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To the Graduate Council:

I am submitting herewith a dissertation written by Michael Henry Hamrick entitled "A Comprehensive Evaluation of the Status of the School Health Education Program in Bedford County, Tennessee." I recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Education, with a major in Health Education.

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A COMPREHENSIVE EVALUATION OF THE STATUS OF THE SCHOOL HEALTH
EDUCATION PROGRAM IN BEDFORD COUNTY, TENNESSEE

A Dissertation
Presented to
the Graduate Council of
The University of Tennessee

In Partial Fulfillment
of the Requirements for the Degree
Doctor of Education

by
Michael Henry Hamrick
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SPECIAL CREDIT

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ABSTRACT

The primary purpose of this study was to comprehensively evaluate the school health program of Bedford County, Tennessee. The program was studied from four perspectives: (1) school health instructional practices as determined by personal interviews with school principals; (2) the status of students' health knowledge, attitudes, and behavior as revealed by responses to standardized health behavior inventories (H.B.I.'s); (3) students' health interests which were based on informal class interviews and open-ended questionnaires; and (4) community perceptions of local health problems and the schools' contribution to the alleviation of these problems as indicated by responses to mailed questionnaires. The data coming from questionnaires and inventories were analyzed descriptively to allow for comparisons between sample groups. Statistical tests of probability were used to denote differences in students' scores to H.B.I.'s according to sex, grade, and school.

The analysis of findings of the study led to the following major conclusions:

1. There was no indication of a sequential plan of health education opportunities for grades 1-12. Health instruction was most often correlated with another subject or taught on an incidental basis by teachers with a minimum of training in health education. Health instruction was most continuous on a grade-to-grade basis at the elementary level; least continuous at the senior high level.

2. The overall health knowledge of Bedford County students was markedly low when compared to national norms. Ninth grade students were especially deficient and scores improved very little for twelfth graders. The highest scores were achieved by sixth grade students, yet they were below the national average. Health content areas which were consistently low in all grade levels were nutrition, dental health, mental health, infection and disease, and community health.

3. Students valued the health course and were particularly interested in the areas of mental health, sex education, social-emotional health, and drug abuse.

4. Community personnel perceived schools to have a significant contribution in the alleviation of many local health problems, particularly drug abuse, venereal disease, nutrition, alcoholism, accidents, and illegitimacy. However, the school health education program was not thought to be doing an adequate job.

5. The overall research design employed in this study proved to be most functional for rendering a thorough and comprehensive assessment of the school health education program and for providing information useful for curriculum development.

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CHAPTER I

INTRODUCTION

I. STATEMENT OF THE PROBLEM

The primary purpose of this study was to appraise comprehensively the school health education program in Bedford County, Tennessee, with particular emphasis at the senior high level, grades 9-12. Answers to the following three broad questions served as criteria for making this appraisal:

1. What are the health instructional practices in Bedford County elementary, junior, and senior high schools?
2. What is the status of students' health interests, knowledge, attitudes and behavior?
3. What are the community's perception of the school health education program?

A secondary purpose of the study was to provide a set of recommendations that can be used as a basis for developing a health education curriculum.

II. PURPOSE AND JUSTIFICATION OF THE STUDY

Two questions seemed appropriate when determining why this study was needed. They were: why conduct a status study, and why in Bedford County?

In answer to the latter question first, Bedford County was selected because its student population was the focal point of another health-related study. In 1971, Darby (13,14) of the Vanderbilt School of Medicine headed an investigating team which studied the nutritional status (nutriture) of Bedford County students. The study was conducted to permit an in-depth evaluation of undesirable dietary practices. Obtained from the study was information revealing eating patterns; dietary beliefs and attitudes; dietary, biochemical and clinical levels of nutriture; and other considerations such as social attitudes towards foods, economics, etc, that may limit the quality of the diet within the population. Employing a variety of instruments and tests it was found that nutritional deficiencies did exist in Bedford County students. More specifically, 25-30 percent had biochemical evidence of less than desirable saturation of iron binding capacity; and students frequently exhibited undesirably low levels of carotene, vitamin C, riboflavin and thiamine (14). Actually, these biochemical findings of Bedford County students were consistent with the empirical findings of other health education studies. One example was the Mayshark and Newman health education study of South Carolina. Measuring knowledge, attitudes, and practices for nine specific areas of health, they found that students were far lower than the national average in the area of nutrition than in any other area of health (44).

Based on the findings of the study, Darby suggested that Bedford County represented an exceptional opportunity for developing a sound and effective program of nutrition education and for evolving efficient

methods for integrating nutrition into health education programs. Darby recommended that an educational program be developed and incorporated into the school curriculum. The theory was that an educational program might arm students with knowledge and attitudes conducive to good nutritional health. By nutritional health it was meant that the students might demonstrate desirable nutritional practices; thus, eliminating or reducing some of the nutritional deficiencies previously cited.

In May, 1972, the National Dairy Council (N.D.C.) responded to this recommendation by funding a project aimed at improving the nutritional status of Bedford County students. Initially, the project was created for the purpose of developing a health-oriented nutrition education program. Health education, therefore, became the logical place in the school curriculum for such a program.

When conceptualizing the program-to-be, it became apparent that nutrition education should not be approached as an entity in itself. This was to say, nutrition is interrelated to many other areas of health. Consequently, it seemed logical to suggest that the study of nutrition be integrated into other areas of health. To do otherwise would be to duplicate the "crash program approach", typical of many health education programs today--such as drug abuse education. The crisis approach has been criticized by many of today's prominent health educators. To put nutrition education in its proper perspective requires a well developed, integrated, and comprehensive health education program rather than concentration solely on nutrition. The task then was to

develop a comprehensive school health education program including a strong nutrition component.

In answer to the first question many studies suggest that a status study should precede curriculum development. Foremost among these studies is the School Health Education Study (60,61), a nationwide study of school health instruction. One of the major recommendations of the School Health Education Study (S.H.E.S.) was that local systems or individual states should plan and carry out self-evaluation studies of their instructional programs in health to determine strengths and weaknesses (60). Sliepcevich, Director of S.H.E.S., suggested that the S.H.E.S. be used as a prototype for other status studies in health education. Status studies have been subsequently conducted in New York (19), Los Angeles, California (22), Nevada (26), Illinois (36), Nebraska (41), San Diego (50), Long Island, New York (59), Tennessee (30), Maine (40), Indiana (39), Texas (15), Washington (48), California (22,18,32), and South Carolina (44).

In addition, Hillebee (60) supported the need for status studies by stating that before any action programs could be recommended to improve health education in the schools, it was first necessary to determine the status of health instruction.

More recently, in response to the Office of Comprehensive Health Planning in South Carolina, Mayshark and Newman (44) studied the state's school health education program. The findings of that study, it was contended, should serve as a tool for making specific recommendations for improvement of health and health education in South Carolina.

Studying the health instructional practices in Tennessee, Huntsinger (30) further recommended that his study be expanded to include other areas of health instruction.

Other benefits are derived from status studies. As described by Mayshark (45), Hicks (27), and Streit (66), these benefits are listed respectively as increased stature for the health program in the opinions of school and community personnel, better definition of the role of health instruction in the curriculum, and increased community awareness and understanding of the school health program.

In summary, Bedford County was selected for study because it was involved in an earlier health-related study; one that reported a nutritional deficiency and subsequently recommended the development of an educational program. Because nutrition and health are interrelated, the school health education program was the natural choice for program development. Finally, a status study was needed to appraise the existing school health program so that recommendations for program development, that is, a curriculum, could be made.

III. THE SETTING AND DELIMITATIONS

The population selected for study in this investigation came from Bedford County, Tennessee. Demographic information about the county was made available by the Shelbyville Chamber of Commerce.

Bedford County, Tennessee is located just south of the geographic center of Tennessee--50 miles south of Nashville, 56 miles north of Huntsville, Alabama and 100 miles northwest of Chattanooga. In the

geographic center of Bedford County is located Shelbyville, its county seat.

Shelbyville represents the hub of life, work, and social activities in the county. Of the estimated 25,039 persons living in the county, an estimated 12,262 live in Shelbyville. A breakdown of the population reveals a white population of 22,226; black population of 2,780; and 33 classified as "others". An almost even ratio exists between the sexes with 12,012 males as compared to 13,027 females.

One of the most striking features of rural-appearing Bedford County concerns its relatively large numbers of industries. There are 58 diversified industries employing upward of 4,798 persons with an annual payroll of almost 28 million dollars. An industrial park of 77 acres is located just inside Shelbyville. Five industries are national in scope with twelve plants engaged in the production of pencils alone. This might explain why Shelbyville is known and advertised as "The Pencil City". In addition to its industries are 520 business, commercial and service establishments. With its opportunity for employment Shelbyville attracts many persons from neighboring counties. Generally speaking, Shelbyville has a nighttime population of 12,262 and is said to have a daytime population of 40,000. While this may be an overexaggeration it does lend itself to a contrasting picture of Shelbyville. Appearing to be a typical rural city during the evening hours, it quickly takes on an urban character with the opening of factories and the daily influx of workers from surrounding counties each morning.

A picture of Bedford County would not be complete without reference to its annual social highlight. Each year the last week of August marks the advent of the Tennessee Walking Horse National Celebration, For ten days Shelbyville bulges at its seams with more than 130,000 visitors and exhibitors coming from all states in the nation for the crowning of the champion. For this reason Shelbyville has become better known among horse lovers as the Tennessee walking horse capitol of the world.

A wide range of health and medical services are available in Bedford County. Serving Bedford and neighboring counties is a 100-bed hospital also housing the Bedford County Health Department. Adjacent to the hospital is an 88-bed nursing home. Sixteen doctors, nine dentists, two chiropractors, and three optometrists serve the area and three veterinarians are available for animal care. In addition there are over 50 civic clubs and/or voluntary organizations in the county, many of which serve the health needs of the community.

Regarding the school system, there were 5,368 students enrolled in Shelbyville and Bedford County schools during the period March 8, 1972 through April 7, 1972. Of these students 3,643 were enrolled in the city school system. Table 1.1 shows the city student enrollment by school.

One of the unique situations in Shelbyville is that their four elementary schools consist of grades 1-5 only and feed directly into Thomas School, a sixth-grade school. From Thomas, school children move on to first Central Junior High School and then to Central Senior

TABLE 1.1
SHELBYVILLE CITY SCHOOL ENROLLMENT

School	Grades	Enrollment
Central Elementary	1-5	533
Central Junior High	7-8	608
Central Senior High	9-12	1,143
East Side	1-5	342
Madison Street	1-5	440
South Side	1-5	305
Thomas	6	272
TOTALS		3,643

High School. Central Junior and Senior High Schools accommodate all city school children, grades 7-12.

The county school system enrolled 1,725 students, Table 1.2 shows the student enrollment by school.

TABLE 1.2
BEDFORD COUNTY SCHOOL ENROLLMENT

School	Grades	Enrollment
Bell Buckle--Wartrace Elem.	1-6	325
Cascade	7-12	343
Flat Creek	1-8	76
Normandy	1-8	71
Pleasant Grove	1-8	121
Shelbyville Mills	1-8	128
Unionville Community	1-12	481
Wheel	1-8	149
TOTALS		1,725

The county school system consists of five elementary and junior high schools, grades 1-8, one elementary school, grades 1-6, one junior-senior high school, grades 7-12, and one comprehensive school, grades 1-12. Most eighth grade students transfer to one of the two high schools; sixth graders from the Bell Buckle and Wartrace areas go on to Cascade. However, it should be noted that some eighth graders in the county transfer to Central High in the city,

The student population used in this study included sixth, ninth, tenth, eleventh, and twelfth grade students. Data coming from sixth grade students represented the elementary school level; ninth grade students, junior high; and twelfth grade students, senior high. These three grades have been used in other studies (44,60) to represent the elementary, junior, and senior high levels respectively. Because emphasis in this study was at the senior high level, tenth and eleventh grade students were also tested. This was done to provide for a more comprehensive appraisal.

Instruments, interviews, and questionnaires used in this study were delimited to the areas of school health education. More specifically, the Health Behavior Inventories were delimited to measurements of behavior, knowledge, and attitudes in the following content areas: Personal Health; Safety and First Aid; Family Health; Infection and Disease; Mental Health; Nutrition; Community Health; Exercise, Rest, and Recreation; Drinking, Smoking, Narcotics; and Dental Health. The principal's questionnaire was restricted to the area of School Health Instruction. And the questionnaire for community perceptions was confined to two areas, community health problems and the school health education program.

IV, LIMITATIONS

One of the major limitations of the study dealt with student testing. Because of absenteeism and varying class schedules, it was not likely that all junior and senior high school students would be

tested. Neither was it probable that students would be tested under the same conditions. The time and place set aside for testing were anticipated to vary for each school.

Another possible limitation of the study was the variation in personalities of the regular teachers of the classes selected for health interest interviews. Such things as teacher-student rapport, student interaction, and the classroom itself were likely to vary for each class. Additionally, students' responses were probably influenced by innate factors such as maturity, cultural background, interest, mental aptitude, spontaneity, and desire to have their true feelings known.

A final limitation was the attitude community personnel had toward the questionnaire of community health needs and problems.

V. DEFINITION OF TERMS

The following terms are defined as they relate to this study.

Community Leader. Individual who assumes a leadership role in the community and is involved in the decision-making process regarding community affairs.

Comprehensive School. A school offering its full range of programs to students, grades K-12.

Correlated Instruction. Pattern of instruction in which health is taught along with or related to another subject area but not as specific planned units.

Elementary Level. Grades 1-6.

H.B.I. Abbreviation for Health Behavior Inventory.

Health Attitude. How students feel about health as measured by students' performance on Yellen and Johns; Colebank and Johns; and LeMaistre, Pollock, and Johns Health Behavior Inventories,

Health Behavior. What students do regarding their health practices as measured by students' performance on Yellen and Johns; Colebank and Johns; and LeMaistre, Pollock, and Johns Health Behavior Inventories.

Health Interest. The areas in health in which students express a true concern--the things they really want to know about health, and should be taught in school,

Health Knowledge. That which is known about health facts as measured by students' performance on Yellen and Johns; Colebank and Johns; and LeMaistre, Pollock, and Johns Health Behavior Inventories.

Health Personnel. Individuals professionally involved in the delivery of health and medical care and services.

Incidental Instruction. Pattern of instruction in which no specific time is set aside for health instruction but health concepts are discussed whenever a teachable moment arises.

Integrated Instruction. Term used synonymously with correlated instruction in which health is taught along with or related to another subject area but not as specific planned units.

Junior High Level. Grades 7-9.

Lay Leaders. Persons active in a leadership role in the community's various civic and voluntary organizations.

N.D.C. Abbreviation for National Dairy Council.

Nutriture. Nutritional status as determined by eating patterns, dietary beliefs and attitudes, dietary, biochemical and clinical levels of nutrition, and other considerations such as social attitudes towards foods, and economics that may limit the quality of the diet within the population.

Planned Health Units. Pattern of health instruction in which health units are planned and taught within other subjects.

Practices. Term used synonymously with behavior to denote students' health habits--that which students really do, not what they think they should do or what they think is right or wrong.

School Health Education Program. Refers to all aspects of the program that affect the health of the school population. It involves all health activities that are planned, organized, and conducted by the school under the jurisdiction of the school (31).

School Health Instruction. Refers to the classroom phase of the school health education program. That is, how health instruction is organized and taught, where, by whom, etc. It is exclusive of physical education.

Senior High Level. Grades 9-12.

Separate Subject. Pattern of health instruction in which health is taught as a separate subject and is provided scheduled time each week.

S.H.E.S. Abbreviation for the School Health Education Study.

Status. The condition of existing practices actually occurring at the time of the study as it relates to the organization of the health instructional program and students' health interests, knowledge, attitudes, and practices.

CHAPTER II

REVIEW OF RELATED LITERATURE

The very nature of health, its interdependence and interrelationships with many other disciplines, made it difficult to restrict health-related literature into one neat package. The fact that professionals in the fields of anthropology, geography, political science, sociology, psychology, agriculture, and home economics, to mention only a few, are increasingly interested in the study and reporting of health-related concerns compounded the problems of locating pertinent studies.

Because this study was school health oriented, emphasis in reviewing the literature was placed on traditional health research publications. Within this group of health research was still an awesomely large group of studies designed to appraise various aspects of the school health education program. Some of the studies were delimited to specific areas of health instruction while others provided a more comprehensive treatment of the school health education program. The major objective of this chapter was to review the salient points of interest of the latter group. This was done recognizing that no review of related literature would be complete without a presentation of studies in other health-related areas.

To facilitate the reporting of research pertinent to this investigation, studies were selected for reporting based on their contribution to one of three categories. The categories were:

Studies Related in Method. The emphasis in this category focused on the procedures utilized in status studies of areas in the school curriculum exclusive of health education.

Studies Related in Content. Studies included in this section related to one or more aspects of the school health program.

Studies Related in Methods and Content. Included in this category are status studies in health education similar to the present study in content and methodology.

In searching for available studies the investigator used descriptors for retrieving information and as starting points for reference in various indices. A few of the descriptors used were evaluation, comprehensive, status, status studies, health, health education, curricular, and curriculum.

I. STUDIES RELATED IN METHOD

Studies selected for review here reflect on areas in the school curriculum exclusive of health education. Special attention was given to the methods and procedures utilized in conducting various studies including the selection of study population, selection of survey instrument, and treatment of data.

In 1962, Cox (11) evaluated the status of the curriculum and organization for instruction of the junior high schools of Tennessee. The procedures used for conducting the study included (a) a review of the historical development and purposes of the junior high schools in America, (b) the development of evaluative criteria for appraising the

curriculum, and (c) the application of the developed criteria. An interview checklist based on the developed criteria was prepared and administered to the superintendent, or his representative, of each school system in Tennessee that maintained a legally constituted junior high school. Data were tabulated and analyzed according to the previously developed criteria.

Christenbury (8) conducted a study of the status of teacher education programs in sixteen Pentecostal colleges in the United States. Selected as components to be examined in the status study were objectives and organization of teacher education programs, faculty selection and preparation, faculty teaching load, curriculum development, professional laboratory experiences, student personnel services, library facilities, and enrollment trends. The survey instrument consisted of a questionnaire based on the Recommended Standards for Teacher Education and adopted by the National Council for Accreditation of Teacher Education. The questionnaires were sent to the director of teacher education programs in each Pentecostal college in the United States. Responses to returned and usable questionnaires were tabulated and combined with information coming from catalogs, pamphlets, brochures, letters, and personal interviews and formed the basis for the current status in sample colleges.

In 1972, Jenkins (31) studied the teaching of reading by English teachers in Indiana Public High Schools for the purposes of determining (a) how well prepared English teachers considered themselves to be, (b) the extent these teachers accept the teaching of English as their

own responsibility, and (c) actual teaching practices. The study population consisted of 223 randomly selected English teachers in the public high schools of Indiana. The survey instrument was a modification of a questionnaire used previously in a nationwide study of the teaching of reading in the English classroom. Data analysis consisted of simple tabulations by number and percentages of the responses to the items of the questionnaire. The differences between actual teacher preparation, practices, and self-ratings were tested for significance by the use of Chi Square.

The status of the mathematics curriculum of the public junior colleges in the North Central Accrediting Region was examined by Scott (58) in 1969. The method of research involved a random sample of thirty public junior colleges located in the region. For sampling purposes, the junior colleges were divided into three categories according to student enrollment: small--under 500, medium--500-1500, large--over 1500. The study also involved a random sample of twenty-one public four-year colleges--they were not grouped according to size. The procedure for gathering data consisted of an analysis of the catalogs describing each school's mathematics program. T-tests were used to test for differences between schools.

In studying the status of social studies instruction in Tennessee Finchum (21) developed a questionnaire and mailed it to a supervisor of instruction in each of Tennessee's school systems. The questionnaire elicited responses relative to course titles and descriptions, trends and content, recent changes, planned revisions, and desires regarding

the social studies. Responses to questionnaires were presented descriptively according to frequency and percents to reflect trends and tendencies in Tennessee's social studies curricula.

Many more status studies have been conducted in all areas of the school curriculum, but for the most part, their methods and procedures were similar to the foregoing studies. They usually began by identifying the phases of the program to be studied and subsequently selected, modified, or developed questionnaires accordingly [Olmo (53), Dennis (16), Hobbs (28), Crawford (12), Watkins (68), Moore (49), and June (34)]. In some instances investigators used checklists [Miller (47) and Alsip (2)] while others relied on school catalogs, transcripts, observations, and records [Scott (58) and Long (38)]. Some investigators were found to use a combination of questionnaires, checklists, and records [Strader (65) and McCurdy (46)]. In the selection of study populations investigators of status studies usually employed one of three techniques: survey all possible schools [Strader (65), Crawford (12), and Moore (49)]; survey a random sample of the total population [Olmo (53) and Graves (25)]; and randomly select sample population according to stratification such as geography, student enrollment, etc. [Scott (58), Miller (47), and McCurdy (46)]. The procedures for analyzing data in most studies consisted of descriptive treatments based on frequency and percent of responses. Probability statistics were found to be used sparingly.

II. STUDIES RELATED IN CONTENT

Studies in this section were selected because they reveal information concerning one or more of the specific components of this study--for example, the organization of health instruction; students' interests, knowledge, attitudes, and practices; and community perceptions of health problems. Important considerations in this review were methods, procedures, and principal findings.

Using a stratified random sample of the population, Huntsinger (30) studied the health instructional practices of Tennessee public schools. He employed a personal interview technique when administering the status inventory of the S.H.E.S. survey. His findings were as follows:

1. Time allotment for health instruction varied.
2. Teachers of health at the elementary level were usually certified elementary school teachers. Health teachers at the junior and senior high school levels were most often physical educators.
3. Health textbooks, individual teacher decision, and needs, interests, and problems were the three most common resources used in the determination of course content.
4. Many content areas that needed to be emphasized at various grade levels were not taught at all.
5. Many content areas that were emphasized at the elementary school level were also emphasized at the junior and senior high levels.

6. The prevailing practice was to require health in each of the elementary grades, two semesters of junior high school, and one semester of senior high school.

Studying the public secondary schools of Nassau County, New York, Eck (19) examined current practices of health teaching, as well as administrative practices performed in support of such a program.

Questionnaires and interviews were administered to gain information about the following areas: administration and supervision, personal data of teachers, health teaching content, methods and materials, community resources and procedures for evaluating health teaching. Data came from a representative sampling of the schools of Nassau County. Factors used as a basis for selecting schools were: program patterns, program efficiency, economic level of school district, type of school organization, and size of school population. The resultant sample of 20 schools was divided into three groups: Group I, schools requiring some formal health instruction of all students; Group II, Schools permitting students to take formal health instruction or an equivalency course such as biology; and Group III, schools which integrated all health instruction into other subjects.

Some of the salient findings of this investigation were as follows:

1. One-fourth of the 20 schools had an adequate and clearly defined course in health instruction which reached all pupils.
2. Active support by secondary school administrators of health instruction programs was claimed only by teachers of the Group I schools.

3. The schools role in accepting the responsibility for fulfilling unmet needs of children in areas like sex education was depicted as conservative.

4. There was little evidence that selection of content, grade placement and methods were being determined in light of the developmental needs of children and their abilities and interests.

5. There was no evidence of the existence of adequately trained persons in the supervision of health instruction programs in any of the schools studied.

6. Excellence in health teachers, measured in terms of academic preparation and interest, was found in most teachers of Group I schools. Such excellence was identified with one teacher in the Group II schools and with none of the teachers in the Group III schools.

The foregoing findings provided the basis for the following conclusions:

1. Most of the program of health instruction in the secondary schools of Nassau County need to be improved.

2. Continuity of health instruction programs tend to be insured by administrative support. It appears to be the factor of greatest importance for such continuation.

3. Establishing separate administrative framework for health education outside of physical education in which there are certified and experienced teachers, supervisors and administrators of health education can be useful.

In 1967 the Connecticut State Department of Education (7) created the Student Health Concerns Project as one of several steps toward

revision of the state health curriculum guide and for improving health education programs. Using over 5,000 Connecticut children, grades K-12, the project attempted to identify the true health interests, concerns, and problems of boys and girls. This was done under the assumption that student needs were valuable to the classroom teacher and the curriculum worker and these needs could be expressed.

To guarantee coverage of the socioeconomic groups of the state, students from four school systems were selected. These included an inner city area, suburban area, rural area, and high socioeconomic area. A local coordinator who organized and supervised the study in the local school system was appointed. Interviewers were then selected, one for each grade, K-12. These were the contact persons, chosen for their understanding of students and their skill in working with them. The substance of the study depended on the success interviewers had in inspiring students to trust them and reveal their true concerns. Students were subsequently selected according to the classroom in which they were enrolled.

The techniques used by interviewers for eliciting health concerns varied with grade level. Grades K-2 used primarily observation, natural life situations, and discussion. Incomplete stories and dramatizations were also used. Grades 3-6 used primarily discussion; free, anonymous writing; observations; and life situations. They too used incomplete stories, dramatizations, and role playing. Grades 7-12 used primarily discussion and free anonymous writing. Instructions for using these various techniques were presented in three one-day workshops.

In handling the mass of data, the analysts used the approach of reading the materials for the same grade in all four of the selected sociogeographic areas: inner city, rural, suburban or high socioeconomic environment. It became apparent that the major topic or basic health interest areas were common to all students regardless of where they lived. This made it possible to organize data according to grade level.

Interviewers and analysts found participating students serious in their concern about their health and felt that what they have to say should be considered carefully. There was evidence in the study to support the conviction that children and youth are more mature in thought and judgement than adults generally believe them to be, and that they are ready and eager to assume more responsibility than that usually granted.

The extent and depth of the interest in health exceeded all expectations. Children expressed deep need to understand their own development and, from grades 5 or 6 on, they feel handicapped and often at a loss at not understanding. Up to grade 5, interest in the body was at knowing how a wonderful mechanism works and what can go wrong with it.

From grade 6, the focus changed sharply. Interest turned to the overwhelming changes taking place in their bodies, and the effects upon their emotions, minds, and behavior. They sensed that a relationship existed between understanding and mental health, and behavior and mental health, and they asked for help in the area of mental health and/or psychology. They also expressed a keen interest in what can go wrong

with a person. Questions about diseases, accidents, deformities, and potentially disastrous indulgences and habits were myriad.

The information young people have in areas bearing currently on youth was formidable in abundance, accuracy, and error, and their eagerness for reliable information was impressive. They seemed to understand the ill-concealed purpose and persuasiveness of the mass media, especially television. This with the hodgepodge of contradictory information that barrage students from all sides, led them to ask the school to teach honestly and clearly--and early enough--and to help them build up their critical powers so that they themselves may act responsibly.

The concern of students in the senior high level for the education of younger children was impressive and might well be utilized regularly as an advisory asset on school programs and, on occasion, as a support for needed school improvements. The knowledge these young people had about what comprises good teaching and a good education came as a surprise. One thing became clear: that teachers must be prepared to accept matter of factly the crude, limited terminology that young people use for just what it is; the only vocabulary they know. Particularly striking was the forthrightness with which today's young people think, discuss, and apparently act in the area of sex relations. Impressive also was their faith in schools, their belief that even when others fail, the school will stand by them. Only a few expressed doubt and disillusion.

A list of what health areas should be taught included the following:

Sex education--every grade, 7-12

Drugs, drinking, smoking--every grade, 7-12

Physical development--every grade, 7-12

Food, Nutrition, diet--every grade, 7-12

Personal hygiene--grades 7, 9, 10-12

Diseases--grades 7, 8, 10-12

First aid and safety--grades 7, 8, 10-12

Understanding self and others or related topics--grades 8-12

Community health or related topics--grades 7, 8, 10-12

Grooming--grades 9-12

What health is; maintenance--grades 7-9, 11

Family life and health--grades 8, 10-12

Birth control; birth defects--grades 10-12

Many other items were listed only once. These do not appear in the composite list.

In 1965, Orr (54) studied the health education interests and needs of public secondary school students in the metropolitan schools in Knoxville, Tennessee. His study populations included 250 students, 25 mothers and fathers of participating students, 63 licensed health teachers and 27 physicians.

A random number sampling technique was used in the selection of high school seniors and the parents of the selected seniors for the study. Senior class rolls for the ten high schools in Knoxville,

Tennessee were obtained from the supervisor of secondary education. A list of random numbers was provided by the University of Tennessee computing center. The vertical approach was utilized in locating numbers which had been assigned to the students and parents of the student sample. Twenty-five seniors and five alternates were selected from each of the city's 10 high schools. Five mothers and two alternates were selected by the same process from remaining schools.

All available teachers certified in biological science, health and hygiene, health and physical education, and/or health and safety were contacted.

Student testing was done at each school in one day. Principals arranged a classroom for the assemblage of the 25 selected students.

Parents were contacted by telephone or personal interview for the purpose of arranging interviews.

The instrument used consisted of 150 health topics dispersed among the six health areas listed in the Tennessee Health Guide,

Some of the findings of the study are listed below:

1. Both male and female high school seniors agreed on a common core of health interests. Agreement was found with reference to 27 health topics. The area of mental health was rated highest. The nutrition area was rated lowest,

2. The area of mental health was rated highest by parents. Least emphasis was expressed in the Miscellaneous and Comprehensive area.

3. Mental health rated highest by teachers. Miscellaneous and Comprehensive area was lowest.

4. Accidents and Safety rated highest by physicians. Miscellaneous and Comprehensive area was lowest.

5. Parents, teachers, and physicians combined agreed with students that the two health areas of mental health and proper uses and care of the body should receive highest emphasis.

6. Students and parents had highest agreement of health topics,

7. Lowest agreement was between student and physicians,

A more specific evaluation of health interests is depicted in Table 2.1 and Table 2.2. Table 2.1 shows the health topics expressed as most interesting to students while Table 2.2 lists health topics expressed as least interesting to students. }

Another health interest study was conducted by Ramsdell (56) in 1970. The purpose of his study was to make a comparative analyses of student health interests, as indicated by students, with their health needs, as indicated by their parents, school counselors and public health nurses. The results were to be categorized for use in content recommendations in health education.

Using the socioeconomic factors of personal income, education level of adults, and population density for stratification purposes, five of fifty-five county school systems in West Virginia were selected. A health interest inventory was developed for the study and completed by all tenth and twelfth grade students. A parent of each participating student, all school counselors and all public health nurses in the selected counties completed a Health Needs Inventory that had been developed for the study. A Repeated Measures Analysis of Variance research technique provided the analytic information.

TABLE 2.1^a

RANK ORDER BY MEAN SCORES OF 39 HEALTH TOPICS EXPRESSED AS MOST
INTERESTING BY 250 STUDENTS

Items	Mean Scores
Dating and association with the opposite sex	3.48
Heart diseases	3.33
Preparation for marriage and adulthood	3.30
What to do in case of illness or injury until the doctor comes	3.28
Early detection of cancer	3.24
How a baby is born	3.20
Effects of alcohol on the body	3.17
How a human baby develops	3.16
Care of the eyes	3.12
Skin blemishes in the teen years	3.11
The causes of overweight and underweight	3.07
The causes of such feelings as fear, hate, jealousy, and envy	3.07
Birth defects and birth injuries	3.04
Organs of reproduction	3.03
Effects on health of habit-forming drugs	3.01
Planned parenthood	2.98
How emotions affect the body	2.98
Causes of mental illness	2.96
The leading causes of death today	2.95
Effects of tranquilizers, sleeping pills, aspirin, and related substances	2.95
Ways to develop and improve personality	2.95
Why good mental health is important	2.95
Value of exercise and physical fitness	2.93
Causes and control of venereal diseases	2.93
Effects of marijuana	2.93
Relations of heredity to health	2.91
How the spreading of contagious diseases can be controlled	2.91
How to get along with others	2.89
How people see, hear, taste, feel, and smell	2.89
State and federal laws which control the use of narcotics	2.88
The relationship of love to mental health	2.87
Treatment of mental illness	2.87
Effects of tobacco on the body	2.87
Dangers of self-doctoring	2.86

^a Source: Oscar Paul Orr, "An Evaluation of Health Interests and Health Education Needs as Basic Premises in Selecting Health Content in the Secondary Schools of Knoxville, Tennessee," (Unpublished Doctoral Dissertation, University of Tennessee, Knoxville, 1965).

TABLE 2.2^a

RANK ORDER BY MEANS SCORES OF 38 HEALTH TOPICS EXPRESSED AS LEAST
INTERESTING BY 250 STUDENTS

Items	Means Scores
Bicycle safety	1.02
Insect, rodent, and pest control	1.50
The cost and financing of community health agencies	1.58
Care of the feet	1.70
Causes and control of constipation	1.71
Disposal of garbage and rubbish in cities	1.72
Voluntary health organizations which promote the health of people	1.74
Effects of gravity on the body	1.78
Why one should be happy at mealtime	1.82
Between-meal eating	1.86
Health services provided by the city and state for the health of people	1.86
How public health agencies protect the health of people	1.88
Why people who know better neglect their health	1.89
The place of minerals in the diet	1.92
Sources and distribution of the world food supply	1.93
Values and uses of records of births, deaths, and diseases in a community	1.93
The work of the World Health Organization	1.93
Community recreation centers	1.94
Pedestrian safety	1.95
Kinds and causes of occupational accidents	1.96
How waste materials are collected and excreted from the body	1.96
Accidents and injuries common among the aged	1.96
Meaning of highway safety signs	1.97
How body temperature is regulated	1.98
Occupations in the health field	1.99
Major scientists who have contributed to the control of diseases	2.00
How fats are stored and digested	2.01
Why foods should be chewed thoroughly	2.01
Why all people do not have good hearing	2.02
Bladder and kidney disorders	2.02
School lunch program	2.04
Dependence of animals upon plants for food	2.05
Effects of housing on health	2.05

^aSource: Oscar Paul Orr, "An Evaluation of Health Interests and Health Education Needs as Basic Premises in Selecting Health Content in the Secondary Schools of Knoxville, Tennessee," (Unpublished Doctoral Dissertation, University of Tennessee, Knoxville, 1965).

The health interests of students were significantly different for girls and boys in all the selected counties. Boys' highest interest areas were family health and mental health. Girls were more interested in all the subject matter areas in health education than boys. Differences were greater for high interest areas than in lower interest areas. Family health, mental health, personal grooming and drugs and narcotics were the highest interest areas for girls.

Differences in perceived student health needs by parents, counselors and nurses were concentrated in subject matter areas. Drugs and Narcotics, Mental Health and Family Health were higher health need areas by counselors and nurses than by parents. Nutrition and Control and Prevention of Disease were higher need areas for parents than by counselors and nurses.

The socioeconomic factors used in county selection were shown to be influential for girls and counselors. An increase in health interests of girls was shown as the socioeconomic environment of the county decreased. Counselors showed student health needs to be higher for counties of lower socioeconomic environments.

Conclusions of this study included a significant difference between health interests of boys and girls, but not on the basis of grade placement. Girls showed more interest in all subject matter areas in health education than boys, with differences greater for the highest health interest areas. Student health needs, as perceived by parents and nurses, were similar throughout the state. Counselors

showed higher health needs for the lower socioeconomic counties than for the higher counties.

Disagreement among the subject matter areas was greatest for Dental Health, Personal Grooming and Drugs and Narcotics. The highest student health interest and need areas were Family Health, Mental Health, Drugs and Narcotics and Safety Education.

Studying health attitudes and practices in an isolated Appalachian Valley, Funk (24) set out to ascertain current health perceptions and practices. In addition she attempted to determine the relationships existing between these perceptions and practices and to determine and evaluate the stated desires for improved health care among the people in the valley.

To accomplish these objectives, three groups were selected. Group one consisted of 30 households considered to be interested and positive in their attitudes toward health services. They were chosen by stratified sampling procedures from persons registered at a health fair. Group two consisted of 30 households not represented at the health fair. This group represented persons less positive in their attitudes toward health services. And group three consisted of 15 citizens not indigenous to the research area. They were selected for their strong positive orientations toward health services as evidenced by their leadership roles within the valley.

Following an intensive two-day training program interviewers were prepared to administer a questionnaire. The interview sessions were also taped.

Some of the findings of the study included:

1. A majority of the subjects reported favorable attitudes toward health services,
2. Subjects indicating favorable attitudes toward health and the utilization of health services would not necessarily use these services when available.
3. Significant differences were found between the leadership participants and attenders and the leadership participants and non-attenders in both health attitudes and practices. It appeared that the leadership participants, however, understood the health adjustments of those indigenous to the area.

In 1971, Braun (6) evaluated power as it is related to the involvement of lay leadership in school-community relations. He tried to ascertain whether or not a power structure exists among professional educators and lay citizens in a suburban school district, and if one does exist, to evaluate the effects of its influence on educational issues in order that lay leadership within that school district may be utilized more effectively in school-community relations.

Data were obtained from the administration of an open-ended interview schedule. In turn, the data were subjected to a content analysis to get a sense of the feeling of tone and a semantic content analysis in order to enhance the interpretation of the individual's responses by representing the dimensions and specifics of the actual content of the responses.

Some of the major conclusions of the study included the following:

1. Background of community leaders were similar in most respects.
2. Interactions of community leaders differ as to the degree of involvement with those individuals in the community who are involved in issues of specific importance to education and those individuals involved in issues of general public concern.
3. There is disparity among group opinions and individual opinions as to attitudes, interactions, and sentiments concerning issues of general public concern and specific importance to education.
4. Individuals identified as influential in the community and participating in the school-community relations project exert a greater degree of influence on educational issues than on other issues of general public concern.
5. Community leaders exerting the most influence concerning educational issues are professional educators.
6. Individuals active in school-community relations have the potential influence to increase community moral and financial support for education.

Beach (3) in 1967 also studied community needs and problems. His primary concerns were to reflect comprehensively on community needs and problems and make recommendations based on the findings which could be designed to improve the educational opportunities of the community.

The investigation was conducted in terms of the following:

- (1) the identification and characteristics of culturally disadvantaged children and the school programs presently serving them, (2) the

physical characteristics and educational facilities of the community, (3) the teachers in the community, (4) the pupils in the community and (5) the population of the community.

Some of the pertinent findings and conclusions were that (1) the community and its social components have an effect on the needs of the pupil population, (2) little evidence is found regarding flexibility of programming to meet individual needs, (3) there is need for parental involvement in both school and community affairs, and (4) there is need for cohesive community action involving all agencies serving the community.

