			
		3.19	2.36	0.83
		2.96	2.36	0.60
		2.69	2.24	0.45
		2.96	2.32	0.64
6. To understand how people depend on their environment and use their resources.	CLAIBORNE			
	EDUCATORS	3.61	2.60	1.01
	PARENTS	3.28	2.69	0.59
	STUDENTS	3.55	2.74	0.81
	TOTAL	3.48	2.68	0.80
	GRAINGER			
		3.47	2.40	1.07
		3.38	2.45	0.93
		3.41	2.71	0.70
		3.42	2.52	0.90
	UNION			
		3.47	2.44	1.03
		3.64	2.44	1.20
		3.21	2.66	0.55
		3.43	2.52	0.91

TABLE IV (continued)

ITEM	POPULATION GROUP	EXPECTATION	PERCEIVED CURRENT STATUS	DIFFERENCE
A STUDENT SHOULD BE ABLE:				
	CLAIBORNE			
	EDUCATORS	2.91	2.30	0.61
7. To perform	PARENTS	2.72	2.45	0.27
experiments	STUDENTS	2.75	2.38	0.37
and understand	TOTAL	2.78	2.38	0.40
the relation-				
ship between	GRAINGER			
matter and		2.77	2.10	0.67
energy.		2.73	2.07	0.66
		2.77	2.50	0.27
		2.75	2.22	0.53
	UNION			
		3.17	2.31	0.86
		2.68	2.00	0.68
		2.88	2.73	0.15
		2.94	2.37	0.56
8. To know the	CLAIBORNE			
effects of	EDUCATORS	3.67	2.60	1.07
drugs, alco-	PARENTS	2.82	2.45	1.37
hol, and	STUDENTS	3.83	2.52	1.31
tobacco.	TOTAL	3.78	2.52	1.26
	GRAINGER			
		3.50	2.97	0.53
		3.71	2.59	1.12
		3.68	2.79	0.88
		3.64	2.76	0.88
	UNION			
		3.56	2.47	1.09
		3.84	2.36	1.48
		3.54	2.53	1.01
		2.63	2.46	1.17

TABLE IV (continued)

ITEM	POPULATION GROUP	EXPECTATION	CURRENT STATUS	DIFFERENCE
A STUDENT SHOULD BE ABLE:	CLAIBORNE			
	EDUCATORS	3.56	2.40	1.16
9. To understand human growth, development, and reproductive processes.	PARENTS	3.35	2.56	0.79
	STUDENTS	3.41	2.49	0.92
	TOTAL	3.43	2.49	0.94
	GRAINGER			
		3.27	2.33	0.94
		3.13	2.42	0.71
		3.26	2.74	0.52
		3.21	2.50	0.71
	UNION			
		3.42	2.03	1.39
		3.56	2.40	1.16
		3.53	2.85	0.68
		3.50	2.42	1.08
10. To understand principles of electricity and magnetism.	CLAIBORNE			
	EDUCATORS	2.75	2.37	0.38
	PARENTS	2.91	2.46	0.45
	STUDENTS	2.57	2.31	0.26
	TOTAL	2.73	2.38	2.35
	GRAINGER			
		2.57	2.27	0.30
		2.69	2.09	0.60
		2.38	2.32	0.06
		2.56	2.21	0.35
	UNION			
		2.92	2.22	0.70
		2.64	1.92	0.72
		2.54	2.31	0.23
		2.71	2.17	0.54

TABLE IV (continued)

ITEM	POPULATION GROUP	EXPECTATION	PERCEIVED CURRENT STATUS	DIFFERENCE
A STUDENT SHOULD BE ABLE:				
	CLAIBORNE			
	EDUCATORS	2.56	2.12	0.44
11. To understand	PARENTS	2.45	2.33	0.12
dynamics of	STUDENTS	2.39	2.13	0.26
nuclear and	TOTAL	2.46	2.21	0.25
gravitational				
forces.	GRAINGER			
		2.30	2.03	0.27
		2.34	2.02	0.32
		2.38	2.09	0.29
		2.34	2.05	0.29
	UNION			
		2.61	2.08	0.53
		2.52	1.72	0.80
		2.38	2.36	0.02
		2.51	2.08	0.43
12. To understand	CLAIBORNE			
principles of	EDUCATORS	2.82	2.38	0.44
simple chemi-	PARENTS	2.75	2.48	0.27
cal reactions.	STUDENTS	2.63	2.25	0.38
	TOTAL	2.72	2.37	0.35
	GRAINGER			
		2.63	2.27	0.37
		2.46	2.21	0.25
		2.35	2.44	-0.09
		2.48	2.30	0.18
	UNION			
		2.94	2.23	0.71
		2.68	1.92	0.76
		2.42	2.35	0.07
		2.69	2.19	0.50

TABLE IV (continued)

ITEM	POPULATION GROUP	EXPECTATION	PERCEIVED CURRENT STATUS	DIFFERENCE
A STUDENT SHOULD BE ABLE:	CLAIBORNE			
	EDUCATORS	3.48	2.64	0.84
13. To solve simple mathematical equations.	PARENTS	2.51	2.86	0.65
	STUDENTS	3.49	2.99	0.50
	TOTAL	3.49	2.85	0.64
	GRAINGER			
		3.40	2.60	0.80
		3.42	2.67	0.75
		3.50	3.18	0.32
		3.44	2.81	0.63
	UNION			
		3.39	2.53	0.86
		3.56	2.88	0.68
		3.56	3.25	0.31
		3.50	2.87	0.63
14. To compute with fractions and decimals with 75% accuracy.	CLAIBORNE			
	EDUCATORS	3.46	2.52	0.94
	PARENTS	2.46	2.71	0.75
	STUDENTS	3.43	2.83	0.60
	TOTAL	3.45	2.71	0.74
	GRAINGER			
		3.40	2.37	1.03
		3.36	2.54	0.82
		3.26	2.68	0.58
		3.34	2.53	0.80
	UNION			
		3.44	2.44	1.00
		2.58	2.68	0.90
		3.36	2.81	0.55
		3.45	2.63	0.82

TABLE IV (continued)

ITEM	POPULATION GROUP	EXPECTATION	PERCEIVED CURRENT STATUS	DIFFERENCE
A STUDENT SHOULD BE ABLE:				
	CLAIBORNE			
	EDUCATORS	3.79	2.61	1.18
15. To add, sub-	PARENTS	3.68	2.84	0.84
tract,	STUDENTS	3.73	3.07	0.66
multiply, and	TOTAL	3.73	2.86	0.87
divide with				
competence	GRAINGER			
necessary for		3.60	2.50	1.10
business and		3.64	2.62	1.02
industry.		3.74	3.18	0.56
		3.66	2.76	0.90
	UNION			
		3.61	2.44	1.17
		3.88	2.68	1.20
		3.59	3.31	0.28
		3.68	2.81	0.87
16. To use	CLAIBORNE			
standard units	EDUCATORS	3.30	2.28	1.02
of measurement	PARENTS	3.31	2.58	0.73
including the	STUDENTS	3.20	2.34	0.86
metric system.	TOTAL	3.27	2.40	0.87
	GRAINGER			
		3.17	2.27	0.90
		3.11	2.42	0.69
		3.24	2.38	0.86
		3.16	2.36	0.80
	UNION			
		3.36	2.28	1.08
		3.68	2.48	1.20
		3.03	2.61	0.42
		3.33	2.45	0.88

TABLE IV (continued)

ITEM	POPULATION GROUP	EXPECTATION	PERCEIVED CURRENT STATUS	DIFFERENCE
A STUDENT SHOULD BE ABLE:				
	CLAIBORNE			
	EDUCATORS	3.19	2.16	1.03
17. To interpret	PARENTS	3.17	2.48	0.69
graphs,	STUDENTS	2.77	2.21	0.56
tables, and	TOTAL	3.03	2.29	0.74
percent in				
practical	GRAINGER			
situations.		2.97	2.13	1.84
		2.98	2.37	0.61
		2.59	2.44	0.15
		2.85	2.33	0.52
	UNION			
		3.19	2.22	0.97
		3.44	2.48	0.96
		2.91	2.41	0.50
		3.16	2.36	0.80
18. To interpret	CLAIBORNE			
geometry in	EDUCATORS	2.84	2.15	0.69
practical	PARENTS	3.00	2.54	0.46
situations.	STUDENTS	2.72	2.39	0.33
	TOTAL	2.85	2.37	0.48
	GRAINGER			
		2.55	2.14	0.41
		2.57	2.17	0.40
		2.44	2.35	0.09
		2.52	2.22	0.30
	UNION			
		3.00	2.09	0.91
		3.00	2.00	1.00
		2.79	2.58	0.21
		2.92	2.23	0.69

TABLE V

ITEMS (1-18, PART II) WITH GREATEST DISCREPANCY* BETWEEN EXPECTATION* AND PERCEIVED CURRENT STATUS BY POPULATION GROUPS AND TOTAL FOR CLAIBORNE COUNTY

EDUCATORS	PARENTS	STUDENTS	TOTAL
3			
6			
8	8	8	8
9		9	9
14			
15			
16			
17			

* Calculated on the basis of expectation of (3.+) and discrepancy of (0.9+)

Parents. Item 8, relating to the effects of drugs, alcohol, and tobacco, received a very high importance rating by 84% of the parents; the same rating was given to item 15, relating to basic computational skills in mathematics, by 72% of the respondents in this population group. Items 13 and 14 received a very high importance rating in the 50% range.

Table IV shows nine items with a mean expectation greater than three. From Table V it can be seen that of these nine items, only item 8 was reported as having a discrepancy greater than 0.9 between expectation and perceived current status.

Students. Receiving a very high importance rating by this population group were: item 8, relating to the effects of drugs, alcohol, and tobacco, with 86%; item 15, relating to basic computational skills in science and mathematics with 76%; items 6 and 13 with 62% and 61% respectively; and finally, items 9 and 14 both with 50%.

Student responses revealed seven items with a mean expectation greater than three, as shown in Table V. Of these seven, items 8 and 9 had a discrepancy greater than 0.9 between expectation and perceived current status.

Total. Over 50% of all three population groups in Claiborne County gave a very high importance rating to items 8, 13, 14, and 15; and over 50% of the educators and students gave a very high importance rating to items 6 and 9. These results show strong agreement among the population groups regarding those basic skills and concepts in science and mathematics they consider to be most important.

While the three population groups agreed strongly concerning expectations, they differed on how well the county schools were accomplishing the instruction of the skills and concepts listed on the survey instrument. The educators expressed a discrepancy on more items than did the parents or students. This indicates that, in general, the parents and students are more satisfied with the quality of instruction in the skills and concepts of science and mathematics treated by the survey instrument than are the educators.

Grainger County

Educators. This population group gave a very high importance rating to the following: item 8, "To know the effects of drugs, alcohol, and tobacco," and 15, "To add, subtract, multiply, and divide with the competence necessary for business and industry," both with 63% of the educator response; and item 6, "To understand how people depend on their environment and use their resources," with 53% as shown in Table III.

Table IV shows that nine items had a mean response for expectation greater than three. Table VI shows that of these nine, items 6, 9, 14, 15, and 16 had a discrepancy greater than 0.9 between expectation and perceived current status.

Parents. Receiving a very high importance rating by the parents were: item 8, relating to the effects of drugs, alcohol, and tobacco, with 76%; item 15, relating to basic computational skills in mathematics, with 73%; and item 13, "To solve simple mathematical equations," with 51% of the parent response.

TABLE VI

ITEMS (1-18, PART II) WITH GREATEST DISCREPANCY* BETWEEN EXPECTATION* AND PERCEIVED CURRENT STATUS BY POPULATION GROUPS AND TOTAL FOR GRAINGER COUNTY

EDUCATORS	PARENTS	STUDENTS	TOTAL
6	6		6
	8		
9			
14			
15	15		15
16			

* Calculated on the basis of expectation of (3.+) and discrepancy of (0.9+)

Students. Receiving the highest rating by the students in Grainger County was item 15 with 76% of the student response. Item 8 was second with 74% and finally, item 13 was third with 56%.

Seven items shown in Table IV have a mean expectation greater than three. Table VI shows that student responses indicated that while they hold high expectations for certain skills and concepts in science and mathematics, they feel that the county is doing a satisfactory job in the instruction of these skills and concepts.

Total. Over 50% of all three population groups in Grainger County gave items 8 and 15 a very high importance rating. Over 50% of the parents and students gave item 13 the same rating. These results suggest strong agreement among the population groups regarding those basic skills and concepts in science and mathematics considered to be the most important.

Results shown in Table VI show that educators, parents, and students share similar expectations of instruction in the basic skills and concepts listed in items 6 and 15; otherwise, the three population groups did not express similar concerns for the quality of instruction in science and mathematics. The results indicate that educators are the least satisfied with the quality of instruction being given in certain skills and concepts in science and mathematics. Parents expressed concern for quality of instruction on items 6, 8, and 15, and finally, student response did not yield any items with a discrepancy between expectation and perceived current status greater then 0.9.

