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Identifying a 9-12 Curriculum for High Schools in the Upper Peninsula of Michigan

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IDENTIFYING A 9-12 CURRICULUM FOR HIGH SCHOOLS IN THE UPPER PENINSULA OF MICHIGAN

by

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IDENTIFYING A 9-12 CURRICULUM FOR HIGH SCHOOLS IN THE UPPER PENINSULA OF MICHIGAN

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Western Michigan University, 1992

The purpose of this study was to identify high school graduation standards for high schools in the Upper Peninsula of Michigan. The standards should meet the state of Michigan recommendations or standards for high school graduation. In addition, recommendations of local, state, and national studies and commission reports were included. A comparison was made between all Upper Peninsula high schools' graduation requirements for both non-college-bound and college-bound students and the Michigan State Board of Education recommended graduation requirements and those of the Michigan College Presidents Council.

Inquiry was made into course credit requirements for graduation, recommended curriculum for students planning on attending college, total number of credits required to graduate, number of class periods offered daily, and each high school's total enrollment. Every one of the 54 school districts asked to participate in the study responded cooperatively.

Enrollment was one of the variables examined in the study. Curricular offerings were examined on the basis of the number of students enrolled in the respective high schools. With one exception, all schools were equally above or below when the standards

were compared. Size of the school by enrollment number did not make a difference in whether schools met, did not meet, or exceeded suggested standards for graduation.

The number of class periods (6, 7, and 8) in the day was also examined. The eight-period day was a variable because all schools operating in this category were able to offer more of an opportunity to students to attend more classes and thereby meet required and recommended levels.

The two open-ended questions included in the survey addressed the issue of contemplated changes in graduation requirements and expected barriers in the accomplishment of those changes. School enrollment size and the number of class periods in the school day were both variables. Lack of money or the need to raise additional millage to cover costs for adding new programs was cited by many schools unilaterally as a critical issue.

Attitude and disposition of school board and faculty members was also cited as a barrier to proposed curricular changes affecting several schools.

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DEDICATION

To my mother, Mary, and my deceased father, Patrick, who never ceased to remind me that "the most important thing in life is a good education."

Patrick Manning

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Patrick Manning

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CHAPTER I

INTRODUCTION

The demand for improved educational achievement and quality in our public schools lies at the heart of the educational reform movement of the mid-1980s. Scrutiny provided by national media, special commissions, business, industry, and politicians has provided both challenges and opportunities for today's educational practitioners. Politicians and business leaders have stated they are willing to pay the price of higher taxes for improved education for all children and youth with the provision that there is strong evidence that the increased cost is actually paying off in increased or improved student learning. Behind this push for better achievement is the keen awareness of the crucial role that education plays in global economic competition and in an effective and productive society.

Educating Americans for the 21st Century, issued by the National Science Board Commission on Pre-college Education in Mathematics, Science and Technology (1983) stated that America's children could be stragglers in a world of technology. Education must return to basics, but the basics of the 21st century includes communication and higher problem-solving skills and scientific and technological literacy. As a result of this and other reports published during that time, people have become much more aware of the alleged deficiencies and inadequacies in the public schools and have accepted

the reported results as crucial national issues.

Addressing these and other related issues which emphasize the need for high schools to have adequate curricula to prepare their youth to enter the job market or go on to postsecondary training, King (1991) reported that the United States Department of Labor has developed a six-level method for measuring the levels of reading, writing, computation, and vocabulary needed to perform a variety of vocational tasks. Level 1 requires a vocabulary of 2,500 words, the ability to read 100 words per minute, the ability to write simple sentences, and the ability to add and subtract two numbers.

Level 2 requires a 6,000 word vocabulary, the ability to read 200 words per minute, the ability to write compound sentences, and the ability to add and subtract two or more numbers. Between now and the year 2000, in Levels 1 and 2, the ratio of workers to work will be 2 to 1.

In Levels 3 through 6 requiring more sophisticated and advanced skills, the ratio of workers to work is just the opposite. King (1991) further indicated that Hudson Institute estimates that between 1988 and the year 2000, 75% of all new workers will have Level 1 and Level 2 job skills and will be competing for 40% of all available work at these levels. In somber reflection of this phenomenon, International Business Machines (IBM) now teaches high school algebra to all new hires with a college diploma. Similarly, McDonald's has started a program to remove words from cash register keyboards and is replacing them with pictographs. This does not bode well for a nation attempting to meet the educational needs of its youth while

trying to remain competitive globally.

The American Association of School Administrators (1991) convened a Blue Ribbon Panel on America 2000 and made the following statement:

> Our nation is now enduring shock therapy. During the past few decades, we have nudged toward a conclusion that the goose will not automatically continue to lay golden eggs. Competition from the Pacific Rim, including Japan and Korea, has jolted the business community and the American economy. Now, our nation faces the competition of an emerging European Economic Community. In short, our schools must prepare students to live, work, and lead in a society increasingly global. Diplomacy, conflict-resolution, innovation, and communication may be among our most important skills, if they aren't already. (p. 2)

The global economy has created a need for curriculum change for the United States to remain economically competitive. The various studies and commission and state reports were driven by the nation's need for a better educated work force. Some of the high schools in Michigan's Upper Peninsula do not meet Michigan's high school graduation requirements. Further, they do not address the curriculum needs of students required to compete in a global economy in the 21st century.

Purpose of the Study

The purpose of this study was to identify recommended high school graduation standards for high schools in the Upper Peninsula of Michigan. Recommendations of state, local, and national studies and commission reports were reviewed to identify standards. Local school district college preparation and noncollege programs were compared to the Michigan College Presidents Council recommendations

and the Michigan Department of Education graduation standard. This study is important to school administrators, teachers, and boards of education because it represents a focal point which may be used to determine how future school curricula and educational priorities may be provided in the Upper Peninsula of Michigan.