III. STUDIES RELATED IN METHOD AND CONTENT

The studies selected for review here are comprehensive health education studies conducted at either national, regional, state, county, or local levels. Primary emphasis was aimed at providing a thorough review of these studies including their purposes, methodology, treatment of data, and findings.

From the many articles expressing concern for the current status of school health education, the most extensive and widely accepted report was that of the School Health Education Study (S.H.E.S.). This nationwide study was the first major attempt at providing a complete picture of the status of health instruction and the status of student knowledge, attitudes, and practices in the public schools of the United States. More specifically Sliepcevich (41) stated the intent of the study by asking the following questions:

1. What is the nature and scope of health education in the public schools of the U.S.?
2. Are all students receiving health instruction?
3. What do students know and understand about health?
4. Who are the teachers of health education?
5. Are teachers qualified for their responsibility?
6. How is the subject organized and scheduled in the curriculum?
7. When and where is health education taught in grades K-12?
8. Are some health content areas overemphasized while others are omitted in the process of instruction?
9. What factors or conditions determine course content?
10. What are the problems confronting the school administration in regard to health instruction?

SHES was initiated in New York City in September in 1961. It was funded by the Samuel Bronfman Foundation through 1965 when it was funded by the 3M Corporation. The 3M Corporation financed the study through its recent completion.

The study consisted of three phases: (1) A review of related literature in health instruction, (2) an extensive survey of health instructional practices and (3) the development of experimental curriculum materials in health education that were tested in four-school experimental centers during the 1964-1965 academic year.

Phase I was completed in 1963 with the publication of a research monograph entitled Synthesis of Research in Selected Areas of Health

Instruction (67). Fourteen topics related to health instruction were defined for review. Sixteen members of the Health Education Division of the American Association for Health, Physical Education, and Recreation presented a paper for each topic that reviewed the research dating to 1920, with few exceptions. Extensive bibliographies were also included in each section.

Phase two of the study was an extensive study of the instructional practices in health and an evaluation of student health knowledge, attitudes, and behavior. To obtain this information on a nationwide basis, a multistage, stratified, cluster procedure was devised for selection of the sample. Stratification groups of public school systems according to enrollment were used in the first stage of the sample. Next, a random sample of systems from each of the strata with 300 or more students was drawn at the rate of one in 10 of the large systems (25,000 and over), and used one in 100 of the medium (3,000 to 25,000), and small (300 to 3,000) systems. This provided a sample of 135 school districts consisting of 12 large, 23 medium, and 100 small systems. Twenty of the total sample were school districts with elementary grades only and three had secondary grades only. The remaining 112 districts included both elementary and secondary grades. Thirty-eight of the 50 states were represented. The findings in this phase of the study represented an examination of 1,101 elementary schools enrolling 529,656 students, and 359 secondary schools enrolling 311,176 students.

Findings of the instructional problems were based on responses by school administrators to an extensive questionnaire. The questionnaire

consisted of 21 specific questions reflecting on the organization, administration, and teaching of health education. Findings of the questionnaire are summarized as follows (60):

1. Failure of the home to encourage practice of health habits learned in school.
2. Ineffectiveness of instruction methods.
3. Parental and community resistance to certain health topics.
4. Insufficient time in the school day for health instruction.
5. Lack of coordination of the health education program throughout the school grades.
6. Inadequate professional preparation of staff.
7. Disinterest on part of some teachers assigned to health teaching.
8. Failure of parents to follow up on needed and recommended health service for children.
9. Indifference toward and hence lack of support for health education on the part of some teachers, parents, administrators, health officers, and other members of the community.
10. Neglect of the health education course when combined with physical education.
11. Inadequate facilities and instructional materials.
12. Student indifference to health education.
13. Lack of specialized supervisory and consultative services.

[Findings for health behavior of students were based on knowledge, attitudes, and practices as measured by the Yellen and Johns; Colebank and Johns; and LeMaistre, Pollock, and Johns Health Behavior Inventories for the elementary, junior, and secondary levels respectively (51). About 50 percent was the average score on answers to test questions. Girls performed a little better than boys. Comparatively few pupils followed the health practices which they did know.

Regarding health content, analyses of variance of ninth grade scores showed that with one exception the highest ranking areas, community health, care of special senses, nutrition, exercise and body mechanics, and personal health and grooming, were included in the curriculum by a majority of districts in grades seven through nine. The exception was community health which was not emphasized by a majority of small districts. Consumer health and habit forming substances (alcohol, drugs, and narcotics) were the two lowest ranking areas for ninth grade students.

The highest ranking areas for twelfth grade students on the inventory were those areas that were included as a part of instruction in grades 10 to 12 by a majority of districts. These were stimulants and depressants (alcohol, tobacco, and narcotics), personal health, mental health, dental health, communicable disease, and safety education. However, nutrition was reported also as an area of emphasis for instruction by the majority of all districts in every grade from K to 12 and yet it was the lowest ranking area for twelfth grade students. This observation raises a question as to the nature of nutrition content

included in the health instruction program at the advanced grade levels. Is there a tendency to repeat unnecessarily subject matter previously learned, rather than including more advanced concepts of nutrition appropriate for high school seniors (60)?

The Junior High instrument also lent itself to an analysis of scores bearing on health attitudes, knowledge, and practices. Scores for attitude and knowledge were almost identical while health practices were almost 30 percent lower than either attitude or knowledge. There was a significant difference between boys and girls for each of these areas, but no significant differences were noted between sexes for any of the components of health behavior.

Finally, misconceptions strike at fundamental health information. The following are examples of misconceptions that existed most frequently among high school seniors in the sample group (60):

1. Commercial medicines are safe to purchase if the label clearly indicates the dose and contents, or if recommended by a physician.
2. Fluoridation purifies drinking water.
3. Legislation guarantees the reliability of all advertised medicines.
4. Popular toothpastes kill germs in the mouth and prevent cavities.
5. Chronic diseases are contagious.
6. Pedestrians are safe under all circumstances in marked crosswalks.

7. Venereal diseases can be inherited.
8. Venereal diseases have never been a social problem.
9. Public funds support the voluntary health agencies.
10. And the best man to see for a persistent cough is a pharmacist.

Up to 70 percent of the seniors surveyed firmly believed the above misconceptions,

The findings in this study pointed up some gaps in the scope of health instruction. There appeared to be some notable differences among responses from the three districts as to what health content should be included, and at what grade levels each area ought to be emphasized,

Based on what is known about growth and development patterns of children, S.H.E.S. called for the following guides for action (60):

In the lower elementary grades, K to 3, focus should be on the establishment and practice of healthful habits for daily living and development of good attitudes toward health. Findings of this survey indicate that health content emphasized in grades K to 3 was compatible with the growth and development characteristics of children in this age group. But no information is available to indicate whether teaching approaches in these grades were focused on the development of healthful habits.

In the upper elementary grades, 4 to 6, authorities recommend that development of health attitudes and practices should continue, but children of this age group need to know reasons for acceptable health behavior. They are interested in factual information and are

eager to discover answers for themselves. Health content areas introduced in earlier grades may need to be repeated but concepts should become progressively more complex and advanced. Some new health topics not a part of the student's previous learning experience should be introduced,

At the junior high level, grades 7 to 9, it is generally recommended that the goal of health instruction should be development of ability to make intelligent decisions in regard to health matters. Developmental needs, interests, and problems of preadolescents are regarded generally as the focus for curriculum development in these grades.

In the last years of the secondary school, authoritative sources suggest emphasis should continue on sound choices of health behavior for immediate needs and future roles as adults and parents. Completion of high school represents for the majority of young people the termination of organized health instruction.

✓ More recently Mayshark and Newman (44) conducted a status study of school health education in South Carolina in which they examined the school health instructional practices; habits, attitudes, and knowledge of students; and the perceptions of adults about school and community health education programs.

In consultation with the Office of Comprehensive Health Planning study groups were drawn from rural and urban school districts in each of the four major health planning regions in the state. Schools were randomly selected according to classifications--urban or rural, Included in the study groups were sixth, ninth, and twelfth grade

students; school principals; and community personnel consisting of individuals from the schools, medical and public health professions, and lay persons not in either of these groups.

A questionnaire was administered to the principal of each participating school to obtain information regarding the organization, administration, and teaching of health education. It was derived from two earlier questionnaires used by S.H.E.S. Principals' responses reflected a pattern in South Carolina schools which was consistent with that found in the nationwide study: the course content of health instruction revealed a lack of any real, well-founded, pattern of scope and sequence designed to meet the developmental needs of the students or the health needs of the students.

It The status of students' health knowledge, attitude, and practices were determined from the latest revised instruments used by SHES (Yellen and Johns Elementary Health Behavior Inventory, Colebank and Johns Junior High Health Behavior Inventory, and LeMaistre, Pollock and Johns Senior Health Behavior Inventory). Sixth, ninth, and twelfth grade students represented elementary, junior high, and senior high levels respectively. The more salient findings, based on the responses of 4,000 students, were as follows:

1. At all grade levels, South Carolina students scored significantly lower than an equivalent national sample.
2. Sixth grade students were especially deficient in the areas of nutrition, mental health, and personal health.

3. Ninth grade students were especially deficient in the areas of nutrition, personal cleanliness, mental health, smoking and drinking, care of the eyes, dental health, and rest and recreation.

4. Twelfth grade students were especially deficient in the areas of nutrition, smoking and drinking, exercise, rest and relaxation, mental health, family health and dental health.

5. A marked discrepancy existed between knowledge and attitudes and levels of actual health behavior. For undefined reasons, students' knowledge and attitudes were not reflected in their behavior.

6. Numerous health misconceptions existed among the students of the sample. For example: coffee is an important component of a balanced diet; postponed bowel movements cause ulcers; pasturization of milk kills all bacteria.

Community perceptions of local health problems, the schools' contribution to the solution of these problems and the quality of the school health program were determined on the basis of analysis of data coming from two rating scales administered to 243 interviewees in both rural and urban settings. It was found that:

1. Rural and urban populations in South Carolina differ only slightly in their perceptions of community health problems. Rural populations listed illegitimacy, heart disease, cancer, accidents, unemployment and alcoholism as major problems while urban populations listed drug abuse, heart disease, the venereal diseases, illegitimacy, alcoholism and accidents as their major health problems.

2. Community members agreed that the school can contribute significantly to the alleviation of many local health problems. This was especially true in the areas of drug abuse, venereal disease, illegitimacy, alcoholism, accidents, and unemployment.

3. The quality of health education programs presently being conducted in South Carolina schools was considered to be only "average" by local community members.

4. Lack of trained teachers, lack of funds, and lack of community understanding and support were the major reasons cited for the poor quality of school health programs.

5. Schools made little use of the wide variety of health resources in their communities. Local health departments and voluntary health agencies were, in general, the extent of local health resources to which schools turn.

Emerging from this comprehensive study of South Carolina's health education program was a set of recommendations suggesting that a task force be established and charged with the responsibility of (1) assessing the local implications of the study findings, (2) formulating a consumer-provider organization that can initiate wide-ranging dialogue on the role of the school in today's total health concern, (3) establish specific objectives toward which to work and a timetable of expected progress, and (4) explore ways and means of enabling the achievement of these objectives through legislation, increased financial support, and public understanding.

Many more status studies of health education have been conducted during the interim separating the School Health Education Study and the Mayshark and Newman study. Most of them focused on the school health programs at state and/or local levels. In reviewing some of these studies, similar patterns emerged regarding the methods and procedures employed and resultant findings.

Status studies were generally found to be consistent in their use and administration of survey instruments. In most studies questionnaires were used to provide information about three phases of the school health program: the organization of the health instruction program, the teachers of health education, and the emphasis given to health content areas [Dorsch (17), Slobof (62), Dees (15), Papenfuss (55), and Sinacore (59)]. Very few studies examined the status of students' health knowledge. One exception was Slobof who administered the LeMaistre and Pollock Health Behavior Inventory to a random sample of twelfth graders.

Regarding the administration of survey instruments, Dorsch and Slobof mailed questionnaires to health teachers while Dees sent questionnaires to school administrators and supervisors. Papenfuss and Sinacore surveyed both school administrators and health teachers. In addition to the questionnaire, Papenfuss employed the Carpenter-Neilson Scorecard. In some instances, questionnaires were followed by visitation and interviews (Dees)(Dorsch). The majority of investigators selected their study populations using random sampling procedures.

The most consistent pattern of status studies could be seen in their findings and conclusions. Almost without exception, health

instruction programs were reported to be poorly planned, organized, and administered. Most teachers responsible for health instruction were inadequately prepared and often lacked an understanding of the scope and importance of the health education curriculum. School administrators often confused health education with physical education, thinking them to be synonymous. When students were tested for health knowledge, they were usually found to be lower than national norms. An almost universal recommendation emanated from status studies of health education. It called for an increased emphasis in the health instruction program, more qualified teachers, and better use of community resources,

IV. SUMMARY

Investigations were selected for review in this chapter because they contributed to a better understanding of the methods, procedures, and findings of other status studies. The review consisted first of status studies outside the area of health education. Moving on to health education, the review included studies concerning one or more of the various components of the health education program. And finally, a presentation of the methods, procedures, and findings of comprehensive health education status studies was provided.

These studies were presented recognizing that numerous other studies could be cited. Synthesis of Research in Health Instruction (67), and Health Monographs (64) and other references are replete with studies concerned with various aspects of health instruction at national, state, and local levels. They weren't repeated here because

with few exceptions they were similar in design and findings as those already cited in this chapter.

In conclusion it should be noted that at this time no study has been conducted that comprehensively appraised the school health education program in Tennessee. Neither can such a study be found specific to region, district, county, or city. Some studies have been conducted that investigated other subject areas in Tennessee, such as June (34), Watkins (68), Smith (63), Binger (5). Still others have focused on more specific areas of health, Orr (54) and Huntsinger (30). But a comprehensive health education study which included school administrators, students, and community leaders has not, thus far, been attempted in Tennessee.

CHAPTER III

METHODS AND PROCEDURES

Three questions were cited in Chapter I, Statement of the Problem: What are the health instructional practices in Bedford County elementary, junior, and senior high schools?, What is the status of students' health interests, knowledge, attitudes, and behavior?, and What are the community's perception of the school health education program? Each of these questions is uniquely different, yet closely related. Different because they elicit a response reflecting on different aspects of the program, and similar because when looking at the list of questions collectively they render a composite picture of the existing situation. The primary tasks of this study, therefore, dealt with the selection of sample populations and instruments that would elicit responses to these questions.

I, GENERAL DESCRIPTION OF STUDY POPULATIONS

Four Bedford County groups were included in this study. They were students, school personnel, community personnel, and health personnel.

Student Population

The success or failure of an educational program rests with its recipients, the students. Demonstrating desirable health practices,

knowledge, and attitudes are the ultimate goals of health education. Therefore, the effectiveness of the program is dependent on the degree to which these goals are achieved. The status of health interests, knowledge, attitudes, and behaviors were indeed crucial in the evaluation of the health education program.

The student population consisted of sixth, ninth, tenth, eleventh, and twelfth grade students. In the Shelbyville city school system sixth grade students were drawn from Thomas School, a sixth grade school in which all Shelbyville elementary schools (grades 1-5) send their students. Ninth through twelfth grade students came from Central High School which enrolls all Shelbyville senior high school students.

Students enrolled in the county school system were also tested. Sixth grade students were drawn from Unionville Community School, the county's only comprehensive school, while ninth through twelfth graders came from the county's two high schools: Unionville Community and Cascade High Schools.

School Personnel

The attitudes and concepts toward health education by school personnel strongly influence the quality of the program. They are the ones directly responsible for planning, organizing, implementing, and teaching health education. They represent the bridge between school curriculum and students. Information coming from school personnel questionnaires and interviews were important and especially valuable to the overall appraisal of the health education program.

This group consisted of those persons who assumed a leadership role in the school system. Included were the school superintendent, school supervisor of secondary instruction, and principal of each elementary, junior high, and senior high school in the county.

Community Personnel

One of the most striking improvements in status studies came out of the South Carolina study (44). Added to customary measurement practices of previous status studies was a survey of community perceptions toward the health education program. This was a natural and logical undertaking, the partnership between school and community is obvious. If either is sensitive to the other, then they will be reflective of each other. In developing and implementing a program of health education much difficulty can be anticipated if the needs, attitudes, beliefs, and mores of the community are not considered. Particularly true is this for health education with reference to some of the controversial areas. Since this study was to develop a set of recommendations for a comprehensive health education program that is compatible with the philosophy of the community, it became necessary to appraise the perceptions of various members of the community.

In this study community personnel came from four groups of people: those affiliated with delivery of health and medical care, those related to the school, lay leaders not directly affiliated with either school or community health programs, and community leaders.

Representing the health group were officials from the local public health department, medical and dental associations, hospitals, nursing

homes, and voluntary health organizations. The superintendent, supervisors, and principals represented school personnel. Lay leaders represented civic organizations. And community leaders represented city government and other influential groups.

II. INSTRUMENTATION

Emerging from the objectives of this study were three basic concerns: health instructional practices; students' health interests, knowledge, attitudes, and behavior; and community perceptions. Information and data providing insights as to these concerns were provided by the following instruments: (1) health behavior inventories (H.B.I.), (2) health interest inventories, (3) a questionnaire for school principals and/or administrators to determine school health instructional practices and (4) a questionnaire for determining community perceptions toward health education.

Students' Health Knowledge, Attitudes, and Practices

The following criteria determined the selection of Health Behavior Inventories (H.B.I.):

1. Validity--its ability to measure what it purports to measure.
2. Appropriateness of content.
3. Feasibility--ease of administration and scoring.
4. Availability of nationally standardized norms.
5. Ability to identify topical areas of strengths and weaknesses of the program.

6. Conducive to objective interpretations.
7. Reliability--the consistency of the instrument to measure what it intends to measure.
8. Objectivity--the consistency of the instrument to measure what it intends to measure when used by different interviewers.

Review of the literature (1,4,67) revealed a large number of instruments. When applied to the above criteria, the Yellen and Johns H.B.I., Colebank and Johns H.B.I., and LeMaistre, Pollock, and Johns H.B.I. were selected for the elementary, junior, and senior high levels respectively. Designed by the California Test Bureau of Del Monte Research Park, Monterey, California and now published by McGraw Hill, these inventories have been widely used and benefit from established procedures and nationally standardized norms (9,69,37).

Yellen and Johns Health Behavior Inventory, Elementary Level. This inventory consists of 40 picture questions depicting children practicing health habits in various environmental settings. Each question is designed to measure students' actual practice, not what he knows or what he thinks he should do. Content areas included in this inventory are Personal Health, Personal Cleanliness, Nutrition, Safety, Community Health, Infection and Disease, Mental Health, and Dental Health.

Originally developed as a Master's thesis, this instrument was expanded in 1962 so that it could be used in the nationwide school health education study. As a part of this study, it was administered to 7,145 sixth graders from which 2,000 cases, equally divided by sex,

were drawn to establish reliability coefficients and standard errors of measurement (see Table 3.1),

TABLE 3.1
RELIABILITY COEFFICIENTS AND STANDARD ERROR OF MEASUREMENT
FOR THE THREE H.B.I.'S

Test	Males		Females		Composite	
	Rel.	Means	Rel.	Means	Rel.	Means
Elementary Test	.78	2.80	.79	2.80	.78	2.80
Junior High Test						
A. Practices	.63	2.13	.67	2.12	.65	2.13
B. Attitudes	.66	1.95	.56	1.85	.65	1.90
C. Knowledge	.85	2.47	.74	2.28	.87	2.32
Total Junior High Test	.88	3.82	.82	3.65	.87	3.74
Senior High Test	.89	3.20	.80	2.90	.89	3.00

The procedures for establishing validity are described in the test manual (69) as are directions for administering the test, uses and interpretation of data, and norms.

Colebank and Johns Health Behavior Inventory, Junior High Level.

One hundred multiple choice items measuring health knowledge, health attitudes, and health practices are included in this instrument. Fifty of these items measure general health knowledge, 25 assess actual health practices, and 25 reveal student attitudes toward certain health practices. The following content areas were included in the instrument: Nutrition, Personal Health, Community Health, Mental Health, Infection and Disease, Care of the Eyes, Dental Health, Safety, Rest and Recreation, Smoking and Drinking, Personal Cleanliness, and Skin Care.

The Colebank-Johns HBI has been revised five times. In 1962, 6,013 students from 97 school systems in 38 states completed the present form of this test. A subsample of 1,000 males and 1,000 females provided the data for the establishment of standard norms and reliability coefficients (see Table 3.1, page 54).

As with the elementary H.B.I., this test is accompanied by a test manual (9) presenting validity techniques utilized, directions for its administration, and established norms.

LeMaistre, Pollock, and Johns Senior High Health Behavior Inventory. Using 75 test items, this instrument was designed to measure the health practices for the following content areas: Personal Health; Safety and First Aid; Family Health; Infection and Disease; Mental Health; Nutrition; Community Health; Exercise, Rest, and Recreation; Drinking, Smoking, and Narcotics; and Dental Health.

As with the Junior and Elementary H.B.I.'s, a sample of 1,000 males and 1,000 females coming from a larger sample population of 4,476 students from 97 school systems in 37 states was used to establish reliability coefficients and standardized norms (see Table 3.1, page 54). And again, the directions for administering the test, the uses and interpretation of data, procedures for establishing validity, and norms are provided in the test manual (37).

Selection of students. The student population consisted of sixth, ninth, tenth, eleventh, and twelfth grade students. Sixth, ninth, and twelfth grade students represented elementary, junior high, and senior

high levels respectively--a procedure which has been followed in other studies (44,60). Tenth and eleventh graders were used for two reasons: emphasis of the study was aimed at the senior high level, grades 9-12; and it was felt that they would provide a "flow" of strengths and weaknesses to ninth and twelfth grade results.

Because of the small number of high schools in Bedford County, it seemed appropriate to set out to test all ninth through twelfth grade students. Table 3.2 below shows the number of such students by grade and school enrolled at the beginning of the Fall, 1972 Semester.

TABLE 3.2
STUDENTS ENROLLED IN BEDFORD COUNTY HIGH SCHOOLS,
SEPTEMBER 1972

Grade	Central High	Cascade High	Unionville Community	All Schools
Ninth	353	61	36	450
Tenth	323	64	40	427
Eleventh	253	40	34	327
Twelfth	273	46	38	357
TOTALS	1,202	211	148	1,561

The principal of each school was contacted to determine the best way to test all students with minimal interruption. This was a formidable task, particularly at Central High. After considering many alternatives, it was decided that most of Central's students could be tested during their study hall period. This was done realizing that some

would be missed--primarily those few carrying a full load of seven courses. In addition some seniors had part-time jobs and were given the opportunity to waive their study hall period. They, too, would be missed.

Different arrangements were made to test students in the county schools, Cascade and Community. Because of their limited size it was possible to reach all students in both schools with a minimum of interruption by using English classes. Usually one or two teachers were responsible for the English instruction of all high school students. The investigator, with principal and teacher permission, simply met the teachers' classes for one full day to administer tests,

Selection of sixth-grade students was a somewhat easier task. As noted earlier, page 7, all sixth graders in Shelbyville attend Thomas School, a sixth-grade school only. Of the 272 students attending Thomas, the principal arbitrarily selected three classes totaling 97 students for testing.

The county's contingent to the sixth-grade sample came from Unionville Community School. Its two sixth-grade classes comprised 40 students. Tests were simply given to all sixth graders present some time during the school day.

Administration of tests. The following procedures were used in the administration of elementary, junior high, and senior high health behavior inventories:

1. A test was given to each student.
2. A brief introduction was made. Students were told that this test was a health behavior inventory being given to all high

school students in Bedford County. The purpose of the test is to find out what they know and what they do about various things related to health.

3. Students were instructed to remove the answer sheet from their test booklet and fill in the following information: name, grade, sex, school, and age today.

4. Students were advised to read the instructions on front of test booklet.

5. Students were asked if they had any questions,

6. Students were then advised to begin test with the warning that the test is long and will be difficult to finish unless they work diligently.

7. When students finished, they were told to put answer sheets inside test booklet.

8. Tests were collected.

Students' Health Interests

A secondary purpose of the study was to provide information useful for curriculum planning. This was achieved in part by the administration of Health Behavior Inventories. However, additional information was needed that would add meaning and relevance to curriculum recommendations and suggestions. This called for expressions of students' interests, needs, and problems. These provide the tools for making a program meaningful and make it possible to being "where the student is". The fact that this strategy is important has been repeated many times (42,29,52,33,20,35,57).

There are two general types of health interest inventories, the structured checklist type and the open-ended questionnaire type. The use of the checklist type was rejected from the beginning because they tend to suggest to students what they ought to be interested in. What was considered important in this study was the identification of the true concerns and needs of students. More specifically, are junior and senior high school boys and girls really interested in health education? If so, what are their major concerns? Will they uncover their worries, or give standard answers? Do they have suggestions or ideas about health education? What do they really want to know? The answers to these questions seemed to warrant a more open-ended approach whereby students could express themselves freely. With this in mind the techniques used for eliciting health interests and concerns were patterned after that used by the Connecticut Study of Health Interests, published as Teach Us What We Want to Know (7).

The Connecticut study was a comprehensive study of the health concerns of Connecticut boys and girls at all grade levels. From this study emerged a methodology for gathering authentic data based on informal discussions with students followed by open-ended questionnaires. And it served as a guide for establishing methodology in this study so that with slight modification to fit the Shelbyville and Bedford County situation it could yield on a much smaller scale similar results.

To better understand the methodology employed in the Connecticut study, a letter was written to Ruth Byler, Director of the study. She responded with specific comments about the original study and added

suggestions that might be helpful in this study. In addition, she sent a handbook which was prepared specifically for the Connecticut study. Most of the handbook is devoted to explaining the structure of the study and the responsibilities of interviewers. Also included in the handbook are a brief summary of how the study originated, the careful considerations given in the planning stages to all relevant facets of human behavior, and the design that was finally structured. Techniques chosen for use at various levels in the school systems are listed and described with directions for their use. Suggestions and forms for recording and reporting data are also presented.

The procedures used in this phase of the study, therefore, were the results of a careful study of the Connecticut study, of the suggestions provided by Ruth Byler and much introspection by the investigator to determine how he, as an outsider, could enter a strange classroom and in one class period have students express without inhibition their true concerns.

Selection of students. After the objectives of the health interest inventories were explained to the principal of each participating high school, he was asked to identify teachers who have a good rapport with students and might be willing to set aside a class meeting for the investigator. It was hoped that such teachers could be found at each grade level to allow for a flow of health interests. It should be noted, however, that this study did not attempt to obtain a true random sample of students, nor a true representation of health interests of high school

students. While it intended to identify the health concerns of some students, it was equally important to determine if students would express themselves with thoughtful candor rather than with stereotyped replies and to determine if an open-ended approach would render ideas and suggestions functional for curriculum development.

Administration of health inventories. Using classes recommended by principals and with teachers' permission the investigator conducted discussions with ninth, tenth, eleventh, and twelfth grade classes. Discussions were informal and efforts at directing the conversation were minimized. The objective of the discussion was to allow students to speak freely and candidly what they thought about things without giving only replies they believed to be safe,

After taking roll and completing "housekeeping" chores the teacher introduced the investigator to the class and subsequently left. The major task, then, was to establish a rapport with the students that would allow for spontaneous discussion.

Initially, a first name rapport was established with the class. After printing his name on the board, the investigator positioned himself in the classroom taking great care not to follow the pattern of the teacher. In most cases this meant sitting in a desk with the students. No attempt was made to change the seating arrangement for fear that students might think they were being "set up" for something. The investigator then proceeded to introduce himself and explain very briefly the purpose of his visit. The context of this introduction

as well as the technique for getting into class discussion can be found in the Format For Conducting Class Discussions (See Appendix D). It should be pointed out, though, that the format was not used rigidly. More important were the comments made by students which the investigator keyed on to stimulate discussion.

Following class discussion an open-ended questionnaire (see Appendix D) was distributed and completed anonymously. Students were instructed to reply to as many of the questions as they wanted to and to write whatever seemed appropriate. They were given the opportunity to do this individually or in small groups. When finished, students folded their papers and laid them on the teacher's desk as they left class.

Responses to class discussion were recorded by the investigator while students worked on the questionnaire. When possible responses were recorded in the exact words of students. Responses to class discussions were pooled with responses on the questionnaire to reflect as specifically as possible the interests of participating students,

School Health Instructional Practices

Questionnaires and interviews were administered to principals of each school to reveal existing school health instructional practices.

Principal's questionnaire. A questionnaire designed to provide extensive information about prevailing practices related to health instruction was given to each principal. Once completed, a follow-up

interview was arranged for the purpose of discussing informally any aspect of the health instructional program.

The selection of an instrument to determine school health instructional practices was based on the requirement that it would render a critical appraisal of all aspects of health instruction. More specifically, as suggested by the School Health Education Study (60), it would render information about the following facets of the program:

1. professional preparation in health education and teaching effectiveness of staff assigned to health instruction;
2. nature and extent of responsibilities other than classroom teaching that are expected of those designated as health instructors;
3. in-service opportunities available to teachers for strengthening and expanding their professional competencies in health education;
4. scheduling practices and time allotment for health instruction;
5. organizational patterns and administrative factors affecting the health instructional program;
6. factors in the teaching-learning environment related to instruction and student health practices;
7. repetition of learning experiences and omission of health content areas;
8. policies related to the teaching of subject matter considered to be controversial;

9. interpretation to the school staff, parents, and community of the need for health education, its objectives, and its unique characteristics;
10. methodology and teaching approaches;
11. scientific accuracy and grade level appropriateness of instructional materials;
12. placement and sequential development of health concepts by grade levels;
13. parent education programs in health education to assure reinforcement of what is learned in schools;
14. evaluation procedures.

A review of status study instruments (60,59,32,15,19,40,41,36,50) showed that the one most appropriate for this situation was the SHES instrument. It has been used by many investigators in similar studies, though sometimes with modifications.

Two instruments were originally developed by S.H.E.S.; one specifically designed for elementary schools (grades K-8), and one for secondary schools (grades 7-12). Although this study was aimed primarily at junior and senior high levels, it was decided that combining these two instruments (see Appendix A) as has been done in previous studies (44,30) would allow for a better overall assessment.

Administration of questionnaire. First contact was made with school principals by a letter of introduction describing the study and how they could be of help. Also enclosed was a response form and a

self-addressed, stamped envelope. Principals were asked to use the response form to indicate if they were willing to participate in the study.

Five days after sending the introductory letters, a telephone call was made to each principal to determine if the letters were received. The telephone conversation was helpful in answering questions about the study and also provided an opportunity for principals to indicate if they would complete the questionnaire. For some principals, it was a good time to schedule follow-up interviews.

A questionnaire was sent to those principals agreeing to participate in the study. Accompanying it was a letter advising them to respond to the questions appropriate to their situation. They were instructed not to return the questionnaire; that it would be collected by the investigator during the interview.

Interviews were scheduled by telephone usually when the investigator was in Shelbyville. The purpose of the interview was to assist the principal with the questionnaire and to allow him an opportunity to further explain or clarify his responses. A reminder of the date and time of the interview was sent several days prior to the meeting.

Community Perceptions of Health Problems

A questionnaire was administered to various members of the community to determine what they perceived to be health problems and to indicate their ideas about the role of the school in the solution of these problems.

Selection of community personnel. Four criteria were considered important when selecting individuals to represent the community-personnel group. These criteria were as follows:

1. Community personnel should be community conscious--that is, they should be aware of and sensitive to the happenings of the community.
2. Community personnel should have insights into the health problems of the community.
3. Community personnel should have insights as to the school health education program.
4. Community personnel should be involved in and have influence on the decision-making process regarding community affairs.

With these criteria in mind and considering the nature of the questions to be asked, it was decided that the ideas and insights of four distinct, yet closely related, groups of persons should be elicited. This was done in recognition of the fact that identifying persons meeting the four criteria collectively would be difficult and highly improbable. But identifying persons satisfying each criteria individually did seem possible and feasible. Consequently, each criterion served as the primary basis for forming one of four groups to represent community personnel. Therefore, the community-personnel group actually consisted of the following four groups: health personnel group; school personnel group; lay-leader group; and a community leader group.

1. Health personnel group. Representing this group were officials from the local public health department, medical association, county hospital, nursing home, nutrition council, and voluntary health organizations such as the cancer and heart associations. Added to this group were health and medical professionals including physicians, dentists, optometrists, chiropractors, veterinarians, nutritionists, and public health nurses.

Two sources of information were instrumental in identifying the health personnel group. The Shelbyville Chamber of Commerce was one such source and provided the names and addresses of all health-related agencies and organizations in Bedford County. The other source was the local telephone directory which lists all medical professionals in the county.

2. School personnel group. In this group were individuals working in a leadership capacity in the school system, as defined earlier on page 51.

3. Community leader group. In this group were individuals who might be loosely classified as the "power structure" of the community. That is, individuals having influence in the community and involved in community decisions at the highest level. Of all persons in the county it was thought that this group would be community-conscious and perhaps most sensitive to the needs and problems of the community. Understanding what this group had to say about health problems and the school health program would, it seemed, render insights as to the

current state of affairs and what might be required to initiate change, if such were needed.

This group consisted of elected and appointed public officials including the mayor, city councilmen, city and county judges, city attorney, county sheriff, city manager, planning commissioner, and members of the Board of Education. The names of public officials were obtained by request when visiting the county courthouse.

4. Lay-leader group. Representing this group were individuals who assumed a position of leadership in the community but who were not involved directly in school matters, in the delivery of health and medical care, or in city and county government. In other words, the individuals represented a lay-leader's point of view. This group, it was thought, would be community conscious and perhaps reflect the layman's attitude toward the school health education program.

This group consisted of the leaders of Shelbyville and Bedford County civic and voluntary organizations. These organizations along with the names and addresses of their leaders were identified by the Shelbyville Chamber of Commerce.

Administration of community questionnaire. The questionnaire, entitled Community Issues and Problems of Shelbyville and Bedford County (see Appendix C), was sent to health personnel, community leaders, and lay leaders. Accompanying it was a letter of introduction--one written specifically for health personnel, another for community and lay leaders. Also included was a self-addressed, stamped envelope

which was coded so that the returned questionnaire could be classified according to the group it represented. This precautionary measure was taken for those completing the questionnaire anonymously.

Questionnaires were not sent to school personnel. Instead, it was administered during the interview scheduled as a follow-up to the School Health Instructional Practices Questionnaires.

Two weeks after the questionnaire was mailed, a follow-up letter was sent to those not yet responding. It emphasized the importance of their response and encouraged them to return the questionnaire irregardless of how much or how little information could be provided.

Upon receipt of the completed questionnaire, each was categorized according to the group it represented. Responses to each question were analyzed by group and for the community-personnel group collectively.

III. ANALYSES OF DATA

Conclusions and inferences evolving from this study were based on the responses from four instruments administered to four population samples. Included among these instruments were Health Behavior Inventories administered to elementary, junior, and senior high school students; health interest inventory for junior and senior high students; principals' questionnaire concerning the school health program; and a questionnaire on community issues and problems administered to school personnel, health personnel, lay leaders, and community leaders. Data coming from these instruments were analyzed individually with specific reference to its population. No attempt was made to combine instruments or different sample populations groups for data analysis purposes.

The procedure for preparing data for analysis consisted of transferring responses from various instruments to data sheets. These in turn were transferred to computer cards. Data were then ready for analysis by the University of Tennessee Computer Center.

Health Behavior Inventories

The purpose of the HBI's was to determine what students know, feel, and do about various matters concerning their health. These determinants, categorized as knowledge, attitudes, and practices were further analyzed by content area to reveal students' strengths and weaknesses,

The procedures used to discover health deficiencies were as follows:

1. The total number of preferred responses for each test was recorded rendering a composite raw score.
2. A mean composite raw score was determined for students according to sex, grade, and school.
3. The total number of preferred responses by content area was recorded for each test.
4. A mean percentage preferred score was determined for each content area according to sex, grade, and school.
5. Steps 3 and 4 were repeated for each category (knowledge, attitudes, and practices) where applicable--Junior High Inventory.

Coming from these five steps, therefore, were mean composite test scores and mean content area scores for students according to age,

sex, and school. With this information it was possible to add meaning to results by making comparisons.

First, using mean composite test scores, Bedford County and Shelbyville students were compared to national norms. These comparisons were extended to include each content area. This allowed for specific delineation of health deficiencies,

In addition to the above comparisons, analyses of variance were used to denote differences in health scores between schools, grades, and sex.

Health Interest Inventory

The purpose of this inventory was to identify the true health concerns and interests of students. This called for open-ended questions which did not easily lend themselves to tabular organization. The statistical design therefore was not predetermined. Instead, the statistical design and tabular organization were left to emerge from the responses and materials turned in.

Having administered and collected the materials, they were checked to see that schools and grades were identified. Materials were then categorized according to grade and sex. Students' responses were simply read and recorded using students' exact words when possible. Responses which were obviously similar were pooled according to topic, subtopic, or question. However, care was taken to present the full range of students' responses, going from one extreme to the other.

Principals' Questionnaire of the School Health Instruction Program

This questionnaire sought to define the status of health instruction in Bedford County, Tennessee. Of particular interest were such general questions as who teaches health?, how is it organized?, what is taught?, and how does it fit into the overall school curriculum.

The questionnaire used consisted of twenty-four questions. The procedure for tabulating data consisted of reading each item individually and transferring the data to tables constructed by the investigator. This made it possible to summarize the status of each item listed on the questionnaire.

To prevent as much as possible a fragmentation effect resulting from analyses of twenty-four different questions, the questions were grouped into one of three broad categories. These categories are subsequently listed with the number of the corresponding questions included in each category in parenthesis,

Category one was General Information consisting of name of school, grade levels, and student enrollment (cover page). Category two was the Organization of the Health Instruction Program consisting of reasons why health is taught (1); patterns of health instruction (2,3,4,5), time allotment (23,16,7), class size (20), and miscellaneous information (8,9,10,11,12,13,21,22). And Category three was the Teaching of Health consisting of who teaches health (14,15,18,24), resources used for planning instruction (16,17), and health content (19).

The status of health instruction in Bedford County, Tennessee, therefore, was based on the collective analysis of data for these three

categories. With this information it was possible to make descriptive comparisons between the Bedford County program and national and statewide findings.