Union County

Educators. As shown in Table III, p. 41, item 15, "To add, subtract, multiply, and divide with competency necessary for business and industry," was rated highest by the educators with 64% giving a response of very high importance. Items 8, relating to the effects of drugs, alcohol, and tobacco, received a very high importance rating from 61% of the educators, and items 3, 6, 8, 13, 14, and 16 were in the 50% range.

Table IV, page 59, shows 15 items had a mean response for expectation greater than 3. These items indicated strong feelings of expectation from the educators and were considered to be items of very high importance. Table VII shows a discrepancy greater than 0.9 between expectation and perceived current status for 10 of the 15 items reported to have a very high importance rating. These results suggest that the educators hold high expectations for certain skills and concepts in science and mathematics but that they are not satisfied with the quality of instruction being given in these areas.

Parents. The highest tabulated items from the parents were items 15 and 8 with 88% and 84% respectively. Item 16, relating to the use of standard units of measurement as well as the metric system, received a very high importance rating from 72% of the parents. Items 6, 9, and 13 were in the 60% range while items 14 and 17 were in the 50% range.

Table IV shows nine items with a mean expectation greater than three. From Table VII it can be seen that the parents consider

TABLE VII

ITEMS (1-18, PART II) WITH GREATEST DISCREPANCY* BETWEEN EXPECTATION* AND PERCEIVED CURRENT STATUS BY POPULATION GROUPS AND TOTAL FOR UNION COUNTY

EDUCATORS	PARENTS	STUDENTS	TOTAL
1			
3			
6	6		6
8	8	8	8
9	9		9
14	14		
15	15		
16	16		
17	17		
18	18		

* Calculated on the basis of expectation of (3.+) and discrepancy of (0.9+)

eight of these nine items to be receiving a quality of instruction that is less than satisfactory as indicated by a discrepancy value greater than 0.9.

Students. This population group regarded item 8 as being the most important. Both items 13 and 15 received a rating of very high importance from 66% of those students responding, while item 9 received a very high importance rating from 56%.

Student response showed eight items received a mean expectation greater than three; however, Table VII shows that while students consider these items to be of very high importance, they feel that the county schools are doing a satisfactory job of instruction in science and mathematics skills and concepts.

Total. Over 50% of all three population groups in Union County gave items 8, 9, 13, 14, 15, and 16 a very high importance rating. Over 50% of the educators and parents gave items 6 and 16 a very high importance rating. These results suggest strong agreement among educators, parents, and students regarding those basic skills and concepts in science and mathematics they consider to be most important.

In regard to the differences existing between expectation and perceived current status among educators, parents, and students in Union County, Table VII shows that educators and parents agree on the quality of instruction being given in certain skills and concepts in science and mathematics as indicated by those items having a discrepancy value greater than 0.9; however, students only considered

the quality of instruction of the effects of drugs, alcohol, and tobacco to be less than satisfactory.

Adjusted Percentage Frequencies Representing First, Second, and Third Choices of Alternatives for Items (1-9, Part III)

On Part III of the survey instrument, respondents were asked to give their first, second, and third choices of the alternatives provided for each item. The items focused on guidelines and procedures for program development and evaluation, placement of responsibility for program development and evaluation, and general curricular priorities. Adjusted frequency percentages were calculated for the first, second, and third choices of respondents by population group and for the total population group in each county. See Appendix H for a summary of the first choices by population group for each county.

Item 1: Guidelines for the development and evaluation of the science and mathematics curricula are most often initiated at which of the following points?

Claiborne County. From Table VIII, the educators' first choice in response to this item was divided evenly between the State Department of Education and the local school. The first choice of both parents and students was the State Department of Education. The educators' second choice was the county Supervisor of Schools; the parents' second choice was divided between the county Supervisor of Schools and area educational offices; and finally, the students' second choice

TABLE VIII

ADJUSTED FREQUENCY PERCENTAGES REPRESENTING FIRST, SECOND, AND THIRD CHOICES OF ALTERNATIVES BY POPULATION GROUP FOR ITEMS (1-9, PART III)
CLAIBORNE COUNTY

1. Guidelines for the development and evaluation of the science and mathematics curricula are most often initiated at which of the following points?

	FIRST				SECOND				THIRD			
	EDUCATOR	PARENT	STUDENT	TOTAL	EDUCATOR	PARENT	STUDENT	TOTAL	EDUCATOR	PARENT	STUDENT	TOTAL
1. area educational offices	0	7	9	6	14	29	18	21	33	21	22	25
2. local school	38	24	16	25	23	16	23	21	20	26	27	25
3. State Department of Education	39	43	44	42	11	17	15	15	11	19	8	12
4. county Supervisor of Schools	5	9	5	6	39	30	18	27	26	12	19	18
5. county school board	2	7	19	10	7	7	24	14	7	16	21	16
6. There are no guidelines for developing and evaluating curricula in science and mathematics.	16	10	8	11	9	0	1	3	5	7	4	5

TABLE VIII (continued)

2. In your opinion, which of the following has the most to say about decisions concerning what is taught in science and mathematics in the county schools?

	FIRST				SECOND				THIRD			
	EDUCATOR	PARENT	STUDENT	TOTAL	EDUCATOR	PARENT	STUDENT	TOTAL	EDUCATOR	PARENT	STUDENT	TOTAL
1. parents and community members	0	6	7	5	2	4	13	7	12	13	13	13
2. county school board	5	13	17	12	8	23	17	16	12	10	13	12
3. teacher curriculum committees	15	18	8	13	17	18	29	22	15	15	4	10
4. State Department of Education	26	36	37	34	8	21	7	12	20	8	10	12
5. supervisors and principals	6	8	11	9	50	21	15	27	22	32	31	29
6. classroom teachers	48	19	20	28	15	13	19	16	19	21	30	24

TABLE VIII (continued)

3. In your opinion, which of the following <u>should</u> have the <u>most</u> to say about decisions concerning what is taught in science and mathematics in the county schools?

	FIRST				SECOND				THIRD			
	EDUCATOR	PARENT	STUDENT	TOTAL	EDUCATOR	PARENT	STUDENT	TOTAL	EDUCATOR	PARENT	STUDENT	TOTAL
1. parents and community members	5	22	24	18	7	15	14	12	18	18	12	16
2. county school board	0	8	12	7	2	8	17	10	3	8	16	10
3. teacher curriculum committees	13	23	5	13	34	18	18	23	15	6	13	11
4. State Department of Education	18	30	32	27	3	14	18	12	18	21	8	15
5. supervisors and principals	3	7	2	4	31	13	18	20	36	31	25	30
6. classroom teachers	61	11	25	30	23	32	16	23	10	15	25	18

TABLE VIII (continued)

4. Which of the following receives the greatest emphasis in the county schools?

	FIRST				SECOND				THIRD			
	EDUCATOR	PARENT	STUDENT	TOTAL	EDUCATOR	PARENT	STUDENT	TOTAL	EDUCATOR	PARENT	STUDENT	TOTAL
1. reading and English	48	55	55	53	14	19	15	16	34	13	15	20
2. social studies	0	0	1	0	5	1	1	2	7	14	6	9
3. science	0	3	0	1	0	8	15	9	17	19	18	18
4. mathematics	2	8	11	7	34	42	32	36	12	21	18	17
5. vocational education	18	12	10	13	31	13	20	20	12	22	18	18
6. physical education and athletics	32	22	24	25	17	17	15	16	19	11	25	19

TABLE VIII (continued)

5. Which of the following areas needs to be given more emphasis in the county schools?

	FIRST				SECOND				THIRD			
	EDUCATOR	PARENT	STUDENT	TOTAL	EDUCATOR	PARENT	STUDENT	TOTAL	EDUCATOR	PARENT	STUDENT	TOTAL
1. reading and English	63	59	33	50	7	18	11	12	8	6	17	11
2. social studies	2	7	19	10	10	6	8	8	23	19	21	21
3. science	11	4	14	10	15	14	26	19	28	31	23	27
4. mathematics	13	27	20	20	57	51	37	47	13	6	12	10
5. vocational education	8	1	8	6	11	8	11	10	21	28	14	21
6. physical education and athletics	3	1	4	3	0	3	7	4	7	11	13	11

TABLE VIII (continued)

6. If additional money were secured by the county schools, which of the following areas should receive the financial support?

	FIRST				SECOND				THIRD			
	EDUCATOR	PARENT	STUDENT	TOTAL	EDUCATOR	PARENT	STUDENT	TOTAL	EDUCATOR	PARENT	STUDENT	TOTAL
1. classroom instruction	82	59	51	63	11	18	19	17	3	15	20	14
2. library materials	3	12	21	13	31	30	25	28	15	13	16	14
3. teacher inservice	0	1	2	1	2	5	14	8	5	14	12	11
4. physical plant maintenance	6	1	0	2	11	4	5	6	11	17	11	13
5. remedial programs	5	16	10	10	28	18	11	18	25	14	16	18
6. enrichment programs	3	0	15	10	16	25	26	23	41	27	25	30

TABLE VIII (continued)

7. Teacher performance could best be improved in the classroom by:

	FIRST				SECOND				THIRD			
	EDUCATOR	PARENT	STUDENT	TOTAL	EDUCATOR	PARENT	STUDENT	TOTAL	EDUCATOR	PARENT	STUDENT	TOTAL
1. more money for instructional supplies and equipment	48	55	51	52	19	13	7	12	16	17	17	17
2. improved teacher inservice training	3	5	11	7	10	11	11	11	11	16	24	18
3. improved supervisory involvement	13	14	4	10	27	19	24	23	18	14	12	14
4. more formal education in the subject area taught	18	16	20	18	14	37	26	26	33	19	20	23
5. more formal education in methods of teaching	6	5	8	7	25	19	25	23	16	30	25	24
6. Other (please specify)	11	4	6	7	5	1	7	5	7	4	1	4

TABLE VIII (continued)

8. If the county schools are going to improve, support and cooperation from which of the following is most needed?

	FIRST				SECOND				THIRD			
	EDUCATOR	PARENT	STUDENT	TOTAL	EDUCATOR	PARENT	STUDENT	TOTAL	EDUCATOR	PARENT	STUDENT	TOTAL
1. parents and community	56	56	34	49	15	14	21	17	18	13	17	16
2. classroom teachers	15	11	11	12	28	24	15	22	10	28	25	22
3. principals	11	8	6	8	11	14	6	12	28	19	15	20
4. area educational offices	0	3	8	4	7	20	12	13	8	12	18	13
5. central office of the county schools	13	5	2	6	26	4	21	17	22	16	11	15
6. State Department of Education	5	16	36	21	13	24	20	19	13	13	14	14

TABLE VIII (continued)

9. Who <u>should</u> have the major responsibility for students' learning science and mathematics?

	FIRST				SECOND				THIRD			
	EDUCATOR	PARENT	STUDENT	TOTAL	EDUCATOR	PARENT	STUDENT	TOTAL	EDUCATOR	PARENT	STUDENT	TOTAL
1. parents	15	12	4	10	16	13	20	17	52	57	43	50
2. principal	2	5	4	4	8	13	11	11	15	6	10	10
3. teachers	42	47	33	40	41	25	37	34	20	17	23	20
4. the student himself	42	33	51	42	31	43	22	31	8	11	8	9
5. Board of Education	0	1	7	3	0	3	6	3	0	3	12	6
6. supervisor	0	0	2	1	3	4	4	4	5	6	4	5

was the county school board. These results indicate that all three population groups feel that guidelines for the development and evaluation of the science and mathematics curricula are most often initiated at the State Department of Education.

Grainger County. The educators' first choice in response to item 1, Part III was the local school, as shown in Table IX. This was the choice of the students also; however, the parents' first choice was the State Department of Education. The educators' second choice was divided evenly between the county Supervisor of Schools and the county school board. Parent and student responses clearly indicated that the county school board was their second choice. The choices of the three population groups show an almost equal distribution between the State Department of Education and the local school board for initiating guidelines for the development and evaluation of the science and mathematics curricula.

Union County. From Table X, the majority of responses from all three population groups showed a close distribution between the State Department of Education and the local school as first choice. For the second choice, educators and parents gave the county Supervisor of Schools, while students were divided on their second choice between area educational offices and the county school board.

Item 2: In your opinion, which of the following has the most to say about decisions concerning what is taught in science and mathematics in the county schools?

TABLE IX

ADJUSTED FREQUENCY PERCENTAGES REPRESENTING FIRST, SECOND, AND THIRD CHOICES OF ALTERNATIVES BY POPULATION GROUP FOR ITEMS (1-9, PART III)
GRAINGER COUNTY

1. Guidelines for the development and evaluation of the science and mathematics curricula are most often initiated at which of the following points?