Background

The 15 counties in the Upper Peninsula of Michigan contain 30% of the state's land. Yet, less than 3.5% of the state's population resides in this area. High school students attend one or another of the 54 high schools located in the Upper Peninsula. Measured from one end of the peninsula to the other, the mileage span is approximately 334 miles.

Most of the high school districts in the rural Upper Peninsula are small in regard to pupil enrollment, large in geographic size, and geographically isolated from one another. Frequently compared to parts of Appalachia, the Upper Peninsula is plagued by poverty, a low economic base, and operational millage that is significantly lower than the state average. At a time when higher levels of education are more important than ever, the curriculum for educational preparedness in this region needs to be changed to meet present and emerging needs.

Several suggestions have been made in an attempt to resolve the problem. Among them, school consolidation by region and telecommunications have become the most frequently mentioned. Basic to these and other approaches would be the need to identify a common

curriculum which would include state of Michigan recommendations and local and national commission reports.

Definitions

Key to the interpretation and understanding of this study are the definitions used in the descriptions. Terms such as curriculum, course offerings, number of class periods, school size, and educational recommendations are defined in this chapter. More attention is given to the term curriculum than any of the remaining terms because it is the focus of this paper.

Curriculum: This study used the definition of curriculum by Tanner and Tanner (1980), which is that curriculum is that reconstruction of knowledge and experience, systematically developed under the auspices of the school, to enable the learner to increase his or her control of knowledge and experience.

Graduation standards: The courses that a high school offers students during their attendance for four years to meet graduation requirements.

Number of class periods: High schools traditionally offer courses on a schedule ranging from five to seven periods per day. The definition used in this study will be the number of class periods in which course offerings are available.

School size: School size in this study refers to the number of students enrolled in a school district.

Educational recommendations: Educational recommendations are the course offerings that various agencies and commissions have

proposed to be included in a basic curriculum.

Technology and computer education: Computer education includes computer proficiency for all students and the availability of specialized learning in the academic disciplines of computer science. Computer proficiency includes the use of the computer as a tool in the entire instructional process and is not limited to a single computer applications course or a computer programming course.

Visual and performing arts: Students will have opportunities to: (a) utilize the specific technical skills learned in discrete and varied media in the production of art; (b) analyze, discuss, and critically examine student and professional art work; (c) travel to professional art shows and observe artists at work; (d) explore a variety of careers in art; and (e) exhibit their own art work.

Foreign language: The foreign language is a language other than English.

Health: Health education is designed to favorably influence health attitudes, practices, and cognitive skills related to personal, family, and community health.

Mathematics: Mathematics includes the following course offerings: (a) algebra, (b) geometry, (c) trigonometry, (d) functions, (e) probability, and (f) introductory statistical analysis.

Physical education: Physical education are programs that provide the opportunity to develop proficiency in body management and coordination to obtain fundamental motor skills and the combination of skills required for proficiency in the games, dances, and

sports of our culture.

Science: Science includes earth science, biology, chemistry, and physics.

Social studies: Social studies education is the development of citizenship.

Vocational-technical education: Vocational-technical education programs for both college and noncollege bound students provide knowledge and skills to become contributing members of society.

Vocational consumer home economics: The purpose of this program is to prepare students for the challenges of family life, careers, and consumer management.

Industrial arts/technology education: Industrial arts/technology education programs are those educational programs which: (a) pertain to the body of related subject matter, or related courses, organized for the development of understanding about all aspects of industry and technology, including learning experiences involving activities such as experimenting, designing, constructing, evaluating, and using tools, machines, materials, and processes; and (b) assist individuals in making informed and meaningful occupational choices which prepare them for entry into advanced trade and industrial or technical education programs.

Overview of the Study

In this chapter, the purpose of the study, background, definitions, and limitations have been presented. In Chapter II, a review of the literature is provided to identify (a) the recommended high

school graduation standards, and (b) literature related to high school graduation standards that address the needs of the student of the 21st century. The design of the study is presented in Chapter III and analyses of the study are reported in Chapter IV. Conclusions and recommendations are provided in Chapter V.

CHAPTER II

REVIEW OF LITERATURE

The purpose of this study was to identify recommended high school graduation standards for high schools in the Upper Peninsula of Michigan. Data gathered from the state of Michigan, Michigan College Presidents Council, national commissions, study reports, books, periodicals, and related information were used in forecasting the graduation standards that should be offered to students of the future. Upon completion, the standards for graduation may be used as an information base for Upper Peninsula of Michigan educators to create a 9-12 curriculum for students residing within its boundaries.

Literature related to high school graduation standards is reviewed in this chapter. Included are the recommendations of the state of Michigan, perspective and recommendations of selected authors, and various committee and group study reports with regard to graduation requirements addressing the needs of the student of the 21st century.

The two sections to be included for review in this chapter are: (1) books and (2) selected studies, commission reports, articles, and periodicals.

The subject of school reform has evoked a hue and cry from the loneliest taxpayer to the most celebrated commission report in the

United States. Most reformists decry a hunger to return to the basics. Others support the thinking by citing a need to extend the school year, evaluate teachers, and require changes in high school graduation standards.

Authors of books written on the area of changing high school graduation requirements spend most of their time addressing the issues surrounding the need for change and make few recommendations on actual graduation requirement changes. The books' authors are mostly involved with recommendations on student outcomes or changes in the process of how students learn or think. Considerable time is spent by authors of articles in periodicals and magazines and members of various commissions identifying similar concerns.