Community Perceptions of Health Problems

Questionnaires designed to identify community perceptions of health problems and the role of the school in the solution of these problems were administered to health personnel, school personnel, lay leaders, and community leaders. In the questionnaire were seven questions. Five of these were open-ended. Two consisted of rating scales.

The procedures for analyzing responses recorded on the two rating scales were identical. Each item on the scale was rated on a continuum of one to five. A mean rating for each item was subsequently determined. And based on mean ratings, it was possible to arrange the items in rank order. This, it seemed, would allow for recognition of local priorities.

A rank order was established for both rating scales for the community personnel group collectively and for each subgroup.

CHAPTER IV

ANALYSIS OF THE DATA

Questionnaires, interviews, and health behavior inventories were administered to various study populations for the purpose of arriving at a comprehensive evaluation of the health education program in the schools of Bedford County, Tennessee. It is the purpose of this chapter, therefore, to analyze responses to these instruments.

This chapter is organized into four sections: health instructional practices in the school; students' health knowledge, attitudes, and behavior; students' health interests; and community perceptions of health problems. Data are presented for each section separately; no attempt was made to analyze the various sections collectively. For the most part, data were treated descriptively with tests of probability included only when appropriate.

I. HEALTH INSTRUCTIONAL PRACTICES

The principal's questionnaire was completed by principals of elementary, junior high, and senior high schools. It was designed to provide a picture of health instruction by answering the general questions: who teaches health?, how is it organized?, what is taught?, and how does it fit into the overall curriculum.

The questionnaire consisted of twenty-four specific questions. For data analysis purposes, the questions were grouped into one of three

broad categories: General Information; Organization of the Health Instruction Program; and the Teaching of Health. A summary of the major findings follows categories two and three.

To prevent the possibility of a particular school being identified, a letter was randomly assigned to each school and will be used for future reference to school.

General Information

The sixteen schools of Bedford County are served administratively by one Board of Education. However, a variety of grade-organization patterns existed in the school system. Table 4.1 presents the organizational pattern of each school along with its pupil enrolment as recorded in the September 25, 1972 monthly attendance report,

As can be seen in Table 4.1, the grade-organization pattern ranged from one school which included grades 1-12 to another school which included a single grade (grade 6). Schools located within the city limits of Shelbyville were somewhat more consistent in their organization with elementary schools consisting of grades 1-5; followed by a sixth-grade school; junior high school, grades 7-8; and senior high school, grades 9-12. Schools located in the county--outside the city limits of Shelbyville--varied with elementary schools consisting of a K-6, or 1-8 arrangement followed by combined junior-senior high schools, grades 7-12. There was one comprehensive school, grades 1-12, in the county.

Looking at student enrolment it can also be seen that schools differed considerably in size ranging from 62 students in one school to

TABLE 4.1
 GRADE ORGANIZATION PATTERN AND STUDENT ENROLLMENT OF BEDFORD
 COUNTY SCHOOLS, SEPTEMBER, 1972

School	Grades	Student Enrollment
A	1-8	164
B	7-8	598
C	1-5	519
D	1-5	293
E	1-8	94
F	K-6	150
G	7-12	328
H	9-12	1202
I	1-12	512
J	1-8	95
K	K-5	523
L	1-8	62
M	K-5	316
N*	6	293
O*	1-6	159
P*	1-6	199
Total		5507

* Not represented in data analysis.

1202 in another. Total student enrolment of all schools was 5507 students.

Principals from 14 of the 16 schools were contacted and subsequently participated in the study. Two of the existing schools are not represented in the analysis of the data because their status, at the time of the study, was uncertain. A fire to a nearby school raised some questions as to how these schools were to be reorganized. These questions were not resolved during the principal-interview phase of the study.

Organization of the Health Instruction Program

This section of the questionnaire provided data concerning the reasons why health is taught; patterns of health instruction, time allotment, class size, and miscellaneous information.

Reasons why health education is taught. Principals were asked to rank the reasons health education was taught in their particular school. They were requested to rank each item, using number one for most important reason, and so on.

The major reason for offering health education, as presented in Table 4.2, was to comply with state requirements. Sixty-four percent of the respondents indicated this to be the major reason for offering health education opportunities. Schools offering health education to comply with state requirements, with one exception, ranked as the second most important reason "to comply with local requirements." However, "to fulfill the objectives of the educational program" and "to comply with local requirements" had identical mean rankings. Other reasons for offering

TABLE 4.2
RANKING OF THE REASONS FOR OFFERING HEALTH EDUCATION*

School	Comply with State Requirements	Comply with Local Requirements	Fulfill Objec- tives of the Ed. Program	Solve an Adminis. Problem	Provide an Additional Course	Provide Another Elective	Other
A	1	2	3				
B	1	4	2	3	5	6	
C	2	3	1				
D	2	3	1				
E	3	2	1				4
F	1	2	3				
G	2	3	1		5	4	
H	1	2	3				
I	1	2	3	6	5	4	
J							1
K	1	2	3	4	5	6	
L	1	2	4				3
M	1	2	3				
N	1	2	3				
Total	18	31	31	13	20	20	8
Mean	1.39	2.39	2.39	4.33	5.00	5.00	2.67

* Principals did not necessarily rank all reasons.

health education in the order in which they were most often mentioned included "to provide an additional elective for students, to provide a course for students not enrolled in a college preparatory curriculum, and to solve an administration problem." One interviewee indicated that his school offers health because "it correlates with the last four units in our science text, and gives us two-thirds of a year to study about health." He concluded with the comment: "we are the only school in the county to give such emphasis in health studies for grades 6, 7, and 8."

Patterns of health instruction. An examination of Tables 4.3 and 4.4 indicated that the primary pattern of instruction in grades K-6 was to offer health as a separate subject matter area. Forty-eight percent of the respondents indicated that a separate health course was offered. Health education was offered on a correlated basis for 24 percent of the schools. By this it was meant that health was integrated or taught along with or related to another subject area but not as specifically planned units. All but two of the respondents mentioned science as the course with which health was correlated. Physical education, play period, and language arts were used for integrating health in two schools.

It is worthy to note that 23 percent of respondents reported that health was taught incidentally, meaning that no specific time was set aside for health instruction, but that health concepts were discussed whenever the teachable moment arose.

In grades 7-12, 38.5 percent of the respondents indicated that health was offered as a separate subject and an equal percent (38.5) reported that correlated instruction met their health education needs.

TABLE 4.3
PATTERN OF HEALTH INSTRUCTION FOR INDIVIDUAL SCHOOLS

School	K	1	2	3	4	5	Grades						
							6	7	8	9	10	11	12
A	X	I	I	I	I	I	I	S	S	X	X	X	X
B	X	X	X	X	X	X	X	C	C	X	X	X	X
C	X	C	S	S	S	S	X	X	X	X	X	X	X
D	X	C	C	C	C	C	X	X	X	X	X	X	X
E	X	I	I	I	I	I	I	S	S	X	X	X	X
F	I	C	C	S	S	S	S	X	X	X	X	X	X
G	X	X	X	X	X	X	X	S	S	O	S	O	O
H	X	X	X	X	X	X	X	X	X	C	C	C	C
I	X	S	S	S	S	S	S	C	C	I	S	O	O
J	X	P	P	P	S	S	S	S	X	X	X	X	X
K	I	I	S	S	S	S	X	X	X	X	X	X	X
L	X	S	S	S	C	C	C	C	C	X	X	X	X
M	X	C	S	S	S	S	X	X	X	X	X	X	X
N	X	X	X	X	X	X	C	X	X	X	X	X	X

Code:

X--Grades not offered at school
 S--Separate subject.
 C--Correlated instruction.
 P--Planned health units within other subjects.
 I--Incidental instruction.
 O--No response.

TABLE 4.4

PERCENTAGE OF SCHOOLS OFFERING HEALTH ACCORDING TO VARIOUS PATTERNS OF HEALTH INSTRUCTION

Type of Instruction	K	1	2	3	4	5	6	Grades	7	8	9	10	11	12	%
								%							
Separate Subject	0	2	5	6	6	6	3	48%	4	4	0	2	0	0	38.5%
Correlated Instruction	0	4	2	1	2	2	3	24%	3	3	1	1	1	1	38.5%
Planned Health Units	0	1	1	1	0	0	0	5%	0	0	0	0	0	0	0
Incidental Instruction	2	3	2	2	2	2	1	23%	0	0	1	0	0	0	4%
No Response	0	0	0	0	0	0	0	0	0	0	1	0	2	2	19%
Total	2	10	10	10	10	10	7	100%	7	7	3	3	3	3	100%

None of the respondents representing junior and senior high schools planned health instruction as specific units to be taught within other subjects. Four percent of the health instruction was taught on an incidental basis while 19 percent of the respondents offered no explanation as to the pattern of health instruction at various grade levels.

Junior and senior high schools correlating health instruction with other subjects identified biology and science as the courses within which it was most often integrated. In some instances health was correlated with physical education, and courses in homemaking and agriculture.

Course titles and time allotment. Interviewees of schools offering a separate course of health education were asked to state the name of the course at each grade level.

Health instruction was offered as a separate course for at least one grade level in 10 schools (Table 4.3, page 80). In each instance, regardless of grade level, the health course was entitled "health". Several principals clarified the title, health, by stating that it was taught as a "health unit" in conjunction with other subjects, usually science or physical education.

Interviewees were then asked the number of periods per week devoted to separate health education classes. Table 4.5 shows that in the majority of cases health instruction was scheduled 5 times per week. Twenty-five (66 percent) of the health classes were offered daily; eight (21 percent) were taught two times per week; and five (13 percent) were taught irregularly.

TABLE 4.5
PERIODS PER WEEK DEVOTED TO HEALTH INSTRUCTION IN SCHOOLS
OFFERING HEALTH AS A SEPARATE COURSE

School	Grades											
	1	2	3	4	5	6	7	8	9	10	11	12
A*							2	2				
B												
C*		I	<u>5</u>	<u>5</u>	<u>5</u>							
D												
E							<u>5</u>	<u>5</u>				
F			<u>5</u>	<u>5</u>	<u>5</u>	<u>5</u>						
G*							<u>5</u>	<u>5</u>		<u>5</u>		
H*												
I	I	<u>5</u>	<u>5</u>	<u>5</u>	2	2				5		
J				<u>5</u>	5	5	5	5				
K		2	2	2	2							
L	I	I	I									
M*		<u>5</u>	<u>5</u>	<u>5</u>	<u>5</u>							
N												

*Did not offer health as a separate subject for any grade,

I--Offered health on an irregular basis.

--(Underline) indicates health was offered for one-half year.

Time allotted for health instruction varied more at the elementary level than at the junior or senior high levels. Seventeen (61 percent) of the elementary health classes were scheduled five times per week; six (21 percent) were offered twice a week; and five (18 percent) were taught on an irregular basis. Time allotted for health instruction taught irregularly was reported as usually dependent on teacher or student interest. In one school health was taught as a separate subject once every two weeks.

At the junior high level health was taught as a separate subject five times per week in six (75 percent) cases. Two times per week was the time allotment in two (25 percent) cases.

At the senior high level, health was offered as a separate subject in two schools, both of which met 5 times per week.

It is worthy to note that health was offered as a separate subject more frequently in elementary grades than in junior and senior high grades. Of the 38 separate health classes reported to exist in Bedford County Schools, 28 (74 percent) were offered in grades 1-6; eight (21 percent) were offered in grades 7-9; and two (5 percent) were made available to grades 10-12.

Actual clock time devoted to health instruction in the six schools offering separate health classes throughout the school year varied considerably. Table 4.6 shows that time allotments ranged from 60 minutes per week to a maximum of 300 minutes per week. Two elementary schools offered health 60 minutes per week throughout the school year; two junior high schools (grades 7-8) provided health instruction either 100 or 250 minutes per week; and two senior high schools (grade 10) taught health

TABLE 4.6
TOTAL MINUTES PER WEEK DEVOTED
TO SEPARATE HEALTH CLASSES

School	Elementary Grades 1-6	Junior High Grades 7-8	Senior High Grades 9-12
A		100	
B*			
C	<u>150</u>		
D*			
E		<u>30</u>	
F	<u>150</u>		
G		<u>250</u>	250
H*			
I	60		300
J	50-250	250	
K	60		
L	30**		
M	<u>200</u>		
N*			

* Did not offer separate health classes.

** Daily time allotment for one two-week period.

--(Underline) health was taught for one-half year or less.

250 and 300 minutes per week respectively. One school comprised of grades 1-8 consistently provided more time to health instruction with 50 minutes a week allotted to grades 1-3 and 250 minutes per week allotted to each subsequent grade 4-8. No time for separate health education classes was reported for grades 9, 11, and 12 in any of the schools.

Six schools offered health education classes which did not extend throughout the year. In these schools health was usually for one school term--one-half of the school year. Time allotted to health instruction offered for one term only ranged from 30 minutes per week to 150 minutes per week. In one school health instruction was provided daily for a period of two weeks.

To prevent the possibility of losing one's perspective regarding time allotted to health instruction, it should be pointed out that schools reported in Table 4.6, page 85, to offer health as a separate course did not always do so at each grade level. Reference to Table 4.3, page 80, shows the specific grades in which health was offered as a separate course.

Principals of schools not offering separate health education classes at various grade levels were not always specific as to the frequency or extent to which health instruction was correlated with other subjects, taught on an incidental basis, or offered as planned units within other subjects. The incomplete responses to the question of time allotment did not lend themselves to meaningful calculations. However, one junior high principal did report that health was correlated with physical education as a six week unit in which it was taught 50 minutes daily. An elementary principal indicated that health was integrated with physical education on an average of 95 minutes per week. And two other elementary principals

reported the integration of health with science with an average time allotment of 90 minutes per week.

Health education as a requirement or an elective. Principals were questioned as to the extent health was required of all students. They were also asked if health classes were available as an elective at the junior and senior high school levels.

In grades one through six health was required in 74 percent of the schools (Table 4.7). Fifty-one percent of junior and senior high schools required health of all students. The most common grade for requiring health at the senior high level was the tenth grade; at the junior high level, the seventh and eighth grades; and at the elementary level, the sixth grade. The requirement of health was most consistent at the elementary level, and least consistent at the senior high level. Health was offered as an elective course in one instance.

Principals were then asked the number of semesters and weeks that were required of students in health classes at the elementary, junior high, and senior high levels.

At the elementary level health was required for one semester in 12 percent of the schools and for two semesters in 36 percent of the schools (Table 4.8). At the junior and senior high levels, 21 percent of the schools required health one semester and 25 percent required health for two semesters. However, this information was somewhat misleading. Many schools which reported the requirement of health for one or two semesters were actually referring to the combined course in health and science or health and physical education, not health as a separate subject.

TABLE 4.7

ELECTIVE OR REQUIRED STATUS OF HEALTH CLASSES EXPRESSED
AS A PERCENT OF TOTAL SCHOOLS

Status	Grades												$\bar{X}\%$	
	1	2	3	4	5	6	$\bar{X}\%$	7	8	9	10	11		12
Required of All Students	(6) 60%	(7) 70%	(7) 70%	(8) 80%	(8) 80%	(6) 86%	74%	(6) 86%	(6) 86%	(1) 33 1/3%	(3) 100%	(0) 0%	(0) 0%	51%
Required of Some Students	(0) 0%	(0) 0%	(0) 0%	(0) 0%	(0) 0%	(0) 0%	0%	(0) 0%	(0) 0%	(0) 0%	(0) 0%	(0) 0%	(0) 0%	0%
Elective	(0) 0%	(0) 0%	(0) 0%	(0) 0%	(0) 0%	(0) 0%	0%	(0) 0%	(0) 0%	(0) 0%	(0) 0%	(1) 33%	(0) 0%	6%
Not Offered	(0) 0%	(0) 0%	(0) 0%	(0) 0%	(0) 0%	(0) 0%	0%	(0) 0%	(0) 0%	(1) 33 1/3%	(0) 0%	(0) 0%	(1) 33%	11%
No Response	(4) 40%	(3) 30%	(3) 30%	(2) 20%	(2) 20%	(1) 14%	26%	(1) 14%	(1) 14%	(1) 33 1/3%	(0) 0%	(2) 67%	(2) 67%	32%
Totals	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

()--Number in parenthesis represents actual number of schools.

TABLE 4.8

NUMBER OF SEMESTERS HEALTH COURSES ARE REQUIRED OF ALL STUDENTS,
EXPRESSED AS A PERCENTAGE OF TOTAL SCHOOLS

Requirement	1	2	3	4	5	6	Grades		8	9	10	11	12	$\bar{X}\%$
							$\bar{X}\%$	7						
One Semester	(0) 0%	(1) 10%	(2) 20%	(2) 20%	(2) 20%	(0) 0%	12%	(2) 28.5%	(2) 28.5%	(0) 0%	(2) 67%	(0) 0%	(0) 0%	21%
Two Semesters	(2) 20%	(3) 30%	(3) 30%	(4) 40%	(4) 40%	(4) 57%	36%	(3) 43%	(3) 43%	(1) 33%	(1) 33%	(0) 0%	(0) 0%	25%
No Response	(8) 80%	(6) 60%	(5) 50%	(4) 40%	(4) 40%	(3) 43%	52%	(2) 28.5%	(2) 28.5%	(2) 67%	(0) 0%	(3) 100%	(3) 100%	54%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

()--Number in parenthesis represents actual number of schools.

One of the most significant aspects of Tables 4.7 and 4.8 can be seen in the "no response" column. Twenty-six percent of the elementary principals and 32 percent of the junior and senior high school principals gave no response as to the required status of health education. Fifty-two and 54 percent of the elementary and junior-senior high school principals respectively did not specify the number of semesters of health instruction needed to satisfy previously stated requirements. These findings seem to reflect on the confusion and lack of knowledge many principals had concerning their health education programs. The more specific the question the more difficulty some principals had answering the question. Another example of the difficulty principals had expressing specific information about their health programs was that in the majority of cases they were unable to cite the number of weeks in which health was required for each grade level. Data on this question were too inadequate for meaningful analysis.

When health was reported as a required course, it was with one exception made mandatory of all student groups. One senior high school indicated that students must have one semester of health for graduation credit. Those not able to participate in the physical education program were required to have two semesters.

Grouping of boys and girls for health instruction. Principals were asked how boys and girls were grouped for health instruction. Table 4.9 shows that classes in grades 1-6 were predominately coeducational. However, the majority of boys and girls were separated sometime between grades four and six, usually the fifth, for one unit of study. In each

TABLE 4.9
GROUPING OF BOYS AND GIRLS FOR HEALTH INSTRUCTION,
EXPRESSED AS A PERCENTAGE OF TOTAL SCHOOLS

Grouping	Grades													$\bar{X}\%$
	1	2	3	4	5	6	$\bar{X}\%$	7	8	9	10	11	12	
Boys and Girls Combined	(9) 90%	(10) 100%	(10) 100%	(9) 90%	(2) 20%	(4) 57%	76%	(3) 43%	(3) 43%	(1) 33%	(3) 100%	(0) 0%	(0) 0%	37%
Boys and Girls Separated	(0) 0%	(0) 0%	(0) 0%	(0) 0%	(0) 0%	(0) 0%	0%	(1) 94%	(1) 14%	(0) 0%	(0) 0%	(0) 0%	(0) 0%	5%
Boys and Girls Combined Except for Some Units	(0) 0%	(0) 0%	(0) 0%	(1) 10%	(8) 80%	(3) 43%	22%	(3) 43%	(3) 43%	(0) 0%	(0) 0%	(0) 0%	(0) 0%	13%
No Response	(1) 10%	(0) 0%	(0) 0%	(0) 0%	(0) 0%	(0) 0%	2%	(0) 0%	(0) 0%	(2) 67%	(0) 0%	(3) 100%	(3) 100%	45%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

()--Number in parenthesis represents actual number of schools.

case the separation was due to the nature of the subject matter. Principals indicated that public health nurses visit their schools annually and give presentations to the girls on sex education. In the larger elementary schools, the presentation was given to fifth-grade girls. In smaller schools, girls from grades 4-8 were combined. During this period of instruction, boys were usually provided instruction in personal hygiene.

At the junior high school level the grouping of boys and girls for health instruction varied. Seventh and eighth grade boys and girls were combined in those schools consisting of grades 7-12. In schools consisting of grades 1-8, seventh and eighth graders were separated according to sex for sex education. This was consistent with the pattern established for earlier grades. One junior high school separated boys and girls for health instruction for administrative reasons. In this case, health was integrated with physical education.

At the senior high school level, boys and girls were grouped together for health instruction with no exception reported.

Credit for graduation. In response to the question concerning whether credit for health education classes was given towards graduation the three schools which included grade 12 students responded in the affirmative.

When asked how health credits appeared on the students' record, the answers deviated by school and grade level. In one school health was listed as physical education at the ninth grade level and as biology at

the tenth grade level. The two remaining senior high schools listed health credit as science for the seventh and eighth grades and recorded it as health for the tenth grade.

Two junior high schools reported that health credits were earned by students. In one school, health credits appeared on students' records as health for seventh and eighth grade classes. In another school health was listed as physical education for seventh and eighth grade classes.

Summary. Data collected for the purpose of determining how health instruction was organized in Bedford County Schools gave support to the following major findings: (1) The primary reason for offering health education was to comply with state and local requirements; (2) Health was usually taught as a separate subject in elementary grades while junior and senior high schools either integrated health instruction with another subject, usually science, or offered it as a separate subject; (3) The majority of schools indicated a requirement in health but the time allotted health instruction varied between schools and grades; and (4) The most common grades for requiring health were the sixth, seventh, eighth, and tenth grades.

The Teaching of Health

This section of the questionnaire provided data concerning those responsible for teaching health, the use of teaching resources, the teacher-pupil ratio in health education classes, and the content of the health curriculum.

Teachers responsible for health instruction. Interviewees were asked to identify individuals responsible for the teaching of health instruction according to their educational background. Their responses to this question can be seen in Table 4.10.

Elementary grades 1-5 used the regular classroom teacher as their foundation for health instruction. She was supported by a public health nurse and other personnel including 4-H club advisors in very few cases. Science teachers played a larger role in the teaching of health instruction at the sixth grade level.

The providers of health instruction at the junior high level differed in their educational background according to school. Designation of the teacher to provide health instruction seemed to be largely influenced by school organization and how it accounted for health credits.

In elementary schools containing grades one through eight health was usually taught to seventh and eighth graders by the regular classroom teacher, just as was done for earlier grades. In senior high schools containing grades 7-12, health instruction was usually integrated with science at the seventh and eighth grade levels. In the lone junior high school health instruction was integrated with physical education and taught by teachers with an undergraduate major in health and physical education. Eleven percent of seventh and eighth grade health instruction was provided by other personnel including mathematics teachers, English teachers, and in some cases school principals.

At the senior high level, when health instruction was offered as a separate course, it was taught by teachers with a combined undergraduate

TABLE 4,10
PERCENTAGE OF HEALTH INSTRUCTION TAUGHT BY DIFFERENT PROFESSIONALS

Professional	Grades									
	1-5	6	$\bar{X}\%$	7	8	9	10	11	12	$\bar{X}\%$
Regular Classroom Teacher	98%	83%	96%	41%	41%	0	0	X	X	21%
Health Educator*	0	0	0	0	0	0	34%	X	X	8%
Health and Physical Education Teacher	0	0	0	14%	14%	33%	44%	X	X	26%
Nurse	1%	1%	1%	1%	1%	0	0	X	X	1%
Science Teacher	0	15%	2%	29%	29%	67%	22%	X	X	37%
Social Studies Teacher	0	0	0	4%	4%	0	0	X	X	1%
Other	1%	1%	1%	11%	11%	0	0	X	X	6%
Total	100%	100%	100%	100%	100%	100%	100%	--	--	100%

* Includes teachers with an undergraduate major or minor in Health Education.

X--No response.

major in health and physical education and in one case by a teacher with a teaching endorsement in health education. In schools correlating health instruction, it was usually taught by the science teacher.

Looking at grades seven through twelve collectively (Table 4.10, page 95), it can be seen that science teachers were called on most often to provide health instruction. This was consistent with the high degree of correlation of health instruction with science reported earlier in this chapter (Table 4.4, page 81). A combined percentage of 34 percent of the health instruction was provided by teachers with some educational background in health education.

When asked about course requirements needed for employment in the school system, two schools reported a requirement in health or health education as a condition of employment for the classroom teacher. Twelve schools reported that teacher certification was the only requirement for employment.

In-service opportunities for teachers and extra responsibilities.

Principals were questioned as to the opportunities provided during the current school year for in-service health education for teachers in their schools.

Responses to this question were few and scanty. Six principals (42 percent) reported no in-service opportunities. Four principals (28 percent) identified the physical education section of the annual in-service meeting held at the beginning of each school year as the primary in-service opportunity. A mental health workshop which provides psychiatric counseling for students with emotional and discipline problems was mentioned most often by the remaining principals.

Other in-service activities reported to relate to health education included a science curriculum meeting, a presentation by a public health nurse concerning the identification and screening of students with contagious diseases and nutritional problems, P.T.A. meeting which focused on drug abuse, and educational television.

In-service opportunities or activities designed specifically for health education teachers were not cited.

Regarding the responsibilities other than teaching assigned to health teachers, responses from three junior and senior high school principals were received. In two schools health teachers served also as coaches; in another school, the health teacher served as guidance counselor. Data from other schools were insufficient for meaningful calculations.

Resources used in the planning of health instruction. Principals were requested to rate on a continuum of one to three the extent to which various resources were used in the planning of health instruction. A rating of one indicated that a resource was used very often; 2, occasional use; and 3, rare or no use.

Most frequent resources used in determining course content appeared to be "textbooks" (mean rating of 1.22), followed closely by "individual teacher's decision" (1.27) (Table 4.11). Students' needs, interests, and problems with a mean rating of 1.79 were also commonly used resources. Least often used were local curriculum guides, the pretesting of student knowledge and understanding, and state guide or course of study. Such

TABLE 4.11

MEAN RATINGS OF RESOURCES USED IN PLANNING HEALTH INSTRUCTION

School	State Course of Study	Local Curriculum Guide	Individual Teacher's Decision	Textbooks	Needs, Interests, and Prob. of Pupils	Pupil- Teacher Planning	Pre- testing	Comm. influ- ence
A	3	2	X	2.3	1	2.6	3	3
B	3	3	1	1	2	2	3	3
C	X	X	X	X	1	X	X	X
D	X	1	X	X	2	1	X	X
E	3	3	2	1	2	3	3	3
F	2	2	1	1	2	3	2	2
G	3	3	1	1	1	2	2	2
H	X	X	1	X	X	X	X	X
I	2.1	2	1	1.1	1.7	2.6	2.7	2.7
J	3	3	3	1	2	2	2	2
K	1	X	1	2	3	2	2	2
L	3	3	1	1	1.6	2.6	3	2
M	1	X	1	1	2	2	X	2
N	3	3	1	1	2	2	2	3
Total	27.1	25	14	13.4	23.3	26.8	24.7	26.7
Mean	2.46	2.5	1.27	1.22	1.79	2.23	2.47	2.43

X--Was not rated.

1--Used very often.

2--Occasional use.

3--Rare, or no use.

things as "local community influence" and "pupil-teacher planning" were rarely mentioned as primary planning resources.

Class size. To determine the number of pupils per health class at various levels the respondents were asked to state the average size of health classes and the average size of classes in other academic subjects.

The average size of classes for health education and for other academic subjects differed very little. Two schools reported larger health classes with a range of 8-13 additional students. In both cases health instruction was integrated with physical education.

When health classes were compared by grade level, variation in size was found to be less than three (Table 4.12). Considering the schools collectively, there did not appear to be a disproportionate allocation of students to health education classes.

Content of health education. Principals were asked to rate the degree of emphasis given each content area in grades one through six, seven and eight, and nine through twelve. The ratings were based on a continuum of one through four. One represented major emphasis; two, moderate emphasis; and three, minor emphasis. A value of four was given to those areas receiving no emphasis--that is, areas not included in health instruction. The mean ratings of the emphasis placed on health content areas for elementary, junior high, and senior high schools are presented in Appendix B.

By adding the mean ratings for each content area horizontally, it was possible to determine how much emphasis principals perceived to be

TABLE 4.12
SIZE OF HEALTH CLASSES

School	Average Number of Students		
	Elementary	Junior High	Senior High
A	30	30	X
B	X	40	X
C	32	X	X
D	30	X	X
E	25	25	X
F	30	X	X
G	30	30	25
H	X	43	43
I	32	32	23
J	27	27	X
K	26	X	X
L	25	31	X
M	32	X	X
N	34	X	X
Total	353	258	91
Means	29.4	32.3	30.3

X--Not offered.

given each content area in Bedford County Schools. Table 4.13 presents the mean ratings of each content area by grade level. These mean ratings were used to rank topics according to degree of emphasis. Table 4.14 was derived from the data in Table 4.13 and presents the rank order of content areas according to the mean degree of emphasis at each grade level.

The extent to which health content areas were emphasized was analyzed by grade levels. These grade levels included elementary grades 1-6, junior high grades 7-8, and senior high grades 9-12.

1. Elementary level. In grades one through six, the mean ratings of health content areas ranged from 1.52 (Food and Nutrition) to 3.44 (Research Developments in Health). Four content areas received at least 'moderate' emphasis (mean of 2.00 or less). These areas were Food and Nutrition, Accident Prevention, Dental Health, and Exercise and Relaxation.

In explanation of the top ranking of Food and Nutrition, it is worthy to note that during the interview session when principals were evaluating various health topics, they often supported, voluntarily, their rating of Food and Nutrition by referring to the work of a local nutrition team. The team, working out of the Bedford County Health Department and partially supported by the National Dairy Council, was reported to play a major role in the conduct of a comprehensive nutrition study. The study put the nutrition team in contact with almost all Bedford County school principals and a large number of students. Emerging from the study were follow-up food programs, counseling, and newsletters

TABLE 4.13

MEAN RATING AND RANK OF HEALTH CONTENT AREAS AT VARIOUS GRADE LEVELS

Health Content Areas	Elementary Level		Junior High Level		Senior High Level		Composite	
	Mean	Rank	Mean	Rank	Mean	Rank	Mean	Rank
a. Accident Prevention	1.63	2	1.86	7	1.67	7.5	1.71	3
b. Alcohol	2.96	17	2.14	12	1.67	7.5	2.50	14
c. Communicable Diseases	2.16	5	1.71	3.5	2.00	11.5	1.99	5
d. Community Health Programs and Problems	2.37	7	2.29	14	1.67	7.5	2.24	11
e. Consumer Education	2.78	15	2.71	16	2.33	15	2.70	16
f. Dental Health	1.66	3	1.43	1	1.67	7.5	1.58	2
g. Drugs and Narcotics	2.79	16	1.71	3.5	1.00	2	2.18	9
h. Environmental Health	2.45	8	1.71	3.5	1.67	7.5	2.09	6
i. Exercise and Relaxation	2.00	4	1.86	7	1.33	4	1.86	4
j. Family Life Education	2.53	11.5	3.00	20	2.67	19	2.71	17
k. First Aid	2.46	9	2.00	9.5	1.00	2	2.10	7
l. Food and Nutrition	1.52	1	1.86	7	1.00	2	1.56	1
m. Health Careers	3.13	19	3.00	20	2.33	15	2.97	19
n. International Health Activities	3.42	23	3.43	23.5	3.33	24	3.41	24
o. Mental Health and Personal Adjustment	2.49	10	2.71	16	2.33	15	2.54	15
p. Noncommunicable Diseases	3.05	18	2.71	16	2.33	15	2.83	18
q. Preparation for Marriage	3.35	22	3.00	20	3.00	22	3.18	21
r. Research Development in Health	3.44	24	3.43	23.5	3.00	22	3.37	23
s. Sex Education	3.27	20	3.29	22	3.00	22	3.24	22
t. Skin Care	2.53	11.5	1.71	3.5	2.33	15	2.23	10
u. Smoking	2.69	14	2.00	9.5	2.67	19	2.46	13
v. Structure and Function of the Human Body	2.55	13	2.14	12	1.67	7.5	2.29	12

TABLE 4.13 (continued)

Health Content Areas	Elementary Level		Junior High Level		Senior High Level		Composite	
	Mean	Rank	Mean	Rank	Mean	Rank	Mean	Rank
w. Venereal Diseases	3.32	21	2.86	18	2.67	19	3.07	20
x. Vision and Hearing	2.18	6	2.14	12	2.00	11.5	2.14	8
Total	62.73		56.70		50.34		59.01	
Mean	2.61		2.36		2.10		2.46	

TABLE 4.14
HEALTH CONTENT AREAS IN RANK ORDER BY GRADE LEVELS*

Health Content Area	Grade Level			
	Composite** Rank	Elementary Rank	Junior High Rank	Senior High Rank
a. Food and nutrition	1	1	7	2
b. Dental health	2	3	1	7.5
c. Accident prevention	3	2	7	7.5
d. Exercise and relaxation	4	4	7	4
e. Communicable diseases	5	5	3.5	11.5
f. Environmental health	6	8	3.5	7.5
g. First aid	7	9	9.5	2
h. Vision and hearing	8	6	12	11.5
i. Drugs and narcotics	9	16	3.5	2
j. Skin care	10	11.5	3.5	15
k. Community health programs and problems	11	7	14	7.5
l. Structure and function of the human body	12	13	12	7.5
m. Smoking	13	14	9.5	19
n. Alcohol	14	17	12	7.5
o. Mental health and personal adjustment	15	10	16	15
p. Consumer education	16	15	16	15
q. Family life education	17	11.5	20	19
r. Noncommunicable diseases	18	18	16	15
s. Health careers	19	19	20	15
t. Venereal diseases	20	21	18	19
u. Preparation for marriage	21	22	20	22
v. Sex education	22	20	22	22
w. Research developments in health	23	24	23.5	22
x. International health activities	24	23	23.5	24

* Rank order was based on mean degree of emphasis.

** Represents the rank order of health content areas according to the emphasis placed on them for grades and schools collectively. That is, the area of food and nutrition received the most emphasis in grades 1-12 in Bedford County schools.

to parents and students. In addition, local nutritionists were often called on to offer help and advice to teachers.

This nutrition study presented one of the very few instances in which principals could be specific about health content. Very few principals failed to refer to it in their conversations with the investigator.

Survey participants did not usually qualify their ratings of other health content areas. The most notable exceptions besides Food and Nutrition were Accident Prevention and Exercise and Relaxation.

Principals indicated much concern about accidents, particularly those occurring on school grounds. Their primary concern was with the increasingly popular use of small motorcycles by elementary grade school boys.

Regarding the area, Exercise and Relaxation, principals in recognizing that play and exercise are healthy often made reference to recess and play periods as being synonymous with health instruction.

Seven content areas received mean ratings in excess of 3.00. Such content areas can be considered as receiving less than minor emphasis. Looking at the content areas receiving less than minor emphasis, two commonalities were observed. First, three of the lowest seven ranking areas relate to human reproduction and sex education. The fact that Sex Education, Venereal Diseases, and Preparation for Marriage were ranked 20, 21, and 22 respectively seemed to suggest that elementary schools were sensitive to the nature of the subject matter. In further support of this sensitivity, it is worthy to note that the area of Communicable

Diseases was ranked fifth; yet, the area of Venereal Diseases, one type of communicable diseases, was ranked 21. A second commonality can be seen with the rankings of Health Careers, International Health Activities, and Research Developments in Health. Their low rankings (19, 23, 24 respectively) seemed to imply that elementary schools were considerably less concerned with those topics which are somewhat further removed from local and personal concerns.

A majority of topics (13) received mean ratings indicating an emphasis between minor and moderate. First Aid ranked ninth among the topics while Accident Prevention ranked second. This was surprising because these two areas are often integrated and taught together.

The rankings of most surprise to the investigator were for the areas of Smoking, Drugs and Narcotics, and Alcohol. With all the publicity given these areas by the news media and the concern generated by educators, higher ratings were anticipated.

2. Junior high level. In grades 7-8, the mean ratings of health content areas ranged from 1.43 (Dental Health) to 3.43 (Research Developments in Health) (Table 4.13, page 102). A total of ten content areas received at least "moderate" emphasis (2.00 or less) while three areas received less than "minor" emphasis (3.00 or over).

Looking at the ranking of content areas (Table 4.14, page 104) it can be seen that the rank order changed considerably between the elementary and junior high levels. The most drastic change was in the area of Drugs and Narcotics. Ranked sixteenth at the elementary level, it leaped to a ranking of 3.5 at the junior high level. Other areas which improved

considerably in their rankings were Alcohol, Skin Care, Smoking, and Environmental Health.

Moving in an opposite direction, Family Life Education digressed in ranking from 11.5 at the elementary level to 20th at junior high level. Large drops were also observed for Mental Health and Personal Adjustment, Food and Nutrition, and Community Health Programs and Problems.

Table 4.14, page 104, presents the rank order of topics for the junior high level. At this level it can be seen that the topics credited with "moderate" emphasis grew in number from four at the elementary level to ten for junior high grades. It can also be seen that those areas reporting "moderate" emphasis in grades 1-6, without exception, reported "moderate" emphasis in grades 7-8. However, the junior high level added to its "moderate" group the areas of Communicable Diseases, Drugs and Narcotics, Environmental Health, Skin Care, First Aid, and Smoking.

In qualifying their ratings of health topics, junior high principals offered explanations similar to those of elementary principals for the areas of Food and Nutrition, Accident Prevention, and Exercise and Relaxation (see page 101). Emphasis on Dental Health was attributed to the interest of several local dentists. In accounting for the increased emphasis on Smoking several principals remarked that it represented a major discipline problem. Further alluding to this point, numerous violations of school smoking policies were cited and some principals indicated that they spend time daily monitoring hallways and bathrooms. Regarding the increased emphasis in drug abuse, principals often reasoned that curiosity and peer pressure make seventh and eighth graders especially vulnerable to drug abuse.

A majority of topics (11) received mean ratings indicating an emphasis between minor and moderate. One topic in this group that was particularly consistent in rating and ranking between elementary and junior high levels (Tables 4.13 and 4.14, pages 102 and 104) was Structure and Function of the Human Body. Two other areas noticeably close in rank were First Aid and Consumer Education.