	FIRST				SECOND				THIRD			
	EDUCATOR	PARENT	STUDENT	TOTAL	EDUCATOR	PARENT	STUDENT	TOTAL	EDUCATOR	PARENT	STUDENT	TOTAL
1. area educational offices	7	3	13	7	4	20	17	15	22	15	10	15
2. local school	43	18	43	33	30	17	3	16	9	24	17	17
3. State Department of Education	25	51	23	35	13	14	13	14	30	9	23	20
4. county Supervisor of Schools	0	13	0	5	22	14	17	17	17	24	27	23
5. county school board	0	5	10	5	22	34	50	36	13	0	3	5
6. There are no guidelines for developing and evaluating curricula in science and mathematics.	25	10	10	14	9	0	0	2	13	0	3	5

TABLE IX (continued)

2. In your opinion, which of the following has the most to say about decisions concerning what is taught in science and mathematics in the county schools?

	FIRST				SECOND				THIRD			
	EDUCATOR	PARENT	STUDENT	TOTAL	EDUCATOR	PARENT	STUDENT	TOTAL	EDUCATOR	PARENT	STUDENT	TOTAL
1. parents and community members	3	0	9	4	3	2	6	4	14	10	32	19
2. county school board	7	5	29	13	20	17	18	18	0	18	15	12
3. teacher curriculum committees	3	7	3	5	10	21	0	11	7	13	6	9
4. State Department of Education	37	50	24	38	13	7	18	12	25	10	3	12
5. supervisors and principals	7	5	9	6	33	31	32	32	21	38	15	26
6. classroom teachers	43	34	26	34	20	21	26	23	32	10	29	23

TABLE IX (continued)

3. In your opinion, which of the following should have the most to say about decisions concerning what is taught in science and mathematics in the county schools?

	FIRST				SECOND				THIRD			
	EDUCATOR	PARENT	STUDENT	TOTAL	EDUCATOR	PARENT	STUDENT	TOTAL	EDUCATOR	PARENT	STUDENT	TOTAL
1. parents and community members	0	20	21	15	3	8	30	14	25	20	21	22
2. county school board	0	0	6	2	10	18	27	19	7	18	15	14
3. teacher curriculum committees	30	9	3	13	28	15	3	15	7	20	3	11
4. State Department of Education	27	30	24	27	10	8	6	8	7	10	18	12
5. supervisors and principals	7	14	3	8	31	28	15	25	25	13	30	22
6. classroom teachers	37	27	42	35	17	25	18	21	29	20	12	20

TABLE IX (continued)

4. Which of the following receives the greatest emphasis in the county schools?

	FIRST				SECOND				THIRD			
	EDUCATOR	PARENT	STUDENT	TOTAL	EDUCATOR	PARENT	STUDENT	TOTAL	EDUCATOR	PARENT	STUDENT	TOTAL
1. reading and English	40	46	56	48	21	24	18	21	22	18	6	15
2. social studies	0	3	3	2	11	8	0	6	11	16	3	10
3. science	0	0	0	0	7	11	26	15	22	32	44	33
4. mathematics	20	15	15	17	43	42	44	43	11	16	26	18
5. vocational education	13	8	6	9	11	5	3	6	11	9	9	9
6. physical education and athletics	27	28	21	25	7	11	9	9	22	11	12	14

TABLE IX (continued)

5. Which of the following areas needs to be given more emphasis in the county schools?

	FIRST				SECOND				THIRD			
	EDUCATOR	PARENT	STUDENT	TOTAL	EDUCATOR	PARENT	STUDENT	TOTAL	EDUCATOR	PARENT	STUDENT	TOTAL
1. reading and English	53	58	27	47	17	19	6	14	25	7	9	13
2. social studies	7	0	21	8	3	5	12	7	4	17	15	13
3. science	7	4	3	5	13	9	27	16	39	37	21	32
4. mathematics	13	20	9	15	57	47	21	42	14	15	30	20
5. vocational education	20	9	36	20	10	16	12	13	18	20	15	18
6. physical education and athletics	0	9	3	5	0	5	21	8	0	5	9	5

TABLE IX (continued)

6. If additional money were secured by the county schools, which of the following areas <u>should</u> receive the financial support?

	FIRST				SECOND				THIRD			
	EDUCATOR	PARENT	STUDENT	TOTAL	EDUCATOR	PARENT	STUDENT	TOTAL	EDUCATOR	PARENT	STUDENT	TOTAL
1. classroom instruction	52	56	47	52	14	19	18	17	15	10	18	14
2. library materials	10	11	12	11	18	26	38	28	11	21	21	19
3. teacher inservice	3	9	6	6	7	10	6	8	7	14	15	13
4. physical plant maintenance	17	11	9	12	18	12	12	13	19	7	9	11
5. remedial programs	17	4	3	7	7	17	15	13	26	19	15	20
6. enrichment programs	0	9	24	11	36	17	12	20	22	29	21	25

TABLE IX (continued)

7. Teacher performance could best be improved in the classroom by:

	FIRST				SECOND				THIRD			
	EDUCATOR	PARENT	STUDENT	TOTAL	EDUCATOR	PARENT	STUDENT	TOTAL	EDUCATOR	PARENT	STUDENT	TOTAL
1. more money for instructional supplies and equipment	21	38	65	48	21	8	6	12	15	17	13	15
2. improved teacher inservice training	21	20	18	17	21	22	28	24	19	12	13	14
3. improved supervisory involvement	18	7	6	6	18	17	9	15	31	29	32	31
4. more formal education in the subject area taught	18	16	3	10	18	37	28	29	15	12	19	15
5. more formal education in methods of teaching	14	7	6	9	14	12	25	17	12	29	19	21
6. Other (please specify)	7	13	3	9	7	2	3	4	8	0	3	3

TABLE IX (continued)

8. If the county schools are going to improve, support and cooperation from which of the following is most needed?

	FIRST				SECOND				THIRD			
	EDUCATOR	PARENT	STUDENT	TOTAL	EDUCATOR	PARENT	STUDENT	TOTAL	EDUCATOR	PARENT	STUDENT	TOTAL
1. parents and community	59	60	32	51	21	12	15	15	0	21	18	14
2. classroom teachers	14	16	15	15	29	28	24	27	32	26	15	24
3. principals	0	2	12	5	14	21	15	17	25	21	18	21
4. area educational offices	3	2	9	5	0	9	21	10	18	17	15	16
5. central office of the county schools	21	0	6	7	25	12	18	17	18	12	15	14
6. State Department of Education	3	20	26	18	11	19	9	13	7	2	21	10

TABLE IX (continued)

9. Who <u>should</u> have the major responsibility for students' learning science and mathematics?

	FIRST				SECOND				THIRD			
	EDUCATOR	PARENT	STUDENT	TOTAL	EDUCATOR	PARENT	STUDENT	TOTAL	EDUCATOR	PARENT	STUDENT	TOTAL
1. parents	13	19	6	13	21	12	12	14	48	40	32	40
2. principal	0	0	9	3	7	12	3	8	14	18	29	20
3. teachers	53	44	29	42	34	27	56	38	10	23	15	17
4. the student himself	33	35	53	40	38	39	15	31	7	8	9	8
5. Board of Education	0	0	3	1	0	10	6	6	17	10	9	12
6. supervisor	0	2	0	1	0	0	9	3	3	3	6	4

TABLE X

ADJUSTED FREQUENCY PERCENTAGES REPRESENTING FIRST, SECOND, AND THIRD CHOICES OF ALTERNATIVES BY POPULATION GROUP FOR ITEMS (1-9, PART III)
UNION COUNTY

1. Guidelines for the development and evaluation of the science and mathematics curricula are most often initiated at which of the following points?

	FIRST				SECOND				THIRD			
	EDUCATOR	PARENT	STUDENT	TOTAL	EDUCATOR	PARENT	STUDENT	TOTAL	EDUCATOR	PARENT	STUDENT	TOTAL
1. area educational offices	0	8	9	5	24	17	28	24	12	24	13	15
2. local school	31	29	38	33	6	25	6	11	21	19	17	19
3. State Department of Education	34	25	28	30	24	17	16	19	15	5	6	9
4. county Supervisor of Schools	6	13	6	8	36	25	16	26	33	19	31	29
5. county school board	17	4	16	13	9	17	31	19	12	33	25	22
6. There are no guidelines for developing and evaluating curricula in science and mathematics.	11	21	3	11	0	0	3	1	6	0	9	6

TABLE X (continued)

2. In your opinion, which of the following has the most to say about decisions concerning what is taught in science and mathematics in the county schools?

	FIRST				SECOND				THIRD			
	EDUCATOR	PARENT	STUDENT	TOTAL	EDUCATOR	PARENT	STUDENT	TOTAL	EDUCATOR	PARENT	STUDENT	TOTAL
1. parents and community members	3	8	9	6	3	0	16	6	11	4	13	10
2. county school board	5	20	6	10	6	20	25	16	9	8	28	15
3. teacher curriculum committees	14	8	9	11	11	36	3	15	31	4	9	16
4. State Department of Education	22	24	38	28	22	12	13	16	14	28	6	15
5. supervisors and principals	3	28	13	13	56	24	28	38	11	20	16	15
6. classroom teachers	54	12	25	33	3	8	16	9	23	36	28	28

TABLE X (continued)

3. In your opinion, which of the following should have the most to say about decisions concerning what is taught in science and mathematics in the county schools?

	FIRST				SECOND				THIRD			
	EDUCATOR	PARENT	STUDENT	TOTAL	EDUCATOR	PARENT	STUDENT	TOTAL	EDUCATOR	PARENT	STUDENT	TOTAL
1. parents and community members	0	24	19	13	6	12	13	10	18	20	9	15
2. county school board	0	8	6	4	3	8	31	14	0	4	38	14
3. teacher curriculum committees	19	12	9	14	34	12	9	20	24	4	13	14
4. State Department of Education	6	20	25	16	17	16	13	15	9	8	13	10
5. supervisors and principals	3	8	13	8	31	40	13	27	38	32	13	27
6. classroom teachers	72	28	28	45	9	12	22	14	12	32	16	19

TABLE X (continued)

4. Which of the following receives the greatest emphasis in the county schools?

	FIRST				SECOND				THIRD			
	EDUCATOR	PARENT	STUDENT	TOTAL	EDUCATOR	PARENT	STUDENT	TOTAL	EDUCATOR	PARENT	STUDENT	TOTAL
1. reading and English	51	44	47	48	22	12	3	13	11	20	28	20
2. social studies	5	16	3	7	22	12	3	13	17	16	6	13
3. science	5	0	13	6	0	8	16	8	29	24	31	28
4. mathematics	5	8	13	9	30	32	44	35	17	12	16	15
5. vocational education	8	12	19	13	6	20	19	14	17	12	9	13
6. physical education and athletics	24	20	6	17	19	16	16	17	9	16	9	11

TABLE X (continued)

5. Which of the following areas needs to be given more emphasis in the county schools?

	FIRST				SECOND				THIRD			
	EDUCATOR	PARENT	STUDENT	TOTAL	EDUCATOR	PARENT	STUDENT	TOTAL	EDUCATOR	PARENT	STUDENT	TOTAL
1. reading and English	81	76	16	57	3	4	6	4	18	4	16	13
2. social studies	0	0	9	3	16	4	10	11	21	24	16	20
3. science	2	8	25	12	22	8	23	18	26	36	23	28
4. mathematics	8	0	16	9	46	76	29	48	29	12	13	19
5. vocational education	8	12	22	14	8	8	19	12	6	16	19	13
6. physical education and athletics	0	4	13	5	5	0	13	6	0	8	13	7

TABLE X (continued)

6. If additional money were secured by the county schools, which of the following areas should receive the financial support?