Consensus of all of the literature reviewed indicates the need for change in high school graduation requirements is not born out of the same impetus that propelled the nation into adopting the National Defense Act of 1958. This country no longer lives in fear of a Soviet threat in overtaking the United States in scientific or technological competition. Today's threat is even greater. The preparedness of high school graduates needs to be improved so that they, as young Americans, and the nation can compete economically with the rest of the world.

The National Commission on Excellence in Education (1983) stated that our once unchallenged preeminence in commerce, industry, science, and technological innovation is being overtaken by competitors throughout the world. Education is only one of the many causes and dimensions of the problem; but it is the one that undergirds

American prosperity, security, and civility.

The nation that dramatically and boldly led the world into the age of technology is failing to provide its own children with the intellectual tools needed for the 21st century (National Science Board, 1983). The National Science Board report addressed the quality of manufactured goods and the viability of international trade as a serious challenge to the United States as a result of inferior educational preparedness.

Amid the finger pointers and various critics regarding the reasons for the current educational backslide are those who challenge declining Scholastic Aptitude Test (SAT) scores as an indicator of educational decline. In response to these criticisms, the College Entrance Examination Board (1983) responded, stating that "it would be too bad if concentration on the implications of a decline in the statistical averages on a set of standardized examinations should seem to ignore how incomplete a measure this is of either educational or broader human purpose" (p. 48). Other critics are more direct. Business and military leaders complain that they are required to spend millions of dollars on costly remedial education and training programs in such basic skills as reading, writing, spelling, and computation. The Department of the Navy (cited in National Commission on Excellence in Education, 1983), for example, reported to the commission that one quarter of its recent recruits cannot read at the ninth grade level.

The College Entrance Examination Board (1983) concurred, indicating that many college entrants have not had the knowledge and

skills needed for higher education. In an examination of some of the courses surrounding the lack of educational readiness, critics indicate that much of the curriculum is watered down. Referring to the choices that students have available to them when selecting classes as a curriculum smorgasbord, the National Commission on Excellence in Education (1983) noted that in 13 states, 50% or more of the courses required for graduation may now be electives. Enrollment in "general track" programs increased from 12% in 1964 to 45% in 1979, with migration coming from both vocational and college preparatory tracks. Further, the study indicates that 25% of the credits earned by general track high school students are in physical and health education, work experience outside the school, remedial English and mathematics, and personal service and development courses, such as training for adulthood and marriage. This section of the study concludes by indicating that this curriculum smorgasbord, combined with extensive student choice, explains a great deal about the condition of today's education.

Students in the Upper Peninsula of Michigan are no less a part of this national dilemma. A further complicating factor in this lack of preparedness is due to the small numbers of students and teachers available in some of the small rural communities. Because of these small numbers, fewer courses are available to the students and there are even fewer teachers available to teach them. Students in the Upper Peninsula are essentially no different than students located anywhere else in Michigan. However, the resources available for them to be educated to meet the demands of life in the 21st

century are not as available to them as many of Michigan's other young people. One way of addressing these needs is to recommend a model curriculum designed to make educational opportunity equitable to all students throughout Michigan's Upper Peninsula.

Review of Literature

One method of preparing for the future is imagining what life will be like in the next century. Toffler (1974) pointed out that all education springs from some image of the future and so do most human activities. These activities develop as a result of beliefs held.

In interviews with 95 multiethnic, secondary school age boys and girls, Shane (1977) observed that the role that every boy and girl foresaw was more or less a reflection of a present life style. The adage, "the more things change, the more they stay the same," is reflected in the Seven Cardinal Principles (U.S. Bureau of Education, 1918). The result of a report given in 1918 from the Commission on the Reorganization of Secondary Education, these principles were identified in order to find a place in the education of every American boy and girl. They are (a) health, (b) command of fundamental processes, (c) worthy home membership, (d) vocation, (e) civic education, (f) worthy use of leisure, and (g) ethical character. Nearly 50 years later, these principles were reexamined to see if the goals were still valid (U.S. Bureau of Education, 1967). Most all who reexamined the seven principles were pleased to learn that these seven goals retained their usefulness and importance.

Current education reports incorporate new definitions to "basic education" goals identified to meet the needs of tomorrow's students. Boyer (1983) identified four essential goals needed to provide students, parents, faculty, and staff with a sense of purpose. The idea being that this sense of purpose feeds into a plan of what all are attempting to accomplish. All of the goals are stated in terms of what the high school should be doing to prepare students for the future. Namely, all students should be able to (a) develop the capacity to think critically, (b) learn about themselves, (c) be prepared for work and further education, and (d) fulfill their social and civic obligations.

Boyer (1983) combined goals into what he referred to as a core of common learning. This core includes the following discipline areas: literature, art, foreign language, history, natural science, social science, mathematics, health, technology, and vocation. He proposed expansion of the number of required courses from one half to about two thirds of the total units required to graduate. He included an independent project to help students move from course work to practice. The rationale used to explain these proposed changes is described in reference to students living in an interdependent, interconnected world. Students should be able to bring together information from ideas across disciplines, to organize their thoughts, reach conclusions, and apply knowledge.

Declaring that there is no one best curriculum for all schools, Sizer (1984) proposed dividing a high school into four areas of large departments in one of his models. These departments are:

(1) inquiry and expression, (2) mathematics and science, (3) literature and the arts, and (4) philosophy and history.

In the inquiry and expression department, Sizer (1984) included writing and visual communication but excluded English as it is commonly known. Referring to expression as the litmus paper of thought, Sizer asserted that a teacher cannot ascertain a student's thoughts unless they are expressed. Under the category of mathematics and science, Sizer identified basic arithmetic, algebra, geometry, statistics, physics, and biology as key components in this area (which can be interpreted as standards). Under the label literature and arts, Sizer stated that human expression cuts across written and spoken language in curricular form of theater, song, and visual art. Explaining that English, music, and art are in usual isolation of each other as are mathematics and science, the blend of subjects included in literature and arts would benefit from a better alliance.