The three areas reporting less than minor emphasis were Sex Education, International Health Activities, and Research Developments in Health. And just as was observed at the elementary level, topics related to human reproduction and sex education tended to be close to the bottom. Four of the seven topics ranked lowest at the junior high level were Venereal Disease, Family Life Education, Preparation of Marriage, and Sex Education.

3. Senior high level. In grades 9-12, the mean ratings of topics ranged from 1.00 to 3.33 (Table 4.13). Three areas reported "major" emphasis; nine, "moderate" emphasis; eleven, "minor" emphasis; and one, less than minor emphasis.

Comparing senior high rankings with junior high rankings, it can be seen that topics differed in their ranking (Table 4.14). Showing the greatest improvement was First Aid followed closely by Community Health Programs and Problems, Food and Nutrition, Health Careers, Alcohol, and Structure and Function of the Human Body. The areas with the most drastic drop in ranking were Skin Care, Smoking, Communicable Diseases, and Dental Health. Other areas remained in close proximity to former ratings.

Three content areas were conspicuous because of their high ratings (Table 4.13, page 102). These were Drugs and Narcotics, First Aid, and Food and Nutrition. They were the only areas receiving "major" emphasis. Senior high principals cited reasons similar to those offered by elementary and junior high principals in explanation of the high rankings of Food and Nutrition and Drugs and Narcotics. First Aid's high ranking was attributed to the availability of the Medical Self-Help Film series.

Of the nine content areas given "moderate" emphasis, one area warranted further discussion. The area, Structure and Function of the Human Body, showed an increase in popularity primarily because health instruction was reported to be integrated with biology in some situations. In addition, several principals expressed an attitude which holds health mainly as a study in anatomy and physiology. Few principals expressed a concern for the psychological and sociological factors underlying many health topics. Evidence of this can be seen in the low rankings (Table 4.14, page 104) of Sex Education, Preparation for Marriage, Venereal Disease, Smoking, Family Life Education, and Mental Health and Personal Adjustment. Even the higher ranking areas of Alcohol and Drugs and Narcotics, in spite of their relationships to the fields of psychology and sociology, were usually viewed in physical terms. The remaining content areas did not elicit specific comments from principals.

The majority of content areas (11) received emphasis falling between minor and moderate. The fact that this category comprised the largest number of topics was consistent with the two previous levels. Two content areas within this category were ranked surprisingly low. They were Mental Health and Personal Adjustment and Smoking with rankings of 15 and

19 respectively. That Smoking was ranked low was particularly surprising in light of the high rankings of Drugs and Narcotics and Alcohol. This seemed to suggest a more accepting attitude toward smoking with less of a felt need for its inclusion in health instruction.

International Health Activities was the only content area receiving less than minor emphasis. Family Life Education, Venereal Disease, Preparation for Marriage, and Sex Education were again four of the seven lowest ranking areas.

Emphasis of health content areas for schools and grades combined.

Table 4.14, page 104), presents the composite rank order of health content areas according to the emphasis placed on them for all grades in all schools combined. Composite rankings of health topics were based on composite mean ratings. Composite mean ratings were computed by adding the total mean ratings given a topic at each grade level and dividing by total combinations of grade levels. For example, by referring to Appendix B it can be seen that the area, Food and Nutrition, received 16.7 points at the elementary level, 13 points at the junior high level, and 3 points at the senior high level. This rendered a total of 32.7 points. Dividing total points by total grade level combinations (21)--there were eleven elementary programs, seven junior high programs, and three senior high programs--resulted in composite mean ratings. For the area of Food and Nutrition, a composite mean rating of 1.56 was computed (Table 4.14).

The advantage of composite ratings and rankings is that it allowed for a general overall assessment of the emphasis allotted health content areas for the entire school system. Thus, it can be said that in Bedford

County Schools students at all grade levels were given the most exposure to the area of Food and Nutrition. Next was Dental Health, Accident Prevention, and so on. Conversely, it can be said that Bedford County students received least exposure to the areas of International Health Activities, Research Developments in Health, Sex Education, and so on.

Looking at the composite mean ratings, five topics stand out as receiving more than moderate emphasis. The majority of topics (14), however, received less than moderate emphasis. Five topics reported less than minor emphasis.

For the most part, the top and bottom thirds of the rank order of topics remained consistent with those at each grade level. Food and Nutrition, Dental Health, Accident Prevention, Exercise and Relaxation were consistently at the top while International Health Activities, Research Developments in Health, Sex Education, Preparation for Marriage, and Venereal Diseases were consistently at the bottom.

The middle group of topics (those with an emphasis rating between minor and moderate) revealed several surprises. A composite rank of 12 for Structure and Function of the Human Body was surprising because much of health instruction was reported to be correlated with science and biology. Initially, a higher ranking was anticipated. Another surprise was the low overall rankings for Drugs and Narcotics, Smoking and Alcohol. This, along with the low rankings of topics related to human reproduction and sex education, seemed to indicate that topics which tend to be controversial tended also to be avoided.

It was particularly noteworthy that several topics in the middle group fluctuated considerably in ranking between grade levels (Tables

4.13 and 4.14, pages 102 and 104). This was true for Skin Care, Mental Health and Personal Adjustment, Smoking, Alcohol, Drugs and Narcotics. This was expected for some topics such as Skin Care which has special relevancy to the junior high group. But it was not expected for all topics. The feeling among health educators today is that health topics, especially today's crucial problems of drug abuse (including smoking and alcohol abuse), mental health, and sex education are most effectively approached in the classroom when there is a sequential plan. Evidence of a continuous and sequential plan of health from one grade level to the next was not apparent in the analysis of the emphasis of health content areas.

Emphasis on health content by school. By referring to Appendix B, it was possible to determine how much emphasis each school placed on health instruction. This was accomplished by adding vertically the mean ratings recorded for each school and dividing by the number of health content areas (24). The result was the mean degree of emphasis schools gave to health topics collectively. This collective mean was used to represent overall health education.

The mean emphasis given to health instruction by schools is presented in Table 4.15. Schools were then arranged in rank order according to the mean degree of emphasis it placed on health instruction (Table 4.16).

Several points of interest emerged from the analysis of Table 4.15. The emphasis given health instruction showed an increase with grade level. A mean rating of 2.6 was given to elementary health instruction compared

TABLE 4,15
COMPOSITE MEAN RATINGS AND RANKINGS OF HEALTH
INSTRUCTION* BY SCHOOL

School	Elementary Level	Rank	Junior High Level	Rank	Senior High Level	Rank	Overall School Rating
A	3.56	10	2.20	3	X	X	2.88
B	X	X	2.33	5	X	X	2.33
C	3.63	11	X	X	X	X	3.63
D	3.50	9	X	X	X	X	3.50
E	2.71	8	2.58	6	X	X	2.65
F	2.63	7	X	X	X	X	2.63
G	X	X	2.63	7	2.38	3	2.51
H	X	X	X	X	2.13	2	2.13
I	2.23	5	2.17	2	1.79	1	2.06
J	2.33	6	2.21	4	X	X	2.27
K	1.88	1	X	X	X	X	1.88
L	2.07	3	1.71	1	X	X	1.89
M	2.04	2	X	X	X	X	2.04
N	2.17	4	X	X	X	X	2.17
Total	28.75		15.83		6.30		34.57
Mean	2.6		2.3		2.1		2.47

* Health instruction was defined statistically as the combined mean rating of all content areas.

X--Not offered.

TABLE 4.16
SCHOOL IN RANK ORDER ACCORDING TO ITS
EMPHASIS ON HEALTH INSTRUCTION

Elementary Schools	Rank	Junior High Schools	Rank	Senior High Schools	Rank
K	1	L	1	I	1
M	2	I	2	H	2
L	3	A	3	G	3
N	4	J	4		
I	5	B	5		
J	6	E	6		
F	7	G	7		
E	8				
D	9				
A	10				
C	11				

to 2.3 and 2.1 for junior and senior high levels. Schools containing both elementary and junior high grades invariably reported more emphasis at the higher level. This was also true for junior and senior high schools.

The mean degree of emphasis given health instruction at the elementary level ranged from 1.88 to 3.56. Collectively, elementary schools had a mean of 2.6 indicating an overall emphasis on health instruction almost midway between minor and moderate. At the junior high level, the means ranged from 1.71 to 2.63 with an overall mean of 2.3. The overall mean (2.1) of the three senior high schools closely approximated a moderate emphasis. Combining content areas, schools, and grade levels resulted in a composite mean of 2.47. This indicated that the amount of emphasis given to health instruction in Bedford County Schools was reported to be almost midway between minor and moderate.

Several inconsistencies were found when comparing the emphasis principals reported for various content areas with the time said to be allotted to health instruction. For example, School K had the highest ranking among elementary schools with reference to emphasis given health instruction (Table 4.16, page 114), yet it devoted considerably less time to health instruction (Table 4.6, page 85). Even more conspicuous was the ranking of elementary school L. Ranked third in health instruction emphasis, it reported an annual provision of 30 minutes to health instruction taught on a daily basis during one two-week period only. Other examples can be found at the junior high level. The two schools indicating most emphasis in health instruction reported no time allotments to separate health classes. On the other hand, School G indicated a maximum of 250 minutes per week devoted to health instruction; yet, it

was ranked last among junior high schools in the emphasis it reported for health instruction.

These inconsistencies seem to point to several reporting problems as perceived by the investigator during his interviews with principals. One problem was the difficulty several principals had responding to various questions in specific terms. This was particularly obvious with regards to time allotment, pattern of instruction, and emphasis given to health content areas. Another problem perceived by the investigator was the tendency of some principals to rate health content areas according to their personal feelings, rather than evaluating them according to what actually took place in the classroom. And finally, at the time this study was conducted, principals did not always seem to be in close touch with their health programs; several principals seemed to lack knowledge as to the extent to which various health topics were taught.

Summary. The following major findings were based on data which focused on the teaching of health: (1) Regular classroom teachers were responsible for health instruction in grades one through six while at the junior and senior high levels the provider of health instruction was largely influenced by school organization and how it accounted for health credits; (2) In-service opportunities and activities designed specifically for the teacher of health education were rarely cited; (3) The size of health classes based on number of students differed very little from other academic subjects; (4) Four health content areas consistently received the greatest emphasis at all grade levels. They were Food and Nutrition, Dental Health, Accident Prevention, and Exercise

and Relaxation; (5) None of the health topics reported major emphasis in elementary and junior high grades. Drugs and Narcotics, First Aid, and Food and Nutrition stood alone as the areas reporting major emphasis at the senior high level; (6) Five topics, Venereal Diseases, Preparation for Marriage, Sex Education, Research Developments in Health, and International Health Activities received the lowest ratings in each grade level.

II. STUDENTS' HEALTH KNOWLEDGE, ATTITUDES, AND BEHAVIOR

Health Behavior Inventories (H.B.I.'s) were administered to elementary, junior high, and senior high school students. The purpose of the inventories was to measure students' health knowledge, attitudes, and practices.

Student responses to these H.B.I.'s are presented in this section. They were organized under four major subheadings: (1) Descriptive information about student testing phase; (2) Differences in mean scores between Bedford County students and national means; (3) Strengths and weaknesses of health content areas; and (4) Health misconceptions. The pattern of analysis was to organize the subheadings to allow for an examination of students' responses according to grade level. Junior high H.B.I.'s were also divided into three sections: attitudes, behavior, and knowledge and were analyzed accordingly.

Because this was a descriptive study designed to comprehensively evaluate the status of health education, it did not propose hypotheses. Accordingly, most data are presented in descriptive terms. Probability

statistics were used only to denote differences on scores between boys and girls and between schools.

The procedure for preparing data for analysis consisted of transferring responses from H.B.I.'s to data sheets. During this process responses, which were recorded on accompanying answer sheets, were checked to insure adequate pencil markings. Answer sheets with less than 95 percent of the responses completed were removed from the data source. Data were then transferred to computer cards and analyzed by The University of Tennessee Computer Center.

Descriptive Information About Student Testing Phase

During the time in which H.B.I.'s were administered Bedford County schools enrolled 5,507 students. Of this total there were 1,987 students in sixth, ninth, tenth, eleventh, and twelfth grades combined. The actual number of students reported to be enrolled in each of the grade levels used in this study is presented in Table 4.17.

At the junior high level, 450 students were reported to be enrolled in Bedford County's three schools containing ninth grade students. It was possible to administer H.B.I.'s to 385 of these students. A total of 362 answer sheets (80 percent) was usable for data analysis.

A reported 1,111 students were enrolled in the three senior high schools of Bedford County. It was possible to test 810 of these students with 654 (59 percent) completing at least 95 percent of the test. The percentage of usable answer sheets was 67, 62, and 46 for the tenth, eleventh, and twelfth grades respectively.

TABLE 4.17

STUDENT ENROLLMENT IN SIXTH, NINTH, AND TENTH-TWELFTH
GRADES OF BEDFORD COUNTY SCHOOLS

Grade Level	Students Enrolled	Students Tested	Usable Answer Sheets	Percentage of Total Enrollment
Elementary				
Sixth Grade	426	139	137	32%
Junior High				
Ninth Grade	450	385	362	80%
Senior High				
Tenth Grade	427	351	287	67%
Eleventh Grade	327	247	203	62%
Twelfth Grade	357	212	164	46%
Total Senior High	1111	810	654	59%

For a more complete summary of students taking H.B.I.'s, reference should be made to Table 4.18. It provides a breakdown of students according to school, grade, and sex.

Differences in Mean Scores Between Bedford County
Students and National Means

Table 4.19 presents the mean scores of students in the national School Health Education Study and the mean scores of Bedford County students taking the H.B.I.'s as a part of the present study. The most striking finding presented based on data analysis was the marked discrepancy between the scores received for Bedford County students and those received on the national sample. These discrepancies were least at the elementary level and greatest at the junior high level but still markedly different at the twelfth grade level.

Allocating percentile rankings to test means illustrate how low the scores of Bedford County students were in comparison to national norms. At the elementary level, boys received a percentile ranking of 46. This can be interpreted as meaning that boys taking the elementary H.B.I. in Bedford County exceeded 46 percent of the population on which the test was standardized. It may also be interpreted as meaning that the other 54 percent of students in the standardized group exceeded that score. It is worthy of note that sixth grade boys achieved the highest percentile ranking of any group taking H.B.I.'s at any level. Next was elementary girls who were ranked in the 34th percentile.

The lowest percentile rankings were achieved by ninth grade boys and girls. Ninth grade boys and girls were both ranked in the 12th percentile

TABLE 4.18

BREAKDOWN OF STUDENTS TAKING H.B.I.'S BY SCHOOL, GRADE, AND SEX

School	Sixth Grade			Ninth Grade			Tenth Grade			Eleventh Grade			Twelfth Grade		
	M	F	Total	M	F	Total	M	F	Total	M	F	Total	M	F	Total
G	X	X	X	30	25	55	19	28	47	14	15	29	7	6	13
H	X	X	X	144	145	289	100	110	210	67	82	149	53	67	120
I	25	15	40	12	6	18	16	14	30	12	13	25	20	11	31
N	51	46	97	X	X	X	X	X	X	X	X	X	X	X	X
Total	76	61	137	186	176	362	135	152	287	93	110	203	80	84	164

X--Not included.

TABLE 4.19

DIFFERENCES IN SCORES BETWEEN BEDFORD COUNTY
H.B.I, MEANS AND NATIONAL MEANS

Grade	National Mean	Bedford County Mean	± National Mean	Percentile Rank	
6	Males	20.99	School N Males 20.43	- .56	42
			School I Males 22.24	+ 1.25	51
			Total Males 21.03	+ 0.04	46
	Females	22.69	School N Females 21.63	- 1.06	42
			School I Females 20.73	- 1.96	34
			Total Females 21.41	- 1.28	34
9	Males	67.00	School H Males 54.62	-12.38	12
			School I Males 37.08	-29.92	2
			School G Males 61.47	- 5.53	24
			Total Males 54.59	-12.41	12
	Females	73.36	School H Females 64.92	- 8.44	12
			School I Females 63.83	- 9.53	10
			School G Females 64.88	- 8.48	12
			Total Females 64.88	- 8.48	12
12	Males	47.26	School H Males 40.89	- 6.37	16
			School I Males 33.65	-13.61	5
			School G Males 44.29	- 2.97	27
			Total Males 39.38	- 7.88	14
	Females	52.89	School H Females 50.30	- 2.59	18
			School I Females 45.55	- 7.34	10
			School G Females 51.17	- 1.72	24
			Total Females 49.74	- 3.15	18

meaning that 88 percent of the national sample exceeded that score.

Percentile rankings improved very little at the senior high level.

Twelfth grade boys tested in Bedford County ranked in the 14th percentile; twelfth grade girls, 18th percentile. This meant that 86 and 82 percent of the boys and girls in the standardization group respectively exceeded the performance of Bedford County twelfth graders.

The pattern of differences between sixth, ninth, and twelfth graders was not unexpected especially in light of the information presented in an earlier section, Health Instructional Practices. As noted in Table 4.4, page 81, health was taught as a separate subject more consistently at the elementary level, and least consistently at the junior and senior high levels. Neither was it unusual that twelfth grade means did not deviate from national norms as drastically as those for ninth graders. One probable explanation for this is that some of those students who scored poorly in the ninth grade and increased the difference between local and national averages, quite likely dropped out of school by the twelfth grade leaving somewhat better students to be represented in the twelfth grade sample.

Strengths and Weaknesses of Health Content Areas

It was possible to analyze H.B.I. results further by delineating the strengths and weaknesses of students' health knowledge, attitudes, and behavior according to content area. This was achieved by computing the Per Cent of Preferred Responses for each content area. Percent of Preferred Responses was another way of saying percent of responses in agreement with those specified by the author of the inventory (many of the

items in the inventories could not be considered as absolutely right or wrong). The procedure for computing Per Cent of Preferred Responses by content area was as follows:

1. Test items were classified according to the content area in which it pertained. Some items related to more than one content area.
2. The number of preferred responses for each item in each content area was recorded.
3. The number of preferred responses was divided by the number of items in that area. For example, the elementary H.B.I. contained eleven test items for the content area Personal Health. If a student answered ten of these items correctly, the Per Cent of Preferred Response for that area would be 91 percent (ten correct answers divided by the eleven items in that area).

Strength and weaknesses of Bedford County students by content areas on each inventory were determined and ranked according to sex classification and school. However, it should be pointed out that ranking content areas by sex and school can be misleading unless reference is made to the tables showing percentage of correct responses. For example, the area of community health ranked seventh among sixth grade boys and sixth among girls. But the percentage of correct responses on community health was higher for the boys. Likewise, comparing individual schools to norms by content area can be misleading because of the large differences in sample school size. Additionally, this study intended to compare students on a county-wide basis to national norms, rather than on an individual school basis. Consequently, in making descriptive comparisons between

Bedford County students and their national counterparts, it seemed wiser to combine students of each school according to sex. And while scores are presented for boys and girls according to school, the primary reference point for making comparisons with the national sample was based on the results of all boys and girls combined.

Probability statistics were used to analyze further differences in scores by content area according to school and sex within the school system of Bedford County only. This served a useful purpose in that it helped to identify precisely the schools in which test results differed significantly. An advantage of this procedure was that it allowed for findings specific to school, sex, grade, and content area based on the actual results of students to standardized H.B.I.'s. Such information, it was thought, would be functional by providing a basis for making decisions and recommendations regarding the health education curriculum in various schools.

The procedure used for testing for significant differences consisted of using two-way analysis of variance for the elementary and junior high grades and a three-way analysis of variance for the senior high level. Because the cell sizes at each grade level were unequal, the Statistical Analysis System (S.A.S.) program using regression procedures was employed. The S.A.S. regression formula with unequal N's was based on a least square estimate technique using partial sum of squares. Resultant F-values which were shown to be significant at the .05 level of confidence were followed by an a posteriori procedure using Duncan's Multiple Range formula. This provided a statistical basis for identifying the specific schools and grades showing significant differences.

Elementary level. Personal cleanliness, personal health, infection and disease, and mental health ranked as the four highest topics for the entire sample of sixth grade students, while the area of dental health ranked lowest, followed in ascending order by nutrition, community health, and safety (Table 4.20 presents the ranking of topics which was based on the data in Table 4.21). Girls tended to have higher scores than boys in areas of personal cleanliness, personal health, safety, infection and disease, and mental health while boys excelled girls in nutrition, community health, and dental health,

It should be pointed out, however, that the ranking of topics is somewhat misleading. While it illustrates strengths and weaknesses based on percent of correct responses, it does not indicate how students performed according to established norms. For example, nutrition was ranked seventh out of eight topics for sixth grade girls. But comparing the same group to national norms, sixth grade girls did their worst in nutrition. For this reason, it was useful to determine the extent which sample scores deviated from national norms,

Sixth grade students, both males and females, surpassed their respective national counterparts in only two areas: personal cleanliness and dental health (Table 4.21). In rank order, five additional areas were slightly below national averages. These were mental health, infection and disease, safety, personal health, and community health. Standing alone far below the national average was nutrition. Remembering that more emphasis was placed on nutrition than for any other health topic at the elementary level (Table 4.13, page 102) it was disconcerting to note that the sixth grade sample was 15 points below the national standards.

TABLE 4.20
RANK ORDER OF TOPICS ACCORDING TO MEAN PERCENT OF
PREFERRED RESPONSE--SIXTH GRADE

Health Content Area	Sixth Grade					
	Composite		Males		Females	
	Mean	Rank	Mean	Rank	Mean	Rank
a. Personal cleanliness	69	1	67	1	71	1
b. Personal health	61	2	60	2	62	2
c. Infection and disease	55	3.5	54	3.5	57	4
d. Mental health	55	3.5	54	3.5	56	5
e. Safety	54	5	50	5	59	3
f. Community health	45	6	45	7	44	6
g. Nutrition	44	7	49	6	37	7
h. Dental health	31	8	32	8	31	8

TABLE 4.21
PERCENT OF PREFERRED RESPONSES BY CONTENT AREA--SIXTH GRADE

Content Areas	% Preferred Response			National Norm	± National Average		
	School N	School I	Schools N & I		School N	School I	Schools N & I
Males							
Personal Health	62	58	60	64	- 2	- 6	- 4
Personal Cleanliness	68	66	67	56	+12	+10	+11
Nutrition	44	57	49	60	-16	- 3	-11
Safety	49	54	50	54	- 5	0	- 4
Community Health	44	47	45	48	- 4	- 1	- 3
Infection and Disease	53	57	54	56	- 3	+ 1	- 2
Mental Health	50	63	54	50	0	+13	+ 4
Dental Health	34	28	32	26	+ 8	+ 2	+ 6
N	51	25	76				
Females							
Personal Health	63	61	62	66	- 3	- 5	- 4
Personal Cleanliness	75	57	71	65	+10	- 8	+ 6
Nutrition	38	36	37	57	-19	-21	-20
Safety	57	63	59	59	- 2	+ 4	0
Community Health	43	48	44	53	-10	- 5	- 9
Infection and Disease	55	61	57	59	- 4	+ 2	- 2
Mental Health	58	50	56	62	- 4	-12	- 6
Dental Health	31	29	31	34	- 3	- 5	- 3
N	46	15	61				

TABLE 4.21 (continued)

Content Areas	% Preferred Response			National Norm	± National Average		
	School N	School I	Schools N & I		School N	School I	Schools N & I
Composite							
Personal Health	62	59	61	65	- 3	- 6	- 4
Personal Cleanliness	71	63	69	61	+10	+ 2	+ 8
Nutrition	41	49	44	59	-18	-10	-15
Safety	53	57	54	57	- 4	0	- 3
Community Health	44	48	45	50	- 6	- 2	- 5
Infection and Disease	54	58	55	58	- 4	0	- 3
Mental Health	54	58	55	56	- 2	+ 2	- 1
Dental Health	33	28	31	30	+ 3	- 2	+ 1
N	97	40	137				

While girls tended to have higher scores than boys, they did not compare with the national sample as well as did the boys. Sixth grade girls in the study population surpassed girls included in the national sample in only one area, personal cleanliness; they were equal to the national average in safety and below in all other areas. They compared least favorably in nutrition with an average score 20 points below the norm.

Sixth grade boys included in the present study, on the other hand, scored slightly higher than boys in the national sample in three areas: personal cleanliness, dental health, and mental health. Scores for the remaining five areas were lower for the Bedford County sample with nutrition deviating the most (-11 points) from the national average.

1. Analysis of variance between school and sex. Two-way analysis of variance using S.A.S. regression formula with unequal N's and based on a least square estimate technique revealed differences in sixth grade scores that were statistically significant for only three content areas. These were personal cleanliness, nutrition, and mental health.

In personal cleanliness, scores varied significantly between schools. Students in school N scored significantly better on questions related to personal cleanliness than students in school I (Table 4.22). The difference was significant at the .05 level of confidence. In nutrition, however, scores differed significantly by sex with boys exceeding girls at the .01 level of confidence. The lone remaining area to show a significant difference in scores was mental health. The interaction variable of school and sex was statistically significant at the .05 level of confidence. This can be interpreted as meaning that for mental health the

TABLE 4.22

TWO-WAY ANALYSIS OF VARIANCE BETWEEN SCHOOLS AND SEX BY CONTENT AREA--SIXTH GRADE

Content Area	Source	Degrees of Freedom	Partial Sum of Squares	F-Value	Probability > F
Personal Health	School	1	0.01654911	0.40367	0.5335
	Sex	1	0.01295429	0.31598	0.5819
	School*Sex	1	0.00191089	0.04661	0.8240
	Error	133	5.45257833	0.04099683(Mean Square)	
	Total	136	5.48808590		
Personal Cleanliness	School	1	0.25675922	4.17775	0.0404*
	Sex	1	0.00102831	0.01673	0.8926
	School*Sex	1	0.17099839	2.78233	0.0937
	Error	133	8.17400873	0.06145871(Mean Square)	
	Total	136	8.57708923		
Nutrition	School	1	0.08931865	1.64916	0.1984
	Sex	1	0.51586595	9.52486	0.0028**
	School*Sex	1	0.13762181	2.54102	0.1093
	Error	133	7.20327609	0.05415997(Mean Square)	
	Total	136	7.91300462		
Safety	School	1	0.07095271	0.99585	0.6792
	Sex	1	0.21479604	3.01475	0.0810
	School*Sex	1	0.00006195	0.00087	0.9750
	Error	133	9.47602114	0.07124828(Mean Square)	
	Total	136	9.78919708		

TABLE 4.22 (continued)

Content Area	Source	Degrees of Freedom	Partial Sum of Squares	F-Value	Probability > F
Community Health	School	1	0.04581635	0.65288	0.5739
	Sex	1	0.00000412	0.00006	0.9899
	School*Sex	1	0.00190252	0.02711	0.8639
	Error	133	9.33335993	0.07017564 (Mean Square)	
	Total	136	9.38102190		
Infection and Disease	School	1	0.05785489	0.99460	0.6789
	Sex	1	0.02494174	0.42878	0.5209
	School*Sex	1	0.00191054	0.03284	0.8507
	Error	133	7.3644170	0.05816873 (Mean Square)	
	Total	136	7.81214936		
Mental Health	School	1	0.01925125	0.26039	0.6169
	Sex	1	0.01282918	0.17352	0.6810
	School*Sex	1	0.31645204	4.28026	0.0380**
	Error	133	9.83306799	0.07393284 (Mean Square)	
	Total	136	10.22992701		
Dental Health	School	1	0.04606713	0.52578	0.5234
	Sex	1	0.00253912	0.02898	0.8594
	School*Sex	1	0.00933131	0.10650	0.7437
	Error	133	11.65311926	0.08761744 (Mean Square)	
	Total	136	11.72587186		

TABLE 4.22 (continued)

Content Area	Source	Degrees of Freedom	Partial Sum of Squares	F-Value	Probability > F
Total Score	School	1	5.61353434	0.11895	0.7307
	Sex	1	0.63926870	0.01355	0.9035
	School*Sex	1	49.46144740	1.04806	0.3085
	Error	133	6276.72052856	47.1938743 (Mean Square)	
	Total	136	6345.67883212		

* Significant at the .05 level of confidence.

** Significant at the .01 level of confidence.

factors of school and sex were not independent of each other but rather interact in producing significant differences in scores. None of the remaining content areas revealed significant differences in sixth grade scores for the factors of school, sex, and school-sex interaction.

Total test scores were also compared for differences between schools and sex. But what differences existed were not shown to be statistically significant. This can be interpreted as meaning that the overall health knowledge, attitudes, and practices of the sixth grade sample did not differ significantly by school or sex.

Junior high level. Considering all three schools and both sexes together, the five highest ranking health categories for the ninth grade group were: smoking and drinking, personal cleanliness, community health, care of eyes, and nutrition (Table 4.23--the ranking of topics was based on the percent of preferred responses for boys and girls combined in Table 4.24). The lowest ranking area was rest and recreation, followed in ascending order by mental health, personal health, safety, dental health, and infection and disease.

In the national sample, ninth grade girls scored better than boys in all content areas. This pattern was replicated without exception in this study.

Unlike the sixth grade sample, Bedford County ninth graders as a whole did not equal or surpass their national counterpart in any area (Table 4.24). In all subject matter areas students in this sample were at least four points below the national average and the discrepancy reached 15 points for some subject areas. Health attitudes, practices,

TABLE 4.23
RANK ORDER OF TOPICS ACCORDING TO MEAN PERCENT OF
PREFERRED RESPONSE--NINTH GRADE

Health Content Area	Ninth Grade					
	Composite		Males		Females	
	Mean	Rank	Mean	Rank	Mean	Rank
a. Smoking and drinking	67	1	60	1.5	75	1
b. Personal cleanliness	65	2	60	1.5	70	2
c. Community health	63	3	57	4.5	68	3
d. Care of eyes	62	4.5	57	4.5	67	4.5
e. Nutrition	62	4.5	58	3	67	4.5
f. Infection and disease	59	6.5	55	6	63	8
g. Dental health	59	6.5	53	7.5	65	6
h. Safety	56	8	53	7.5	59	10
i. Personal health	55	9.5	51	9	60	9
j. Mental health	55	9.5	46	11	64	7
k. Rest and recreation	54	11	50	10	58	11

TABLE 4.24

PERCENT OF PREFERRED RESPONSES BY CONTENT AREA--NINTH GRADE

Content Areas	% Preferred Response				National Norm	±National Norm			
	School H	School I	School G	Schools H, I, & G		School H	School I	School G	Schools H, I, & G
Males									
Nutrition	58	38	65	58	71	-13	-33	- 6	-13
Personal Cleanliness	59	45	67	60	71	-12	-26	- 4	-11
Mental Health	46	33	50	46	65	-19	-32	-15	-19
Personal Health	51	34	58	51	65	-14	-31	- 7	-14
Community Health	58	39	64	57	69	-11	-30	- 5	-12
Smoking and Drinking	62	22	66	60	69	- 7	-47	- 3	- 9
Infection and Disease	55	38	61	55	60	- 5	-22	+ 1	- 5
Safety	52	35	65	53	68	-16	-33	- 3	-15
Care of Eyes	57	35	68	57	71	-14	-36	- 3	-14
Dental Health	54	38	55	53	68	-14	-30	-13	-15
Rest and Recreation	49	38	59	50	68	-19	-30	- 9	-18
N	144	12	30	186					
Females									
Nutrition	67	63	66	67	76	- 9	-13	-10	- 9
Personal Cleanliness	69	76	71	70	76	- 7	0	- 5	- 6
Mental Health	64	62	63	64	75	-11	-13	-12	-11
Personal Health	60	57	63	60	72	-12	-15	- 9	-12
Community Health	68	63	70	68	73	- 5	-10	- 3	- 5
Smoking and Drinking	76	72	69	75	83	- 7	-11	-14	- 8
Infection and Disease	63	65	62	63	65	- 2	0	- 3	- 2
Safety	59	71	56	59	71	-12	0	-15	-12
Care of Eyes	67	71	71	67	77	-10	- 6	- 6	-10
Dental Health	65	69	60	65	72	- 7	- 3	-12	- 7
Rest and Recreation	58	43	60	58	69	-11	-26	- 9	-11
N	145	6	25	176					

TABLE 4.24 (continued)

Content Areas	% Preferred Response				National Norm	± National Norm			
	School H	School I	School G	Schools H, I, & G		School H	School I	School G	Schools H, I, & G
Composite									
Nutrition	63	46	66	62	74	-11	-28	- 8	-12
Personal Cleanliness	64	55	69	65	74	-10	-19	- 5	- 9
Mental Health	55	42	56	55	70	-15	-28	-14	-15
Personal Health	55	42	61	55	69	-14	-27	- 8	-14
Community Health	63	47	67	63	71	- 8	-24	- 4	- 8
Smoking and Drinking	69	39	67	67	76	- 7	-37	- 9	- 9
Infection and Disease	59	47	61	59	63	- 4	-16	- 2	- 4
Safety	56	47	61	56	70	-14	-23	- 9	-14
Care of Eyes	62	47	69	62	74	-12	-27	- 5	-12
Dental Health	60	48	57	59	70	-10	-22	-13	-11
Rest and Recreation	54	39	60	54	69	-15	-30	- 9	-15
N	289	18	55	362					

and knowledge, as revealed by the H.B.I.'s, indicated that both males and females came closest to the national scores in the area of infection and disease. The areas of nutrition, mental health, personal health, safety, care of eyes, dental health, and rest and recreation were all eleven or more points below national norms. The low scores of some of these areas were somewhat unexpected when considering the emphasis reported for various topics in an earlier section. For example, reference to Table 4.13, page 102, shows that nutrition, safety (accident prevention), dental health, and exercise and relaxation were ranked in the upper third of topics according to the emphasis given them in the instructional program.

Examination of ninth grade scores by sex alone revealed that girls tended to compare with the norms slightly better than the boys. However, it is important to note that girls in Bedford County schools combined scored lower than the national sample of girls for every content area. They came closest to approximating national averages in infection and disease (minus 2 points) followed in descending order by community health (-5), personal cleanliness (-6), dental health (-7), smoking and drinking (-8), and nutrition (-9). Girl scores in mental health, care of eyes, rest and recreation, personal health, and safety were ten or more points below the national mean. Personal health and safety were the lowest ranking areas (-12) for Bedford County ninth grade girls.

Ninth grade boys' scores as a group were especially conspicuous because of their departure from national norms. National averages for all content areas far exceeded the ninth grade sample. Infection and disease (-5) and smoking and drinking (-9) deviated the least. The

remaining nine areas ranged a distant 11-19 points below the norms with rest and recreation (-18) and mental health (-19) the lowest.

1. Analysis of variance between schools and sex. Two-way analysis of variance using S.A.S. regression formula with unequal N's and based on the least square estimate technique revealed statistically significant differences in ninth grade scores for all content areas between either schools, sex, and/or the interaction variable of school and sex (Table 4.25).

Significant differences by sex on scores were found for the areas of nutrition, personal cleanliness, mental health, personal health, community health, smoking and drinking, infection and disease, safety, care of the eyes, and dental health. Differences were significant at the .01 level of confidence and in each case in favor of the girls. Comparing these differences to the differences by sex in the national sample, it was found that they were more exaggerated in the Bedford County sample. At the national level, girls had higher scores than boys in only three areas: mental health, habit forming substances, and community health. Rest and recreation was the only area not showing significant differences in scores in favor of either sex. Boys did not have significantly higher scores than girls in any area.

Combining the correct responses to all content areas for each student provided a total score for the test. Total scores were used to reflect generally on students' health knowledge, attitudes, and practices without specific reference to subject area. Analyzing the total scores of students to the junior high H.B.I.'s, girls were found to have significantly

TABLE 4.25

TWO-WAY ANALYSIS OF VARIANCE BETWEEN SCHOOLS AND SEX BY CONTENT AREA--NINTH GRADE

Content Area	Source	Degrees of Freedom	Partial Sum of Squares	F-Value	Probability > F
Nutrition	School	2	0.28256151	4.23425	0.0150*
	Sex	1	0.35511651	10.64302	0.0016**
	School*Sex	2	0.20348684	3.04930	0.0472*
	Error	356	11.87834880	0.03336615 (Mean Square)	
	Total	361	13.21802069		
Personal Cleanliness	School	2	0.14823761	2.07083	0.1254
	Sex	1	0.59672918	16.67223	0.0002**
	School*Sex	2	0.21839834	3.05095	0.0471*
	Error	356	11.87834880	0.03336615 (Mean Square)	
	Total	361	13.21802069		
Mental Health	School	2	0.10776988	1.23323	0.2921
	Sex	1	1.06978180	24.48343	0.0001**
	School*Sex	2	0.08201096	0.93847	0.6056
	Error	356	15.55510755	0.04369412 (Mean Square)	
	Total	361	18.57352188		
Personal Health	School	2	0.31793062	5.72299	0.0040*
	Sex	1	0.40233568	14.48468	0.0004*
	School*Sex	2	0.09800810	1.76422	0.1707
	Error	356	9.88847928	0.02777663 (Mean Square)	
	Total	361	11.21680786		

TABLE 4.25 (continued)

Content Area	Source	Degrees of Freedom	Partial Sum of Squares	F-Value	Probability > F
Community Health	School	2	0.34184529	6.92567	0.0015**
	Sex	1	0.46042913	18.65628	0.0001**
	School*Sex	2	0.10131608	2.05263	0.1277
	Error	356	8.78592845	0.02467957 (Mean Square)	
	Total	361	10.36444800		
Smoking and Drinking	School	2	0.72432402	3.64795	0.0262*
	Sex	1	1.38340685	13.93465	0.0005**
	School*Sex	2	0.66093832	3.32872	0.0358
	Error	356	35.34302783	0.09927817 (Mean Square)	
	Total	361	39.43071185		
Infection and Disease	School	2	0.13399552	2.01520	0.1326
	Sex	1	0.38200190	11.49008	0.0011**
	School*Sex	2	0.20823465	3.13170	0.0435*
	Error	356	11.83565972	0.03324624 (Mean Square)	
	Total	361	12.85669890		
Safety	School	2	0.12600810	1.06324	0.3473
	Sex	1	0.38356397	6.47290	0.0110**
	School*Sex	2	0.69980110	5.90481	0.0034**
	Error	356	21.09544794	0.05925688 (Mean Square)	
	Total	361	22.47022978		
Care of Eyes	School	2	0.40548672	3.11492	0.0442*
	Sex	1	0.69832522	10.72897	0.0016**
	School*Sex	2	0.31686880	2.43416	0.0871
	Error	356	23.17126676	0.06508783 (Mean Square)	
	Total	361	25.02693370		

TABLE 4.25 (continued)

Content Area	Source	Degrees of Freedom	Partial Sum of Squares	F-Value	Probability > F
Dental Health	School	2	0.08917141	1.01575	0.3645
	Sex	1	0.63919342	14.56203	0.0004**
	School*Sex	2	0.22927040	2.61161	0.0729
	Error	356	15.62645534	0.04389454 (Mean Square)	
	Total	361	17.18939917		
Rest and Recreation	School	2	0.46612396	5.69609	0.0041**
	Sex	1	0.07803497	1.90719	0.1645
	School*Sex	2	0.08258735	1.00923	0.3669
	Error	356	14.56614320	0.04091613 (Mean Square)	
	Total	361	15.76654696		
Total Score	School	2	0.20152962	4.56286	0.0111**
	Sex	1	0.48573496	21.99517	0.0001**
	School*Sex	2	0.17206157	3.89567	0.0207*
	Error	356	7.86180152	0.02208371 (Mean Square)	
	Total	361	9.32953066		

* Significant at the .05 level of confidence.