	FIRST				SECOND				THIRD			
	EDUCATOR	PARENT	STUDENT	TOTAL	EDUCATOR	PARENT	STUDENT	TOTAL	EDUCATOR	PARENT	STUDENT	TOTAL
1. classroom instruction	54	92	32	57	19	8	17	15	22	0	30	19
2. library materials	11	4	16	11	19	48	30	30	17	8	10	12
3. teacher inservice	3	0	10	4	5	4	17	9	11	36	13	19
4. physical plant maintenance	27	0	10	14	11	4	7	8	3	4	17	8
5. remedial programs	5	0	16	8	27	12	10	17	17	28	17	20
6. enrichment programs	0	4	16	6	19	24	20	21	31	24	13	23

TABLE X (continued)

7. Teacher performance could best be improved in the classroom by:

	FIRST				SECOND				THIRD			
	EDUCATOR	PARENT	STUDENT	TOTAL	EDUCATOR	PARENT	STUDENT	TOTAL	EDUCATOR	PARENT	STUDENT	TOTAL
1. more money for instructional supplies and equipment	44	64	52	52	17	28	13	18	24	8	7	14
2. improved teacher inservice training	6	12	3	7	8	20	13	13	24	13	23	20
3. improved supervisory involvement	0	4	3	2	33	8	16	21	18	29	30	25
4. more formal education in the subject area taught	17	16	19	17	25	24	29	26	6	13	20	13
5. more formal education in methods of teaching	8	0	19	10	11	16	26	17	26	38	17	26
6. Other (please specify)	25	4	3	12	6	4	3	4	3	0	3	2

TABLE X (continued)

8. If the county schools are going to improve, support and cooperation from which of the following is most needed?

	FIRST				SECOND				THIRD			
	EDUCATOR	PARENT	STUDENT	TOTAL	EDUCATOR	PARENT	STUDENT	TOTAL	EDUCATOR	PARENT	STUDENT	TOTAL
1. parents and community	54	28	56	48	19	24	3	15	20	16	19	19
2. classroom teachers	3	8	13	7	22	20	16	20	23	28	16	22
3. principals	0	8	6	4	17	24	13	17	6	20	13	12
4. area educational offices	0	4	6	3	3	4	10	5	6	8	13	9
5. central office of the county schools	16	8	3	10	28	24	29	27	23	20	16	20
6. State Department of Education	27	44	26	28	11	4	29	15	23	8	23	19

TABLE X (continued)

9. Who <u>should</u> have the major responsibility for students' learning science and mathematics?

	FIRST				SECOND				THIRD			
	EDUCATOR	PARENT	STUDENT	TOTAL	EDUCATOR	PARENT	STUDENT	TOTAL	EDUCATOR	PARENT	STUDENT	TOTAL
1. parents	8	8	12	9	16	40	23	24	41	28	44	38
2. principal	3	8	0	3	11	8	6	9	3	16	16	11
3. teachers	41	36	30	36	43	36	38	39	16	20	13	16
4. the student himself	49	40	55	48	27	16	22	22	16	16	9	14
5. Board of Education	0	8	3	3	0	0	0	0	16	12	13	14
6. supervisor	0	0	0	0	3	0	13	5	8	8	6	7

Item 3: In your opinion, which of the following should have the most to say about decisions concerning what is taught in science and mathematics in the county schools?

Claiborne County. In Table VIII, educators' responses to both items 2 and 3 show that not only do they believe classroom teachers have the most to say about what is taught in science and mathematics, they feel that this is the way it should be. Parents and students, however, believe the State Department of Education has the most to say about what is taught in science and mathematics, and their responses also show that this is the way it should be.

Grainger County. Educators' expectations and perceptions of current status of who has or should have the most to say about what is taught in science and mathematics are similar in that they consider classroom teachers should have and do have the most to say. Parents feel that the State Department of Education should have and does have the most to say about what is taught in science and mathematics. Students' expectations and perceptions of current status regarding items 2 and 3 differ in that they feel that the county school board (29%) and, to a lesser extent, classroom teachers (26%) have the most to say about what is taught in science and mathematics, but they feel more strongly that classroom teachers should have the most to say.

Union County. From Table X, educators feel that classroom teachers do have and should have the most to say about what is taught in science and mathematics in the county schools. Parents were divided between alternative 5, supervisors and principals, and alternative 4, the

State Department of Education, as their first choice in response to item 2; whereas, parents' first choice in response to item 3 was divided between classroom teachers and alternative 1, parents and community members.

Students' first choice in response to item 2 was the State Department of Education, and their first choice in response to item 3 was divided between classroom teachers and the State Department of Education.

Item 4: Which of the following receives the greatest emphasis in the county schools?

Item 5: Which of the following areas needs to be given more emphasis in the county schools?

Claiborne County. Table VIII shows educators, parents, and students agreed that reading and English receive the greatest emphasis in the county schools. The three population groups also agreed that mathematics was their second choice.

Responses to item 5, regarding which program area should receive the greatest emphasis showed that educators, parents, and students feel that reading and English should be first in emphasis and mathematics, second.

These results indicate that the three population groups expect reading, English, and mathematics to be emphasized and that the county schools are fulfilling these expectations with the current focal areas of the academic program.

Grainger County. Table IX shows the three population groups agree that reading and English, first, and mathematics, second, receive the greatest emphasis in the county schools. Responses to item 5, relating to which academic area should receive the greatest emphasis, indicate educators and parents gave reading and English, mathematics, and science as their first, second, and third choices, respectively. Students, on the other hand, felt more strongly that vocational education should receive more emphasis (36%), while 27% gave reading and English as their first choice for receiving greater emphasis.

From these results, educators' and parents' expectations are being met more effectively than are students' expectations regarding current areas of academic emphasis.

Union County. Results in Table X show educators', parents', and students' first choice of the academic area receiving the most emphasis in the county schools was reading and English, and the second and third choices were mathematics and science, respectively.

Responses to item 5, relating to which academic area should receive more emphasis, showed educators and parents agreed that reading and English should receive more emphasis; however, students differed from educators and parents in their first choice in that they felt science (25%) and vocational education (22%) should receive more emphasis.

These results suggest that educators' and parents' expectations, regarding what is receiving or should receive more emphasis, are being met by the county schools; however, students' expectations for more emphasis in science and vocational education are not being met.

Item 6: If additional money were secured by the county schools, which of the following areas should receive the financial support?

Claiborne County. From Table VIII, the three population groups agree that if more money were secured by the county schools that classroom instruction should receive the additional funds. The second choice of the educators was divided between library materials and remedial programs; parents and students gave library materials and enrichment programs as their second choice.

Grainger County. As shown in Table IX, educators, parents, and students agreed on their first choice of classroom instruction receiving additional funds if they were secured by the county schools. Enrichment programs was the second choice of educators, while library materials was the second choice of both parents and students.

Union County. The three population groups were in agreement on their first choice of classroom instruction receiving additional financial support. The second choice by educators was enrichment programs; however, parents and students gave library materials as their second choice.

Item 7: Teacher performance could best be improved in the classroom by:

Claiborne County. Educators, parents, and students agreed that teacher performance could be improved by having more money for instructional supplies and equipment. The second choice of educators was improved supervisory involvement. Parents'and students' second choice was more formal education in teachers' subject areas.

Grainger County. From Table IX, page 87, educators', parents' and students' first choice for improving teacher performance in the classroom was more money for instructional supplies and equipment. The three population groups were less decisive about their second choice, for educator responses were divided among alternatives 1, 2, 3, and 4; parents considered that more education in the subject area taught would improve teacher performance; and students' second choice was divided between more education in content areas and improved supervisory involvement.

Union County. As shown in Table X, page 96, the three population groups agreed that teacher performance could best be improved by having more money for instructional supplies and equipment; however, they did not agree on their second choice. Educators' second choice was improved supervisory involvement; parents' second choice was more formal education in content areas for teachers; and students' second choice was between more education in content areas and more education in teaching methodology.

Item 8: If the county schools are going to improve, support and cooperation from which of the following is needed?

Claiborne County. The first choice of both educators and parents, as shown in Table VIII, page 77, was parents and community members; whereas, students' first choice was between alternative 6, the State Department of Education, and alternative 1, parents and community members.

Grainger County. Educators and parents agreed on their first choice of support and cooperation from parents and community members being needed if the county schools are going to improve. Students' first choice was divided between alternative 1, parents and community members, and alternative 6, The State Department of Education. The three population groups agreed on their second choice of classroom teachers' support and cooperation being needed if the county schools are going to improve.

Union County. From Table X, page 96, educators and students agreed on their first choice of parents' and community members' support and cooperation being needed if the county schools are going to improve; however, the first choice of parents was the State Department of Education.

Item 9: Who should have the major responsibility for students' learning science and mathematics?

Claiborne County: Educators' first choice of alternatives in response to item 9 was divided between teachers and the student himself. Parents' first choice was teachers, while students felt that the student should have the major responsibility for learning science and mathematics. Following the teacher and the student, all three population groups felt that parents were responsible for students' learning science and mathematics.

Grainger County. From Table IX, page 87, both educators and parents agreed that teachers should have the major responsibility for students' learning science and mathematics; whereas, students felt that they should have the major responsibility for their own learning.

Parental responsibility was chosen by all three population groups following teacher and student responsibility.

Union County. As shown in Table X, page 96, all three population groups felt that the student should have the major responsibility for learning science and mathematics. The second and third choices for the three population groups were teachers and parents.

Adjusted Frequency Percentages, Mean, and Standard Deviation of Responses by Population Group For Items (1-23, Part IV)

On Part IV of the survey instrument, respondents were asked to express their opinion concerning teacher performance and preparation, availability of instructional materials, and guidelines for curriculum development and evaluation by their agreeing or disagreeing with the items listed on Part IV. Adjusted frequency percentages, mean response, and standard deviation were calculated on the items by population group and for the total population in each county. A mean response less than or equal to two indicated strong agreement, while a mean response greater than or equal to three, out of four, indicated strong disagreement. A "no knowledge" category was provided; however, these responses were not considered in the computation of mean or standard deviation.

Educators, parents, and students from each county responded to items 1-13; however, only educators responded to items 14-23, as it was thought that parents and students would not be adequately informed regarding the content of these items. Consequently, comparisons between

population groups in each county were only performed on items 1-13.

Claiborne County

Educators. As shown in Table XI and XII, educators were in strong agreement with the following items:

1. Item 8--I feel that I should participate more in developing the curriculum of the county schools.

2. Item 10--There is a need to include more laboratory work in the student learning experience.

3. Item 11--Students need to be evaluated on more than their performance on tests.

4. Item 23--I believe that science and mathematics teachers should take additional courses periodically in order to renew their certification.

Educators disagreed strongly with the following items:

1. Item 6--The county schools provide an adequate amount of supplemental materials in science and mathematics for the above average student.

2. Item 16--The county school system has a written plan that explains the steps for developing curriculum.

3. Item 17--The county has developed curriculum guides to assist teachers of science and mathematics in improving classroom instruction.

A large number of educators in Claiborne County gave a "no knowledge" response to the following items:

TABLE XI

ADJUSTED FREQUENCY PERCENTAGES, MEAN, AND STANDARD DEVIATION BY POPULATION GROUPS AND TOTAL FOR ITEM (1-13, PART IV) AND LEVEL OF RESPONSE

ITEM		RESPONSE: Strongly Agree	Agree	Disagree	Strongly Disagree	No Knowledge	MEAN	STANDARD DEVIATION
1. I feel that what is being taught in science and mathematics in the county schools is adequate.								
CLAIBORNE	EDUCATORS	3	34	45	5	12	2.59	0.65
	PARENTS	4	57	33	1	4	2.33	0.58
	STUDENTS	2	64	24	8	1	2.39	0.67
	TOTAL	3	53	33	5	5	2.42	0.64
GRAINGER	EDUCATORS	0	60	27	7	7	2.43	0.62
	PARENTS	0	60	29	9	2	2.48	0.66
	STUDENTS	9	65	21	6	0	2.24	0.69
	TOTAL	3	60	26	7	3	2.39	0.67
UNION	EDUCATORS	16	46	27	8	3	2.28	0.84
	PARENTS	0	60	20	16	4	2.54	0.76
	STUDENTS	9	73	18	0	0	2.09	0.51
	TOTAL	10	59	22	7	2	2.28	0.74

TABLE XI (continued)

ITEM		RESPONSE: Strongly Agree	Agree	Disagree	Strongly Disagree	No Knowledge	MEAN	STANDARD DEVIATION
2. The county schools offer a well-balanced curriculum in science and mathematics.								
CLAIBORNE	EDUCATORS	3	45	30	8	14	2.49	0.71
	PARENTS	5	57	28	4	5	2.32	0.64
	STUDENTS	5	60	32	4	0	2.34	0.63
	TOTAL	4	55	30	5	6	2.38	0.66
GRAINGER	EDUCATORS	0	57	27	3	13	2.38	0.56
	PARENTS	4	43	41	4	7	2.49	0.67
	STUDENTS	9	56	29	0	6	2.22	0.60
	TOTAL	5	51	33	3	8	2.37	0.63
UNION	EDUCATORS	16	46	32	3	3	2.22	0.75
	PARENTS	0	68	20	12	0	2.44	0.70
	STUDENTS	12	64	24	0	0	2.12	0.59
	TOTAL	10	58	26	4	1	2.24	0.70

TABLE XI (continued)

ITEM		RESPONSE: Strongly Agree	Agree	Disagree	Strongly Disagree	No Knowledge	MEAN	STANDARD DEVIATION
3. There is an adequate number of library reference materials for science and mathematics in the county schools.								
CLAIBORNE	EDUCATORS	3	20	45	22	9	2.95	0.78
	PARENTS	5	31	35	13	16	2.67	0.82
	STUDENTS	8	30	39	14	8	2.65	0.85
	TOTAL	6	27	40	16	11	2.74	0.83
GRAINGER	EDUCATORS	7	37	30	13	13	2.58	0.84
	PARENTS	4	22	38	20	16	2.87	0.83
	STUDENTS	0	26	38	15	21	2.85	0.71
	TOTAL	4	28	36	16	16	2.78	0.81
UNION	EDUCATORS	5	30	49	14	3	2.72	0.77
	PARENTS	0	24	52	0	24	2.68	0.46
	STUDENTS	27	33	21	6	12	2.07	0.91
	TOTAL	12	30	40	7	5	2.49	0.82