In the area of philosophy and history, subjects such as geography, economics, and history comprise the history portion. History is perhaps the most difficult subject for high school students because it involves the abstract of time past. Explaining that things were as they were for a reason, Sizer (1984) stated the belief that the autobiographies and biographies of communities are created by studying geography, economics, and sociology. Stating that these disciplines should remain the "handmaidens" of society, Sizer took exception in areas of moral and political philosophy. Studying political philosophy provides the student, especially the adolescent

student, the opportunity to search for and identify values.

Adler (1982) supported the development of ideas and values in students in the third column of his three column approach to providing education to all students. Column 1 of the model addresses the acquisition of organized knowledge through the study of language, literature, the fine arts, mathematics, the national sciences, and social studies. Column 2 of the model directs attention to the development of intellectual skills through coaching, exercises, and supervised practices. Subjects covered in this area include reading, writing, speaking, and listening. Emphasis is placed on the development of problem solving and critical thinking skills. In the third column of the model, the concept of identifying ideas or values takes place by means of Socratic questioning and participation in the discussion of books other than textbooks and in the discussion of art, music, and drama. Adler expressed the belief that these columns are interconnected and represent a one track system that addresses a qualitative democratic approach for educating all students. The model proposes the elimination of all electives on the grounds that elective choices are appropriate only in a curriculum intended for different avenues of specialization or for preparation in a technical career area. Adler's Column 1 that addresses the acquisition or organized knowledge through the study of (a) language, (b) literature, (c) fine arts, (d) mathematics, (e) natural science, and (f) social studies is commonly accepted as standards. Columns 2 and 3 are methods of teaching.

Echoing the sentiments of Adler (1982), Lightfoot (1983) discussed perspectives of the inner workings and makeup of six schools. Referring to the thickness of most high school catalogs as an indication of their multiple and confused purposes, Lightfoot expressed the belief that little thought is given to the values and substance providing the core of the curriculum. The Brookline, Massachusetts, school catalog used as an example, Lightfoot referred to its 188 pages and over 500 course descriptions listed under 15 departments as a smorgasbord of offerings rarely having a coherent base. The issue of standards is not specifically addressed.

Tye's (1985) work on 13 American high schools concurs that the curricular smorgasbord may exist in some schools; however, some schools offer a limited selection of courses to choose from because of multiple tracking programs existing within the schools.

The smorgasbord of curriculum that Lightfoot (1983) and others referred to seems to be popular among many according to the 1983 Gallup Poll (Gallup, 1983). Results of the poll showed that driver education and computer training drew equal support as required classes.

Fos and Wilson (cited in Perrone, 1985) reported on Garfield High School located in the Midwest, 1 of 13 schools edited by Perrone. A school of 2,000, Garfield promotes a diverse curriculum on the basis of three classifications of courses: special education, basic, and essential courses. Essentially, a variation of program tracking, Garfield's curriculum is difficult at best to define. Teachers and administrators at Garfield admittedly use four

strategies: teaching, scheduling, departmental autonomy, and redesign of departmental course offerings as a means to accommodate the complexity of a comprehensive high school for 2,000 students (Perrone, 1985). School graduation requirements of Garfield are that all students must complete: (a) English--4 years, (b) social studies--3 years, (c) mathematics and science--3 years (2 of one and 1 of the other), (d) art--1 year, (e) music--1 year, and (f) physical education--4 years.

At Ridgefield High School, another school examined in the study of 13 (Perrone, 1985), the basis for much of the individual curriculum decision making is "What do I want to teach?" rather than "What do students need to learn?" As a result, when a teacher gets tired of teaching a course, it disappears from the curriculum. It is generally agreed that Ridgefield should require more units for graduation in the years to come. Although both faculty and staff see a need for their students to achieve on a higher level, they do not see a need to increase graduation requirements.

An evaluative synopsis of Ridgefield's curriculum might suggest that faculty concern over curriculum content lends strong support to the direction in which children will learn. Graduation requirements/standards for a comprehensive diploma at Ridgefield include: (a) communication skills--3 units, (b) mathematics--1 unit, (c) science--1 unit, (d) social studies--3 units, (e) fine arts--1 unit, (f) practical arts--1.5 units, (g) physical education and health--2 units, and (h) other--8.5 units (Perrone, 1985).

Selected Studies--Commission Reports

The above literature proposed regrouping subject matter in different categories. The United States Department of Education has actively encouraged schools to require an increased number of courses in the "new basics." Under this plan, the National Commission on Excellence in Education (1983) recommended the following to be taken as requirements for high school graduation: (a) English--4 credits, (b) social studies--3 credits, (c) science and mathematics --3 credits, (d) foreign language--2 credits, and (e) computer science--0.5 credit.

The last decade has given witness to an abundance of commission and study reports attesting to education's state of the state. One of the most frequently referred to of these reports is the Nation at Risk (National Commission on Excellence in Education, 1983). A series of recommendations, called the five new basics, were outlined in it. The report defined expectations in terms of the level of knowledge, abilities, and skills school and college students should possess. Mention is also made of the amount of time spent, hard work behavior, self-discipline, and motivation necessary to succeed in high school. Through the plan, students would be taking: (a) English--4 years, (b) mathematics--3 years, (c) science--3 years, (d) social studies--3 years, (e) computer science--0.5 year, and (f) foreign language--2 years (recommended for those students planning to go to college).