** Significant at the .01 level of confidence.

higher scores. This can be interpreted as meaning that the overall health knowledge, attitudes, and practices of Bedford County ninth grade girls was significantly superior to that of boys.

The interaction of school and sex was shown to be significant for ninth grade scores in five content areas. Significant at the .05 level of confidence were nutrition, personal cleanliness, smoking and drinking, and infection and disease. Safety was significant at the .01 level. This may be interpreted as meaning that for these five topics the variables of school and sex do not act independently of each other but rather interact in producing significant differences in scores.

Statistically significant differences by school on scores were found for five content areas. Significant at the .05 level of confidence were nutrition, smoking and drinking, and care of eyes. Personal health, community health were significant at the .01 level. This may be interpreted as meaning that for these content areas the factor of school influenced students' scores. However, the F-values did not identify which school(s) were significantly better than others. To find this, Duncan's Multiple Range Test was used as an a posteriori procedure to the analysis of variance.

The first step in applying the multiple range test is to arrange the means in order of magnitude. Then using Duncan's computational formula, significant differences between means can be illustrated by connecting lines. Means which are connected by a line are said to be alike--that is, not significantly different. Means which are not connected by a line are considered significantly different at the .05 level of confidence.

Table 4.26 presents the results of Duncan's Multiple Range Test of

TABLE 4.26
RESULTS OF DUNCAN'S MULTIPLE RANGE TEST FOR DIFFERENCES BETWEEN
SCHOOL AND SEX USING TOTAL SCORES
TO H.B.I.'S--NINTH GRADE

Duncan's Test*	Mean	School	Sex**
.....	0.64924	H	2
.....	0.64880	G	2
.....	0.63833	I	2
.....	0.61467	G	1
.....	0.54618	H	1
.....	0.37083	I	1

* Means connected by a dotted line are not significantly different; means not connected by a dotted line are significantly different at the .05 level of confidence.

** 1--Boys; 2--Girls.

significant differences for the variable, total score. Differences are presented for school and sex. Total score means were used in lieu of content area mean scores because they best represent overall performance of students to the H.B.I.'s.

Results of the multiple range test indicates that the general health knowledge, attitudes, and practices of ninth graders enrolled in Bedford County schools were similar with two exceptions: Boys in school I who were significantly lower than all other boys and girls; boys in school H who had scores significantly lower than girls in schools H and G. The scores of only one school (G), had both boys and girls in a position equal to or higher than those of students attending other schools. In no instance were girls from one school shown to be significantly lower than boys or girls attending other schools. The rankings of means by sex and school indicated that girls did not differ significantly by school while boys differed with those in school I lower.

2. Health attitudes, practices, and knowledge of ninth grade students. The junior high H.B.I. was divided into three sections allowing for attitudes, behaviors, and knowledge to be derived. Twenty-five test items pertained to health attitudes, 25 to health practices, and 50 to health knowledge. Scores on the subtests designed to measure health knowledge and attitudes were over 20 percent higher than for practices. Table 4.27 shows that differences between males and females were greater for knowledge than they were for attitudes and practices. The differences were in favor of the girls.

TABLE 4.27

PERCENTAGE OF PREFERRED RESPONSES FOR HEALTH ATTITUDES,
PRACTICES AND KNOWLEDGE--NINTH GRADE

	Bedford County				National Norms		± National Average	
	Male	Percentile Rank	Female	Percentile Rank	Male	Female	Male	Female
Practices	39.9	31	46.6	34	43.7	48.9	- 3.8	- 2.3
Attitudes	60.4	12	67.8	12	73.9	79.1	-18.7	-11.3
Knowledge	59	14	72.6	10	73.3	77.8	-18.8	- 5.2

The percentile rankings of subtest scores revealed that sample boys and girls were similar in their comparison with the norms. Each had percentile rankings of 12 for attitudes leaving them below 88 percent of the national sample. Sample boys had a percentile ranking of 14 in knowledge compared to 10 for girls, while girls were slightly higher in practices. It was interesting to note that percentile rankings were considerably higher for practices than for attitudes or knowledge even though it received the lowest percentage of preferred responses. One possible explanation of this is that students tended to respond to behavior questions according to what they should do or what they thought was right or wrong, rather than what they actually do.

Senior high level. Senior high H.B.I.'s were administered to tenth, eleventh, and twelfth grade students. To be consistent with the procedures used in the national study and in order to compare health knowledge, attitudes, and practices of senior high school students in Bedford County to their respective national counterpart the focus of data analysis was aimed at the results of twelfth grade students. For comparative purposes and for future reference, therefore, unless stated otherwise, the status of health knowledge, attitudes, and practices at the senior high level refers to the test results for the twelfth grade sample only.

Table 4.28 presents the percentage of preferred responses by content area for twelfth grade boys and girls and the extent to which scores deviate from national norms. Table 4.29 was derived from Table 4.28 and provides a rank order of topics according to sex.

TABLE 4.28

PERCENT OF PREFERRED RESPONSES BY CONTENT AREA--TWELFTH GRADE

Content Area	% Preferred Response				National Norm	± National Norm			
	School H	School I	School G	Schools H, I, & G		School H	School I	School G	Schools H, I, & G
Males									
Personal Health	59	49	60	57	64	- 5	-15	- 4	- 7
Safety and First Aid	61	54	71	60	72	-11	-18	- 1	-12
Family Health	60	46	68	57	70	-10	-24	- 2	-13
Infection and Disease	55	42	58	52	64	- 9	-22	- 6	-12
Mental Health	58	52	70	58	69	-11	-17	+ 1	-11
Nutrition	39	28	43	37	50	-11	-22	- 7	-13
Community Health	43	36	47	41	54	-11	-18	- 7	-13
Exercise, Rest and Rec.	58	51	57	56	69	-11	-18	-12	-13
Drinking, Smoking, Narc.	64	50	67	61	78	-14	-28	-11	-17
Dental Health	55	44	61	53	68	-13	-24	- 7	-15
N	53	20	7	80					
Females									
Personal Health	70	65	69	69	71	- 1	- 6	- 2	- 2
Safety and First Aid	74	71	80	74	77	- 3	- 6	+ 3	- 3
Family Health	75	68	76	74	81	- 6	-13	- 5	- 7
Infection and Disease	66	58	68	65	70	- 4	-12	- 2	- 5
Mental Health	67	61	67	67	78	-11	-17	-11	-11
Nutrition	52	49	56	52	58	- 6	- 9	- 2	- 6
Community Health	51	46	58	50	59	- 8	-13	- 1	- 9
Exercise, Rest and Rec.	74	64	64	72	76	- 2	-12	-12	- 4
Drinking, Smoking, Narc.	84	74	92	84	86	- 2	-12	+ 6	- 2
Dental Health	69	52	67	66	73	- 4	-21	- 6	- 7
N	67	11	6	84					

TABLE 4.28 (continued)

Content Area	% Preferred Response				National Norm	± National Norm			
	School H	School I	School G	Schools H, I, & G		School H	School I	School G	Schools H, I, & G
Composite									
Personal Health	65	55	64	63	68	- 3	-13	- 4	- 5
Safety and First Aid	68	60	75	67	75	- 7	-15	0	- 8
Family Health	68	54	72	66	76	- 8	-22	- 4	-10
Infection and Disease	61	47	63	59	67	- 6	-20	- 4	- 8
Mental Health	63	55	68	62	74	-11	-19	- 6	-12
Nutrition	46	36	49	44	54	- 8	-18	- 5	-10
Community Health	47	39	52	46	57	-10	-18	- 5	-11
Exercise, Rest, and Rec.	67	56	60	64	72	- 5	-16	-12	- 8
Drinking, Smoking, Narc.	75	59	78	73	82	- 7	-23	- 4	- 9
Dental Health	63	47	64	60	71	- 8	-24	- 7	-11
N	120	31	13	164					

TABLE 4.29
RANK ORDER OF TOPICS ACCORDING TO MEAN PERCENT OF
PREFERRED RESPONSE--TWELFTH GRADE

Health Content Area	Composite		Males		Females	
	Mean	Rank	Mean	Rank	Mean	Rank
a. Drinking, smoking and narcotics	73	1	61	1	84	1
b. Safety and first aid	67	2	60	2	74	2.5
c. Family health	66	3	57	4.5	74	2.5
d. Exercise, rest and recreation	64	4	56	6	72	4
e. Personal health	63	5	57	4.5	69	5
f. Mental health	62	6	58	3	67	6
g. Dental health	60	7	53	7	66	7
h. Infection and disease	59	8	52	8	65	8
i. Community health	46	9	41	9	50	10
j. Nutrition	44	10	37	10	62	9

Combining boys' and girls' scores from Bedford County's three secondary schools revealed that twelfth graders scored best to questions related to drinking, smoking, and narcotics (Table 4.29). Following in descending order were safety and first aid, family health, exercise, rest and recreation and personal health. Among the lowest five areas were mental health, dental health, infection and disease, community health, and nutrition in that order.

In the national sample, twelfth grade girls had higher scores than boys for all content areas. And again, just as for junior high students, this pattern was replicated without exception in this study.

Comparing twelfth grade boys and girls collectively to established norms revealed the Bedford County sample to be lower than their national peers for all content areas. In all subject matter areas students in this sample were at least five points below the national average and the gap widened to twelve points in one area. Five areas were within nine points of the norms: personal health (-5), safety and first aid (-8), infection and disease (-8), exercise, rest and relaxation (-8), and drinking, smoking, and narcotics (-9). The remaining five areas were 10 or more points below national averages. They were nutrition (-10), family health (-10), community health (-11), dental health (-11), and mental health (-12). Some of these results were not altogether surprising when comparing test results to the emphasis reported for various topics at the senior high level of instruction (Table 4.13, page 102). For example, the fact that family health received very little emphasis at any grade level was reflected by students' subsequent low scores. The

same can be said for mental health. However, the opposite was true for nutrition. It ranked among the three topics receiving the most emphasis in the instructional program; yet, it received the lowest scores. This indicated that students' scores were not always proportional to the educational effort.

Examination of twelfth grade scores by sex alone indicates that girls compared more favorably with the norms than the boys. That is, twelfth grade girls in Bedford County deviated from girls in the national sample less than boys. This was true for all but one of the topics. In one instance (mental health) boys and girls varied equally from the norms. Girls came closest to matching their peers in the national sample in personal health (-2), drinking, smoking, and narcotics, and infection and disease (-5). The greatest departure from the norms was in mental health scores (-11), followed in ascending order by community health (-9), dental health (-7), family health (-7), and nutrition (-6). In only one case did girls depart from the norms more than 10 points (mental health).

Twelfth grade boys on the other hand were over 10 points below the norm for all but one content area. Standing alone at the top was personal health seven points below the national average. Each of the remaining content areas showed a difference ranging between eleven to seventeen points. Drinking, smoking, and narcotics (-17) was the lowest topic in comparison with norms followed by dental health (-15). While drinking, smoking, and narcotics deviated the most from norms, it should be noted that it ranked as the strongest area based on percent of correct responses. This irony might be explained in that the national sample also had their best scores in this area. The seven other areas were either eleven,

twelve, or thirteen points below national averages. Like the ninth grade sample, the scores of Bedford County twelfth grade boys were especially noticeable because of their departure from national standards.

1. Analysis of variance between school and sex. Sex was the prevailing factor shown to have a significant effect on twelfth grade scores (Table 4.30). Except for mental health and exercise, rest and recreation girls had significantly higher scores than boys for all content areas. Significant at the .05 level of confidence were dental health and community health. Personal health, safety and first aid, family health, infection and disease, nutrition, and smoking, drinking, and narcotics were significant at the .01 level. Comparing these differences to differences by sex at the national level, the Bedford County sample of twelfth grade girls exceeded the boys more consistently. In the national sample girls' scores were higher than boys' scores for all but four areas compared to all but two areas in Bedford County. Boys in the Bedford County twelfth grade sample did not exceed girls in any content area.

Also significant at the .01 level in favor of girls was the difference between total scores. This was important because total scores achieved by students to H.B.I.'s were the best representation of their general health knowledge. That girls' total scores were significantly higher than those achieved by boys indicated that twelfth grade girls in the Bedford County sample were superior to boys in health knowledge, attitudes, and practices.

TABLE 4.30

TWO-WAY ANALYSIS OF VARIANCE BETWEEN SCHOOLS AND SEX BY CONTENT AREA--TWELFTH GRADE

Content Area	Source	Degrees of Freedom	Partial Sum of Squares	F-Value	Probability > F
Personal Health	School	2	0.13529477	2.66745	0.0707
	Sex	1	0.28617142	11.28423	0.0014**
	School*Sex	2	0.01853470	0.36543	0.6999
	Error	158	4.00692654	0.02536029 (Mean Square)	
	Total	163	4.86176122		
Safety and First Aid	School	2	0.15656390	1.63498	0.1964
	Sex	1	0.29663273	6.19542	0.0133**
	School*Sex	2	0.01766638	0.18449	0.8331
	Error	158	7.56493757	0.0478979 (Mean Square)	
	Total	163	8.53120773		
Family Health	School	2	0.29555056	3.08516	0.0470**
	Sex	1	0.40583565	8.47278	0.0044**
	School*Sex	2	0.04633197	0.48364	0.6233
	Error	158	7.56800814	0.04789879 (Mean Square)	
	Total	163	9.14212990		
Infection and Disease	School	2	0.28764231	4.55130	0.0119**
	Sex	1	0.28511751	9.02269	0.0034**
	School*Sex	2	0.01785377	0.28250	0.7583
	Error	158	4.99280650	0.03160004 (Mean Square)	
	Total	163	6.06562024		

TABLE 4.30 (continued)

Content Area	Source	Degrees of Freedom	Partial Sum of Squares	F-Value	Probability > F
Mental Health	School	2	0.13665190	1.54703	0.2144
	Sex	1	0.05184408	1.17385	0.2799
	School*Sex	2	0.04521738	0.51190	0.6061
	Error	158	6.97821620	0.04416593 (Mean Square)	
	Total	163	7.51324314		
Nutrition	School	2	0.14480499	2.00409	0.1360
	Sex	1	0.44483723	12.31300	0.0009**
	School*Sex	2	0.02622062	0.36289	0.7017
	Error	158	5.70813464	0.03612743 (Mean Square)	
	Total	163	6.90428758		
Community Health	School	2	0.12923377	2.08545	0.1255
	Sex	1	0.17662323	5.70036	0.0172*
	School*Sex	2	0.00799558	0.12903	0.8790
	Error	158	4.89556355	0.03098458 (Mean Square)	
	Total	163	5.38468982		
Exercise, Rest and Recreation	School	2	0.18343152	1.59818	0.2037
	Sex	1	0.26168919	4.56003	0.0322*
	School*Sex	2	0.02992392	0.26072	0.7744
	Error	158	9.06724324	0.05738762 (Mean Square)	
	Total	163	10.30503957		

TABLE 4.30 (continued)

Content Area	Source	Degrees of Freedom	Partial Sum of Squares	F-Value	Probability > F
Drinking, Smoking and Narcotics	School	2	0.39899558	2.58623	0.0766
	Sex	1	0.99517343	12.90114	0.0007**
	School*Sex	2	0.01429364	0.09265	0.9111
	Error	158	12.18786843	0.07713841 (Mean Square)	
	Total	163	14.75462746		
Dental Health	School	2	0.45386952	5.01012	0.0079**
	Sex	1	0.16674094	3.68120	0.0537*
	School*Sex	2	0.03109578	0.34326	0.7152
	Error	158	7.15665529	0.04529529 (Mean Square)	
	Total	163	8.42492378		
Total Score	School	2	951.67128720	4.01294	0.0195*
	Sex	1	1640.90712444	13.83853	0.0005**
	School*Sex	2	62.23484169	0.26243	0.7731
	Error	158	18734.88978295	118.57525179 (Mean Square)	
	Total	163	24307.51219512		

* Significant at the .05 level of confidence.

** Significant at the .01 level of confidence.

The interaction factors of school and sex were not found to be significant for any content area. This can be interpreted as meaning that school and sex were independent of each other and did not interact in producing significant differences in scores.

Statistically significant differences by school on scores were found for three content areas. Dental health and infection and disease reported differences between schools significant at the .01 level of confidence while family health was significant at the .05 level.

More important than the differences for content area were the significant differences found between schools for total scores. The implication of this finding was that overall health knowledge, attitudes, and behavior of twelfth grade students varied significantly according to school. Duncan's multiple range test was subsequently used to identify the schools in which students had significantly higher scores (Table 4.31)

The pattern established in the twelfth grade Duncan's test was very similar to that for the ninth grade. Just as existed in the earlier level, girls for the three schools had the three highest mean total scores. Additionally, school G emerged as the leader when considering boys and girls combined followed by school H and then I. This replicated precisely the pattern of the ninth grade level. However, when testing the differences for significance, boys and girls attending various schools rendered results which were not usually significantly different. The only exception was for boys attending school I. They did not deviate significantly from boys attending the other two senior high schools but they did differ significantly from girls at each school. In each case, girls were higher

TABLE 4.30
RESULTS OF DUNCAN'S MULTIPLE RANGE TEST FOR DIFFERENCES
BETWEEN SCHOOL AND SEX USING TOTAL SCORES TO
H.B.I.'s--TWELFTH GRADE

Duncan's Test*	Mean	School	Sex**
.....	51.16667	G	2
.....	50.29851	H	2
.....	45.54545	I	2
.....	44.28571	G	1
.....	40.88679	H	1
.....	33.65000	I	1

* Means connected by a dotted line are not significantly different; means not connected by a dotted line are significantly different at the .05 level of confidence.

** 1--Boys; 2--Girls.

than boys in school I. These differences can be noted by observing the connecting lines in Table 4.31 (page 158). All means are connected except the bottom mean. The bottom mean in turn is connected to two means just above it, but not connected to the top three means. It was worthy of note that in both junior and senior high levels, only one group, boys in school I, deviated significantly from boys and girls in the secondary schools of Bedford County.

Differences Between Tenth, Eleventh, and Twelfth Grade Scores

Tenth and eleventh graders were added to the sample to provide an in-depth picture of the strength and weaknesses of high school students regarding health knowledge and behavior.

Percentile rankings of tenth, eleventh, and twelfth graders. Table 4.32 presents mean total scores and corresponding percentile rankings of high school students by grade and sex. Theoretically, there should be little difference in scores by grade levels. The nationwide study in which the senior high H.B.I. was standardized reported little or no difference in scores obtained by tenth, eleventh, or twelfth grade students. However, this pattern was not confirmed in this study. Bedford County high school students had total score means which increased, without exception, by grade level. For each sex, lowest total score means were obtained by tenth graders followed in ascending order by eleventh and twelfth graders. And again, differences in scores by sex were found with girl means exceeding boy means at each grade level.

TABLE 4.32
 MEAN TOTAL SCORES AND PERCENTILE RANKING FOR SENIOR HIGH
 BOYS AND GIRLS--GRADES 10, 11 AND 12

Grade	Sex	$\bar{X}$ Score	$\pm$ National Mean *	Percentile Ranking
10	Males	32.79	-14.47	8
11	Males	37.73	- 9.53	12
12	Males	39.38	- 7.88	14
10	Females	42.70	-10.19	5
11	Females	47.69	- 5.20	14
12	Females	49.74	- 3.15	18

* National mean for males--47.26; females--52.89.

Perhaps the best indication of how low the scores of the senior high sample were can be seen in their percentile rankings (Table 4.32). Percentile rankings of total score means ranged from five to eighteen with girls ranking slightly higher than boys in the eleventh and twelfth grades and lower in the tenth. The highest percentile ranking was achieved by twelfth grade girls. Yet, their ranking of 18 indicated that 82 percent of the national sample exceeded their score. Girls also had the lowest percentile ranking with the tenth grade sample exceeding only 5 percent of the national sample. Put another way, this meant that 95 percent of the standardization group exceeded the score of tenth grade girls. Tenth, eleventh, and twelfth grade boys had percentile rankings of 8, 12, and 14 respectively. This can be interpreted as meaning that 92, 88, and 86 percent of the male population on which the test was standardized were higher than Bedford County high school boys.

Analysis of health content areas for tenth, eleventh, and twelfth grade students. Senior high H.B.I.'s were also analyzed by content areas in an effort to seek specific strengths and weaknesses by grade level. This was done by combining boys and girls for each grade and comparing their scores to established norms. Table 4.33 presents the percent of preferred responses by content area for boys and girls combined at each grade level. It is followed by a rank order of topics for each grade (Table 4.34).

Senior high school students, regardless of grade, tended to have their highest and lowest scores for the same areas. Topics ranked consistently at the top for all grades were drinking, smoking, and narcotics,

TABLE 4.33

PERCENT OF PREFERRED RESPONSES BY CONTENT AREAS FOR
BOYS AND GIRLS COMBINED--GRADES 10-12

Content Area	% Preferred Response			National Norms	± National Norm		
	Grade 10	Grade 11	Grade 12		Grade 10	Grade 11	Grade 12
a. Personal health	56	60	63	68	-12	- 8	- 5
b. Safety and first aid	55	64	67	75	-20	-11	- 8
c. Family health	56	63	66	76	-20	-13	-10
d. Infection and disease	49	56	59	67	-18	-11	- 8
e. Mental health	52	62	62	74	-22	-12	-12
f. Nutrition	41	45	44	54	-13	- 9	-10
g. Community health	41	46	46	57	-16	-11	-11
h. Exercise, rest, recreation	55	60	64	72	-17	-12	- 8
i. Drinking, smoking, narcotics	62	71	73	82	-20	-11	- 9
j. Dental health	51	61	60	71	-20	-10	-11
N	287	203	164				

TABLE 4.34

RANK ORDER OF TOPICS ACCORDING TO MEAN PERCENT OF PREFERRED RESPONSE
FOR BOYS AND GIRLS COMBINED--GRADES 10, 11, AND 12

Health Content Area	Composite		Tenth Grade		Eleventh Grade		Twelfth Grade	
	Mean	Rank	Mean	Rank	Mean	Rank	Mean	Rank
a. Drinking, smoking and narcotics	67	1	62	1	71	1	73	1
b. Safety and first aid	61	2	55	4.5	64	2	67	2
c. Family health	60	3	56	2.5	63	3	66	3
d. Personal health	59	4.5	56	2.5	60	6.5	63	5
e. Exercise, rest, and recreation	59	4.5	55	4.5	60	6.5	64	4
f. Mental health	58	6	52	6	62	4	62	6
g. Dental health	56	7	51	7	61	5	60	7
h. Infection and disease	54	8	49	8	56	8	59	8
i. Community health	44	9	41	9.5	46	9	46	9
j. Nutrition	43	10	41	9.5	45	10	44	10

first aid and safety, and family health. Consistently at the bottom were nutrition, community health, and infection and disease. Four topics shifted somewhat in rank between grade levels but for the most part remained in the middle positions. These areas were exercise, rest and recreation, mental health, dental health, and personal health. One exception was personal health which was ranked second for tenth graders. Based on percent of preferred responses, senior high students collectively appeared to be especially deficient in nutrition, community health, and infection and disease.

Compared to norms Bedford County students at each grade level were below the national average for all content areas. Eleventh and twelfth graders were relatively close to each other in their departure from the national sample; tenth graders were noticeably lower. The discrepancy of tenth grade scores ranged from twelve points below the norm in personal health to a low of 22 points in mental health as compared to a range of 8-13 points for grade eleven and 5-12 points for grade twelve. That tenth grade students were drastically lower was surprising when considering the information presented in an earlier section. Data in Table 4.5, page 83, suggested that health instruction was given considerably more emphasis at the tenth grade level. Considering tenth, eleventh, and twelfth grades together, the areas consistently departing the most from the norms were mental health and family health. Departing the least were personal health and nutrition.

The relationship between grade level and content area is further illustrated in Figure 1. It serves to point out that an increase in grade level was usually accompanied by an increase in content area

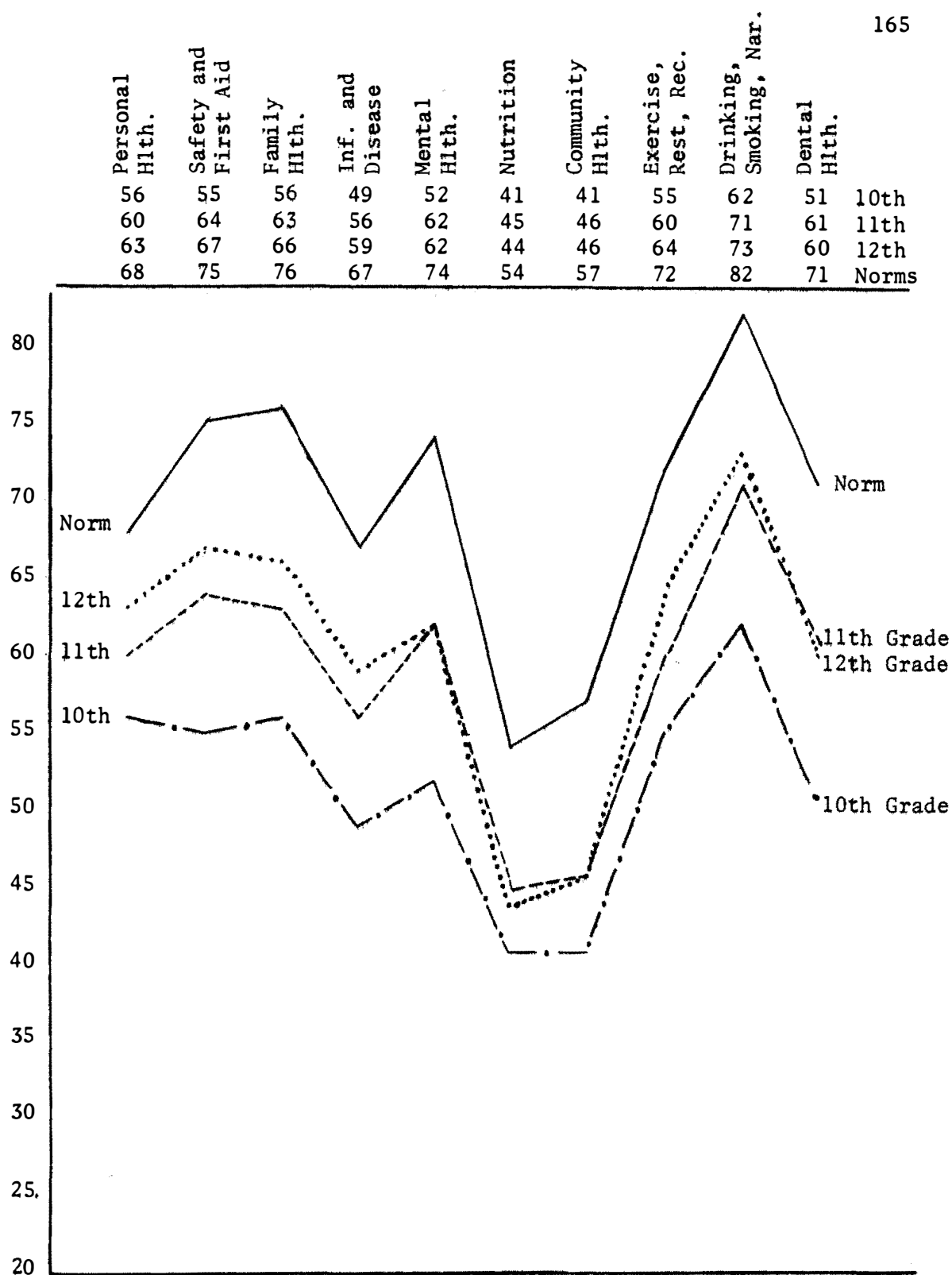


Figure 1. Percent of preferred response for boys and girls combined--grades 10, 11, 12.

scores. Eleventh grade students had better scores than tenth grade students for all content areas, while twelfth grade students had better scores than students in the eleventh grade for six topics. The upper two grades had identical scores in mental health and community health with eleventh graders slightly higher in dental health and nutrition.

Several other trends appear in Figure 1. One such trend is that Bedford County scores tended to rise and drop in a manner consistent with the norms. Lines plotted to represent senior high grades show patterns very similar to the national sample. This indicated that content areas tended to be equally difficult or easy for students, regardless of grade level. For example, the national sample peaked in the area of drinking, smoking, and narcotics as did each grade level in the Bedford County sample, though scores of the latter group were lower. Conversely, the areas of nutrition and community health rendered the lowest scores for both national and study populations.

Another trend visible in Figure 1 alludes to the increase in content area scores according to grade. As grade levels increased, scores more closely approximated the norms. The difference was greatest between tenth and eleventh grades and least between eleventh and twelfth grades. Especially conspicuous, however, was the wide gap between all Bedford County senior high grades and national averages. The line representing the national sample stands alone in a position above the study populations for all content areas.

1. Differences between schools, grades, and sex. Scores on senior high H.B.I.'s were also analyzed according to school. Comparisons between

Bedford County schools were based on the percentage of preferred responses recorded by tenth, eleventh, and twelfth grade students combined for each content area. This provided school composite means by topic. Put another way, Bedford County schools were compared to each other and to the national sample based on the collective results of all its high school students, rather than results of a single grade. Table 4.35 presents composite means of high school student for each content area according to school.

Comparing sample school to norms, it can be observed that national averages exceeded sample means in all instances. Bedford County high schools combined came closest to the norms in personal health which was nine points below the national average. Deviating the most were mental health (-15), drinking, smoking and narcotics (-15), and safety and first aid (-14). The remaining topics ranged 11-13 points below norms.

Differences between schools and norms were even more exaggerated when comparing schools individually. This was particularly true for school I which consistently had the lowest comparisons (Discrepancies in school I scores ranged 13-25 points below the national standard). Schools H and G were relatively close to each other in their comparison with the national sample. It was interesting to note that students in both schools H and G scored better than students in school I for all content areas. And students in school G scored better than students in school H in all but two areas. Nutrition means were identical in schools H and G with exercise, rest, and recreation slightly higher in school H. These findings indicate that for Bedford County's three senior high

TABLE 4.35

PERCENT OF PREFERRED RESPONSES FOR ENTIRE SENIOR HIGH SCHOOL SAMPLE
ACCORDING TO SCHOOLS--GRADES 10-12

Content Area	% Preferred Response				National Norm	± National Norm			
	School H	School I	School G	Schools H, I, & G		School H	School I	School G	Schools H, I, & G
a. Personal Health	60	53	62	59	68	- 8	-15	- 6	- 9
b. Safety and First Aid	61	57	65	61	75	-14	-18	-10	-14
c. Family Health	61	54	64	60	76	-15	-22	-12	-16
d. Infection and Disease	54	49	55	54	67	-13	-18	-12	-13
e. Mental Health	58	57	59	58	74	-16	-17	-15	-16
f. Nutrition	43	41	43	43	54	-11	-13	-11	-11
g. Community Health	44	41	48	44	57	-13	-16	- 9	-13
h. Exercise, Rest, Rec.	60	55	59	59	72	-12	-17	-13	-13
i. Drinking, Smoking, Narc.	68	57	71	67	82	-14	-25	-11	-15
j. Dental Health	56	52	61	56	71	-15	-19	-10	-15
N	479	86	89	654					

schools students in school G were superior in health knowledge followed in order by students in schools H and I.

Differences existing between schools, sex, and grade level were tested for significance using a three-way analysis of variance. Using an S.A.S. regression formula with unequal N's and based on the least square estimate technique, the three-way analysis of variance was employed for the variable, total score. Resultant F-values are presented in Table 4.36.

Differences between school, sex, and grade were found to be significant at the .01 level of confidence. Significant at the .05 level were two interaction factors: school and sex, and grade, school, and sex.

Regarding differences in sex, girls again were found to score better than boys. This was consistent with the pattern established at other grade levels and implies that the health knowledge of girls in grades 10-12 was significantly superior to that of boys.

That the interaction of school and sex was significant indicated that the two factors do not act independent of each other but interact in producing significant differences for total scores. The same can be said for the interaction between grade, school, and sex. However, when pairing grade with school, and grade with sex, no significant interaction was reported. This can be interpreted as meaning that the factor of grade level did not significantly interact with school alone or sex alone but rather acted independently.

2. Differences between grades by school. Differences between grades by school only indicated that senior high school girls did not tend to

TABLE 4.36
THREE-WAY ANALYSIS OF VARIANCE FOR TOTAL SCORE--
GRADES TEN-TWELVE

Source	Degrees of Freedom	Partial Sum of Squares	F-Value	Probability > F
School	2	1307.60634127	5.15342	0.0063**
Sex	1	8461.02140950	66.69158	0.0001**
Grade	2	2578.04015055	10.16033	0.0002**
School*Sex	2	1014.45613163	3.99808	0.0184*
Grade*School	4	402.16155815	0.79248	0.5324
Grade*Sex	2	315.73929328	1.24436	0.2882
Grade*School*Sex	4	1441.68032038	2.84091	0.0233*
Regression	17	26135.53958981	1537.38468175 (Mean Square)	
Error	636	80687.99099123	126.86791036	
Corrected Total	653	106823.53038104		

* Significant at the .05 level of confidence.

** Significant at the .01 level of confidence.

differ significantly by school when compared by grade levels (Table 4.37). Differences between tenth grade girls in schools H, I, and G were not significant. This was also true for girls in the eleventh and twelfth grades. A similar pattern existed for boys with one exception. Eleventh grade boys in schools H and G had better scores than their peers in school I.

Significant differences occurring most frequently between schools may be observed by cross-comparing grades. For example, the scores of eleventh grade girls in school I were significantly higher than all tenth grade girls. Additionally, eleventh and twelfth grade boys in schools H and G had significantly better scores than tenth grade boys in school H and eleventh grade boys in school I. Also significant was the difference between eleventh grade boys in school I and tenth grade boys in school G. The difference was in favor of the latter group.

These findings seem to suggest that on a county-wide basis the health knowledge of tenth and twelfth graders does not differ significantly between schools. With one exception, the scores of juniors were also similar. However, high school students were not universally similar in their health knowledge when making intercomparisons between grades of different schools. This was also true for intercomparisons based on sex.

3. Differences between grades within schools. Differences between grades within schools only indicated that students in school G appeared to vary less by grade or sex than those in I and H. In school G no significant differences were found between students in grades eleven and

TABLE 4.37

RESULTS OF DUNCAN'S MULTIPLE RANGE TEST FOR DIFFERENCES BETWEEN
SCHOOLS, GRADES, AND SEX--GRADES 10, 11, AND 12

Duncan's Test*	Mean	School	Sex**	Grade
	52.69231	I	2	11
.	51.16667	G	2	12
.	50.29851	H	2	12
.	47.93333	G	2	11
.	46.85366	H	2	11
.	45.54545	I	2	12
.	44.28571	G	1	12
.	43.85714	G	1	11
.	42.88182	H	2	10
.	42.78571	G	2	10
.	41.14286	H	2	10
.	40.88679	H	1	12
.	38.64179	H	1	11
.	35.31579	G	1	10
.	33.65000	I	1	12
.	32.50000	I	1	10
.	32.36000	H	1	10
.	25.50000	I	1	11

* Means connected by a dotted line are not significantly different; means not connected by a dotted line are significantly different at the .05 level of confidence.

** 1--Boys; 2--Girls.

twelve regardless of sex. Eleventh and twelfth grade girls only scored significantly better than tenth grade boys.

Several more differences occurred in school H. Standing alone at the bottom were boys in the tenth grade who were significantly lower than all other boys and girls. Also significant were the differences between boys in the eleventh grade and girls in grades eleven and twelve. The differences were in favor of the girls. That sex was an important factor was confirmed in the differences reported between boys and girls in the tenth and eleventh grades. Again, the differences were in favor of the girls. No significant difference was reported for the factor of sex at the twelfth grade level.

Health knowledge scores tended to vary most by grade and sex in school I. Girls in the eleventh grade had significantly higher scores than all boys, grades 10-12, and girls in grade ten. Twelfth grade girls were also superior to boys at each grade level. While girls differed by grade level, no significant difference was found between tenth, eleventh, and twelfth grade boys. Just as occurred in school H, sex was an important factor with girls exceeding boys in grades eleven and twelve. No significant difference existed between boys and girls in grade ten.

These findings indicated that differences between boys and girls at various levels within the same school were least in school G and greatest in school I. While grade level was a factor in some instances, sex seemed to have greater influence on scores with girls consistently outscoring boys at most grade levels.

Health Misconceptions

An analysis was made of wrong choices on test items by sixth, ninth, and tenth-twelfth grade students on the H.B.I.'s. Wrong choices indicated that students had either made wild guesses or were functioning on the basis of some misconceptions or misinformation. Incorrect items consistently selected by large number of students tended to reduce the effect of wild guesses on the basis of chance alone.

The prevalence of health misinformation among Bedford County students is represented by a sample of misconceptions and poor health behavior which demonstrate an absence of, or disregard for, sound health principles. These are presented in Tables 4.38, 4.39, and 4.40 for the elementary, junior high, and senior high levels respectively.