TABLE XI (continued)

ITEM		RESPONSE: Strongly Agree	Agree	Disagree	Strongly Disagree	No Knowledge	MEAN	STANDARD DEVIATION
4. There is an adequate number of audiovisual materials to supplement the science and mathematics curricula in the county schools.								
CLAIBORNE	EDUCATORS	6	14	52	22	6	2.95	0.81
	PARENTS	3	32	33	16	16	2.75	0.80
	STUDENTS	7	20	38	27	7	2.92	0.90
	TOTAL	5	22	40	22	10	2.88	0.85
GRAINGER	EDUCATORS	3	43	23	20	10	2.67	0.86
	PARENTS	4	22	42	16	16	2.82	0.79
	STUDENTS	0	21	38	12	29	2.88	0.66
	TOTAL	3	28	36	16	18	2.79	0.78
UNION	EDUCATORS	5	24	54	16	0	2.81	0.76
	PARENTS	0	8	68	8	16	3.00	0.44
	STUDENTS	9	58	18	6	9	2.23	0.72
	TOTAL	5	32	45	11	7	2.66	0.75

TABLE XI (continued)

ITEM		RESPONSE: Strongly Agree	Agree	Disagree	Strongly Disagree	No Knowledge	MEAN	STANDARD DEVIATION
5. The county schools provide an adequate amount of supplemental materials in science and mathematics for the below average student.								
CLAIBORNE	EDUCATORS	6	19	44	24	6	2.92	0.85
	PARENTS	3	31	36	9	21	2.66	0.73
	STUDENTS	12	30	44	11	4	2.56	0.85
	TOTAL	7	27	41	14	10	2.69	0.83
GRAINGER	EDUCATORS	0	30	40	20	10	2.89	0.74
	PARENTS	0	25	43	14	18	2.86	0.67
	STUDENTS	3	44	18	21	15	2.66	0.88
	TOTAL	1	32	34	18	15	2.80	0.77
UNION	EDUCATORS	3	19	57	19	3	2.94	0.71
	PARENTS	0	16	52	16	16	3.00	0.62
	STUDENTS	12	15	46	15	12	2.72	0.91
	TOTAL	5	17	52	17	10	2.88	0.77

TABLE XI (continued)

ITEM		RESPONSE: Strongly Agree	Agree	Disagree	Strongly Disagree	No Knowledge	MEAN	STANDARD DEVIATION
6. The county schools provide an adequate amount of supplemental materials in science and mathematics for the above average student.								
CLAIBORNE	EDUCATORS	6	13	48	25	8	3.00	0.82
	PARENTS	1	35	36	9	9	2.66	0.70
	STUDENTS	7	35	34	18	6	2.67	0.87
	TOTAL	5	28	39	17	11	2.76	0.82
GRAINGER	EDUCATORS	0	30	43	17	10	2.85	0.71
	PARENTS	5	28	44	12	12	2.71	0.76
	STUDENTS	3	29	38	15	15	2.76	0.77
	TOTAL	3	29	42	14	12	2.77	0.75
UNION	EDUCATORS	3	22	57	16	3	2.89	0.70
	PARENTS	0	12	56	28	4	3.17	0.62
	STUDENTS	24	48	15	6	6	2.03	0.82
	TOTAL	10	28	42	16	4	2.67	0.86

TABLE XI (continued)

ITEM		RESPONSE: Strongly Agree	Agree	Disagree	Strongly Disagree	No Knowledge	MEAN	STANDARD DEVIATION
7. Students in the county schools help in deciding what they will study.								
CLAIBORNE	EDUCATORS	8	13	40	27	13	2.98	0.90
	PARENTS	3	39	29	9	20	2.57	0.74
	STUDENTS	14	37	24	21	4	2.54	0.99
	TOTAL	9	31	30	19	12	2.67	0.92
GRAINGER	EDUCATORS	0	33	33	10	23	2.70	0.69
	PARENTS	5	30	46	14	5	2.73	0.77
	STUDENTS	6	44	26	21	3	2.64	0.88
	TOTAL	4	36	36	15	9	2.69	0.79
UNION	EDUCATORS	0	19	51	30	0	3.11	0.69
	PARENTS	0	36	60	0	4	2.62	0.48
	STUDENTS	21	27	27	24	0	2.54	1.08
	TOTAL	7	26	45	20	1	2.79	0.85

TABLE XI (continued)

ITEM		RESPONSE: Strongly Agree	Agree	Disagree	Strongly Disagree	No Knowledge	MEAN	STANDARD DEVIATION
8. I feel that I should participate more in developing the curriculum of the county schools.								
CLAIBORNE	EDUCATORS	25	56	16	3	2	1.94	0.69
	PARENTS	9	51	36	3	1	2.32	0.68
	STUDENTS	23	53	19	1	4	1.99	0.70
	TOTAL	14	53	24	2	2	2.09	0.71
GRAINGER	EDUCATORS	10	60	20	0	10	2.11	0.57
	PARENTS	10	60	21	0	10	2.13	0.57
	STUDENTS	6	56	26	3	9	2.29	0.63
	TOTAL	8	58	23	1	9	2.18	0.60
UNION	EDUCATORS	22	51	24	3	0	2.08	0.75
	PARENTS	4	36	44	8	8	2.61	0.71
	STUDENTS	27	46	15	6	6	2.00	0.84
	TOTAL	19	45	26	5	4	2.19	0.81

TABLE XI (continued)

ITEM		RESPONSE: Strongly Agree	Agree	Disagree	Strongly Disagree	No Knowledge	MEAN	STANDARD DEVIATION
9. The county schools have adequate laboratory facilities necessary for the attainment of objectives established in science.								
CLAIBORNE	EDUCATORS	6	14	50	25	5	2.98	0.82
	PARENTS	3	29	41	15	12	2.77	0.76
	STUDENTS	8	37	30	21	4	2.67	0.92
	TOTAL	6	28	40	20	7	2.79	0.85
GRAINGER	EDUCATORS	0	33	33	30	3	2.97	0.81
	PARENTS	0	25	36	25	14	3.00	0.76
	STUDENTS	3	44	32	9	12	2.53	0.72
	TOTAL	1	33	34	21	10	2.84	0.79
UNION	EDUCATORS	5	16	60	16	3	2.89	0.74
	PARENTS	8	16	32	32	12	3.00	0.95
	STUDENTS	12	30	42	6	9	2.47	0.81
	TOTAL	8	21	46	17	7	2.77	0.85

TABLE XI (continued)

ITEM		RESPONSE: Strongly Agree	Agree	Disagree	Strongly Disagree	No Knowledge	MEAN	STANDARD DEVIATION
10. There is a need to include more laboratory work into the student learning experience.								
CLAIBORNE	EDUCATORS	27	59	11	2	2	1.87	0.66
	PARENTS	19	55	19	3	5	2.06	0.71
	STUDENTS	37	52	7	4	0	1.77	0.73
	TOTAL	28	55	12	3	2	1.89	0.71
GRAINGER	EDUCATORS	20	57	13	7	3	2.07	0.78
	PARENTS	35	49	7	2	7	1.75	0.70
	STUDENTS	21	53	18	3	6	2.03	0.73
	TOTAL	26	52	12	4	6	1.93	0.75
UNION	EDUCATORS	30	49	16	3	3	1.92	0.76
	PARENTS	40	32	24	0	4	1.83	0.80
	STUDENTS	36	33	18	6	6	1.93	0.91
	TOTAL	35	39	19	3	4	1.90	0.83

TABLE XI (continued)

ITEM		RESPONSE: Strongly Agree	Agree	Disagree	Strongly Disagree	No Knowledge	MEAN	STANDARD DEVIATION
11. Students need to be evaluated on more than their performance on tests.								
CLAIBORNE	EDUCATORS	36	56	6	2	0	1.73	0.64
	PARENTS	24	67	5	0	4	1.81	0.52
	STUDENTS	48	44	5	1	2	1.58	0.64
	TOTAL	36	55	5	1	2	1.70	0.61
GRAINGER	EDUCATORS	13	73	10	3	0	2.03	0.61
	PARENTS	36	60	5	0	0	1.69	0.56
	STUDENTS	35	50	12	3	0	1.82	0.75
	TOTAL	29	60	8	2	0	1.83	0.65
UNION	EDUCATORS	30	70	0	0	0	1.70	0.46
	PARENTS	32	48	12	4	4	1.88	0.78
	STUDENTS	64	21	9	3	3	1.50	0.79
	TOTAL	42	47	6	2	2	1.68	0.69

TABLE XI (continued)

ITEM		RESPONSE: Strongly Agree	Agree	Disagree	Strongly Disagree	No Knowledge	MEAN	STANDARD DEVIATION
12. Science and mathematics teachers need more formal training in the subjects of science and mathematics.								
CLAIBORNE	EDUCATORS	18	49	30	0	3	2.13	0.69
	PARENTS	11	64	12	0	12	2.02	0.51
	STUDENTS	19	41	29	1	11	2.13	0.75
	TOTAL	16	51	23	0	9	2.09	0.66
GRAINGER	EDUCATORS	7	67	27	0	0	2.20	0.54
	PARENTS	21	60	12	2	5	1.95	0.67
	STUDENTS	12	41	21	6	15	2.31	0.79
	TOTAL	14	56	26	3	7	2.13	0.69
UNION	EDUCATORS	19	57	19	0	5	2.00	0.63
	PARENTS	20	56	20	0	4	2.00	0.64
	STUDENTS	9	36	39	6	9	2.47	0.76
	TOTAL	16	50	26	2	6	2.16	0.72

TABLE XI (continued)

ITEM		RESPONSE: Strongly Agree	Agree	Disagree	Strongly Disagree	No Knowledge	MEAN	STANDARD DEVIATION
13. Science and mathematics teachers need more formal training in teaching methods to improve their teaching skills.								
CLAIBORNE	EDUCATORS	22	48	22	2	6	2.03	0.74
	PARENTS	13	68	8	0	11	1.94	0.48
	STUDENTS	27	42	20	4	9	2.00	0.82
	TOTAL	21	52	16	2	9	2.00	0.70
GRAINGER	EDUCATORS	3	63	23	3	7	2.29	0.59
	PARENTS	21	65	9	2	2	1.93	0.63
	STUDENTS	15	54	20	3	12	2.10	0.70
	TOTAL	14	61	18	3	6	2.08	0.66
UNION	EDUCATORS	22	57	16	0	5	1.94	0.63
	PARENTS	20	60	12	0	8	1.91	0.58
	STUDENTS	15	46	27	6	6	2.26	0.80
	TOTAL	19	54	19	2	6	2.04	0.70

TABLE XII

ADJUSTED FREQUENCY PERCENTAGES, MEAN, AND STANDARD DEVIATION FOR EDUCATOR RESPONSE ON ITEMS (14-23, PART IV)

ITEM	RESPONSE					MEAN	STANDARD DEVIATION
	Strongly Agree	Agree	Disagree	Strongly Disagree	No Knowledge		
14. The county has established adequate goals and objectives for the science and mathematics curricula.							
EDUCATORS							
CLAIBORNE	3	23	38	11	25	2.75	0.75
GRAINGER	3	20	60	0	17	2.68	0.55
UNION	0	22	54	13	11	2.91	0.62
15. Teachers are given enough time in the day to participate in planning curriculum.							
EDUCATORS							
CLAIBORNE	9	20	30	36	5	2.97	0.99
GRAINGER	7	17	53	20	3	2.90	0.80
UNION	3	8	19	70	0	3.57	0.75

TABLE XII (continued)

ITEM	RESPONSE: Strongly Agree	Agree	Disagree	Strongly Disagree	No Knowledge	MEAN	STANDARD DEVIATION
16. The county school system has a written plan that explains the steps for developing curriculum.							
EDUCATORS							
CLAIBORNE	0	8	33	8	51	3.00	0.57
GRAINGER	0	17	43	7	33	2.85	0.57
UNION	0	27	16	38	19	3.13	0.88
17. The county has developed curriculum guides to assist teachers of science and mathematics in improving classroom instruction.							
EDUCATORS							
CLAIBORNE	0	11	36	11	41	3.00	0.62
GRAINGER	0	34	41	0	25	2.54	0.50
UNION	0	22	27	35	16	3.16	0.81

TABLE XII (continued)