On June 22, 1983, the Education Commission of the States national Task Force on Education for Economic Growth was formed. Chaired by Governor James B. Hunt of North Carolina, the group was comprised of 41 members whose purpose was to focus on strategies for improving the quality of high school graduates. Particular attention was to be given to those skills required for economic growth. Formation of this committee was an outgrowth of the growing interest and concern among governors and corporate leaders for the quality of our public schools. The report of the committee, Action for Excellence (Task Force on Education for Economic Growth, 1983), recognizes that the greatest overall deficiency in the United States is the absence of clear, compelling, and widely agreed upon goals for improving educational performance. The committee urged the states and local school systems to launch energetic efforts to strengthen curriculum from kindergarten through high school. Although the task force on economic growth did not make specific recommendations outlining a 9-12 curriculum, they did conclude by stating that the educational system must be mobilized to teach the new skills. These new skills have been described as the skills that will be demanded in tomorrow's technologically sophisticated workplace.

The Twentieth Century Fund Task Force (1982) was developed to examine federal education policy with the purpose of making policy recommendations for a federal role in education, particularly in primary and secondary education. Their report, Federal Elementary and Secondary Education Policy, identified core components that should minimally be provided to all students. These components

include: (a) basic skills of reading, writing, and calculating; (b) technical capability in computers; (c) training in science and foreign languages; and (d) knowledge of civics.

The committee proposed that the federal government should promote and support proficiency in English for all children in the public schools, particularly for those who do not speak English. The option to acquire proficiency in a second language for every American public school student was also promoted and is a recommended standard by some.

Reminiscent of the "Seven Cardinal Principles," West Virginia Judge Arthur M. Recht (cited in Flanigan, 1989), forced to present a detailed definition of thorough and efficient education, offered eight elements in his definition:

> (1) literacy; (2) the ability to add, subtract, multiply, and divide numbers; (3) knowledge of government equipping a student to be a citizen capable of making informed choices; (4) self-knowledge and knowledge of his or her total environment; (5) work training and advanced academic training; (6) recreational pursuits; (7) interests in all creative arts such as music, theater, literature, and the visual arts; and (8) social ethics, both behavioral and abstract, to facilitate compatibility with others in society (p. 10).

By the end of the summer of 1989, the Michigan State Board of Education had identified a core curriculum articulating general outcomes to be achieved by all students as a result of their school experiences. Included are: (a) world studies, (b) mathematics and science, (c) language arts, (d) fine arts, (e) health and physical education, and (f) computer literacy. In addition to the above areas, vocational and employability have also been identified for

integration into the core curriculum. The Michigan State Board of Education intends for the curriculum to prepare students to become competent, problem-solving citizens in a democratic society and in the world, able to engage in inquiring, analyzing, explaining, applying, and coping.

On July 11, 1989, the Michigan Department of Education released information on minimal high school graduation requirements. The department recommended that graduation requirements derive from the State Board of Education approved document, Better Education for Michigan Citizens: A Blueprint for Action (Michigan State Board of Education, 1984). The required subjects recommended to be in place for students graduating in 1992 are: (a) communications--3 credits, (b) mathematics--2 credits, (c) science--2 credits, (d) social studies--3 credits, (e) physical education--1 credit, and (f) computer education--0.5 credit or equivalent.

Concurrent with the release of this information, the Michigan Department of Education also released information indicating which school districts failed to meet the recommended minimal high school graduation requirements in 1989 and 1992. Of the 503 districts which submitted data, 238 (47.3%) failed to meet the recommended graduation requirements for 1989, and 92 (18.3%) failed to meet them in 1992.

In similar fashion, the Michigan College Presidents Council (1990) comprised of presidents of state universities within Michigan, drafted an article entitled Designing Your Future: Advice for High School Students (1990). Essentially, the article was a

statement by the various university presidents, that any student seeking admission to a 4-year degree program in Michigan must fulfill the requirements outlined in the document. Not all colleges and universities sponsored the document; but for those that did, following are the recommended courses required for attendance in any of the sponsoring schools:

1. English--4 years required.

2. Mathematics--3 years required; 4 years strongly recommended.

3. Biological and physical sciences--3 years required; to include 1 year of biological science and 1 year of physical science. A 1-year laboratory course is strongly recommended.

In addition to the required courses for admission, the following courses are recommended:

1. Foreign language--3 years strongly recommended.

2. Fine and performing arts--2 years strongly recommended.

3. Computer literacy--1 year of hands on experience strongly recommended.

A redraft of these proposed recommendations was released by the Michigan College Presidents Council on March 5, 1991. The recommendations were essentially the same; however, an attached statement indicated that these recommendations should be in place for a student graduating from high school in 1995.

On April 18, 1991, President George Bush released America 2000: An Education Strategy (U.S. Department of Education, 1991). In summary, it is a long-range plan to move every community in the

United States in the direction of the national education goals adopted by the president and state governors in 1990. America 2000 contains the national education goals and a challenge by the president to accomplish these goals.

The goals recognized by the president are reflections of recommendations made in the many commission reports and articles written on the desired changes in education for America's young people.

> 1. All children will start school ready to learn.
>
> 2. The high school graduation rate will increase to at least 90%.
>
> 3. American students will leave Grades 4, 8, and 12 having demonstrated competency in challenging subject matter including English, mathematics, science, history, and geography; and every school in America will ensure that all students learn to use their minds well, so they may be prepared for responsible citizenship, further learning, and productive employment in the modern economy.
>
> 4. U.S. students will be the first in the world in science and mathematics achievement.
>
> 5. Every adult American will be literate and will possess the knowledge and skills necessary to compete in a global economy and exercise the rights and responsibilities of citizenship.
>
> 6. Every school in America will be free of drugs and violence and will offer a disciplined environment conducive to learning. (U.S. Department of Education, 1991, p. 19)

In his state of the nation speech on the same date as the America 2000 source book was delivered, President Bush stated that he would be working closely with the nation's governors in the definition of world class standards for schools, teachers, and students in the five core subjects. The five core subjects he referenced were (1) mathematics (2) science, (3) English, (4) history, and (5)

geography.