Summary and Discussion of Students' Responses to H.B.I.'s

In analyzing the responses of Bedford County students on each of the three H.B.I.'s, several points should be remembered. First, only the results of the highest grades at the elementary, junior, and senior high levels (grades six, nine, and twelve, respectively) were used for comparisons with established norms. These results supposedly reflected the accumulated health knowledge, attitudes, and practices of the students. Second, national norms were established in 1962-63 and it seems likely that norms to these H.B.I.'s have improved since that time.

The most significant general finding in this section was the major difference between the scores received for Bedford County students and those by the national sample. These differences are best illustrated in

TABLE 4.38
HEALTH MISCONCEPTIONS--SIXTH GRADE

Percent of Students	Statement of Misconception
	Students reported they:
48	never brush their teeth or rise their mouth with water after lunch.
44	only sometimes sleep 10 or 11 hours each night.
37	hide their feelings when unhappy.
31	wash their hands before dinner only sometimes.
26	never drink 3 or 4 glasses of milk every day.
23	sometimes use a hairpin or other sharp object to clean their ears.
20	allowed themselves to get painful sunburns most of the time (46% did sometimes).
18	never act friendly to people they don't like.

TABLE 4.39
HEALTH MISCONCEPTIONS--NINTH GRADE

Percent of Students	Statement of Misconception
	Students <u>reported</u> they:
51	only sometimes eat two servings of vegetables including one green leafy vegetable each day.
50	never sleep at least nine hours each night.
50	never talk about troublesome sex questions with their parents or school counselor.
49	only sometimes walked on the left side of a street.
42	usually go to school when they have a cold.
40	sometimes put off a bowel movement even though a toilet is handy.
39	worry about their health. (Twenty-two percent believed this will lead to better health.)
33	never followed a regular sleeping schedule.
33	never had their teeth examined by a dentist at least once each six months.
33	usually treat their own skin disorders, rather than go to a physician.
21	never drink at least three glasses of milk daily.
21	accept as being true the health advertisements in newspapers and magazines, or on television or radio.
	Students <u>believed</u> that:
29	proper toothbrushing included rolling the toothbrush both away and toward the gum line.

TABLE 4.39 (continued)

Percent of Students	Statement of Misconception
	Students <u>believed</u> that:
28	colds are caused by exposure to rapidly changing temperatures. (Twenty-two percent indicated bacteria and 14 percent said they are due to sitting or sleeping in a draft.)
25	the person having the best idea about his own health spends most of his time and thought improving his health,
24	the reason for including raw fruits and vegetables in a diet was because they contain large amounts of protein.
23	the best thing to do for skin troubles is ask the drugstore pharmacist to recommend a good medicine.
22	drinking one or two bottles of soft drink is a harmless habit.
20	the most important reason why they should get about nine hours' sleep each night was so the brain could fully develop.
20	pointing toes slightly outward is the best position for standing and walking.
18	a person is justified in taking laxatives regularly because a daily bowel movement is necessary at any cost.
17	a good breakfast should include at least one cup of coffee.

TABLE 4.40
HEALTH MISCONCEPTIONS--SENIOR HIGH LEVEL

Percent of Students	Statement of Misconception
	Students <u>indicated</u> that:
78	the pasteurization of milk destroys all bacteria in the milk.
67	they did not believe mental illness to be as curable as any other kind of illness.
67	for inflammed and irritated eyes they would consult an optician or an optometrist.
61	unrefrigerated chicken salad is not a potential source of food poisoning.
52	toothpaste is effective in preventing cavities and loss of teeth.
46	they would go to a pharmacist for a back injury.
40	the purpose of floridation is to purify water and make it safe to drink.
36	"pep" pills are habit-forming, since they are narcotics.
35	all teenagers need eight hours' sleep each night.
35	chronic disease can be transmitted from person to person.
33	if constipated they would regularly take a mild laxative.
28	legislation guarantees the reliability of any advertised medicine.
27	they did not know the public health department inspects and controls water and milk supplies.

TABLE 4.40 (continued)

Percent of Students	Statement of Misconception
	Students <u>indicated</u> that:
23	in a case of acid poisoning the proper first aid treatment consists of neutralizing it with a strong alkali.
22	commercial medicines are safe to purchase whenever the label clearly indicates the dosage and content,
22	taking vitamin pills regularly insures adequate nutrition.
21	physical fitness and endurance naturally increase as they grow up.
21	for persistent indigestion they would treat themselves; for a persistent cough they would go to a pharmacist.
20	venereal disease can be inherited. (Another 20 percent said that it has never been a major social problem,
17	they know they are becoming more mature when they now accept family decisions without question.

the percentile ranking of each grade level. Percentile rankings of 46 and 34 reported for sixth grade boys and girls respectively were the highest received by any student group. Following it in descending order were twelfth grade girls (18 percentile), twelfth grade boys (14 percentile), and ninth grade boys and girls (12 percentile each). That these discrepancies were greatest at the junior and senior high level and least at the elementary level was commensurate with the time reported to be allocated to health instruction at each level. In an earlier section (Table 4.4, page 81; Table 4.5, page 83) health instruction was taught as a separate course more consistently from one grade to the next at the elementary level than in junior and senior high levels.

Sixth grade scores exceeded national averages in only two areas. These were personal cleanliness and dental health. The remaining areas, mental health, infection and disease, safety, personal health, and community health were below the national standard. In a position far below all other areas for boys and girls alike was nutrition. This was disconcerting especially when considering that nutrition was the only health topic to report receiving major emphasis at the elementary level. This finding is difficult to explain and seems to suggest that further examination should be made of nutrition education to explain why scores are so low despite considerable instruction.

Ninth grade scores were especially conspicuous because of their far departure from national averages. Students in the ninth grade sample did not equal or surpass their national counterpart in any area. Their best scores were in smoking, drinking and narcotics, personal cleanliness, community health, care of eyes, and nutrition. Yet, each of these areas

lagged below established norms. In fact, areas receiving the highest percent of preferred responses did not always deviate the least from national standards. Questions on smoking, drinking and narcotics, for example, were answered correctly most often, yet this area deviated below the norms more than two other areas. This dichotomy raises some questions regarding the implications of these findings for curriculum planning: should content areas receiving the lowest percent of correct answers be given top priority by curriculum planners?, or should plans be made to strengthen first those areas departing the most from established norms?

The areas receiving the lowest scores by ninth grade students were rest and recreation, mental health, personal health, safety, dental health, and infection and disease. That the lowest scores were found for rest and recreation was surprising when considering that much of health instruction was reported to be integrated into the physical education program. Also noteworthy were the low scores in mental health. This was disappointing because the present trend in health education is to build mental health concepts into as many content areas as possible. This is being done under the premise that mental health relates to most health topics and it is being increasingly recognized as holding the key to success in ultimately reducing health behavior problems, whether it be smoking, overeating, drug abuse, etc.

The performances of junior high students were also noteworthy when analyzing H.B.I. subscores for attitudes, knowledge, and practices. Subscores revealed a pattern among Bedford County students which was consistent with the pattern at the national level. In the national study, students' scores for knowledge and attitudes were almost 25 percent

higher than those for practices. The same pattern was observed in the Bedford County sample. One point of interest concerning the subscores was the considerably higher percentile ranking of practices over knowledge and attitudes. This was noteworthy because it represents the antithesis of thinking among health educators which holds that knowledge precedes attitudes, and both knowledge and attitudes preempt behavior. The reversal of this continuum by the ninth grade sample might be attributed to the testing phase. It is probable that students answered questions regarding their health behavior according to what is right or wrong or what they should do, rather than what they actually do.

Twelfth grade boys and girls attending Bedford County's three senior high schools fared only slightly better than did ninth graders. That the discrepancy between the twelfth grade sample and the national sample was slightly less exaggerated at the senior high level was probably a result of the fact that low achievers tend to leave school early, leaving the better students to complete the twelfth grade. However, it is important to note that senior high scores were still well below the norms for all content areas.

Senior high students, as did ninth graders, scored best to questions relating to smoking, drinking and narcotics followed in descending order by safety and first aid, family health, exercise, rest and recreation, and personal health. The lowest five areas starting from the bottom were mental health, dental health, infection and disease, community health, and nutrition. Actually, content area scores with two exceptions reflected with some degree of accuracy the educational effort. One exception was food and nutrition. Scores in nutrition were among the

lowest even though it received major emphasis in the instructional program. Another exception was family health. Receiving only minor emphasis in the instructional program, its scores were higher than those for most other areas. These findings give added support to the suggestion made earlier calling for further investigation of nutrition education to determine why scores are low despite its reported emphasis in the instructional program.

Comparing content area scores to national norms resulted in a dichotomy similar to that existing at the junior high level. Areas receiving the highest scores did not necessarily compare most favorably with established norms. Ranked third among areas having highest scores, the area of family health was only two points short of deviating the most from the national standard. Another example was drinking, smoking and narcotics. Receiving the highest percentage of correct responses, it was ranked fifth among topics deviating the least from the national average. Again, this dichotomous pattern raises questions (cited earlier in the summary of ninth grade scores) regarding the implication of H.B.I. results for curriculum planning.

In analyzing senior high results by grade, it was noteworthy that H.B.I. scores increased with grade level. Students in the twelfth grade had better scores than students in the eleventh grade, and eleventh graders outscored tenth graders. The difference was greatest between tenth and eleventh grades, and least between the two higher grades. The universal discrepancy of tenth grade scores was somewhat unexpected because Table 4.5, page 83, clearly indicates that at the senior high level health was offered as a separate course in the tenth grade only.

One possible explanation of the poor performance is that tenth graders had not yet completed their course in health instruction and were not equal in classroom experience. Another explanation might lie in the possibility that tenth graders based on lack of experience alone do not always respond to standardized tests as well as juniors and seniors. And still another possibility suggests that norms established for the H.B.I.'s are not equally applicable to all senior high grades.

Responses of students to H.B.I.'s were further analyzed by school. Descriptive data clearly indicates that scores were influenced by the schools students attended. Students in school G consistently scored better than students in schools H and I. And school I scores were consistently lower than those in schools H and G. Differences in scores were greatest between schools I and H and least between schools H and G. That school G had superior scores was not surprising because it reported offering health as a separate course for tenth graders on a daily basis (Table 4.5, page 83) with a time allocation of 250 minutes per week (Table 4.6, page 85) throughout the school year. However, it was surprising that school H scores exceeded those for school I because of the differences reported in the organization of health instruction. School I offered health as a separate course to tenth graders 60 minutes daily throughout the year while school H did not offer health as a separate course at any grade level. Instead it correlated health instruction with biology and physical education. These inconsistencies raise some questions regarding school I's health instruction program and seem to warrant further examination to determine why test scores do not reflect the educational effort. It should be noted, though, that of the three

senior high schools, school I was represented by the smallest number of students at each grade level.

Finally, the H.B.I.'s were analyzed for misconceptions. Misconceptions were based on an analysis of wrong choices on test items. The results of this analysis revealed numerous misconceptions at each grade level.

Fifty percent of the questions for which a large proportion of the sixth grade group failed to make the acceptable choice was related to personal health practices; other areas in which questions were most often missed were mental health, nutrition, dental health, and rest and recreation. For ninth graders, misconceptions were most numerous in food and nutrition, followed by consumer health, community health, and mental health. At the senior high level, the highest percentage of "nonpreferred" responses was in nutrition, community health, mental health, and exercise, rest and recreation.

III. STUDENTS' HEALTH INTERESTS

Informal class interviews were conducted in Bedford County's three senior high schools for the purpose of providing students with an opportunity to express themselves freely and honestly about their health concerns. With informal and open-ended class interviews, it was hoped that students would be encouraged to uncover their true interests and worries, rather than give standard answers. Of particular interest were students' ideas about their health and their suggestions for improving health education.

Participating in these interviews were boys and girls of six classes. Each class was recommended by the principal because of its good teacher-student rapport and because students in these classes were thought to be open to discussion. The breakdown of classes by subject, grade, and sex is presented in Table 4.41. As it turned out, classes recommended for interview were ideal in size and makeup. They ranged in size from 12-25 students almost equally divided by sex.

The format for getting at students' health interests began with the introductory question, "What topics do you think should be included in a health curriculum for today's young people?" From that point on, each class went into different directions. Some stayed with the question at hand and listed numerous topics, while others engaged in a discussion of specific topics of particular interest. Once a class was satisfied with its list of topics, questionnaires containing six open-ended questions were distributed. Students were asked to respond to as many of the questions as they wanted to and to write whatever seemed appropriate. Their responses to the questionnaire are presented in four sections: (1) Health topics of interest to students, (2) Good health: what is it?, (3) Questions students have about health, and (4) Student suggestions for health teaching. The data were further organized by grade levels with the responses of ninth and tenth grade students pooled together followed by the combined responses of eleventh and twelfth graders. Responses are quoted verbatim, leaving intact the sentence structure and spelling appearing on the original questionnaires. Where names are used, fictitious ones are substituted.

TABLE 4.41

BREAKDOWN OF STUDENTS PARTICIPATING IN CLASS INTERVIEWS OF
HEALTH INTERESTS BY GRADE, SUBJECT AND SEX

Grade	Subject	Boys	Girls	Total
9	Math	9	9	18
10	English	6	16	22
10	Health	11	14	25
11-12	Psychology	11	10	21
11-12	Psychology	13	12	25
11-12	Sociology	11	1	12
Totals		61	62	123

Classroom Setting

One of the most impressive aspects of this part of the study was the eagerness of students to participate in discussion. While the physical setting and psychological mood of each class differed, one thing was common: Students were interested in talking about health. In two instances discussion was so lively that some concern was expressed about the noise factor. However, it was difficult to determine if students' enthusiasm was altogether generated by the subject or by the idea that they were being asked for their opinion. The answer probably lies somewhere between the two because foremost among their health concerns was the right to be heard. "Young people should be given more freedom to voice an opinion on what they want for themselves," and "Let students make up their own minds instead of teachers telling them what to do," are but two quotes which typified the mood of many students. Another student carried this thought further by alluding to a deep, more personal concern (quoted verbatim, including misspelled words):

I think teachers should try to lisson instead of telling us that we're wrong. Kids aren't as bad as people think, it's the parents and middle aged people that are making the world like it is now for the kids to grow up in. But the blame will be laid on us. I think this is why so many kids want to get out of life all together. But then again the parents think we're crazy.

We really enjoy expressing ourselves today. Thanks for listening.

Actually, students' preoccupation with the priviledge to say what they pleased was the only difficulty encountered by the investigator. Students wanted to express their opinions about so many facets of the school program that time did not always permit as much discussion about other specific health concerns as might have been otherwise possible.

But this should not be interpreted negatively. To the contrary, the methodology used for conducting class interviews appeared to be overwhelmingly successful in its effort to engage students in free and spontaneous discussions.

Health Topics of Interest to Students

Following brief introductory comments about the investigator and the study, students were asked to identify the topics they thought should be included in a health curriculum. Another technique used to get at true concerns and needs of students was to ask them for advice and suggestions as to what should be taught about health to their younger sisters or brothers.

Topics mentioned most often by ninth and tenth grade students were related to family life and sex education--sex education, preparation for marriage, and boy-girl relations were among the four highest ranked topics (Table 4.42). Sex education was cited most often, though it wasn't always accompanied by specific comments. Regarding the topic, preparation for marriage, students expressed much concern about early marriages. This may be partially explained in that several girls in the classes were married and spoke out in defense of their marital status. Their comments generated much interest in the topic. Concerning boy-girl relations, students emphasized dating and premarital sex. Students were also curious about venereal diseases and while they are technically classified as communicable diseases, students usually viewed them in terms of sexual behavior.

TABLE 4.42
RANK ORDER OF HEALTH INTERESTS FOR NINTH
AND TENTH GRADE STUDENTS

Topic	Frequency	Rank
a. Sex education	56	1
b. Drugs	48	2
c. Preparation for marriage (emphasis on early marriages)	33	3.5
d. Boy-girl relations (emphasis on dating)	33	3.5
e. Venereal diseases	30	5.5
f. Relations with parents	30	5.5
g. School and teacher indifferences toward students	23	7
h. Understanding self	16	8
i. Alcoholic beverages	15	9
j. Smoking	12	10.5
k. Crime	12	10.5
l. Food and nutrition	8	12
m. Advertisements	6	14
n. Politics	6	14
o. Religion	6	14
p. Race relations	5	17
q. Physical appearance	5	17
r. College	5	17
s. Pollution	2	19

Drug abuse was another topic of considerable interest to ninth and tenth graders. It ranked second among all topics. Sometimes students asked questions about specific drugs, such as marijuana, but most often they wanted to know why people turn to drugs. This was also true for alcohol and smoking, ranked 9 and 10.5 respectively.

Three other closely related topics were of major interest to students. They were relations with parents, ranked 5.5; school and teacher indifference toward students, ranked 7; and understanding self, ranked 8. Students' struggles for independence and recognition were reflected in their many references to conflicts with parents and criticisms of school rules and condescending teachers. Students were also interested in discussing personality development, self-confidence, and popularity.

The major interest of eleventh and twelfth grade students was social relations (Table 4.43). Students were particularly concerned about improving their relations with peers, teachers, and parents. Consistent with ninth and tenth grade students were the high ranks of sex education and venereal disease. High school juniors and seniors were distraught over the fact that these two subjects remained as "unmentionables," even at their level. Students also expressed the need for information concerning birth control which was ranked fourth along with abortion and illegitimacy. Another major interest area dealt with school irrelevancies. This was an all-encompassing term used to reflect such concerns as lack of student involvement in school affairs, lack of student autonomy and freedom, and the irrelevancies of education. The topics of drugs, alcohol, and smoking diminished considerably in popularity, dropping in rank from two

TABLE 4.43
RANK ORDER OF HEALTH INTERESTS FOR ELEVENTH
AND TWELFTH GRADE STUDENTS

Topic	Frequency	Rank
a. Social relations (parents, peers, teachers, racial)	29	1
b. Sex education	26	2
c. Venereal diseases	23	3
d. Birth control, abortion, and illegitimacy	22	4
e. School irrelevancies	18	5
f. Diseases (emphasis on cancer and sickle cell anemia)	16	6
g. Drugs, smoking, alcohol	15	7
h. Understanding self	7	8.5
i. Health behavior	7	8.5
j. Recreation and youth programs	6	10
k. Black history	5	11.5
l. Politics, war and government	5	11.5
m. Careers and going to college	4	13
n. Pollution	3	14.5
o. National and world health activities	3	16
p. Poverty	1	16

at the ninth and tenth grade levels to seven for grades eleven and twelve. The remaining topics represented a broad range of interests, many of which related to social and political issues. One possible explanation for this was that the eleventh and twelfth grade samples were enrolled in psychology and sociology classes.

Discussion of topics. Students of all grade levels submitted an impressive list of topics for discussion in health classes. Areas mentioned most often and command major attention were sex education; relationships with parents, teachers, and peers; drug abuse; school inadequacies; and mental health.

While a certain degree of commonality exists between the two lists of topics, students varied by grade level in their manner of reference. This was especially true for ninth and tenth grade students who often hinted at concerns which were personal and specific. "Should I set next to a boy on a date, or be a door-hugger," "Should I have sex with a boy," "Why do boys always want sex with girls, or girls with boys?" are three examples of the questions high school freshmen and sophomores have about their relationships with the opposite sex. Where ninth and tenth graders tended to be personal in their responses, eleventh and twelfth graders tended to be intellectual. For example, high school seniors often responded to a discussion of sex education by asking a question such as "Wouldn't it be better to have a sex education class and learn about sex in the right perspective instead of getting harmful ideas at "X" rated movies?" Ninth-twelfth grade students were equally concerned with the taboo of sex education in the school. "We cover in biology class all

the lower animals thoroughly, but when we get to man, we just skip it." Another student retorted: ". . . can dissect the frog but sure can't dissect man, in fact, can't even talk about it."

A great deal of emphasis was given to topics relating to emotional and social health. Ninth and tenth graders were especially sensitive to the demands of peer life which, to some extent, was indicated to cause distress in relationships with parents. While students in grades nine and ten were beginning to recognize what they consider to be the weaknesses and failures of their parents, eleventh and twelfth graders showed increasingly less tolerance for what they called "hypocrisy among adults"--"Teachers tell us we are equal, but they don't practice it." The harshest criticisms of any students were those expressed by high school seniors for teachers' and parents' failure to practice what they preach, and for failing to allow students freedom to decide, to choose, to move about, to express themselves in all matters, particularly about school affairs and curriculum matters.

Good Health: What Is It?

Students were asked "What does the term 'good health' mean to you? How do you know when you have good health?" Responses to these questions are presented in the exact words of students, preserving for impact sentence structure and misspelled words in their original form. It should be noted that students' concepts of "good health" are represented by a wide sampling of students' responses, going from one extreme to the other. The study did not intend to provide frequency distributions or priority listings, but rather a broad range of students' responses.

Ninth and tenth grade students.

1. Good health means being able to accept responsibility and take care of yourself. Your attitudes and actions.
2. Physically, mentally, emotionally fit--like when you can run and do a lot of exercise and not give out of breath. You can take part in any activity and don't get overweight.
3. Being in good health conditions and eating right and do the proper thing. Be good to see a doctor.
4. When your cool and are in good cool conditions.
5. When your body is functioning correctly. Have at least one check up every six months.
6. Freedom of all diseases.
7. When you feel well and act as if you're not always bored.
8. Have good personality, physical well-being, free from things that cause bad health.
9. When I feel good and clean, and nobody hasels me. I've quit smoking, that makes me feel better; I haven't got good personality.
10. When you are active, feel good, and are happy most of the time.
11. Being able to play with your friends; not have to go to the doctor.
12. Sound mind, body and soul; when you know what you're doing, you know what you feel and what you want.
13. Being able to think, act and understand yourself and others--being able to make quick decisions and act quickly if the time comes.
14. It is dependent on the person--having a fairly sound body and to try to understand yourself and some of your actions.
15. Understanding your environment and create in you a mind to stay clean and smell clean.
16. It's really your own social things--dating, parents, friendships, sex, and yourself. Just really understanding yourself.

17. To have good health a person should be alert.
18. Having good health habits such as hair, teeth, etc.

Eleventh and twelfth grade students

1. When you are physically and mentally sound. If the doctor tells you so.
2. Feeling good physically and mentally and able to handle some unforeseen strain upon your physical or mental state.
3. Good health is a general good feeling, no serious problems and a good attitude.
4. When you don't smoke or drink. When you feel good,
5. When you feel good all over and every thing goes on normally-- feel secure not worry about certain things or little things like an earache or cold.
6. Looking as neat as you can. Being and showing happiness.
7. You don't really know when you're in good health unless you have an often checkup or examination. If you don't have an often checkup you could be sick and not know it.
8. Being able to get along with others,
9. Cleanliness, proper eating habits, good family relations, understanding good health procedures, physical fitness.
10. Broad mental outlook.
11. Knowing today's problems, like venereal disease, and how to handle them.
12. Being able and strong enough to do things I want to do without having to take medicine or see a doctor.
13. Good health is when an individual is non-emotional in thoughts, is concerned with his life and the lives of others.
14. It means life and when you know you have good health you have a better response in school activities.
15. I know when my mind is at ease, and my body is clean, and my environment is together.

16. Good health means being physically well, spiritually right, and mentally balanced. Happiness comes from being spiritually rooted. You will be happy and able to participate in most physical activities.
17. When you are the weight you are at your age and that you can lift your own weight.
18. Having a good body and mind, you can feel it in your bones.

Discussion of students' responses to the meaning of health.

Students' answers to the questions: what is good health and how do you know you have it? provided meaningful feedback as to how they conceptualize health. Their responses encompassed the full gambit of expressions ranging from short statements of specific behavior to lengthy statements of abstractions. And while responses varied considerably on an individual basis, they tended to be similar in scope from one grade level to the next.

No clear cut pattern was observed when viewing students' responses by grade level. Students in grades nine and ten tended to be specific and/or general in their concept of health equally as often as did the upperclassmen. However, visions of several trends appeared, though they were vague and certainly not universal. One trend was that students in the upper two grades recognized the importance of positive mental and emotional qualities in their definitions of health a little more often than did students in the lower grades. This was understandable when considering that juniors and seniors were currently enrolled in psychology classes. Another trend could be seen when analyzing responses by sex. Boys, particularly those in grades nine and ten, tended to see health in physical terms more often than girls. "You can lift your own weight,"

". . . can take part in any activity," ". . . feel in top physical shape," ". . . participate in school activities and are physically fit," were cited by many boys as characteristics of the healthy person. Girls on the other hand often saw health in terms of "good personality," ". . . showing happiness," and ". . . mentally balanced and spiritually rooted."

Surprising because of its absence from most responses was the general lack of reference to the sociological dimensions of health. Students did not usually include in their concept of health acceptable relationships with peers, parents, teachers, etc. Nor was there usually any reference to factors of communication. This was surprising because of the expressed interest in these areas as important ingredients of a health course. This seemed to indicate that while students were concerned about their relationships with others, they tended to conceptualize health as a personal and individual matter, rather than an all-encompassing, social level.

Finally, students' concepts of health lent themselves to many possible uses. Not only did they allude to student misconceptions and misinformation, but they also hinted at problems of deep personal concern. They also provided good starting points for getting students to think and talk health. To classroom teachers and curriculum planners they represent a rich source of information.

Questions Students Have About Health

Students were asked to formulate questions about any of the health topics discussed in class showing what they think students want help with.

A sample of their responses is presented according to related topics. Many responses indicated a feeling toward a topic rather than a question. In some instances, students responded in short phrases. All are included here in the exact words of students.

Ninth and tenth grade students.

1. Questions related to family life and sex education.

- (1) What about dating and being able to use the car?
- (2) Should you sit next to the boy on a date or be a doorhugger?
- (3) When your dating where would be an appropriate place to go in our city?
- (4) Why are so many parents getting divorces?
- (5) What is wrong with early marriages?
- (6) Is shacking-up proper? Do people get enjoyment from premarital sex? Why do young people indulge in sex? Should they get married? Is it wrong to have sexual contact? Should you get involved with the other person? Should the people know each other?
- (7) Should I have sex with a boy? Should I lay around with every boy I come to? Why do boys always want sex with girls, or girls with boys?
- (8) Why should young people learn about sex from the back street?
- (9) Why do people call girls whore?
- (10) Why you should marry and when?
- (11) What is V.D.? How do you prevent it?

2. Questions related to social-emotional health.

- (1) Why don't parents sometimes understand the things their children want or need to be along with others?
- (2) Why don't parents trust us?

- (3) Why do parents have such awful rules on dating? I mean they say they trust you but when you ask them about going out they are always different.
- (4) How do you make your parents understand teenagers?
- (5) Why are parents so protective?
- (6) How are you supposed to act in front of a group?
- (7) What do you do when you don't get along with your step-mother, brother, etc.?
- (8) Why should boys get more privileges in families?
- (9) Why are mixed relationships looked down upon?

3. Questions related to mental health.

- (1) Should you worry yourself about self-confidence, popularity, and acceptance in society?
- (2) Personal problems.
- (3) Indifference.

4. Questions related to drugs.

- (1) Why do people want to take drugs when they know it can hurt them?
- (2) Why do people resort to crime for the money to buy drugs?
- (3) What kind of drugs are worst?
- (4) What's wrong with marijuana?
- (5) Why don't we go to a university so we can see dope users?
- (6) How is smoking harmful to your health; what effects does it have on your body?
- (7) What effect does alcohol have on your health and how does it overcome your body? Why do people drink?

5. Questions related to personal health, body growth and development.

- (1) How can you get your fingernails to grow?

(2) I have many personal problems but the one that worries me is hair grooming. How long, short, clean, or dirty?

(3) How does the food we eat affect us?

6. Other questions.

(1) Is advertising deceiving?

(2) Why don't we have younger teachers?

Eleventh and twelfth grade students.

1. Questions related to school.

(1) Why must teachers turn to past teaching experiences, rather than the present?

(2) Why must there be specific rules for all pleasures in school activities?

(3) Why can't we have freer classes?

(4) What about student voice. Freedom of choice?

(5) Why is it that we have no black history?

(6) They ought to teach what they teach better instead of trying to teach so fast. Teach more, test less.

(7) Involvement of younger teachers--their answers to a lot of problems and newer ways of teaching.

(8) Student-teacher understanding.

2. Questions related to social-emotional health.

(1) Students relations in school and community.

(2) Racial problems with different mates.

(3) Why do school members say every year it will be better for the BLACKS, yet it only becomes worse?

(4) What kind of relationship should we have at our ages?

(5) Most students want help with relations with other people.

- (6) How can young people get involved with "the establishment" in order to work together to settle problems?

3. Questions related to mental health.

- (1) How to help students to express their feelings and to cope with and conquer their problems.
- (2) To teach students not to be afraid to seek help and advise when they are in trouble.
- (3) No one cares, listens, understands; the world is slightly in a mess.
- (4) What causes hypocrisy, who do older people tell us not to mingle with our friends?
- (5) The problem of prejudice and discrimination.
- (6) Most of mental illness is in the head. People go crazy if they lose a loved one or if pressure is too deep and not let out.

4. Questions related to family life and sex education.

- (1) Wouldn't it be better to have a sex education class and learn about sex in the right perspective instead of getting harmful ideas at "X" rated movies?
- (2) How can we plan to be good parents?
- (3) Sex education would be a good subject as it would help students determine their roles as men and women and develop a sense of responsibilities.
- (4) To know what sex means and how to tell if you've got venereal disease and what to do if you get it.
- (5) Sex should only be talked about by a younger teacher who has no problems talking to students.
- (6) I think that most students want to talk about sex. Most are embarrassed to talk about it to anybody but they shouldn't be.
- (7) Preventing pregnancy, and birth control.
- (8) Illegitimacy.

5. Questions related to drugs.

- (1) People should be taught to understand those who take it, then should be taught how to handle them in such cases. Need to know how to deal with those taking alcohol.
- (2) I think students would enjoy studying smoking, drugs and alcohol.
- (3) The effects of alcohol, drugs and smoking on your health, families, and social life.

6. Other questions.

- (1) Why can't we have recreation, youth programs, and dances?
- (2) How young people can find entertainment without getting into trouble.
- (3) Most students want to learn more about drug abuse, pollution, and about social problems. These are about the only subjects you can talk about in this school and not get in trouble.

Discussion of students' questions. Especially noteworthy about the questions students have with respect to their health was the absence of inquiries regarding many of the topics indicated earlier by the same students to be important in a health course. The first response to this finding was to negate the value of topics not reinforced by questions, thinking that students mentioned them only out of an intellectual concern, rather than a personal one. However, this initial response was probably not justified because students usually submitted one, and seldom more than two, questions. And these questions seemed to reflect interests and concerns of the highest priority.

Students in the ninth and tenth grades were especially concerned about the area of sex education. Their many questions about dating and premarital sex seemed to reflect a deep personal concern for the problem

of developing relationships with the opposite sex. Their questions indicated an uncertainty as to how to deal with sex--"how far to go." And confusion about what boys and girls expect of each other regarding dating and sex was particularly imminent.

Another area of particular interest to high school freshmen and sophomores was social and emotional health. Pervading this area were questions focusing on students' relationship with their parents. Many of their questions pointed to conflicts and problems between parents and their teenage children. This has long been considered characteristic of that age group, but it was refreshing to note that students seemed to be equally distressed and concerned as their parents at the lack of understanding, trust, and confidence between the two. Questions in this area appeared to indicate that students do not, as often suspected, have an indifferent attitude about their relationships with parents.

Eleventh and twelfth grade students also expressed concern about family life and sex education. But their questions, for the most part, were asked on a level different from that of students in grades nine and ten. Unlike students in the earlier grades who tended to ask questions reflecting more of a personal concern, upperclassmen tended to refer to sex education as an idea or issue. They recognized the inability of schools to provide any sex education and subsequently indicted schools, teachers, and parents alike. Many of their comments were not in the form of questions, but rather in the form of suggestions and advice.

Especially conspicuous were questions and comments students in grades eleven and twelve had about school matters. At first glance, many of these comments seemed to be aimed directly at school rules, procedures,

and teaching methods. But it is possible that this was a superficial judgment. It seems likely that students' preoccupation with criticisms of schools and teachers reflected a deeper psychological need. It is possible that some of the most pressing needs of these students are to be heard, to be recognized, and to be allowed to direct and control to a larger extent matters which affect them.

Another noticeable trend was observed in the area of social-emotional health. Concern about parents in the two lower grades shifted to more universal issues in the upper two grades. Eleventh and twelfth grade students more frequently expressed a need to improve "racial relationships," relationships with "the establishment," and "with other people."

Numerous other questions were cited by students at all grade levels, particularly in the areas of mental health and drugs. And while questions in these areas did not gravitate to any central issue, they did allude to a characteristic which was common to most all questions. Students tended to be much more concerned with the "why's" rather than the "what's." Questions such as "why don't parents trust us," "why do young people in high school tend to have intercourse," "why do people feel a need for drugs," "why can't we have freer classes," occurred more frequently than questions such as "what kind of drugs are worst," and "what advertisements should we believe." This had strong implications to the psychological needs of high school students. It seemed to indicate that many students are beginning to question many of their ideas and beliefs which have up to now been accepted without question and are seeking opportunities to discuss, think, reason, and resolve conflicts independently.

The value of students' questions about their health was limitless. Not only did they indicate specifically those things which were of interest and concern to students but they also provided a feel for "where students are." Additionally, they were invaluable sources of information because they indicated what students want to know and how to go about it. The findings of this section of the study suggest a strong need for learning opportunities in the areas of family life and sex education, mental health, social and emotional health, and drug abuse. It is especially important that these learning opportunities be student centered, rather than teacher centered.

Students' Suggestions for Health Teaching

Students were requested to make suggestions that the school or teachers might use to help young people better understand themselves and their health. They were also asked to comment on what the school should teach about health and how it should be taught. A wide sampling of their responses to these questions is presented verbatim as they relate to teachers, teaching methods, and schools.

Ninth and tenth grade students.

1. Comments related to teachers.

- (1) Let the teachers mind their work and stay out of other people's business unless they are asked for their opinion.
- (2) Do not use large words. Use general terms.
- (3) Teachers should stick to school subjects and not to students personal life.
- (4) Teachers should practice what they preach.

- (5) Not be so gripy.
- (6) Teachers shouldn't be disturbed because a kid didn't have his lessons. If he doesn't want to learn, he should go home.
- (7) Don't criticize so much. Look at the person himself and not his long hair or blue jeans. Trust and try to understand everyone till they show otherwise.
- (8) Teachers should learn more about each students personal problems but let them have their own point of view about drugs and crime and parent relationships.

2. Comments related to teaching methods.

- (1) If they would just kind of inform you instead of making you do your homework because if you really didn't want to know it you wouldn't take that subject and you might learn more.
- (2) Let us tell them what we think.
- (3) Be open minded and grade on an individual basis.
- (4) Let students make up their own minds instead of teachers telling them what to do. Teachers talk too much.
- (5) Use a lot of films and movies to make people better understand.
- (6) Teachers should be frank about sex and other personal subjects and not be embarrassed.
- (7) I think health can be interesting if someone is going to be serious. Teachers shouldn't make you learn but help you learn. If they would inform you, you would learn it if you wanted to. They should discuss health with classes. Let the student speak! Have debates! Have an orderly discussion and let the student think. By this he would learn.
- (8) I think it should be taught where they feel free to be able to discuss personal problems or anything that needs to be attended to.
- (9) Teachers make tests sound so hard before they hand them out everyone is too nervous to do well.
- (10) I don't think health should be taught from a book. This way, it is so dull and uninteresting, no one thinks it is important.

- (11) It should teach the results of venereal disease and the class should have good sex vibrations without embarrassment. It should teach the good food to eat and how it affects the body with experimental animals.

3. Comments related to school.

- (1) Have books dealing with today's health problems.
- (2) Help us be prepared for a future life with a family, with other people, and with jobs. Be able to understand all classes and types of people.
- (3) The school should use models and films. Last year the school had what they called a drug program. All it was was a stupid film telling us exactly what we already knew. One school had a committee of students that had investigated drugs. They asked if they could come and speak to our school on drug abuse. Mr. Principal turned them down. Finally, at the end of last year when noone could think of anything to do at assembly, Mr. Principal finally asked them to come and speak. This was the extent of Mr. Principal's drug program.
- (4) Deal with moral relationships--the way people act is the way they're treated--why people act the way they do.
- (5) Teachers teach a specific class with specific people--such as those who really want to learn and really care about the future. People who don't care should be taught by someone who understands them and has time to help them.
- (6) Have a health credit to go with science major.
- (7) Schools should teach about dating, parents, and personal problems and things that the students want to talk about, not the things that the teachers want to talk about.
- (8) I believe that younger teachers can understand the problems of today's teenagers better than the older teacher.
- (9) I think they should have a youth organization from ages 14 and up, and let the young people talk freely of their problems among each other.
- (10) Health should be taught in the lower grades.
- (11) I think teachers should teach everything concerning health such as sex, drugs, etc., and especially more on sex relationships

and venereal disease and what can happen to young people from sex. The classes should be mixed and teachers should let students express their feelings.

Eleventh and twelfth grade students.

1. Comments related to teachers.

- (1) Teachers should take a positive view of the students, and the students likewise to the teacher. They should get down to the real nitty gritty and tell the real thing. Trust should be a vital material used in teaching and should be administered properly. They should make their classes exciting and worthwhile and get away from this repititious humdrum.
- (2) It would greatly help if teachers were concerned about the students instead of being so intent upon controlling the students' affairs.
- (3) Teachers should understand our views about education and life. Understand how we feel about different views on subjects. They don't understand the young people and how they act. They don't understand us on sex education.
- (4) Need younger teachers who are more near us in all ways.
- (5) Practice what they preach.
- (6) Teachers shouldn't back off from subject that have always been risque.

2. Comments related to teaching methods.

- (1) Teachers should provide students with the knowledge of what can happen through health habits and how to avoid these bad habits.
- (2) Do more discussion than all this homework. It's just a waste of time.
- (3) I cannot answer this question truthfully because my teachers in the past taught me one way and made me believe it. I know no other way except the way they believe in.
- (4) Teach more and talk less.
- (5) They may try to understand a student better. Some teachers, if they can't hold the student interest in the classroom they will

blame it on the students and then they will treat them like first graders just because they can't teach well enough to hold their interest.