ITEM	RESPONSE: Strongly Agree	Agree	Disagree	Strongly Disagree	No Knowledge	MEAN	STANDARD DEVIATION
18. Within legal requirements, teachers have the freedom and authority to use their own professional judgments in making curriculum decisions for their classrooms.							
EDUCATORS							
CLAIBORNE	13	70	8	3	6	2.02	0.60
GRAINGER	3	83	7	0	7	2.04	0.32
UNION	5	73	5	14	3	2.28	0.77
19. The science and mathematics curricula of the county schools are reviewed and evaluated at regular intervals.							
EDUCATORS							
CLAIBORNE	2	21	35	8	35	2.76	0.69
GRAINGER	0	27	48	0	27	2.64	0.48
UNION	0	27	30	30	14	3.03	0.81

TABLE XII (continued)

ITEM	RESPONSE: Strongly Agree	Agree	Disagree	Strongly Disagree	No Knowledge	MEAN	STANDARD DEVIATION
20. Changes in both curriculum and instruction of science and mathematics are carefully planned and developed in the county schools.							
EDUCATORS							
CLAIBORNE	2	10	51	8	30	2.93	0.58
GRAINGER	0	27	47	3	23	2.70	0.55
UNION	0	14	41	34	11	3.24	0.70
21. Curriculum evaluation is encouraged and carried out with faculty involvement.							
EDUCATORS							
CLAIBORNE	6	30	40	15	10	2.68	0.82
GRAINGER	0	40	40	0	20	2.50	0.50
UNION	0	24	30	38	8	3.15	0.81

TABLE XII (continued)

ITEM	RESPONSE: Strongly Agree	Agree	Disagree	Strongly Disagree	No Knowledge	MEAN	STANDARD DEVIATION
22. Science and mathematics teachers are given the appropriate incentives to continue their formal education.							
EDUCATORS							
CLAIBORNE	5	33	30	17	16	2.70	0.85
GRAINGER	0	31	48	7	14	2.72	0.60
UNION	0	24	30	41	5	3.17	0.81
23. I believe that science and mathematics teachers should take additional courses periodically in order to renew their certification.							
EDUCATORS							
CLAIBORNE	22	70	6	2	0	1.88	0.57
GRAINGER	7	69	21	3	0	2.21	0.61
UNION	51	43	3	3	0	1.57	0.68

1. Item 14--The county has established adequate goals and objectives for the science and mathematics curricula.

2. Item 16--The county school system has a written plan that explains the steps for developing curriculum.

3. Item 17--The county has developed curriculum guides to assist teachers of science and mathematics in improving classroom instruction.

4. Item 19--The science and mathematics curricula of the county schools are reviewed and evaluated at regular intervals.

5. Item 20--Changes in both curriculum and instruction of science and mathematics are carefully planned and developed in the county schools.

Parents. Parents agreed strongly with the following items:

1. Item 11--Students need to be evaluated on more than their performance on tests.

2. Item 13--Science and mathematics teachers need more formal training in teaching methods to improve their teaching skills.

This population group did not disagree strongly with any of the items on Part IV.

Students. This population group strongly agreed with the following:

1. Item 8--I feel that I should participate more in developing the curriculum of the county schools.

2. Item 10--There is a need to include more laboratory work in the student learning experience.

3. Item 11--Students need to be evaluated on more than their performance on tests.

4. Item 13--Science and mathematics teachers need more formal training in teaching methods to improve their teaching skills.

Students did not disagree strongly on any of the items on Part IV.

Total. All three population groups agreed that students need to be evaluated on more than their performance on tests. Educators and students agreed that they should participate more in curriculum development in the county schools and that more laboratory work should be included in the student learning experience. Both parents and students strongly agreed that science and mathematics teachers need more formal training in teaching methods to improve their teaching skills.

Grainger County

Educators. This population group neither agreed nor disagreed strongly as defined in the introduction to this section. The highest mean response was 2.97 on item 9, relating to the availability of adequate laboratory facilities necessary for the attainment of objectives established in science, and 2.90 on item 15, relating to teachers being given enough time in the day to participate in planning curriculum.

The highest level of agreement was indicated by a mean response of 2.03 to item 11, relating to students needing to be evaluated on more than their performance on tests, and a mean response of 2.04 to item 18, relating to freedom and authority of teachers to use their own professional judgment in making curriculum decisions.

Parents. This population group agreed strongly with the following:

1. Item 10--There is a need to include more laboratory work in the student learning experience.

2. Item 11--Students need to be evaluated on more than their performance on tests.

3. Item 12--Science and mathematics teachers need more formal training in the subjects of science and mathematics.

4. Item 13--Science and mathematics teachers need more formal training in teaching methods to improve their teaching skills.

The only item that parents disagreed strongly with was item 9, relating to the availability of adequate laboratory facilities necessary for the attainment of objectives established in science.

Students. Students agreed strongly with item 11, relating to the need for students to be evaluated on more than their performance on tests. This population group did not disagree strongly on any of the items on Part IV; however, item 3, relating to the availability of an adequate number of library reference materials for science and mathematics in the county schools received a mean response of 2.85, and item 4, relating to the availability of an adequate number of audiovisual materials to supplement the science and mathematics curricula in the county schools, received a mean response of 2.88.

Total. The three population groups agreed that students need to be evaluated on more than their performance on tests. Educators and parents disagreed with item 9, relating to the county schools having adequate laboratory facilities necessary for the attainment of objectives established in science.

Union County

Educators. As shown in Tables XI and XII, pages 113 and 126, this population group agreed strongly with the following:

1. Item 10--There is a need to include more laboratory work in the student learning experience.

2. Item 11--Students need to be evaluated on more than their performance on tests.

3. Item 12--Science and mathematics teachers need more formal training in the subjects of science and mathematics.

4. Item 13--Science and mathematics teachers need more formal training in teaching methods to improve their teaching skills.

5. Item 23--I believe that science and mathematics teachers should take additional courses periodically in order to renew their certification.

The educators disagreed strongly with the following:

1. Item 7--Students in the county schools help in deciding what they will study.

2. Item 15--Teachers are given enough time in the day to participate in planning curriculum.

3. Item 16--The county school system has a written plan that explains the steps for developing curriculum.

4. Item 17--The county has developed curriculum guides to assist teachers of science and mathematics in improving classroom instruction.

5. Item 19--The science and mathematics curricula of the county schools are reviewed and evaluated at regular intervals.

6. Item 20--Changes in both curriculum and instruction of science and mathematics are carefully planned and developed in the county schools.

7. Item 21--Curriculum evaluation is encouraged and carried out with faculty involvement.

8. Item 22--Science and mathematics teachers are given the appropriate incentives to continue their formal education.

Parents. Parents in Union County strongly agreed on four of the five items that educators agreed strongly on. These were, as listed above, items 10, 11, 12, and 13.

This population group strongly disagreed with the following:

1. Item 4--There is an adequate number of audiovisual materials to supplement the science and mathematics curricula in the county schools.

2. Item 5--The county schools provide an adequate amount of supplemental materials in science and mathematics for the below average student.

3. Item 6--The county schools provide an adequate amount of supplemental materials in science and mathematics for the above average student.

4. Item 9--The county schools have adequate laboratory facilities necessary for the attainment of objectives established in science.

Students. As shown in Table XI, page 113, respondents in this population group agreed strongly with the following:

1. Item 8--I feel that I should participate more in developing the curriculum of the county schools.

2. Item 10--There is a need to include more laboratory work in the student learning experience.

3. Item 11--Students need to be evaluated on more than their performance on tests.

Students in Union County did not disagree strongly with any of the items on Part IV.

Total. All three population groups in Union County strongly agreed that students need to be evaluated on more than their performance on tests and that there is a need to include more laboratory work in the student learning experience. There were no common items of disagreement between the population groups.

Presentation of Demographic Data

Part I of the survey instrument contained questions relating to demographic data. Differents kinds of information were desired from the three population groups. To determine the background of the opinions supplied by the educators, questions were asked concerning their position, years experience, and subject/subjects taught. Table XIII shows that the surveys were completed by an equal number of male and female educators and that the views of both inexperienced

TABLE XIII

DEMOGRAPHIC DATA* FOR CLAIBORNE, GRAINGER, AND UNION COUNTY EDUCATORS

	TOTAL	SEX		POSITION				YEARS EXPERIENCE				SUBJECTS TAUGHT			
		Male	Female	Administrator	Supervisor	Board Member	Teacher	Less than 2	3-6	7-10	More than 10	Science/Math	English, Reading	Elementary Education	Other
CLAIBORNE	64	30	32	8	1	4	49	4	26	7	25	22	12	8	8
GRAINGER	30	15	14	6	1	0	22	4	5	6	14	15	2	1	4
UNION	37	15	15	5	1	2	23	5	8	2	15	11	3	8	3

* Data reported as raw totals; additions of categories in horizontal rows will not yield total for the county because of non-respondents.

and experienced educators were obtained. Table XIII also shows that there was equitable representation of both science/mathematics teachers and non-science/non-mathematics teachers.

To yield insight into their opinions, the parents were asked about the number of years they had been directly associated with the county schools through enrollment of their children. Table XIV shows that responses were received from a majority of parents who had at least five years association with the county schools, which should be adequate time to become familiar with county schools' operation. Table XIV also shows that more responses were received from mothers than from fathers.

Students were asked information concerning their grade level and academic area of interest. Table XV shows a fairly equitable representation of grades 9-12 among the respondents and an equitable representation of the academic areas of interest. More females completed the survey instrument than did males.

III. SUMMARY

This study was designed to develop a plan suitable for small, rural school district assessment and use the plan to determine the perceptions of educators, parents, and students toward the secondary science and mathematics curricula, toward the guidelines and procedures for program development and evaluation, toward teacher preparation and performance, and toward increased involvement of educators, parents, and students in curriculum development and evaluation.

TABLE XIV

DEMOGRAPHIC DATA* FOR CLAIBORNE, GRAINGER, AND UNION COUNTY PARENTS

PARENTS	CLAIBORNE	GRAINGER	UNION
Total	75	45	25
Sex			
Male	17	13	6
Female	54	30	19
Years child has been enrolled in the county schools			
1-4	10	7	6
5-8	24	15	12
9-12	36	22	7

* Data reported as raw totals; addition of categories in vertical columns will not yield total for each county because of non-respondents.

TABLE XV

DEMOGRAPHIC DATA* FOR STUDENTS IN CLAIBORNE, GRAINGER, AND UNION COUNTIES

STUDENTS	CLAIBORNE	GRAINGER	UNION
Total	84	34	33
Sex			
Male	25	13	20
Female	55	21	13
Grade Level			
9	28	11	13
10	18	11	2
11	19	8	8
12	15	4	10
Academic Interest			
English; Literature	13	0	3
Government; History	2	4	2
Geography	0	0	6
Science	21	6	5
Mathematics	9	6	1
Music; Art	4	6	3
Physical Education/Athletics	27	11	13

* Data reported as raw totals; addition of categories in vertical columns will not yield total for each county because of non-respondents.

Within each of the selected school districts, the study was designed to determine what differences existed in the opinions of educators, parents, and students regarding their educational expectations and the current status of the science and mathematics curricula. This section presents an analysis of the results as they apply to these differences.

Question 1: Do educators, parents, and students differ in their opinion of perceived needs?

Claiborne County. While no glaring differences were noted, two slight differences were detected among the opinions of educators, parents, and students concerning who should have the most to say about decisions affecting the science and mathematics curricula. Educators felt that classroom teachers should have the most to say, while parents and students believed that the State Department of Education, and, to a lesser extent, teacher curriculum committees and classroom teachers should have the most say.

Secondly, educators and parents believed that parent and community support is needed if the county schools are going to improve; whereas, students believed that support and cooperation from both the State Department and parents and community members is needed.

Grainger County. The major difference noted among the opinions of educators, parents, and students in Grainger County with respect to perceived needs was related to the academic area which should be given more emphasis in the county schools. Educators and parents felt that reading and English should receive more emphasis, while

students felt that vocational education and, to a lesser extent, reading and English should receive more emphasis.

Union County. The major difference existing in the perceived needs of educators, parents, and students related to the academic area that should receive more emphasis in the county schools. Educators and parents felt that it should be reading and English, while students felt that it should be vocational education and science.

Question 2: Do educators, parents, and students differ in their opinion of how effectively educational needs are being met with the current curriculum?

Claiborne County. Regarding basic skills and concepts in science and mathematics, educators were more dissatisfied with the quality of instruction being received in these areas than were parents and students.

Grainger County. Students in Grainger County did not express dissatisfaction with the quality of instruction in the basic skills and concepts of science and mathematics that they rated with very high importance; however, dissatisfaction with the quality of instruction in the basic skills and concepts of science and mathematics rated with very high importance was expressed by both parents and educators.

Union County. Educators and parents of Union County shared similar concerns about the quality of instruction being received by science and mathematics students in certain areas treated by the items on Part II of the survey instrument; however, this concern was not shared by the students.

Question 3: Do the perceived needs of educators, parents, and students differ from the actual content of the curriculum?