Since 1980, at least 45 states and the District of Columbia have altered their high school graduation requirements. In general, the number of units of mathematics and science required of all high school students has increased. Some states have increased graduation requirements while others have decreased the number of elective choices a student is allowed to make. Some interesting statistics indicate the following:

1. In five states, Colorado, Iowa, Hawaii, Nebraska, and Wyoming, high school graduation requirements are set at the local district level.

2. Thirty-five states and the District of Columbia had minimum requirements for graduation in 1980 and have since increased that number.

3. One state, Vermont, has decreased its minimum number of course requirements for graduation.

4. Nine states previously had allowed local education districts to determine a majority of the requirements for high school graduation and have now initiated more state control (Pipho, 1987).

In the name of self-governance, one school, James Madison High School, named in honor of the late United States president, identified a theoretical curriculum. The program of studies was developed with a curriculum in mind that makes available a shared body of knowledge and skills, a common language of ideas, and a common moral and intellectual discipline. The theoretical curriculum recommends:

(a) English--4 years; (b) social studies, mathematics, and science--3 years; (c) foreign language and physical education--2 years of each; and (d) art and music--0.5 year of each (Bennett, 1987).

In addition to successfully completing 20 units of credit, students in North Carolina must receive passing scores on one of the approved North Carolina competency tests in mathematics and reading and writing in order to graduate. The 20 units required by the state as a minimum graduation standard include: (a) English--4 units; (b) mathematics--2 units; (c) social studies--2 units (government--1 unit, economics--1 unit, or United States history--2 units); (d) science--2 units (life science--1 unit, biology--1 unit, or physical science--1 unit); (e) physical education and health--1 unit; and (f) determined by the local education agency--9 units.

Together with state graduation requirements, local education agencies have the option of adopting additional requirements which students must also reach in order to graduate from high school (North Carolina State Board of Education, 1986).

In California, Proposition 13 played a significant role in reducing curriculum in the schools, indicating that legislative initiative provides yet another stimulus for change. Regardless of who or what is responsible for these changes, it is clear that external forces play a significant role in determining the typical high school curriculum.

The California State Board of Education (cited in Hayward, 1987) challenged local districts by adopting high school graduation

standards. If they decide to accept the challenge, local districts will be involved in the development of their own high school graduation requirements, and local communities will participate in the comparison of local standards to those of the model (Hayward, 1987). The State Board of Education requires students to complete: (a) English--4 years; (b) science (a year of physical and life sciences)--2 years; (c) mathematics (including algebra and geometry)--3 years; (d) social science--3 years, including world civilization--1 year, U.S. history--1 year, government--1 semester, and economics--1 semester; (e) foreign language--2 years of same language; (f) visual and performing arts--1 year; and (g) computer studies--1 year. The University of California entrance requirements recognized as a force behind the development of high school curriculum in the state include: (a) English--4 years, (b) mathematics--3 years, (c) laboratory science-- 1 year, (d) U.S. history or U.S. history and government--1 year, (e) foreign language--2 years of same language, and (f) approved electives--4 years.

This profile of state and local curricular alignment represents one of the more thorough attempts at encouraging state and local participation in the accountability for providing high school curriculum and graduation requirements needed for tomorrow's youth.

Periodicals

Information pertaining to small schools was found in an article on attitudes of principals regarding curriculum needs in small high schools. Barker and Muse (1983), concerned with the challenge of a

broad and varied curriculum to small rural schools, sampled 475 schools with populations of 500 students or less. The sample selection was made from a list of 5,060 public senior high schools in the United States with enrollments of fewer than 500 students each. Responses were returned of 67.2%. The questionnaire included a listing of 105 courses which were arranged in 13 subject areas. Principals were asked to indicate which of the listed courses were included in their school's curriculum. For each course which they did not offer, principals were asked to gauge the relative degree to which they felt the course should be added to their school's curriculum. For purposes of the study, courses which were offered by 70% or more of the sample were considered to be core curriculum of the small high school.

The findings below suggest that the core curriculum in most small high schools are higher than the Michigan Department of Education's recommendations: (a) English--4 years, (b) mathematics--3 years, (c) science--3 years, and (d) computer literacy--0.5 year.

In a recent Gallup Poll (Elam, Gallup, & Rose, 1991), the public was asked about its attitudes toward the public schools. If involvement of the general populace is necessary to recognize that the nation has a serious concern in regard to the education of the youth and if commitment, ownership, and teamwork are important, it is interesting to ponder the following questions. Under the section entitled "National Curriculum Standards and Test" (Elam et al., 1991) the public was asked:

> 1. Would you favor or oppose requiring the public schools in this community to use a standardized national curriculum?
>
> 2. Would you favor or oppose requiring the public schools in this community to conform to national achievement standards and goals?
>
> 3. Would you favor or oppose requiring the public schools in this community to use standardized national tests to measure the academic achievement of students? (p. 46)

Respondents who answered "oppose" or "don't know" to the preceding questions were also asked: "What if those standardized national tests were made optional for all public schools, so that the policy making authority in each district could decide whether or not to give the tests? Would you favor or oppose making these tests optional?" (p. 46).