- (6) Give the students an opportunity to speak out and tell how they feel.
- (7) Teach more about emotional health.
- (8) Keep up with the latest health developments and discuss them.
- (9) Problems of body, diseases, etc. should be taught and the student shouldn't have to read books to find out this.
- (10) Problems should be discussed openly, health should be "today" not a history of people and eradicated diseases.

3. Comments related to school.

- (1) I think this school should have a qualified health teacher. We need someone to teach us about sex, marriage, drugs, V.D., etc. If we are not taught how else are we going to know about it, unless we go out and try it ourselves.
- (2) Require a course of health and have a young and interesting teacher teach it who isn't embarrassed about the human body.
- (3) Schools could get rid of some of their ridiculous, homemade oldfashion rules.
- (4) Teachers and the school should first encourage instead of discouraging individualism.
- (5) Have counselors to help people with their problems, not just what college to attend.
- (6) Students should be treated as mature adults and then teachers can discuss problems like they were talking to a friend.
- (7) Teachers should be free to say anything without worrying about it.
- (8) In my opinion the school should be investigated by the Board of Education, there is more behind than meets the eye.

Discussion of students' suggestions for health teaching. Examination of students' responses to the questions of what schools and teachers can

do to improve health teaching revealed criticisms aimed at the entire educational establishment. Students indicted teachers, schools, curricula, textbooks, and teaching methods. Few, if any, aspects of the school were spared sharp criticisms. If, in actuality, students are denied the opportunity to express their feelings in school to the extent that they indicate, they more than compensated for the deficiency in this evaluation. Students' responses to this portion of the questionnaire were more numerous and seemed to reflect a more serious attitude than those to previous questions.

Students seemed to be very much aware of many of the schools' shortcomings. For one thing, students repeatedly expressed the need for a health course. The health course, it was suggested, should not be offered as a biology class. Neither should it be taught by the physical education teacher or coach. Instead, they continued, it should focus on the real health needs of students, as expressed by students and it should be taught truthfully by a teacher who can be straightforward about sensitive subjects. Students also recognized some of the schools' token efforts in health education. One student, for example, was critical of his school's drug program which consisted of a one-day film presentation during school assembly. Many more students expressed concern about the complete absence in the schools' curricula of topics of most interest, such as sex education. Last, but certainly not least, students criticized schools for not providing opportunities which allow students to have some voice in school matters. Students seemed to reflect an attitude about their schools which make them appear stifling, confining, and even incarcerating.

Students were also open in their criticisms of teachers and responded with a long list of their liabilities. Consistently mentioned as a weakness of teachers was their tendency to be condescending to students. Teachers were accused of being overcritical, impatient, and hypocritical. Students suggested repeatedly that teachers take a positive view of students, show respect for students' point of view, respond with understanding, listen to students, teach more and talk less, trust students, quit moralizing, and practice what they preach. Also noticeable by its presence was students' frequent reference to the desirable age of a health teacher. Students often expressed the feeling they could relate only to a young teacher, and vice versa.

Regarding teaching methods, students offered numerous suggestions. Occurring most frequently was the recommendation that the health course be structured to allow for plenty of discussions, group activities, and most of all student involvement. Students continually expressed a desire to pursue health matters of concern to them, rather than those of concern to teachers. One of the most specific and frequently occurring criticisms by students was aimed at health textbooks. Students were either dissatisfied with the textbook being used or with the manner in which teachers used them. Many criticisms were directed at teachers who rely too heavily on the use of the textbook as their approach to teaching. Criticisms of the overuse of textbooks were consistent with many other comments in which students indicated an overemphasis on busy work, homework, and written assignments. They seemed to recognize, though indirectly, that health is more than an academic experience; it is a personal experience. Students appeared to be asking for an approach in

health education which is experientially oriented, rather than merely confining it to an intellectual effort.

In conclusion, numerous other criticisms and suggestions could be cited regarding the organization and teaching of health. But for the most part they confirm or support the comments already made. It is important to note that the identification of students' criticisms and comments in this study does not intend to suggest that they be acted on individually. This would be impractical, if not unwise. But if administrators and teachers place any value on students' opinions--the consumers--they would be wise to listen to what students have to say.

Summary

One thing should be remembered when examining the responses of students to class interviews and open-ended questionnaires which were designed to throw light on students' health interests. The 123 students who participated in this phase of the study represented only a small percentage of the total high school population. No pretense of randomization or true representation was suggested.

During the early stages of this study there were some questions as to the best approach for eliciting the true concerns of students: Would an open-ended approach work? Would students express themselves freely and honestly? These questions were quickly answered by the overwhelming responses of students. They responded enthusiastically and seriously and showed that if given the opportunity they would express themselves with candor.

Students indicated an interest in a large number of health topics. Based on frequency alone, the areas commanding major attention at all grade levels were mental health, sex education, social and emotional health, drug abuse, and school rules and regulations.

Students submitted many questions relative to health. A large percentage of them reflected a concern for improving relationships with peers, parents, and particularly the opposite sex. Much concern was also expressed for the lack of student autonomy in school matters.

No clear cut pattern emerged from students' response to the question, "Good health: what is it?" Answers varied by individual with some conceptualizing health as a specific behavior (lift your own weight), several others conceptualized it as encompassing all of life, while most saw health as somewhere in between.

Finally, students were especially vocal when asked to suggest how schools and teachers could improve the teaching of health. In fact, one of the most significant findings of this part of the study was that students have definite ideas about health education; they are critical of schools and how they organize for education; and they are sensitive to teachers and the methods they employ. To these ends, students want desperately to be heard.

The overall responses of students to the health-interest phase of this study provided invaluable insights into the immediate problems and needs of students. Their responses represent a rich source of information to the classroom teacher and/or curriculum planner if they are striving for a truly functional curriculum. It seems, therefore,

incumbent on the schools and teachers to respond to the essence of students' suggestions and criticisms if health education is to have meaning and relevance.

IV. COMMUNITY PERCEPTIONS OF HEALTH PROBLEMS

A questionnaire consisting of seven questions was administered to various members of the Bedford County community to determine what they perceived to be health problems and to indicate their ideas about the role of the school in the solution of these problems. Representing the community were four groups of persons: health personnel, school personnel, lay leaders, and community leaders (these groups are defined in Chapter I, page 11).

One hundred twenty-one questionnaires were sent to community personnel. Eighty-one were returned with 75 (62 percent) completed. A breakdown of returned questionnaires by group is presented in Table 4.44. The highest percentage of completed questionnaires were found for school personnel and health personnel.

Local Health Problems

The questionnaire began by asking respondents to indicate how they feel about community health problems. A response sheet consisting of sixteen health problems was provided. Beside each problem was a five point rating scale ranging from "extremely severe--warranting immediate action" to "no problem at all." Community personnel rated each problem according to what they felt represented its severity in Bedford County.

TABLE 4.44
PERCENTAGE OF COMMUNITY PERSONNEL GROUPS
COMPLETING QUESTIONNAIRES

Group	Number of Questionnaires			Percentage of Total Sent
	Sent	Returned	Completed	
Health Personnel	39	28	27	69%
School Personnel	15	13	13	87%
Lay Leaders	23	13	13	57%
Community Leaders	44	27	22	50%
Combined Total	121	81	75	62%

Rank order listings of the problems by groups are presented in Table 4.45. They were based on the mean ratings for each group. By combining the ratings of all groups, it was possible to derive composite mean ratings and rankings.

Accidents were considered the most pressing problem by the entire sample. Following it in descending order were heart disease, cancer, illegitimacy, alcoholism, and drug abuse. The least pressing problems were infant mortality, air pollution, availability of health services, urban renewal, unemployment, and water pollution. The remaining areas, social welfare pay for the elderly, consumer protection, venereal disease, and nutrition were ranked 7, 8, 9, and 10 respectively.

It was interesting to note that accidents were perceived as the severest problem especially when considering that heart disease and cancer are almost universally recognized as the two most pressing problems in the country. Additionally, Bedford County is certainly no large metropolitan area where a high rate of accidents might be anticipated. It was also interesting to note that illegitimacy, alcoholism, and drug abuse were rated among the six most severe problems. They are considered social health problems and their high rankings have implications to all segments of the community. Not only are they usually accompanied by controversy but they also provide a feel for the sensitivity of a community to certain issues. While the present study did not reflect on the community's sensitivity level or its willingness to resolve these problems, it was important to note that a large percentage of the community sample recognized them as problems. This was important because recognition is an important first step to resolution.

TABLE 4.45

MEAN RATINGS AND RANKS OF HEALTH PROBLEMS BY COMMUNITY PERSONNEL GROUPS*

Health Problem	Composite		Health Personnel		School Personnel		Lay Leaders		Community Leaders	
	Mean	Rank	Mean	Rank	Mean	Rank	Mean	Rank	Mean	Rank
a. Accidents	3.36	1	3.41	2	2.85	5.5	3.86	1	2.92	3
b. Heart disease	3.28	2	3.42	1	2.85	5.5	3.45	2.5	3.15	2
c. Cancer	3.21	3	3.15	6	3.00	3	3.41	4	3.23	1
d. Illegitimacy	3.14	4	3.16	5	3.00	3	3.45	2.5	2.67	5
e. Alcoholism	3.08	5	3.19	4	3.00	3	3.32	6	2.54	9
f. Drug abuse	3.01	6	2.81	9	3.23	1	3.36	5	2.58	7
g. Social welfare pay for the elderly	2.88	7	3.23	3	2.10	14	2.95	9.5	2.64	6
h. Consumer protection	2.87	8	2.96	7	2.72	7	3.15	7	2.75	4
i. Venereal disease	2.71	9	2.95	8	2.30	12	2.95	9.5	2.18	11
j. Nutrition	2.51	10	2.62	10	2.62	8	2.50	13	2.23	10
k. Water pollution	2.50	11	2.50	11	2.15	13	3.05	8	1.92	14.5
l. Unemployment	2.45	12	2.37	14	2.38	9.5	2.86	11	2.00	13
m. Urban renewal	2.42	13	2.23	15	2.08	15	2.77	12	2.55	8
n. Availability of health services	2.35	14	2.41	13	2.38	9.5	2.41	14	2.07	12
o. Air pollution	2.32	15	2.48	12	2.31	11	2.36	15	1.92	14.5
p. Infant mortality	1.96	16	2.13	16	1.55	16	2.18	16	1.58	16

* Rating scale ranged from five (a severe problem) to one (no problem).

Comparing the ratings of problems according to group, it can be seen that the sample group of lay leaders tended to perceive health problems more severely than other groups. Community leaders, on the other hand, were the most conservative group in their ratings. Members of the health group, who it seems fair to assume are in close contact with health and medical problems, rated health problems more severely than school personnel and community leaders, but less severely than lay leaders.

The ranks of community perceptions of health problems by group suggest that members of the community sample, regardless of group identification, agreed on problems considered to be most pressing and least pressing. Accidents, heart disease, cancer, and illegitimacy were unanimously ranked as the most severe problems. Alcoholism was endorsed as a major problem by three groups: health personnel, lay leaders, and school personnel while drug abuse was considered a major problem by lay leaders and school personnel only. Social welfare payments for the elderly was perceived as one of the six most pressing problems by the health and community leader groups as was consumer protection by community leaders alone. Consistently ranked as least pressing were infant mortality and air pollution. The remaining areas fluctuated in ranking by group although urban renewal, availability of health services, unemployment, water pollution, and nutrition were consistently low.

Some respondents cited additional community problems not included in the original list. Foremost among these were concerns for educational facilities, schools, recreation facilities, and youth guidance. Some of the concern for educational facilities may be attributed to a county-wide

school expansion referendum which was voted down during the time of this investigation. Other problems most frequently identified were mental problems; human relations and race relations; parent-child relations; driver education and automobile accidents; government, its economy and efficiency; welfare abuse and poverty; and law enforcement, crimes and immorality.

Agencies for Problem Solution

Having identified community problems, respondents were asked to identify the community agencies they felt can contribute most to the alleviation of the six problems indicated to be most severe.

Responses to this question varied considerably by group and individual. Generally speaking, the health personnel group had more insights about the involvement of agencies for solving community problems than did other groups. Where identification of agencies for various problems was the rule for the health group, it was usually the exception for members of the other groups.

To help alleviate the problem of accidents the majority of persons in all groups favored better law enforcement. For many this meant strengthening the local police department and getting closer supervision from the highway patrol department. Mentioned several times was a request to have tighter laws regarding the use of motorcycles. Educational programs were cited frequently as being useful in reducing accidents. These programs, it was contended, should be offered in the form of driver training.

Health personnel emphasized more involvement of the local medical society, voluntary agencies, public health department, and private practitioners of medicine as the best solutions to cancer and heart disease. More publicity by the news media was considered a necessity. Several physicians also suggested an overall evaluation and reshaping of the health care system. School personnel did not usually identify agencies for solving these two problems while lay leaders and community leaders alike most often recommended the local heart fund, cancer society, and public health department. Schools were seldom mentioned by any group as contributing to the reduction of these two problems.

There seemed to be uncertainty as to the agency best suited for alleviating illegitimacy. The majority of respondents indicated "no agency" or left it blank. Of those responding, the Welfare Department, schools, churches, and parents were most often cited. Occasionally recommended by community and lay leaders were sex education programs at home and school. Other responses ranged from use of Planned Parenthood Association to the denial of welfare payments to unwed mothers.

To solve the drug abuse problem groups of community personnel were almost equally divided between law enforcement agencies and schools. More often than not, the two were mentioned together. Lay leaders also expressed the need to involve parents, civic clubs, churches, and the local mental health center.

The problem of alcoholism was viewed somewhat differently from that of drug abuse in that schools and law enforcement agencies were not usually considered to be significant in their contributions. Instead, health personnel recommended the use of Alcoholics Anonymous, mental

health associations, and concentrated efforts of private physicians. Several physicians stated that they had no answers to this problem. School personnel and lay leaders added public health department and churches to the list of agencies useful for the alleviation of alcoholism.

Schools' Contribution to Alleviating Health Problems

Having identified major health problems and the agencies considered to contribute most to their possible solution, community members were asked to evaluate each problem again; this time, according to the extent they thought the school could effectively contribute to their possible solution. Each problem was evaluated using a five point rating scale ranging from "very significant contribution" to "no contribution."

Schools were considered by the entire community sample to have their most significant potential for alleviating the problems of drug abuse, venereal disease, nutrition, alcoholism, accidents, and illegitimacy, in that order (Table 4.46). The contribution of the school was seen as least effective for social welfare payments for the elderly followed in ascending order by urban renewal, infant mortality, cancer, unemployment, and air pollution. The remaining areas received the middlemost ratings meaning that the school had a contribution, but not a very significant one.

It was interesting to note that community personnel as a whole perceived the school to have an important contribution in the alleviation of four of the six problems considered most severe. These were accidents, illegitimacy, alcoholism, and drug abuse. Heart disease and cancer, the second and third most severe problems, were not thought to have

TABLE 4.46

MEAN RATINGS AND RANKS OF THE SCHOOLS' CONTRIBUTION TO THE SOLUTION OF HEALTH PROBLEMS--AS PERCEIVED BY COMMUNITY PERSONNEL*

Health Problem	Composite		Health Personnel		School Personnel		Lay Leaders		Community Leaders	
	Mean	Rank	Mean	Rank	Mean	Rank	Mean	Rank	Mean	Rank
a. Drug abuse	4.30	1	4.40	2	4.15	2.5	4.19	2	4.42	1
b. Venereal disease	4.24	2	4.56	1	3.85	4	4.38	1	3.75	6
c. Nutrition	4.21	3	4.12	3	4.77	1	4.05	3	4.08	2.5
d. Accidents	3.92	4	3.76	7	4.15	2.5	3.91	4	4.00	4
e. Illegitimacy	3.85	5	4.08	4	3.39	8.5	3.86	5	3.83	5
f. Alcoholism	3.82	6	4.00	5	3.54	6	3.62	6	4.08	2.5
g. Water pollution	3.33	7	3.56	10	3.62	5	3.40	8	2.42	13.5
h. Availability of health services	3.24	8	3.36	12	3.39	8.5	3.48	7	2.42	13.5
i. Consumer protection	3.19	9	3.65	9	3.17	12	2.81	11	3.00	7
j. Heart disease	3.17	10	3.71	8	3.23	11	2.91	10	2.50	12
k. Air pollution	3.16	11	3.84	6	3.15	13	3.05	9	2.67	10
l. Unemployment	3.10	12	3.38	11	3.46	7	2.75	12	2.75	8.5
m. Cancer	3.00	13	3.35	13	3.31	10	2.67	13	2.58	11
n. Infant mortality	2.63	14	3.08	14	2.31	14	2.24	14	2.75	8.5
o. Urban renewal	2.21	15	2.64	15	2.00	15	2.00	15	2.00	15
p. Social welfare pay for the elderly	1.94	16	2.39	16	1.58	16	1.90	16	1.50	16

* Rating scale ranged from five (a very significant contribution) to one (no contribution).

particularly important applicability to the school health education program.

The group of health personnel was more optimistic about the schools' potential for alleviating health problems than were other groups. Their mean ratings were consistently higher. School personnel and lay leaders were second and third respectively while the ratings of community leaders were the most conservative.

Comparing rank order listings of health problems by group, it can be seen that among the six areas recognized as being the ones in which the school could contribute meaningfully, four of these were common to all groups. They were drug abuse, venereal disease, nutrition, and alcoholism. It was worthy to note that illegitimacy and accidents, problems of top priority, received high rankings by only three groups. Accidents were ranked seventh by the health group and illegitimacy had a rank of 8.5 by school personnel.

Another point of interest was the difference in ranks for cancer and heart disease by the health group. Heart disease received a ranking of eight compared to a ranking of 13 for cancer. This might be surprising to some observers especially when considering the commonalities between the two. Both are degenerative diseases usually occurring in later years. And educational programs aimed at these two major health problems have been similar.

Quality of the School Health Education Program

Respondents were requested to evaluate their school's health education program using a five point rating scale. Five represented "very good"

which meant that the program was optimal; four on the scale described a "good" program, that is, better than average; and a program rated three was considered average. By the same token, a program with a rating of two was "poor" or less than average and one represented "bad" indicating dissatisfaction with the school's health program.

Community personnel as a whole rated the school health education program as slightly less than average (Table 4.47). The lowest ratings were turned in by health personnel followed by community leaders and school personnel. Lay leaders submitted the highest evaluations. It was significant that even the highest rating of the program did not reach the "good" category and, in fact, only two ratings indicated that the school health education programs were considered to be at least "average."

Reasons Given for the Present Quality of the School Health Education Program

Community leaders were asked for three reasons which have prevented the school health program from being better than it now is. Forty-eight (67 percent) of the total sample responded with one or more reasons.

Five primary reasons were cited for the present quality of the school health education program (Table 4.48). Most often mentioned by all groups was a philosophy among school personnel which reflected a lack of understanding of the value of health education. In elaboration of this point, many contended that "health does not appear to be a major subject in school. More emphasis is placed on college preparatory subjects and how to win ball games." Several members of the health group were emphatic about the overemphasis on physical education and confusing it with health

TABLE 4.47
MEAN RATING OF SCHOOL HEALTH EDUCATION PROGRAM*

Group	Mean Rating
Health Personnel	2.60
School Personnel	3.00
Lay Leaders	3.20
Community Leaders	2.75
Composite	2.79

* Rating scale ranged from five (very good) to one (bad).

TABLE 4.48
REASONS OFFERED FOR PRESENT QUALITY OF SCHOOL
HEALTH EDUCATION PROGRAM

Reason	Frequency of Occurrence
Philosophy of school personnel	26
Lack of community understanding and support	25
Inadequate funds	22
Deficiencies of school program	13
Lack of professionally trained teachers	13
Others	3

education. Additionally, it was worthy to note that several members of the school group attributed the current status of the health program to a lack of pressure from the State Board of Education. Lack of vision by school administrators at all levels was also cited frequently--"have had to wait till the social problems surface to show a need," Several members of the health sample sensed an attitude among school personnel which held that "health is a waste of time." Many more indicated a feeling that school leaders were simply not interested in the area. And finally, the controversial nature of some aspects of health was considered an obstacle to an improved program. To this point, two quotes--one by a lay leader, another by a health professional--typified the attitude of several respondents: "schools are afraid to deal with significant issues, such as sex education and human problems of relationship, because of varied points of views of controversies," and "teachers are apprehensive of parent reaction to some subjects."

Lack of community understanding and support was offered as the second most prevalent reason. A "no care" attitude among community leaders, poor leadership and planning, laxity on the part of parents, and lack of involvement by responsible people delineate more specifically the responses of persons in all groups. A member of the lay leader group reflected on a general attitude he perceived to exist in the community by stating that health is basically for culturally-economically deprived families; others get instruction at home. A physician concluded his response to this question by indicating that the community "lacks an appreciation of the fact that maintenance of good health throughout life

requires that knowledge of matters pertaining to health must be imparted at an early stage in life so that good health practices can be established at an early time."

In commenting on inadequate funds, community personnel cited lack of facilities and equipment, overcrowding, and understaffing of teaching personnel as reasons why the health education program was not better than it could be.

Regarding program deficiencies, schools were criticized for not having a health education curriculum; lack of teaching materials, textbooks, and audiovisual aids; and for not allowing time specifically set aside for health training. Teaching methods were also blamed for the lack of interest among students. Schools and teachers alike were criticized for "not knowing how to cope with the situation of today's health needs."

The last reason offered was the lack of enthusiastic and professionally trained teachers. This was partially attributed to inadequate funds to hire health education specialists. However, many persons expressed an attitude which suggested that this was due primarily to the philosophy of school administrators and the priorities they establish for hiring personnel, rather than lack of money alone.

Suggestions for Improving the School Health Education Program

Respondents were asked to provide suggestions which would improve the school health education program. Sixty-seven percent of the community groups combined listed one or more suggestions.

The most frequently appearing suggestion by all groups was to provide more health instruction (Table 4.49). Many respondents recognized that a health curriculum did not exist and strongly recommended that efforts be directed at the development and implementation of one. Such a curriculum, it was contended, should use a variety of materials including updated textbooks, and should be responsive to students' needs. Some went on to say that instruction in drug abuse, personal health, sex education, and nutrition was essential. It was also suggested that more time be allotted to health education; in fact, individuals repeatedly stressed the need for a separate health education course exclusive of physical education.

Hiring enthusiastic and qualified teachers was often cited as a needed improvement. To this point it was suggested that teachers "should teach health education in a way which would be interesting, challenging, and important to students." Persons in the health group continually recommended more effective teaching methods including better use of audio-visual aids. Efforts at providing continuing education for teachers were also highly recommended.

Health professionals and community leaders were particularly impressed with the need for more extensive use of community resources. Community leaders tended to view the need in a reciprocal manner in which schools seek to more actively engage various community organizations on the one hand, and community agencies attempt to make their services more readily available on the other. Health personnel placed a great deal of emphasis on the schools' responsibility to take better advantage of the expertise of available medical professionals, private and public alike.

TABLE 4.49
SUGGESTIONS FOR IMPROVING SCHOOL HEALTH EDUCATION PROGRAM

Suggestion	Frequency of Occurrence
More health instruction	47
More and better teachers	28
Better use of community health resources	15
Improved understanding of health education among school and community leaders	8
More money	7
Others	3

Only eight persons indicated that the school health education program would benefit by efforts aimed at improving the understanding of the value of health education among school and community leaders. This was noteworthy because an unfavorable philosophy of school personnel toward health education and a lack of community support were reasons offered most often for the present quality of the program. This might be explained in that community personnel saw provisions for more health instruction, more qualified teachers, and better use of community resources as reflections of an improved understanding among school and community leaders. Suggestions calling for more money were seen primarily in terms of making more classroom space available for health teaching. This was particularly true for school personnel.

Utilization of Community Resources in School

Health Programs

Respondents were requested to indicate the extent the school health program utilized community resources by listing three community agencies involved in contributing to the school health program and explain how each is involved. Forty-seven (65 percent) of the respondents identified at least one agency while 25 (45 percent) didn't answer the question or said they didn't know. The school personnel group had the highest percentage of responses (100 percent) followed by health personnel (75 percent) and community leaders (69 percent). Only seven (32 percent) of the lay leader group responded.

The community resource perceived to be used most often by the school health program was the local public health department (Table 4.50). It

TABLE 4.50

USE OF COMMUNITY RESOURCES BY SCHOOL HEALTH EDUCATION PROGRAM
AS PERCEIVED BY COMMUNITY PERSONNEL

Resource	Frequency of Occurrence
Public Health Department	36
Lions Club	13
Nutrition Council	8
Private physicians	7
Welfare Department	6
Dental Health Association	5
Parent Teachers Association	5
Mental Health Center	3
4-H Club	3
Police and Fire Departments	2
County Medical Society	2
Churches and clergy	2
Office of Economic Opportunity	2
Others	5

was reported to provide physical examinations for preschool children, screening for communicable diseases, immunizations, tests for tuberculosis for tenth grade students, medical and dental referrals, and public health nurses. School leaders stated that the nurses visited most elementary schools annually and gave presentations on menstruation to girls.

The sight and eye testing program of the Lions Club was stated to be the second most often used community resource. It was followed by a newly established Nutrition Council which was reported to be responsible for a "large scale" nutrition survey in the local high schools. Private physicians were reported to give occasional talks to various school groups and participated with dentists and pharmacists during a drug abuse week. School personnel indicated that the Parent-Teachers Association co-sponsored a dental health program, the mental health center was used for problem students, and 4-H clubs participated in ecology projects. The remaining community resources were mentioned less than three times to be used by the school health program.

Summary and Discussion

Four groups of community personnel were mailed questionnaires eliciting their perceptions of the seriousness of sixteen health problems in Bedford County, Tennessee. They also rated the schools' potential for alleviating these problems. In evaluating the responses it should be remembered that the sample used in this study did not represent the entire community. Instead, they represented but four factions of the community: medical and health professionals, individuals in public office (community

leaders), lay leaders of civic organizations, and school professionals. But it should be remembered that these groups comprise many influential persons often involved in community affairs at a decision-making level. Their perceptions of health problems, therefore, and the subsequent implications to the school health education program seemed worthy of investigation.

Of the sixteen health problems included in the questionnaire, accidents, heart disease, cancer, and illegitimacy were consistently rated as most pressing by all groups. Alcoholism received high rankings by health, school, and lay leader groups as did drug abuse by the two latter groups only. There was also agreement on the problems believed to be least severe: infant mortality and air pollution. The remaining problems varied in rankings of severity according to group.

It is important to note that the evaluation of these problems was based on community perceptions rather than actual results. Whether or not actual analysis of community problems would confirm these perceptions was not determined. But this possibility does not negate the value of these results because people usually form their attitudes and beliefs and act according to what they perceive. If there is a gap between perceptions and what actually exists, then it is the responsibility of relevant professions to correct these misconceptions. One such profession is that of school health education.

Schools were considered to have a significant contribution in the alleviation of drug abuse, venereal disease, nutrition, alcoholism, accidents, and illegitimacy. To some extent, this was reflected in the

school program. By referring to Table 4.13, page 102, it may be seen that three of these areas: drug abuse, nutrition, and accidents were reported to receive moderate emphasis in the instructional program. However, only minor emphasis was reported for alcoholic education while venereal disease and sex education were given little or no emphasis. The problems of alcoholism and illegitimacy were perceived as two of the community's six most pressing problems, yet they were not emphasized proportionally in the school health program. The fact that community personnel continually recognized the potential schools have for alleviating health problems sometimes considered controversial seems to have implications concerning future program development.

Community personnel as a whole rated the school health education program as less than "average." This rating was attributed primarily to a lack of community understanding and support, a philosophy among school personnel which was indifferent towards health education, and inadequate funds. Responses to this part of the questionnaire seemed to reflect the general attitude that the problems of money and program deficiencies could be overcome given a higher priority for health education.

To improve the program of health instruction the majority of respondents suggested more emphasis on health instruction. It was recommended that health education be offered as a separate course and taught by qualified and enthusiastic teachers who take advantage of community resources and employ teaching methods which make the subject interesting to students.

Finally, of the community resources available to the school, the local public health department was reportedly used most often. Seventeen

other resources were identified by a small percentage of respondents. Most of the time agencies used by the school simply carried out their normal duties. Rarely was the school reported to solicit services from community agencies and organizations. This was an important point because it accounts to some extent for the lack of community support and understanding. Certainly, one of the salient recommendations of this part of the study calls for a more extensive use of community resources. The advantages to the school are numerous: It could serve as a mechanism for establishing communication with these resources; it could improve instruction by taking advantage of the knowledge and experience of experts in various fields; it could facilitate an awareness of community perceptions and needs; schools could be kept abreast of actual medical and health problems; and it could enhance community understanding and support. Actually, the community and its resources could benefit likewise from the school.

CHAPTER V

SUMMARY, FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

I. SUMMARY

The primary purpose of this study was to comprehensively evaluate the school health education program of Bedford County, Tennessee. The program was studied from four perspectives: the organization of the health instructional program; the status of students' health knowledge, attitudes, behavior; students' health interests; and the perceptions of community members regarding health problems.

To obtain information regarding the organization of the school health instruction program, personal interviews were conducted with school principals. Their responses to 24 questions were analyzed in three categories: (1) General Information, (2) Organization of the Health Instruction Program, and (3) The Teaching of Health. Subsequent data were treated descriptively.

Standardized health behavior inventories (H.B.I.'s) were administered to sixth, ninth, and twelfth grade students to reveal the status of students' health knowledge at the elementary, junior high, and senior high levels respectively. Tenth and eleventh grade students were also tested to provide specific findings at the senior high level. The data coming from H.B.I.'s were analyzed descriptively to allow for comparisons between the sample and national norms. The H.B.I.'s were further analyzed

by content area to allow for identification of specific strengths and weaknesses. Statistical tests of probability were used to denote significant differences in scores by sex, grade, and school.

Informal class interviews were conducted with six high school classes to discuss what students think about in school. An open-ended questionnaire was administered to students in these classes and elicited information about their health concerns. They also provided opportunities for making criticisms and suggestions regarding the teaching of health.

Finally, the opinions of community members regarding health problems were solicited. Questionnaires were mailed to lay leaders, community leaders, health professionals, and school leaders to determine what they perceived to be health problems. They also indicated the extent to which schools could effectively contribute to the solution of these problems. Their response to seven questions were treated descriptively,

II. FINDINGS

Based on the analysis of data, the findings of the study are presented using the format by which data were organized.

School Health Instructional Practices

General information.

1. The principals of 14 schools (88 percent) enrolling 5,149 students (94 percent) participated in the study.

2. The grade-organization pattern of schools varied with those inside the city limits of Shelbyville using a 5-1-2-4 plan and those in the county using one of two plans: 6-3-3 or 6-2-4.

Organization of the health instructional program.

1. "To comply with state requirements" was the major reason for offering health education in 64 percent of the schools. The second and third most frequently occurring reasons were to "comply with local requirements" and to "fulfill objectives of the educational program".

2. Forty-eight percent of the elementary schools reported offering health as a separate course; 24 percent of health instruction was correlated with another subject; and 23 percent of the schools offered health on an incidental basis.

3. In grades 7-12, health was offered as a separate subject in 39 percent of the schools; an equal percent correlated health instruction with another subject.

4. The health course was titled "health".

5. Sixty-one percent of the elementary health classes were scheduled five times per week; 21 percent were offered twice a week; and 18 percent were taught on an irregular basis.

6. At the junior high level, health was taught as a separate subject five times per week in 75 percent of the cases, and two times per week in 25 percent of the schools.

7. In senior high schools, health was taught 5 days per week in 66 percent of the schools. The remaining schools did not offer health as a separate course.

8. Actual clock time devoted to separate health classes ranged from 30 to 250 minutes per week at the elementary and junior high levels, 250 to 300 minutes at the senior high level.

9. Health was a required subject in 74 percent of the elementary schools and 51 percent of junior and senior high schools.

10. The most common grade for requiring health at the senior high level was the tenth grade; at the junior high level, the seventh and eighth grades; and at the elementary level, the sixth grade.

11. Fifty-two and 54 percent of the elementary and junior-senior high school principals respectively did not specify the number of semesters in which the health course was required. Of those responding at the elementary level, 36 percent reported a two-semester requirement and 12 percent reported a one-semester requirement. At the junior and senior high levels, 25 and 21 percent reported two-semester and one-semester requirements respectively.

12. Health education classes were coeducational with boys and girls in grades 4-8 separated once a year for a presentation to girls on menstruation.

13. Health credits appeared on the students' records as science in 40 percent of the junior high schools; physical education, 40 percent; and health, 20 percent. Sixty-six percent of the senior high schools listed health credits as health while 33 percent listed it as biology.

The teaching of health,

1. Ninety-six percent of health instruction at the elementary level was provided by the regular classroom teacher; in junior high grades, science teachers were the primary providers of health instruction followed by health and physical education teachers; at the senior high level, 44 percent of health education was taught by health and physical education teachers, 34 percent by health educators, and 22 percent by science teachers.

2. There were no in-service opportunities or activities designed specifically for health education teachers.

3. "Textbooks" were the primary source for determining course content. "Individual teachers decision" and "students' needs, interests, and problems" had the second and third lowest ratings.

4. Health class sizes were an average of 29.4, 32.3, and 30.3 students at the elementary, junior high, and senior high levels respectively.

5. The health content areas receiving the greatest emphasis in rank order at the elementary level were food and nutrition, accident prevention, dental health, and exercise and recreation.

6. Dental health, communicable disease, drugs and narcotics, environmental health, skin care, accident prevention, exercise and recreation, and food and nutrition received the most emphasis in rank order in junior high grades.

7. At the senior high level, topics receiving most emphasis were drugs and narcotics, first aid, food and nutrition, exercise and

recreation, accident prevention, alcohol, community health programs and problems, dental health, environmental health, and structure and function of the human body in that order.

8. Consistently receiving the least emphasis at all grade levels were venereal disease, preparation for marriage, sex education, research developments in health, and international health activities.

9. None of the health topics received "major" emphasis in elementary and junior high grades. Drugs and narcotics, first aid, and food and nutrition were the only areas receiving "major" emphasis at the senior high level.

10. A mean rating of 2.47 (almost midway between "minor" and "moderate") represented the overall emphasis given health instruction by all schools combined. The emphasis of health instruction by school ranged from a low of 1.88 to a high of 3.50.

Students' Health Knowledge, Attitudes, and Behavior

Participating students.

1. The responses of 1,153 students from the sixth, and ninth to twelfth grades combined were used to denote the status of health knowledge, attitudes, and behavior.

2. The breakdown of students taking H.B.I.'s by grades was as follows: 137 sixth graders (32 percent), 362 ninth graders (80 percent), 287 tenth graders (67 percent), 203 eleventh graders (62 percent), and 164 twelfth graders (46 percent).

Comparisons between Bedford County sample and national sample.

1. Total test scores of sixth grade boys ranked at a percentile of 46 while girls had a percentile ranking of 34.
2. Ninth grade boys and girls had mean scores which ranked at a percentile of 12.
3. Percentile ranks of 8 and 5 were found for tenth grade boys and girls respectively.
4. Eleventh grade boys scored at the percentile of 12 compared to girls who scored a percentile of 14.
5. Percentile ranks of 14 and 18 were achieved by twelfth grade boys and girls respectively.

Strength and weaknesses of health content areas.

1. The sixth grade sample had their highest percent of correct responses in personal cleanliness (69 percent), personal health (61 percent), infection and disease (55 percent), mental health (55 percent) and safety (54 percent). Their weakest areas were dental health (31 percent), nutrition (44 percent), and community health (45 percent).
2. Sixth grade boys scored better than girls in nutrition, community health, and dental health. Girls had higher scores in the remaining five areas.
3. Sixth graders surpassed the national sample in two areas; personal cleanliness and dental health.
4. Differences in sixth grade total scores by sex and school were not statistically significant.

5. For sixth graders, health misconceptions were most prevalent in personal health, mental health, nutrition, dental health and rest and recreation.

6. Ninth grade students scored best in smoking and drinking (67 percent), personal cleanliness (65 percent), community health (63 percent), care of eyes (62 percent), and nutrition (62 percent). Their worst scores were in rest and recreation (54 percent), mental health (55 percent), personal health (55 percent), safety (56 percent), dental health (55 percent), and infection and disease (59 percent).

7. Ninth grade girls scored better than boys in all content areas.

8. Bedford County ninth graders did not equal or surpass the national norms in any area.

9. Statistically significant differences in the general health knowledge, attitudes, and practices of ninth grade students were found for the factors of school and sex.

10. Health misconceptions for ninth graders were most numerous in food and nutrition, consumer health, community health, and mental health.

11. Content areas receiving the highest scores by twelfth grade students were drinking, smoking, and narcotics (73 percent); safety and first aid (67 percent); family health (66 percent); exercise, rest and recreation (64 percent), and personal health (63 percent). Receiving the lowest scores were nutrition (44 percent), community health (46 percent), infection and disease (59 percent), dental health (60 percent), and mental health (62 percent).

12. Twelfth grade girls had higher scores than boys for all content areas.

13. Twelfth grade students included in the national sample scored higher than the Bedford County sample in all content areas.

14. Statistically significant differences in general health knowledge of twelfth grade students were found for the factors of school and sex.

15. Twelfth grade students had higher scores than eleventh graders who, in turn, had higher scores than tenth graders.

16. At the senior high level, health misconceptions were most numerous in nutrition, community health, mental health, and exercise, rest, and recreation.

Students' Health Interests

1. Students responded enthusiastically when asked for their ideas about what should be included in a health course and how it should be taught.

2. Topics of most concern to students related to mental health, sex education, relationships with parents, teachers, and peers and drug abuse.

3. A wide variety of answers was provided by students at all grade levels when asked what good health is--no clear-cut pattern emerged from their responses.

4. Students submitted a long list of questions about their health concerns, most of which gravitated to the areas of boy-girl relationships, conflicts between parents and children, and problems at school.

5. Students were interested in their health and highly recommended a health course in their schools.

6. Students were particularly critical of the lack of opportunities provided them in school for expressing their concerns.

Community Perceptions of Health Problems

1. Sixty-two percent of the questionnaires mailed to members of the community was returned completed. The breakdown by group was health personnel, 69 percent; school personnel, 87 percent; lay leaders, 57 percent; and community leaders, 50 percent.