Claiborne County. Combined responses of the three population groups indicate that more and better instruction in the following areas of science and mathematics is needed:

1. The use of addictive substances like drugs, alcohol, and tobacco.
2. Environmental education and resource conservation.
3. Human growth and reproduction.
4. Use of basic computational skills in mathematics.
5. Use of standard units of measurement, including the metric system.
6. Interpretation of graphs, tables, and percent in practical situations.
7. Interpretation and use of geometry in practical situations.

Grainger County. Combined responses of the three population groups indicate that more and better instruction is needed in areas 1-5 listed above for Claiborne County.

Union County. Combined responses of the three population groups indicate that more and better instruction is needed in areas 1-7 listed above for Claiborne County plus more and better instruction in the use of the scientific method in solving problems.

CHAPTER V

SUMMARY AND CONCLUSIONS

I. INTRODUCTION

Success in determining direction for a school district rests on the ability of those involved in decision-making to decide what is to be accomplished and how it is to be accomplished. Needs assessment has become a tool for gathering information on which to base educational decisions in curriculum development, implementation, evaluation, and modification. A review of available assessment models revealed a paucity of procedures applicable to small, rural school districts. In addition, focal areas for assessment models found in the literature did not pertain specifically to science and mathematics. This study was designed to develop a plan suitable for small, rural school district assessment and to use the plan in an assessment of various parameters of the science and mathematics curricula in Claiborne, Grainger, and Union counties.

II. ASSESSMENT PLAN

One of the three phases of a needs assessment suggested by Lee (1973, p. 28) involved the identification of desired educational outcomes for the educational program of a school district. It was this phase of needs assessment on which the current study focused and the ensuing plan was developed by which to conduct the assessment.

If a needs assessment is to be successful throughout all its stages from planning to the application of its findings to program modification, it must be begun with the commitment of all those involved. Once the initial commitment for support and cooperation has been obtained from various levels of a school district's administrative hierarchy, determination of a focal area for the assessment must be made so that planning and development of appropriate information gathering devices can be constructed. Once a method of collecting the data has been devised, a decision must be made regarding those segments of the school district's population who will participate in the assessment process. Collection, summarization, and analysis of data leads to a report of results of the assessment, an evaluation of the evidence available, and finally, and most importantly, program development. To summarize, a workable needs assessment plan involves the following stages:

1. Obtain the commitment of those within the administrative hierarchy who will be responsible for conducting the assessment.
2. Choose a focal area for the assessment and determine those aspects in need of evaluation.
3. Construct information-gathering devices.
4. Determine the population for the assessment process and devise the sampling procedure.
5. Collect, summarize, and analyze data.
6. Report the results of the assessment.
7. Apply the results to program improvement.

III. CONCLUSIONS OF THE STUDY

The following conclusions were based upon the results of this study:

1. Educators, parents, and students within each of the school districts agreed closely on those basic skills and concepts of science and mathematics considered to be of very high importance.

2. Educators and parents within each school district tended to be less satisfied with the current status of the science and mathematics curricula than were the students.

3. Students in all three school districts were less emphatic than were educators and parents regarding more emphasis being given to reading and English in the county schools.

4. Educators, parents, and students feel that they should be more actively involved in curriculum development.

5. Educators in all three school districts expressed a glaring lack of knowledge regarding the existence of guidelines and procedures for the development and evaluation of science and mathematics curricula.

6. More parental and community involvement in the county schools is suggested.

7. Classroom teachers should continue to have substantial influence about decisions concerning what is taught in science and mathematics in each of the school districts.

8. Science is not viewed with equal importance as mathematics or the language arts.

9. Educators, parents, and students expressed a desire for more laboratory work to be included in the students' learning experience.

10. The three population groups in all three counties indicated that students need to be evaluated on more than test performance.

11. Educators in all three school districts indicated a need for a written plan to explain the steps for developing curriculum.

12. Educators in all three school districts expressed a desire for more opportunity and incentive for science and mathematics teachers to further their formal education.

13. Educators in all three school districts expressed a desire to have curriculum guides developed to assist them in improving their classroom instruction in science and mathematics.

14. Needs assessment can be a valuable tool for program development in small, rural school districts.

15. The assessment plan used in this study provides economical and feasible procedures for identifying student needs in small, rural school districts.

16. Educational expectations and perceived current status of the science and mathematics curricula were able to be determined with the survey instrument used in this study.

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APPENDICES

APPENDIX A

June 29, 1978

Dear Superintendent:

Ms. Rena Crockett recently submitted a research proposal to the members of her doctoral committee for study and approval. Each of the committee members has approved and endorsed the proposal as one that has excellent potential for providing essential information for the development, revision, and evaluation of science and mathematics programs.

In order to conduct the study, Ms. Crockett would need to obtain information by means of a concise questionnaire relating to educational "needs assessment," goal setting, and the establishment of program priorities form several groups of educators in your school system.

The study should prove to be of particular value in the establishment of guidelines for use in the schools in your county and in other school systems similar in East Tennessee. Studies in metropolitan areas have been utilized very effectively, and we feel that this study can make a positive contribution for use in the non-metropolitan systems in Tennessee.

I would be most appreciative for your cooperation and that of your staff in conducting this research.

Sincerely,

/s/ A. Paul Wishart
A. Paul Wishart
Professor of Science Education

APW:an

APPENDIX B

July 21, 1978

Ms. Rena V. Crockett
Box 1887 South Carrick Hall
1023 Frances Street
Knoxville, Tennessee 37916

Dear Ms. Crockett:

I am certain that your research will be most helpful in our future planning of science and mathematics curricula. You have my permission and full support in continuing your research. Since you are a native of Claiborne County, I believe you are in a unique position to make a very positive contribution to our educational system.

Thank you for your continued support of our county.

Sincerely,

/s/ James C. Neely
James C. Neely, Superintendent
Claiborne County School System

JCN/cfo

July 18, 1978

Ms. Rena V. Crockett
Box 1887 South Carrick Hall
1023 Frances Street
Knoxville, Tennessee 37916

Dear Ms. Crockett:

I was pleased to meet with you recently and discuss a research study in regard to your doctoral dissertation. I feel that the assessment of the science and mathematics curricula in our county will be very useful in the future development and improvement of these curriculum areas.

After reviewing a copy of your proposal and a tentative copy of the survey instrument, I was impressed with the planning, preparation, and seriousness of purpose shown within these evaluative and data-collecting instruments.

Please accept this letter as written approval of our support of helping in the development of your doctoral dissertation. If we may be of future assistance, please feel free to call.

Sincerely,

/s/ Dwaine G. Burke
Dwaine G. Burke
Superintendent, Union County Schools

APPENDIX C

AN ASSESSMENT OF THE SECONDARY SCIENCE AND MATHEMATICS CURRICULA IN SELECTED RURAL EAST TENNESSEE COUNTIES

PURPOSE: The purpose of this study is to assess the perceptions of educators, parents, and students toward the secondary science and mathematics programs in Claiborne, Grainger, and Union counties. A "needs assessment" is a systematic procedure for identifying the discrepancy between what is and what should be. Therefore, a desirable outcome of the study will be to determine whether the current objectives for the secondary science and mathematics programs are suitable for meeting the perceived needs of students.

RATIONALE: The rationale for conducting a "needs assessment" in the selected school systems is based on a paucity of available research data for rural education. In addition, school systems, both large and small, are being challenged by the following:

1. declining student enrollment causing a reduction in available local, state, and federal funds
2. essentially stagnant tax base at the local level
3. rising costs in all areas of the school budget
4. demands for improved accountability
5. requirements for competency testing

All these challenges to education spell one thing:

SCHOOL SYSTEMS ARE BEING FORCED TO DO MORE WITH LESS!!

It therefore becomes imperative for systems to evaluate the status of existing programs to insure the adequacy and appropriateness of each aspect of their instructional program.

It is believed that this study will be a valuable asset to the counties in evaluating their program priorities for science and mathematics and that the final analysis of data will provide the necessary "documentation of need" now required on many applications for state and federal grants.

The cooperation of educational administrators, teachers, parents, and students is needed in order for the study to reflect the opinions of those most involved in the process of education.

Following completion of the study, a copy of the final results will be available through the central administrative office of each school system. Thank you for your cooperation.

Rena V. Crockett
Department of Curriculum and Instruction
Room 201A CEB UTK
Knoxville, Tennessee 37916

APPENDIX D

July 31, 1978

Dear Principal:

Ms. Rena Crockett recently submitted a research proposal to the members of her doctoral committee for study and approval. Each of the committee members has approved and endorsed the proposal as one that has potential for providing essential information for the development, revision, and evaluation of science and mathematics programs.

In order to conduct the study, Ms. Crockett would need to obtain information by means of a questionnaire relating to educational needs assessment. As a part of the development and modification of the final survey instrument, it is necessary to do a pilot study to determine whether the instrument has clear directions, as well as concise and understandable word usage and sentence structure.

For the purposes of the pilot study, four or five individuals from each of three subject groups (teachers, parents, and students) are needed to complete a tentative questionnaire. Their responses to the items on the questionnaire are not as important as their recommendations for ways to improve the format and content of the instrument.

Your cooperation and that of your staff in conducting the pilot study would be most appreciated.

Sincerely,

/s/ W. W. Wyatt (mse)
W. W. Wyatt
Professor of Curriculum and Instruction

APPENDIX E

Dear Educator:

As a part of research study conducted in conjunction with the county schools and the University of Tennessee, we are asking you to provide information about the science and mathematics programs in your county. Please answer the questions as completely as you can. You are not required to sign your name to the completed questionnaire, and every effort will be taken to see that the responses are kept confidential. The questions on the questionnaire are divided into four parts:

I. General information
II. Skills and concepts
III. Program development
IV. Program evaluation and revision

Please read the directions printed before each part carefully before answering the questions.

Dear Parent:

As a part of a research study conducted in conjunction with the county schools and the University of Tennessee, we are asking you to provide information about the science and mathematics programs in your county. Please answer the questions as completely as you can. You are not required to sign your name to the completed questionnaire, and every effort will be taken to see that the responses are kept confidential.

The questions on the questionnaire are divided into four parts:

I. General information
II. Skills and concepts
III. Program development
IV. Program evaluation and revision

Please read the directions printed before each part carefully before answering the questions.

Dear Student:

As a part of a research study conducted in conjunction with the county schools and the University of Tennessee, we are asking you to provide information about the science and mathematics programs in your county. It is felt that you, the student, should have input into the process of program development and evaluation since you are the most effected by its outcome. Please answer the questions as completely as you can. You are not required to sign your name to the completed questionnaire, and every effort will be taken to see that the responses are kept confidential.

The questions on the questionnaire are divided into four parts:

I. General Information
II. Skills and concepts
III. Program development
IV. Program evaluation and revision

Please read the directions printed before each part carefully before answering the questions.

EDUCATOR

I. Please circle the number corresponding to your answer.

1. Your sex is :
   (1) Male
   (2) Female

2. My position is:
   (1) Administrator
   (2) Supervisor
   (3) Teacher

3. How long have you worked for the county schools?
   (1) less than two years
   (2) 3-6 years
   (3) 7-10 years
   (4) More than ten years

4. If you teach, what subject(s) do you teach? (Circle more than one if it is appropriate)
   (1) science
   (2) mathematics
   (3) English/literature
   (4) geography/history
   (5) physical education/coach
   (6) music/art
   (7) home economics
   (8) typing/business
   (9) Other_____

PARENT

I. Please circle the number corresponding to your answer.

1. Your sex is:
   (1) Male
   (2) Female

2. Indicate the number of children you have in each grade level.
   (1) 7th grade_____
   (2) 8th grade_____
   (3) 9th grade_____
   (4) 10th grade_____
   (5) 11th grade_____
   (6) 12th grade_____

3. How many years have your children been enrolled in the county schools?
   (1) 1-4 years
   (2) 5-8 years
   (3) 9-12 years

STUDENT

I. Please circle the number corresponding to your answer.

1. Your sex is:
   (1) Male
   (2) Female

2. Indicate your grade level:
   (1) 9th
   (2) 10th
   (3) 11th
   (4) 12 h

3. Which subject area interests you most?
   (1) English and literature
   (2) Government and history
   (3) Geography
   (4) Science
   (5) Mathematics
   (6) Music and art
   (7) Physical education and athletics

II. According to your knowledge and/or experience, respond to each item below by placing the proper number in the blank under each category. Place one number in each column. Please respond to each question.