> 4. Would you favor or oppose requiring the public schools in this community to use standardized testing programs to measure students' achievement in the following areas: (a) knowledge in five core subjects: English, mathematics, science, history, and geography? (b) problem-solving skills? (c) ability to write a clear composition or paper on some topic? (p. 46)

The responses to these questions indicate strong general support:

1. Core subjects: 88% favored, 8% opposed, and 4% answered don't know.

2. Problem-solving skills: 84% favored, 10% opposed, and 6% answered don't know.

3. Ability to write: 85% favored, 10% opposed, and 5% answered don't know.

If this poll represents a reasonable indication of American sentiment, then it would be clear to the policy makers at national, state, and local levels that the desire for change is present.

Summary

The high school curriculum today is a subject recognized on local, state, and national agendas. Is this recognition politically or socially based or is it a combination of many factors causing concern in the education community.

The various reports, commissions, and literature analyzed in this paper spoke to areas of specific quantity of graduation requirements. The quality of standards for high school graduation received limited attention.

The Michigan Department of Education recognized the importance of the reports and commission studies and used them to develop a sense of direction and developed recommended graduation standards for local boards of education to adopt.

The reports did give direction to quantity but specific standards for graduation seem to be found only in the state of Michigan's recommended high school graduation standards and the Michigan College Presidents Council.

Summary of Literature

Current books reviewed in this chapter critique and offer alternatives to curricula which appear to concentrate on concepts, values, and attitudes.

The recommendations of the Michigan Department of Education, commissions, reports, and agencies showed consensus on the need for higher standards and expectations indicating the need for a more skilled work force with emphasis on technologically prepared workers. They vary considerably on the specific curriculum content.

CHAPTER III

METHODOLOGY

The purpose of this study was to identify recommended high school graduation standards for high schools in the Upper Peninsula of Michigan. The study compared the graduation requirements of the students attending the 54 high schools in the Upper Peninsula of Michigan to graduation standards set by the Michigan College Presidents Council and those recommended by the Michigan Department of Education. Commonly referred to as core curriculum subjects, the subject areas examined in this study were: mathematics, science, English, and social studies.

Research Design

An action research design was conducted to recommend graduation standards for high schools in Michigan to enable high school graduates to enter the "world of work" or postsecondary training. Also, descriptive procedures were used to explore the data obtained.

Although the subjects actually involved in the interview process were principals, superintendents, and counselors, their curricular decisions automatically affect the curricular choices and career paths students will ultimately follow. The method used in this study provides an orderly framework for problem solving and new developments. Because the process used relies on data existing

within each of the respective schools surveyed, it does not rely on subjective response or opinion of those who participated. Further, the interview process used has provided two open-ended questions allowing participants to indicate possible future changes. This flexible and adaptive approach does relinquish some control in the process used but it also provides an opportunity for the participants to be innovative and creative in resolving curricular choices. The method was chosen for its practical use and application for resolving issues and choices in an existing educational setting.

Considerable preliminary work preceded the actual testing of the hypotheses. The instrument was developed (Appendix A), field tested, and revised. The categories for analyzing the data were developed. This chapter describes in detail how the preceding steps were developed in this study.

Independent Variables

The independent variables were:

1. Local high school graduation standards for college-bound and non-college-bound students: Survey information gathered for this variable was recorded using the following format:

Subject area	Number of hours
English	
Social studies	
Mathematics	
Science	
Health	

Computers

Foreign language

Physical education

2. Enrollment of high schools: The school districts were ranked into nine groups by enrollment in relation to the number of pupils in the school district. These groups were selected using 100 number groupings (except Group 8) until the final category was encountered. There were only two schools left in this number range, so they were grouped as one (Group 9). There was no other mathematical reason for the grouping of the schools. Group 1 consisted of 10 high schools, each having an enrollment of from 0 to 100 pupils. Group 2 consisted of 16 high schools, each having an enrollment of from 101 to 200 pupils. This group contained the largest number of high schools. Group 3 consisted of 7 high schools, each having an enrollment of from 201 to 300 pupils. Group 4 consisted of 7 high schools, each having an enrollment of from 301 to 400 pupils. Group 5 consisted of 5 high schools, each having an enrollment of from 401 to 500 pupils. Group 6 consisted of 2 high schools, each having an enrollment of from 501 to 600 pupils. Group 7 consisted of 3 high schools, each having an enrollment of from 601 to 700 pupils. Group 8 consisted of 2 high schools, each having an enrollment of from 701 to 833 pupils. Group 9 consisted of 2 high schools, each having an enrollment of from 1,129 to 1,406.

3. Length of the school day in the local schools: Survey information gathered for this variable was recorded using the following format:

Length of School Day

Periods	Number of schools
6	
7	
8	

Instrumentation

The design of the interview instrument allowed to test the recommended graduation standards of the Michigan College Presidents Council and the Michigan Department of Education. These recommendations were compared with the local high schools' graduation standards for college-bound and non-college-bound students. Enrollment and length of school day were also used to determine discrepancies. A checklist was the method to tabulate the data.

The interview instrument was developed for the purpose of collecting data to analyze for the hypotheses. The interview instrument was formulated by first isolating the general areas of information needed to test the hypotheses.

The original design of the instrument to be used was developed so that the interviewer would not have to set aside a considerable amount of time to complete the process. In addition, it was developed with the thought in mind that the person being interviewed would either be aware of the information being asked or would have it readily available. With that in mind, the initial survey contained four items. These questions were:

1. What is the total enrollment of your 9-12 district?

2. What is the number of class periods in your school day?

3. What is the total number of credits required for graduation?

4. What are your course credit requirements for graduation?

Field testing conducted on the instrument involved a 20% sample of the respective fields of people to be surveyed. All of the people involved in the field test felt that the questions were readable and sufficiently and succinctly addressed the information requested.