2. Accidents, heart disease, cancer, and illegitimacy were perceived as four of the six most pressing problems in Bedford County by all groups. Health personnel added alcoholism and social welfare pay for the elderly to the list; school personnel, drug abuse and alcoholism; lay leaders, drug abuse and alcoholism; community leaders, consumer protection and social welfare pay for the elderly.

3. The lay-leader group perceived health problems more severely than other groups. Following it were health personnel, school personnel, and community personnel in that order.

4. Schools were considered by community groups combined to have their most significant potential for alleviating the problems of drug abuse, venereal disease, nutrition, alcoholism, accidents, and illegitimacy.

5. The highest rating of the schools' contribution to reducing health problems was submitted by health professionals followed in descending order by school personnel, lay leaders, and community leaders.

6. The rating of the school health education program ranged from a mean of 2.60 by health personnel to 3.20 by lay leaders. The overall mean rating by composite groups was 2.79 or less than average.

7. Reasons most often offered for the present quality of the school health program included a philosophy among school personnel which was apathetic to health education, lack of community understanding and support, and inadequate funds.

8. The most frequent suggestion for improving the school health education program called for the provision of more health instruction. Following it were suggestions calling for more qualified teachers, better use of community health resources, improved understanding of health education among school and community leaders, and more money.

9. Eighteen community resources were cited by community personnel as being used by the school health program. The local public health department was thought to be used most often.

III. CONCLUSIONS

Analysis of the findings of the study led to the following conclusions:

School Health Instructional Practices

General information.

1. A sufficient number of principals and students participated in the study.

Organization of the health instructional program.

1. The major reason for offering health education--"to comply with state requirements"--did not reflect an understanding of the value of health education on the part of school principals.

2. The majority of elementary and secondary schools did not offer health as a separate course. Health instruction was most often correlated with another subject or taught on an incidental basis.

3. Actual clock time devoted to health instruction varied by school and grade with no clear-cut pattern emerging for either elementary or junior high grades. Health was allowed sufficient instructional time when it was taught as a separate course, particularly in senior high grades.

4. Health instruction was most continuous on a grade-to-grade basis at the elementary level; least continuous at the senior high level.

The teaching of health education.

1. The major providers of health instruction at the elementary level were regular classroom teachers who had a minimum of training in health education. There was an insufficient number of qualified health educators at the junior and senior high levels and in-service opportunities designed to improve the teaching of health education were lacking.

2. Health education classes were not overcrowded and the student-teacher ratio was consistent with other classes.

3. In determining course content, teachers and planners did not take maximum advantage of all possible resources. Instead, they relied too heavily on textbooks and their own personal decisions.

4. A sequential plan of health education opportunities for grades 1-12 was not indicated in the analysis of health content areas. Instead, there was an overlap of emphasis in health content particularly in the areas of accident prevention, dental health, food and nutrition, and exercise and recreation. Instruction in sex education and its related topics was especially inadequate at all grade levels.

Students' Health Knowledge, Attitudes, and Behavior

1. Students participating in this phase of the study were representative of students in Bedford County schools.

2. The overall health knowledge of Bedford County students was markedly low when compared to national norms. Ninth grade students were especially deficient and scores improved very little for twelfth graders. The highest scores were achieved by sixth grade students, yet they were below the national average.

3. Differences in scores by sex found to exist in the national sample were confirmed in the present study with girls having higher scores than boys at all grade levels.

4. Deficiencies were revealed among junior and senior high school students for all content areas included in H.B.I.'s. Consistently low at all grade levels were scores in nutrition, dental health, mental health, infection and disease, and community health.

5. Students did not always have their highest scores for areas receiving the greatest emphasis in the instructional program.

6. Senior high scores increased without exception by grade level indicating that established norms were not equally applicable to all senior high grades.

7. Ninth and twelfth grade students differed significantly according to school in their general health knowledge.

Students' Health Interests

1. Topics commanding major attention at all grade levels were mental health, sex education, social-emotional health and drug abuse.

2. Students valued the health course and considered it as a necessary part of the school curriculum.

3. Students want more opportunities to express themselves in all matters.

Community Perceptions of Health Problems

1. Community groups agreed in their perceptions of community health problems considered to be most severe and least severe. Health problems rated between these two extremes fluctuated in perceived severity according to group.

2. Schools were perceived to have a significant contribution in the alleviation of many health problems, particularly drug abuse, venereal disease, nutrition, alcoholism, accidents, and illegitimacy.

3. The school health education program was thought to be inadequate.

4. The present quality of the program was attributed primarily to an attitude among school and community leaders which did not reflect an understanding of the value of a good health education program.

5. Community personnel believed that schools can improve their programs of health education by providing more health instruction and hiring qualified teachers.

6. The school health program did not take full advantage of available community resources.

7. The overall research design utilized in this study was effective in comprehensively appraising the existing school health education program and provided information which could serve as a basis for making curriculum recommendations.

IV. RECOMMENDATIONS

The following recommendations were based on conclusions:

1. Efforts at the organization and implementation of a health education curriculum planned sequentially for grades K-12 are critically needed.

2. Health education courses should increase their emphasis in nutrition, dental health, mental health, infection and disease, and community health.

3. At the junior and senior high levels, there is a particularly strong need for "student oriented" learning opportunities in the areas of dating, boy-girl relations, early marriages, venereal diseases, reasons why people abuse drugs, relations with parents, and problems at school.

4. Greater uniformity of health instruction by all schools should be insured.

5. Planners of health education should consider all possible resources in determining course content, especially the needs and interests of students.

6. Teachers trained specifically in health education should be the major providers of health instruction at the junior and senior high levels.

7. Comprehensive in-service programs designed to improve the teaching of health education and update teachers regarding contemporary issues and trends should be initiated.

8. Bedford County Schools should be more sensitive to the suggestions and criticisms of students. Schools should provide opportunities which encourage students to express their concerns and opinions regarding school matters, such as student evaluation of teachers and student representation on school committees.

9. School personnel should involve community resources to a greater extent in the planning, implementation, and teaching of health.

10. A study should be conducted to determine why health content areas receiving the greatest emphasis in the instructional program do not always receive the highest scores by students.

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APPENDICES

APPENDIX A

PRINCIPALS' QUESTIONNAIRE: SCHOOL HEALTH INSTRUCTIONAL PRACTICES

STATUS STUDY OF SCHOOL HEALTH PROGRAMS

Conducted by Michael Hamrick
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at the University of Tennessee, Knoxville
for the
Tennessee Health Education Project

This study focuses upon health instruction which is directed toward developing understandings, attitudes and practices related to health. It explores the nature of health instruction exclusive of physical education and driver education.

The questions are designed to obtain information concerning the existing practices in all elementary and secondary schools. Your responses should reflect the prevalent practices in your school.

The small number of schools included in this study makes your answers of utmost importance. No individual schools will be identified in any of the findings.

This form is not to be returned. I will call for an appointment and then visit you to collect the completed form. This will allow an opportunity for you to raise questions and for the study team member to talk with you briefly about the total project.

Many thanks for your cooperation,

Name of School _____

Address _____

Name of Principal _____

Total Enrollment _____

Please encircle the grades included in your school.

K 1 2 3 4 5 6 7 8 9 10 11 12

WHEN QUESTIONS CALL FOR RESPONSES FOR SPECIFIC GRADE LEVELS, PLEASE ANSWER ONLY FOR THOSE GRADES IN YOUR SCHOOL

The Health Instruction Program

1. Please give the reasons why health classes are being taught in your school. RANK each item below (1-2-3, etc.) using No. 1 for the most important.

- a. To comply with state requirements.
- b. To comply with requirements of the local school system.
- c. To fulfill the objectives of the educational program.
- d. To solve an administration problem; (e.g.) offered on alternate days when physical education does not meet or when free periods are to be filled.
- e. To provide a course for students not enrolled in a college preparatory curriculum.
- f. To provide an additional elective for students.
- g. Are there other reasons? Please write in reasons on lines below and rank in order of importance _____

2. What pattern of health instruction best describes that used in your school? (Check one pattern for each grade in your school.)

<u>Patterns of Health</u>	<u>Grades:</u>
<u>Instruction</u>	K 1 2 3 4 5 6 7 8 9 10 11 12

A. As a separate subject (scheduled time each week for health instruction) . . . _ _ _ _ _

B. Correlated or integrated instruction taught along with or related to another subject area but not as specific planned units . . . _ _ _ _ _

(Question 2 continued)

<u>Patterns of Health Instruction</u>	<u>Grades:</u>												
	K	1	2	3	4	5	6	7	8	9	10	11	12
C. <u>Planned health units</u> (specific health units planned and taught within other subjects). .													
D. <u>Incidental instruction</u> (no specific time set aside for instruction but health concepts discussed whenever a "teachable moment" arises) .													
E. Other (please check and specify on lines below). .													

If you CHECKED A for any grades in Question 2, answer Questions 3 and 4; if you DID NOT CHECK A for any grades in Question 2, proceed directly to Question 5.

3. If health is taught as a separate subject and you checked "A" in Question 2, what name is given to the health education course on each of the grade levels where it is offered in your school system? Please write in the name (or names) of the course on the lines opposite the grade levels:

Kindergarte

1st grade _____
 2nd grade _____
 3rd grade _____
 4th grade _____
 5th grade _____

(Question 3 continued)

6th grade _____

7th grade _____

8th grade _____

9th grade _____

10th grade _____

11th grade _____

12th grade _____

4. If health is taught as a separate subject and you checked "A" in Question 2, indicate how many periods per week are devoted to the separate subject of health education throughout the school year. Underline the number that pertains to each grade.

Grades

K	None	One	Two	Three	Four	Five	Irregular	(specify)	
1	None	One	Two	Three	Four	Five	Irregular	(specify)	
2	None	One	Two	Three	Four	Five	Irregular	(specify)	
3	None	One	Two	Three	Four	Five	Irregular	(specify)	
4	None	One	Two	Three	Four	Five	Irregular	(specify)	
5	None	One	Two	Three	Four	Five	Irregular	(specify)	
6	None	One	Two	Three	Four	Five	Irregular	(specify)	
7	None	One	Two	Three	Four	Five	Irregular	(specify)	
8	None	One	Two	Three	Four	Five	Irregular	(specify)	
9	None	One	Two	Three	Four	Five	Irregular	(specify)	
10	None	One	Two	Three	Four	Five	Irregular	(specify)	
11	None	One	Two	Three	Four	Five	Irregular	(specify)	
12	None	One	Two	Three	Four	Five	Irregular	(specify)	

5. If you checked "B" (correlated health instruction) or "C" (planned health units) in Question 2 as one of the prevalent patterns of health instruction in your school system, please indicate the subject and grade level in which this pattern occurs.

[illegible]

(Question 5 continued)

<u>Subjects</u>	K	1	2	3	4	5	6	7	8	9	10	11	12
INDUSTRIAL ARTS	—	—	—	—	—	—	—	—	—	—	—	—	—
LANGUAGE ARTS													
Listening	—	—	—	—	—	—	—	—	—	—	—	—	—
Reading	—	—	—	—	—	—	—	—	—	—	—	—	—
Spelling	—	—	—	—	—	—	—	—	—	—	—	—	—
Writing	—	—	—	—	—	—	—	—	—	—	—	—	—
SCIENCES													
Mathematics	—	—	—	—	—	—	—	—	—	—	—	—	—
Science	—	—	—	—	—	—	—	—	—	—	—	—	—
SOCIAL STUDIES													
Civics	—	—	—	—	—	—	—	—	—	—	—	—	—
Geography	—	—	—	—	—	—	—	—	—	—	—	—	—
Problems of Democracy	—	—	—	—	—	—	—	—	—	—	—	—	—
OTHER (please check and write in subject(s) on line below	—	—	—	—	—	—	—	—	—	—	—	—	—

6. If health education classes extend throughout the school year, what is the total estimated number of minutes per week throughout the school year devoted to health instruction? (Write in the number of minutes for each grade.

<u>Grades</u>	<u>Estimated Number of Minutes Per Week</u>
K	_____
1	_____
2	_____
3	_____
4	_____
5	_____
6	_____
7	_____
8	_____
9	_____
10	_____
11	_____
12	_____

7. If health education does not extend throughout the school year but is concentrated over a period of time, how many weeks and approximately how many minutes are devoted to this concentrated instruction? (Please fill in both columns for each grade where this type of instruction occurs.)

<u>Grades</u>	<u>Number of Weeks per Year Devoted to Concentrated Health Instruction</u>	<u>Total Estimated Number of Minutes per Week Devoted to Concentrated Health Instruction</u>
K		
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		

8. What is the status of health education as a subject within your school program? (Please check in appropriate spaces.)

<u>Grades</u>	<u>Required of all students</u>	<u>Required of some students</u>	<u>Elective</u>	<u>Not Offered</u>
K				
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				

9. If there is a requirement in health education for all students, what is the total requirement? (Please fill in both columns.)

<u>Grades</u>	<u>Total requirement in semesters:</u>	<u>Total requirement in weeks:</u>
K		
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		

10. If health education is required of some students and not of others, please write in the information requested below.

<u>Grades</u>	<u>Student groups for whom it is a requirement</u>	<u>Student groups for whom it is not a requirement</u>
K		
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		

11. Are boys and girls scheduled in the same class or in separate classes for health instruction in the grades of your school?
(Please check below in column that applies for each grade.)

<u>Grades</u>	<u>Combined Classes of Boys and Girls</u>	<u>Separate Classes of Boys and Girls</u>	<u>Combined Classes Except for Some Units of Study</u>
K			
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			

12. In the event that boys and girls are separated, please check reason why for each grade level.

<u>Grades</u>	<u>Administrative: (e.g., Space, Staff, or Scheduling Factors)</u>	<u>Nature of Subject Matter</u>	<u>Other (Please Specify reason)</u>
K			
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			

(Question 14 continued)

Grades: K 1 2 3 4 5 6 7 8 9 10 11 12

9. Social studies teachers
10. Other (Please specify on line below)

Total 100%

15. What opportunities were provided during the current school year for in-service health education for teachers in your schools?
(Please check.)

Teachers' meetings concerned with health education	_____
Participation in curriculum development and/or revision . . .	_____
Course offerings in health education	_____
Workshops in health education	_____
Conferences or institutes with a health education program theme	_____
Television courses or radio programs focused on health education	_____
Meetings of professional organizations	_____
Visitations and/or demonstration teaching	_____
Other (please specify on lines below)	_____

16. What is the practice in your school with regard to the adoption of health textbooks? (Please check for each grade below.)

Grades: K 1 2 3 4 5 6 7 8 9 10 11 12

No health textbook used	_____
Single textbook or single textbook series used	_____
Two or more text- books or series used	_____

17. To what extent are the following resources consulted in your school for suggestions of what to study in health classes. (Rate every item using the following code,)

No. 1--Very often
 No. 2--Occasionally
 No. 3--Rarely or Never

<u>Resources</u>	<u>Grades:</u>	K-3	4	5	6	7	8	9	10	11	12
State guide or course of study		___	___	___	___	___	___	___	___	___	___
Local guide or course of study		___	___	___	___	___	___	___	___	___	___
Individual teacher's decision		___	___	___	___	___	___	___	___	___	___
Textbook(s)		___	___	___	___	___	___	___	___	___	___
Needs, interests, and problems of pupils		___	___	___	___	___	___	___	___	___	___
Pupil-teacher planning		___	___	___	___	___	___	___	___	___	___
Pretesting of pupil knowledge and understanding		___	___	___	___	___	___	___	___	___	___
Local community influence		___	___	___	___	___	___	___	___	___	___
Other (Please write in.)		___	___	___	___	___	___	___	___	___	___

18. Does your school require the completion of any course or courses in health or health education as a condition of employment for the classroom teacher? Yes _____ No _____

If yes, please write in the requirement(s) in the space provided below:

19. Content Areas for Health Instruction:

Please rate the following content areas taught at each grade according to the degree of emphasis in health education:

Use No. 1 for major emphasis
 Use No. 2 for moderate emphasis
 Use No. 3 for minor emphasis
Leave blank if topic is not taught

<u>Content Areas</u>	<u>Grades:</u>	K	1	2	3	4	5	6	7	8	9	10	11	12

- a. Accident Prevention

(Question 19 continued)

<u>Content Areas</u>	<u>Grades:</u>	K	1	2	3	4	5	6	7	8	9	10	11	12
s. Sex Education		—	—	—	—	—	—	—	—	—	—	—	—	—
t. Skin Care		—	—	—	—	—	—	—	—	—	—	—	—	—
u. Smoking		—	—	—	—	—	—	—	—	—	—	—	—	—
v. Structure and Function of the Human Body		—	—	—	—	—	—	—	—	—	—	—	—	—
w. Venereal Diseases . .		—	—	—	—	—	—	—	—	—	—	—	—	—
x. Vision and Hearing .		—	—	—	—	—	—	—	—	—	—	—	—	—

20. How many students are assigned to each health class? (Write in number(s) for each level as they apply to your school.)

	<u>Grades:</u>	K-3	4	5	6	7	8	9	10	11	12
Range of Size (Highest to Lowest)		—	—	—	—	—	—	—	—	—	—
Average Size of all health classes		—	—	—	—	—	—	—	—	—	—
Average Size of classes in other academic subjects		—	—	—	—	—	—	—	—	—	—

21. May Carnegie unit credit for graduation be earned for the health education course? (Please check.) Yes ☐ No ☐
22. If credit is given, indicate how it appears on the student's record,

<u>Grades</u>	<u>As Credit for Health Specifically (check)</u>	<u>Combined with Another Subject (Please specify other subject)</u>
7	_____	_____
8	_____	_____
9	_____	_____
10	_____	_____
11	_____	_____
12	_____	_____

23. What is the length of the health education class period?
(Check to the nearest number.)

	<u>Grade:</u>	7th	8th	9th	10th	11th	12th
Less than 30 minutes		_____	_____	_____	_____	_____	_____
31-40 minutes		_____	_____	_____	_____	_____	_____
41-50 minutes		_____	_____	_____	_____	_____	_____

24. What responsibilities other than teaching do the teachers generally assigned to health education have? (Check each item that applies.)

	<u>Grade:</u>	7th	8th	9th	10th	11th	12th
a. Coaching		_____	_____	_____	_____	_____	_____
b. Guidance		_____	_____	_____	_____	_____	_____
c. Health Coordinator		_____	_____	_____	_____	_____	_____
d. Intramural Supervision		_____	_____	_____	_____	_____	_____
e. Nursing		_____	_____	_____	_____	_____	_____
f. School Recreation Supervision		_____	_____	_____	_____	_____	_____
g. Other (Please Specify.)		_____	_____	_____	_____	_____	_____

You have now completed the survey. Thank you for your assistance.
Remember, I will personally collect the questionnaire. DO NOT SEND THE QUESTIONNAIRE BACK!

APPENDIX B

PRINCIPALS' RATINGS OF THE EMPHASIS GIVEN TO HEALTH CONTENT AREAS

TABLE B.1

MEAN RATINGS OF THE EMPHASIS PLACED ON HEALTH CONTENT AREAS BY SCHOOL--ELEMENTARY LEVEL,
GRADES 1-6

Health Content Area	School											Content Total	Content $\bar{X}$
	A	C	D	E	F	I	J	K	L	M	N		
a. Accident Prevention	4	1	1	2	2	2	1	1	2	1	1	18	1.63
b. Alcohol	3	4	4	3	2	2.7	3	3	1.8	3	3	32.5	2.96
c. Communicable Diseases	2	4	3	3	2	2	1	1	1.8	1	3	23.8	2.16
d. Community Health Pro- grams and Problems	2.5	1	4	3	2	2	2	2.6	3	2	2	26.1	2.37
e. Consumer Education	4	4	4	2	2	2	2	2.6	2	3	3	30.6	2.78
f. Dental Health	1	4	2	2	2	1.7	1	1	1.5	1	1	18.2	1.66
g. Drugs and Narcotics	4	4	4	3	3	2.5	2	2.4	1.8	3	1	30.7	2.79
h. Environmental Health	4	4	4	2	2	2	2	2.4	1.5	2	1	26.9	2.45
i. Exercise and Relaxation	4	4	1	2	2	2	2	1	1	1	2	22	2.00
j. Family Life Education	4	4	4	3	2	2.8	1	1	3	1	2	27.8	2.53
k. First Aid	4	4	4	2	2	1.8	2	1.2	2	2	2	27	2.46
l. Food and Nutrition	1	1	1	2	1	1.7	4	1	1	1	2	16.7	1.52
m. Health Careers	4	4	4	3	4	3	2	2.4	2	3	3	34.4	3.13
n. International Health Activities	4	4	4	4	4	2	3	2.6	4	3	3	37.6	3.42
o. Mental Health and Personal Adjustment	4	4	4	3	2	2.5	2	1.2	2.7	1	1	27.4	2.49
p. Noncommunicable Disease	4	4	4	3	4	2	3	2	1.5	3	3	33.5	3.05
q. Preparation for Marriage	4	4	4	3	4	3	3	3	2.8	3	3	36.8	3.35
r. Research Developments in Health	4	4	4	4	4	3	3	2.8	3	3	3	37.8	3.44
s. Sex Education	4	4	4	4	4	2	3	3	3	3	2	36	3.27
t. Skin Care	4	4	4	2	2	2	3	1	1.8	1	3	27.8	2.53

TABLE B.1 (continued)

Health Content Area	School											Content Total	Content $\bar{X}$
	A	C	D	E	F	I	J	K	L	M	N		
u. Smoking	4	4	4	2	3	2	3	1.8	1.8	2	2	29.6	2.69
v. Structure and Function of the Body	4	4	4	2	2	2	3	1.2	1.8	2	2	28	2.55
w. Venereal Diseases	4	4	4	4	4	2.7	3	3	1.8	3	3	36.5	3.32
x. Vision and Hearing	4	4	4	2	2	2	2	1	1	1	1	24	2.18
Total (School)	85.5	87	84	65	63	53.4	56	45.2	49.6	49	52	689.7	62.73
Mean Rating by School	3.56	3.63	3.5	2.71	2.63	2.23	2.33	1.88	2.07	2.04	2.17	28.74	2.61

1--Major emphasis

2--Moderate emphasis

3--Minor emphasis

4--No emphasis

TABLE B.2

MEAN RATINGS OF THE EMPHASIS PLACED ON HEALTH CONTENT AREAS
BY SCHOOL--JUNIOR HIGH LEVEL, GRADES 7-8

Health Content Area	School							Content Total	Content Mean
	A	B	E	G	I	J	L		
a. Accident Prevention	4	1	2	1	2	1	2	13	1.86
b. Alcohol	3	2	2	2	2	3	1	15	2.14
c. Communicable Diseases	1	3	2	2	2	1	1	12	1.71
d. Community Health Programs and Problems	1	3	3	2	2	2	3	16	2.29
e. Consumer Education	4	3	2	4	2	2	2	19	2.71
f. Dental Health	1	1	2	1	2	1	2	10	1.43
g. Drugs and Narcotics	2	2	2	1	2	2	1	12	1.71
h. Environmental Health	1	3	2	1	2	2	1	12	1.71
i. Exercise and Relaxation	4	1	2	1	2	2	1	13	1.86
j. Family Life Education	4	3	3	4	3	1	3	21	3.00
k. First Aid	2	1	2	3	2	2	2	14	2.00
l. Food and Nutrition	1	2	2	1	2	4	1	13	1.86
m. Health Careers	4	3	3	4	3	2	2	21	3.00
n. International Health Activities	4	3	4	4	2	3	4	24	3.43
o. Mental Health and Personal Adjustment	4	3	3	4	2	2	1	19	2.71
p. Noncommunicable Diseases	4	3	3	3	2	3	1	19	2.71
q. Preparation for Marriage	4	3	3	4	3	2	2	21	3.00
r. Research Developments in Health	4	3	4	4	3	3	3	24	3.43
s. Sex Education	4	3	4	4	2	3	3	23	3.29
t. Skin Care	1	2	2	2	2	2	1	12	1.71
u. Smoking	1	1	2	4	2	3	1	14	2.00

TABLE B.2 (continued)

Health Content Area	School							Content Total	Content Mean
	A	B	E	G	I	J	L		
v. Structure and Function of the Body	4	2	2	1	2	3	1	15	2.14
w. Venereal Diseases	4	3	4	4	2	2	1	20	2.86
x. Vision and Hearing	4	2	2	2	2	2	1	15	2.14
Total for School	70	56	62	63	52	53	41	397	56.70
Mean Rating by School	2.20	2.33	2.58	2.63	2.17	2.21	1.71	16.54	2.36

1--Major emphasis

2--Moderate emphasis

3--Minor emphasis

4--No emphasis

TABLE B.3

MEAN RATINGS OF THE EMPHASIS PLACED ON HEALTH CONTENT AREAS
BY SCHOOL AT THE SENIOR HIGH LEVEL, GRADES 9-12

Health Content	School			Content Total	Content Mean
	G	H	I		
a. Accident Prevention	1	2	2	5	1.67
b. Alcohol	1	2	2	5	1.67
c. Communicable Diseases	2	2	2	6	2.00
d. Community Health Programs and Problems	2	1	2	5	1.67
e. Consumer Education	4	2	1	7	2.33
f. Dental Health	1	2	2	5	1.67
g. Drugs and Narcotics	1	1	1	3	1.00
h. Environmental Health	1	2	2	5	1.67
i. Exercise and Relaxation	1	1	2	4	1.33
j. Family Life Education	4	2	2	8	2.67
k. First Aid	1	1	1	3	1.00
l. Food and Nutrition	1	1	1	3	1.00
m. Health Careers	3	2	2	7	2.33
n. International Health Activities	4	4	2	10	3.33
o. Mental Health and Personal Adjustment	2	3	2	7	2.33
p. Noncommunicable Diseases	3	2	2	7	2.33
q. Preparation for Marriage	4	4	1	9	3.00
r. Research Developments in Health	4	3	2	9	3.00
s. Sex Education	4	3	2	9	3.00
t. Skin Care	2	3	2	7	2.33
u. Smoking	4	2	2	8	2.67
v. Structure and Function of the Human Body	1	2	2	5	1.67
w. Venereal Diseases	4	2	2	8	2.67
x. Vision and Hearing	2	2	2	6	2.00
School Total	57	51	43	151	50.34
School Mean	2.38	2.13	1.79	6.29	2.10

1--Major emphasis
2--Moderate emphasis
3--Minor emphasis
4--No emphasis

APPENDIX C

COMMUNITY PERSONNEL QUESTIONNAIRE: COMMUNITY ISSUES AND PROBLEMS
OF SHELBYVILLE AND BEDFORD COUNTY

COMMUNITY ISSUES AND PROBLEMS OF SHELBYVILLE AND BEDFORD COUNTY

Conducted by Michael Hamrick
Department of Health and Safety
at the University of Tennessee, Knoxville
for the
Tennessee Health Education Project

This questionnaire was developed in an effort to obtain a better understanding of how people view local community issues.

The small number of persons included in this study makes your answers of utmost importance. No individual will be identified in any of the findings.

Name _____

Date _____

1. I would like to begin on a rather general level and ask you to indicate how you feel about the problems listed below. You will notice that beside each of the problems there is a scale ranging from "extremely severe--warranting immediate action" to "no problem at all". Please check the mark which you feel represents the severity of each of these problems in your community.

	Extremely Severe					No Problem at all
A. Air Pollution	_____	_____	_____	_____	_____	
B. Availabilty of Health Services , ...	_____	_____	_____	_____	_____	
C. Drug Abuse , ...	_____	_____	_____	_____	_____	
D. Water Pollution	_____	_____	_____	_____	_____	
E. Alcoholism	_____	_____	_____	_____	_____	
F. Social Welfare Pay for Elderly , ...	_____	_____	_____	_____	_____	
G. Venereal Diseases	_____	_____	_____	_____	_____	
H. Accidents	_____	_____	_____	_____	_____	
I. Unemployment , ...	_____	_____	_____	_____	_____	
J. Illegitimacy	_____	_____	_____	_____	_____	
K. Nutrition	_____	_____	_____	_____	_____	
L. Infant Mortality , ...	_____	_____	_____	_____	_____	
M. Consumer Protection	_____	_____	_____	_____	_____	
N. Cancer , ...	_____	_____	_____	_____	_____	
O. Urban Renewal	_____	_____	_____	_____	_____	
P. Heart Diseases	_____	_____	_____	_____	_____	
Write in any other problems not listed above and evaluate using the same scale.						
Q.	_____	_____	_____	_____	_____	
R.	_____	_____	_____	_____	_____	
Etc.	_____	_____	_____	_____	_____	

2. List below the six problems you indicated to be most severe. Beside each problem identify the community agency(s) you feel can contribute most to the alleviation of each of these problems.

a.

b.

c.

d.

e.

f.

THE FOLLOWING QUESTIONS REFER TO YOUR SCHOOL'S HEALTH EDUCATION PROGRAM--
NOT PHYSICAL EDUCATION

4. Using the following scale, how would you rate your school's health education program?

Very good indicates that in your mind it is optimal; good indicates that it is better than average but needs additional improvement; average means just that; poor means less than average; and bad indicates you are very dissatisfied with your school's health program.

Very Good Good Average Poor Bad

5. Give me three(3) specific suggestions which you would personally make to improve the school's health education program.
- a.
- b.
- c.
6. What three(3) reasons do you suggest have prevented your school health program from being better than it now is?
- a.
- b.
- c.
7. To what extent does the school health program utilize community resources? To illustrate this point, can you list three(3) community agencies involved in contributing to the school health program and explain how each is involved?
- a.
- b.
- c.

You have now completed the questionnaire. Thank you for your assistance. Please return it at your earliest convenience using the enclosed, self-addressed envelope.

APPENDIX D

FORMAT FOR CONDUCTING CLASS DISCUSSIONS;
HEALTH INTEREST QUESTIONNAIRE

FORMAT FOR CONDUCTING CLASS DISCUSSIONS

"Have you ever had a chance to advise school people on what they ought to teach? This is your opportunity to do so. The subject is health. What should the schools teach about health?

"Before you offer your ideas, let's think about it a little first.

(Discuss freely any of the following questions.)

How do you know when you have good health?

What is good health? (Broaden to include all aspects.)

Others:

1. What is a healthy person?
2. Are you a healthy person? What makes you think so?
3. Why do you like to be healthy?
4. What are some things you like best to do?
5. What do you do to try to keep yourself well and strong?
6. What are your feelings about being sick? Why do you feel this way?
7. What do you do when you don't feel well?
8. What would you like to know to help you understand yourself?
9. How do you think we could help you?

"So much progress has been made in the health field in recent years that the University of Tennessee is conducting a study to help school people take a look at what they are teaching. They think it isn't enough to depend on books to tell what to teach about health, but that young people themselves have ideas about what they would like to learn and how the schools should teach."

"Students are being chosen from all over the county to help in this study. You have been invited to help because it is believed that you will be thoughtful and honest. We want to know what you think. Whatever you say will be confidential (explain). Your names will not be recorded or used in the study, and your replies will not be graded (marked).

"(1) What are some things you think people of today want or need to know about health? (Encourage free discussion. List on the board the areas mentioned. Have a student copy the board work as it develops so that it can be submitted to the leader.)

(2) Which of these questions do you think should be taught in large groups (LG), small groups (SG), groups of boys (B), groups of girls (G)

mixed boy-girls groups (BG), individually (I)? (Put the appropriate initials after each question. Note any other pertinent suggestions.)

"From here on, you are free to write what you think. First, reply to as many of the questions as you want to; then, in the space that remains, write whatever you want. You may use additional paper."
(Distribute forms. Students may finish in class or outside. Collect anonymously.)

School _____ Grade _____ Age _____ Sex _____

Circle the appropriate reply in each of the two sentences below:

I have had am having have not had a course in
health in junior or senior high school.

I think the senior high school should have should not have
a course in health.

From here on, you may work alone or in groups of 2 to 4 persons.
If you work in a group, each person should turn in a paper with the
same or different suggestions. If you use additional paper, attach it
firmly.

Circle the appropriate reply:

I worked alone in a group

The group was made up of boys girls both

1. What does the term "good health" mean to you? How do you know when you have good health?
2. Formulate several questions about any of the areas on the board showing what you think students want help with.
3. Name topics, if any, that you are not particularly concerned about at the present time, but think young people should understand.

TURN PAGE OVER

4. Are there some things you wish the schools had taught you in the lower grades?
5. Make any suggestions that the school or your teachers might use to help young people better understand themselves and their health.
6. From here on, you are free to write what you think about what the school should teach about health and how it should be taught.

APPENDIX E

COOPERATING PERSONNEL

COOPERATING PERSONNEL--HEALTH PERSONNEL GROUP

Mrs. Hoyt Adams Cancer Association	Dr. Carl Haws Optometry
Mrs. Alice Anderson Public Health Nurse	Mrs. Hill Public Health Nurse
Dr. Albert Caffey Dentist	Mrs. Faye House Nutritionist
Dr. Robert Carter Chiropractor	Dr. Sue Johnson, M. C. Medicine and Surgery
Dr. W. L. Chambers, M.D. Eye, Ear, Nose and Throat	Dr. Barnett Kenneth Veterinarian
Mrs. Marjorie Chrisman Nutritionist	Dr. Carl Methvin Chiropractor
Mrs. Ray Conner American Red Cross	Dr. H. A. Morgan Regional Director Health Officer
Dr. Albert Cooper, M.D. Medicine and Surgery	Dr. Grace Moulder, M.D. Medicine and Surgery
Dr. John Derryberry, M.D. Medicine and Surgery	Dr. Samuel Pearce Optometry
Dr. G. E. Dunlap Dentist	Dr. E. E. Perryman Veterinarian
Mr. Charles Farnsworth, Director Bedford County Hospital	Dr. A. T. Richards, M.D. Medicine and Surgery
Dr. Taylor Farrar, M.D. Medicine and Surgery	Dr. Carl Rogers, M.D. Medicine and Surgery
Mrs. Henry Feldhaus Bedford County Hospital and Nursing Home	Dr. Carl Stubblefield, M.D. Radiology
Mrs. Fraser Public Health Nurse	

LAY LEADER GROUP

Mr. E. B. Arnold
Senior Citizens

Mr. Jim Chase
Rotary Club

Mr. T. W. Christie
Optimist Club

Mrs. Prentice Cooper
United Church Women of
Bedford County

Ms. Elizabeth Hatchett
Shelbyville Hairdressers

Mrs. Bettye Headrick
Eastern Star

Mrs. Gene Higgins
Shelbyville Garden Club

Mr. Newt Howell
Funeral Home Director

Mr. E. B. Jenkins
Bedford County Farm Bureau

Mr. J. B. Kyle
Veterans of Foreign Wars

Mrs. Kennedy Maupin
Town and Country Garden Club

Mr. Arthur McAdams
Scottish Rite Club

Mr. Sam McLean
Chamber of Commerce

Mrs. Nell Morrison
Business and Professional Women's Club

Mr. Bud Narrub
Two Rivers District Scout Executive

Rev. Don Rieder
Ministerial Association

Mrs. Austin Shofner
Tennessee Society for Preservation
of Antiquities

Mrs. Grace Soloman
Volunteer Garden Club

Mr. Edward Thomas
Bedford County's Coon Hunters

Mrs. Vic Thompson
Epsilon Sigma Alpha

Mrs. R. L. Wallace
DAR

Mr. Claude White
Auctioneer

Mrs. Jane Wolfe
March of Dimes

SCHOOL PERSONNEL GROUP

Mrs. Roberta Bomar Supervisor of Secondary Instruction	Mr. Ralph McBride, Principal Central Junior High School
Mr. Barnard Bydalek, Jr., Principal Wheel Elementary School	Mr. Terence Neal, Principal Normandy Elementary School
Mr. Thomas Christie, Principal Thomas School	Mr. Wallace Red, Principal Pleasant Grove Elementary School
Mr. Deary Eakin, Jr., Principal Central Elementary School	Mr. James Scott, Principal Central High School
Mr. Earl Harris, Superintendent Bedford County Schools	Mr. W. D. Stonecipher, Principal Shelbyville Mills Elementary School
Mr. Carl Holder, Principal East Side Elementary	Mr. Marvin Whitaker, Principal Cascade High School
Mr. Joe Ingram, Principal Madison Street Elementary	

COMMUNITY LEADER GROUP

Mr. Hoyt Adams City Attorney	Ms. Dorothy Orr County Judge
Mr. Ralph Bomar Board of Education	Mr. Kenneth Phillips Board of Education
Mr. V. A. Cline Planning Commission	Mr. William Russell Judge
Mr. Ivan L. Field Board of Education	Mr. B. H. Sanders County Sheriff
Mr. H. Clay Martin Councilman	Mr. Pruitt Stokes Board of Education
Mr. Eldon McGee Councilman	Mr. Frank Wallheiser, Chairman Board of Education
Mr. Richard Nance City Judge	

VITA

Mike Hamrick was born June 9, 1942, in Los Angeles, California. He moved to Tennessee during early childhood and claims Memphis as his home.

He began his college work at Wood Jr. College, Mathiston, Mississippi. Following service in the United States Marine Corps, and a year at Bethel College in McKenzie, Tennessee, he transferred to Memphis State University where he received a Bachelor of Science degree in 1966. Following graduation he entered Memphis State's Graduate School and served as Graduate Assistant in Health and Physical Education. He received his M. Ed. in 1967.

After graduation he joined the Memphis State faculty. During his four-year tenure there he was involved in a wide range of experiences and responsibilities ranging from teaching various physical education activity classes to supervising student teachers. During the latter two years at Memphis State University his initial interest in physical education shifted to health education.

In 1971 he took a leave of absence from Memphis State to begin his study for an Ed. D. at the University of Tennessee, Knoxville, with a major emphasis in Health Education and a collateral emphasis in Educational Psychology. The Department of Health and Safety awarded him a Teaching Assistantship in 1971 and a Research Assistantship in

1972. He completed the requirements of his doctoral program in June, 1973.

Regarding his professional involvement, he presented a paper at the 1968 national convention of the American Association of Health, Physical Education, and Recreation; coauthored a health manual, contributed articles to professional literature, and has participated in many health seminars. In addition, he served as a consultant to the National Dairy Council. He is a member of Phi Delta Kappa, American Public Health Association, and professional organizations in Tennessee. He was recently elected into Phi Kappa Phi national honor society.

He and his wife, the former Dorothy Jean Hunt, have two children, Michael, Jr., and Susan Rhea, nine and four years old respectively.