ITEMS FOR RESPONSE	How important is this for a student in your county schools? 1=No Importance 2=Low Importance 3=High importance 4=Very High Importance	How well do you feel this is being done in the county schools? 1=Unsatisfactory 2=Fair 3=Satisfactory 4=Excellent
A STUDENT SHOULD BE ABLE:		
1. To use the scientific method in solving problems.	(6)	
2. To understand the growth stages in plants and animals.	(8)	
3. To understand the delicate balance that exists in nature.	(10)	
4. To understand principles governing weather.	(12)	
5. To relate occurrences he/she observes around him/her to principles of science.	(14)	
6. To understand how people depend on their environment and use their resources.	(16)	
7. To perform experiments and understand the relationships between matter and energy.	(18)	
8. To know the effects of drugs, alcohol and tobacco.	(20)	
9. To understand human growth, development, and reproductive processes.	(22)	
10. To understand principles of electricity and magnetism.	(24)	
11. To understand dynamics of nuclear and gravitational forces.	(26)	

ITEMS FOR RESPONSE	How important is this for a student in your county schools? 1=No Importance 2=Low Importance 3=High Importance 4=Very High Importance	How well do you feel this is being done in the county schools? 1=Unsatisfactory 2=Fair 3=Satisfactory 4=Excellent
12. To understand principles of simple chemical reactions.	(28)	
13. To solve simple mathematical equations.	(30)	
14. To compute with fractions and decimals with 75% accuracy.	(32)	
15. To add, subtract, multiply, and divide with the competence necessary for business and industry.	(34)	
16. To use standard units of measurement including the metric system.	(36)	
17. To interpret graphs, tables, and percent in practical situations.	(38)	
18. To interpret geometry in practical situations.	(40)	
PLEASE LIST ANY OTHERS YOU FEEL ARE IMPORTANT.		
19.		
20.		

III. Please read each of the following questions and indicate your first, second, and third choice of statements which best represent your opinion. Place a 1, 2, or 3 by your choices as shown in the example. Please respond to each question.

EXAMPLE:

Programs for science and mathematics from the National Science Foundation, such as BSCS biology and CHEM chemistry, are not used widely in the county schools because of:

2 1. financial restraints
____ 2. lack of teacher interest and support
____ 3. lack of supervisor interest and support
____ 4. student ability level
1 5. lack of information
3 6. lack of principal support

1. Guidelines for the development and evaluation of the science and mathematics curricula are most often initiated at which of the following points?

____ 1. area educational offices
____ 2. local school
____ 3. State Department of Education (42)
____ 4. county Supervisor of Schools
____ 5. county school board
____ 6. There are no guidelines for developing and evaluating curricula in science and mathematics.

2. In your opinion, which of the following has the most to say about decisions concerning what is taught in in science and mathematics in the county schools?

____ 1. parents and community members
____ 2. county school board
____ 3. teacher curriculum committees (45)
____ 4. State Department of Education
____ 5. supervisors and principals
____ 6. classroom teachers

3. In your opinion, which of the following should have the most say about decisions concerning what is taught in science and mathematics in the county schools?

____ 1. parents and community members
____ 2. county school board
____ 3. teacher curriculum committees (48)
____ 4. State Department of Education
____ 5. supervisors and principals
____ 6. classroom teachers

4. Which of the following receives the greatest emphasis in the county schools?

_____1. reading and English
_____2. social studies
_____3. science
_____4. mathematics (51)
_____5. vocational education
_____6. physical education and athletics

5. Which of the following areas needs to be given more emphasis in the county schools?

_____1. reading and English
_____2. social studies
_____3. science (54)
_____4. mathematics
_____5. vocational education
_____6. physical education and athletics

6. If additional money were secured by the county schools, which of the following areas should receive the financial support?

_____1. classroom instruction
_____2. library materials
_____3. teacher inservice
_____4. physical plant improvement (57)
_____5. remedial programs
_____6. enrichment programs

7. Teacher performance could best be improved in the classroom by:

_____1. more money for instructional supplies and equipment
_____2. improved teacher inservice training
_____3. improved supervisory involvement
_____4. more formal education in the subject area they teach (60)
_____5. more formal education in methods of teaching
_____6. Other (please specify)_____

8. If the county schools are going to improve, support and cooperation from which of the following is most needed?

_____1. parents and community
_____2. classroom teachers
_____3. principals (63)
_____4. area educational offices
_____5. central office of county schools
_____6. State Department of Education

9. Who should have the major responsibility for students' learning science and mathematics?

_____1. parents
_____2. principal
_____3. teachers (66)
_____4. the student himself
_____5. Board of Education
_____6. supervisor

IV. As you read each of the following statements, decide how strongly you agree or disagree with that statement, then select the number corresponding to your answer and place it in the column to the right. Please respond to each question.

ITEMS FOR RESPONSE	1=Strongly agree 2=Agree 3=Disagree 4=Strongly disagree 5=No knowledge
1. I feel that what is being taught in science and mathematics in the county schools is adequate.	
2. The county schools offer a well-balanced curriculum in science and mathematics.	
3. There is an adequate number of library reference materials for science and mathematics in the county schools.	
4. There is an adequate number of audiovisual materials to supplement the science and mathematics curricula in the county schools.	
5. The county schools provide an adequate amount of supplemental materials in science and mathematics for the below average student.	
6. The county schools provide an adequate amount of supplemental materials in science and mathematics for the above average student.	
7. Students in the county schools help in deciding what they will study.	
8. I feel that I should participate more in developing the curriculum of the county schools.	
9. The county schools have adequate laboratory facilities necessary for the attainment of objectives established in science.	
10. There is a need to include more laboratory work into the student learning experience.	
11. Students need to be evaluated on more than their performance on tests.	
12. Science and mathematics teachers need more formal training in the subjects of science and mathematics.	
13. Science and mathematics teachers need more formal training in teaching methods to improve their teaching skills.	
14. The county has established adequate goals and objectives for the science and mathematics curricula.	
15. Teachers are given enough time in the day to participate in planning curriculum.	
16. The county school system has a written plan that explains the steps for developing curriculum.	
17. The county has developed curriculum guides to assist teachers of science and mathematics in improving classroom instruction.	
18. Within legal requirements, teachers have the freedom and authority to use their own professional judgments in making curriculum decisions for their classrooms.	
19. The science and mathematics curricula of the county schools are reviewed and evaluated at regular intervals.	
20. Changes in both curriculum and instruction of science and mathematics are carefully planned and developed in the county schools.	
21. Curriculum evaluation is encouraged and carried out with faculty involvement.	
22. Science and mathematics teachers are given the appropriate incentives to continue their formal education.	
23. I believe that science and mathematics teachers should take additional courses periodically in order to renew their certification.	

APPENDIX F

August 29, 1978

Dear Principal:

Ms. Rena Crockett is conducting an assessment of our county's secondary science and mathematics programs. The assessment requires input from administrators, teachers, parents, and students; and in order to reach these subject groups effectively, your cooperation and participation and that of your faculty is needed.

It is through efforts like this that our county can continue to improve its educational programs and meet the growing needs of its students.

Sincerely,

/s/ James C. Neely
Superintendent of Schools

APPENDIX G

August 29, 1978

Dear School Board Member:

Ms. Rena Crockett is conducting an assessment of our county's secondary science and mathematics programs. The assessment requires input from administrators, teachers, parents, and students; and in order to obtain a representative cross section of administrators, your cooperation and participation is needed.

It is through efforts like this that our county can continue to improve its educational programs and meet the growing needs of its students.

Sincerely,

/s/ James C. Neely
James C. Neely
Superintendent of Schools

APPENDIX H

SUMMARY OF FIRST CHOICES OF ALTERNATIVES FOR ITEMS (1-9, PART III)

1. Guidlines for development and evaluation of the science and mathematics curricula are most often initiated at which of the following points?

CLAIBORNE	FIRST
Educators	Local school (39%) State Department of Education (38%)
Parents	State Department of Education (43%)
Students	State Department of Education (44%)
GRAINGER	
Educators	Local school (43%)
Parents	State Department of Education (51%)
Students	Local school (43%)
UNION	
Educators	State Department of Education Local school (31%)
Parents	Local school (29%) State Department of Education (25%)
Students	Local school (38%)

2. In your opinion, which of the following has the most to say about decisions concerning what is taught in science and mathematics in the county schools?

		FIRST
CLAIBORNE		
	Educators	Classroom teachers (48%)
	Parents	State Department of Education (36%)
	Students	State Department of Education (37%)
GRAINGER		
	Educators	Classroom teachers (43%) State Department of Education (37%)
	Parents	State Department of Education (50%)
	Students	County school board (29%) Classroom teachers (26%) State Department of Education (24%)
UNION		
	Educators	Classroom teachers (54%)
	Parents	Supervisors and principals (28%) State Department of Education (24%)
	Students	State Department of Education (38%)

3. In your opinion, which of the following should have the most to say about decisions concerning what is taught in science and mathematics in the county schools?

		FIRST
CLAIBORNE		
	Educators	Classroom teachers (61%)
	Parents	State Department of Education (30%) Teacher curriculum committees (23%)
	Students	State Department of Education (32%) Classroom teachers (25%)
GRAINGER		
	Educators	Classroom teachers (37%) Teacher curriculum committees (30%)
	Parents	State Department of Education (30%) Classroom teachers (27%)
	Students	Classroom teachers (42%)
UNION		
	Educators	Classroom teachers (72%)
	Parents	Classroom teachers (28%) Parents and community members (24%)
	Students	Classroom teachers (28%) State Department of Education (25%)

4. Which of the following receives the greatest emphasis in the county schools?

		FIRST
CLAIBORNE		
	Educators	Reading and English (48%) Physical education and athletics (32%)
	Parents	Reading and English (55%)
	Students	Reading and English (55%)
GRAINGER		
	Educators	Reading and English (40%)
	Parents	Reading and English (46%)
	Students	Reading and English (56%)
UNION		
	Educators	Reading and English (51%)
	Parents	Reading and English (44%)
	Students	Reading and English (47%)

5. Which of the following areas needs to be given more emphasis in the county schools?

		FIRST
CLAIBORNE		
	Educators	Reading and English (63%)
	Parents	Reading and English (59%)
	Students	Reading and English (33%) Mathematics (20%)
GRAINGER		
	Educators	Reading and English (53%)
	Parents	Reading and English (58%)
	Students	Vocational education (36%) Reading and English (27%)
UNION		
	Educators	Reading and English (51%)
	Parents	Reading and English (76%)
	Students	Science (25%) Vocational education (22%)

6. If additional money were secured by the county schools, which of the following areas should receive the financial support?

		FIRST
CLAIBORNE		
	Educators	Classroom instruction (82%)
	Parents	Classroom instruction (59%)
	Students	Classroom instruction (51%)
GRAINGER		
	Educators	Classroom instruction (52%)
	Parents	Classroom instruction (56%)
	Students	Classroom instruction (47%)
UNION		
	Educators	Classroom instruction (54%)
	Parents	Classroom instruction (92%)
	Students	Classroom instruction (32%)

7. Teacher performance could best be improved in the classroom by:

		FIRST
CLAIBORNE		
	Educators	More money for instructional supplies and equipment (48%)
	Parents	More money for instructional supplies and equipment (55%)
	Students	More money for instructional supplies and equipment (52%)
GRAINGER		
	Educators	More money for instructional supplies and equipment (21%) Improved teacher inservice training (21%)
	Parents	More money for instructional supplies and equipment (38%) Improved teacher inservice training (20%)
	Students	More money for instructional supplies and equipment (65%)
UNION		
	Educators	More money for instructional supplies and equipment (44%)
	Parents	More money for instructional supplies and equipment (64%)
	Students	More money for instructional supplies and equipment (52%)

8. If the county schools are going to improve, support and cooperation from which of the following is most needed?

		FIRST
CLAIBORNE		
	Educators	Parents and community (56%)
	Parents	Parents and community (56%)
	Students	State Department of Education (36%) Parents and community (34%)
GRAINGER		
	Educators	Parents and community (59%)
	Parents	Parents and community (60%)
	Students	Parents and community (32%) State Department of Education (26%)
UNION		
	Educators	Parents and community (54%)
	Parents	State Department of Education (44%)
	Students	Parents and community (56%)

9. Who should have the major responsibility for students' learning science and mathematics?

		FIRST
CLAIBORNE		
	Educators	Teachers (42%) The student himself (42%)
	Parents	Teachers (47%) The student himself (33%)
	Students	The student himself (52%) Teachers (33%)
GRAINGER		
	Educators	Teachers (53%) The student himself (33%)
	Parents	Teachers (44%) The student himself (35%)
	Students	The student himself (53%)
UNION		
	Educators	The student himself (49%) Teachers (41%)
	Parents	The student himself (40%) Teachers (36%)
	Students	The student himself (55%)

VITA

Rena Vay Crockett was born in Middlesboro, Kentucky on July 20, 1952. She attended elementary school and high school in Claiborne County, Tennessee. Following graduation from Forge Ridge High School in 1969, she attended Lincoln Memorial University. She received a Bachelor of Science in Biology from that institution in 1972. She graduated from the University of Tennessee in 1974 with a Master of Science in Zoology. Beginning in 1974, she taught in the science department at Lincoln Memorial University, Harrogate, Tennessee.

She received the degree of Doctor of Education with a major in Curriculum and Instruction from the University of Tennessee in December, 1978.

She is married to Major Glynne R. Hamrick, United States Army.