When the survey was revised, five of the survey recipients, or 25% of the people polled in the sample, felt the need to include questions addressing plans or prospective plans to change existing curriculum in the respective schools. Additionally, this same sample felt it would be important to indicate any perceived difficulties in the process of changing curriculum in the local schools. The following two questions were added:

1. Are you contemplating any graduation requirements in the next few years? Yes____ No____

2. What barriers do you have or foresee in changing the graduation requirements in your school?

The final draft used in the actual survey conducted included the four questions originally included in the field testing process plus the two open-ended questions suggested for inclusion by the sample recipients.

Sample Characteristics

The sample used in this study was all the high schools in the Upper Peninsula consisting of 54 schools for the 1991-92 school year. Every school district requested to participate responded, resulting in 100% participation. The geographic area sampled is measured approximately 300 miles long and 100 miles wide. Seven intermediate school districts are located within the same boundary. Forty-nine principals, two superintendents, and three counselors responded to the survey. The survey was primarily directed to high school principals; however, superintendent and counselor participation was also sought.

Procedures

Phone calls were made to all 54 school districts to invite the participation of either the principal, superintendent, or a counselor in the survey process. Phone calls were made over a 6-day period with approximately 9 calls made each day. On some of those occasions, the respective party could not be reached and a second or third call was required. In the process of conducting the phone interview, the researcher would first introduce himself and then proceed to explain what he was doing, why he was interested in the study, and why he felt their participation in the study was important. Not only did the researcher receive complete cooperation and encouragement, but several participants stated their interest in the results and asked for a printed copy.

All of the information received via the phone was recorded on the interview questionnaire separately for each district. Once completed, this information was compared in a plus (+, indicating it exceeded), minus (-, does not meet), or zero (0, meets) format to the Michigan Department of Education standards for high school graduation and the Michigan College Presidents Council recommendations to determine whether each district did not meet, met, or exceeded these levels.

School size categories were then developed and the information from the individual participant districts was entered in these respective categories. The same information was sorted out by the number of class periods of each school and arranged categorically by six-, seven-, and eight-period days.

Finally, all of these data were analyzed to determine whether school enrollment or number of class periods in the school day had an effect on whether or not school districts would either meet, not meet, or exceed requirements and recommendations of the state of Michigan and the Michigan College Presidents Council.

Hypotheses

The following hypotheses were prepared for testing:

Hypothesis 1: There are discrepancies in standards for college-bound and non-college-bound Upper Peninsula high school students and those of the Michigan College Presidents Council and Michigan Department of Education using enrollment as a variable.

Hypothesis 1a: There are discrepancies in standards for college-bound Upper Peninsula high school students and those of the Michigan College Presidents Council and the Michigan Department of Education using enrollment as a variable.

Hypothesis 1b: There are discrepancies in standards for non-college-bound Upper Peninsula high school students and those of the Michigan College Presidents Council and the Michigan Department of Education using enrollment as a variable.

Hypothesis 2: The length of the school day of the high schools in the Upper Peninsula contributes to the discrepancies in curriculum for both college-bound and non-college-bound students, between existing graduation requirements in both the Michigan College Presidents Council and the Michigan Department of Education recommended graduation standards.

Hypothesis 2a: The six-period school day of the high schools in the Upper Peninsula contributes to the discrepancies in curriculum for college-bound students between existing graduation requirements in both the Michigan College Presidents Council and the Michigan Department of Education recommended graduation standards.

Hypothesis 2b: The six-period school day of the high schools in the Upper Peninsula contributes to the discrepancies in curriculum for non-college-bound students between existing graduation requirements in both the Michigan College Presidents Council and the Michigan Department of Education recommended graduation standards.

Hypothesis 2c: The seven-period school day of the high schools in the Upper Peninsula contributes to the discrepancies in

curriculum for college-bound students between existing graduation requirements in both the Michigan College Presidents Council and the Michigan Department of Education recommended graduation standards.

Hypothesis 2d: The seven-period school day of the high schools in the Upper Peninsula contributes to the discrepancies in curriculum for non-college-bound students between existing graduation requirements in both the Michigan College Presidents Council and the Michigan Department of Education recommended graduation standards.

Hypothesis 2e: The eight-period school day of the high schools in the Upper Peninsula contributes to the discrepancies in curriculum for college-bound students between existing graduation requirements in both the Michigan College Presidents Council and the Michigan Department of Education recommended graduation standards.

Hypothesis 2f: The eight-period school day of the high schools in the Upper Peninsula contributes to the discrepancies in curriculum for non-college-bound students between existing graduation requirements in both the Michigan College Presidents Council and the Michigan Department of Education recommended graduation standards.

Summary

This section described the design, methodology, and procedures followed in the development of this study. The sample used included all the high schools in the Upper Peninsula of Michigan. The data used in the analysis were collected with an interview instrument. The data were measured with plus (+, exceeds), minus (-, does not meet), or zero (0, met) discrepancies tabulated. Two open-ended

questions were used to identify factors that may impact graduation standards for high schools in the Upper Peninsula of Michigan.

CHAPTER IV

FINDINGS OF THE STUDY

The purpose of this study was to identify recommended high school graduation standards for high schools in the Upper Peninsula of Michigan. The standards should meet the State of Michigan recommendations or standards for high school graduation. In addition, recommendations of local, state, and national studies and commission reports are included. A comparison was made between local high schools' graduation requirements for both non-college-bound and college-bound students and the Michigan State Board of Education recommended graduation requirements and those of the Michigan College Presidents Council. These findings are presented in a series of successive tables and a narrative in this chapter. Section 1 compares graduation standards by student enrollment, Section 2 by length of the school day. Section 3 presents contemplated changes in curriculum in the respective respondent schools. Section 4 presents the barriers that participants indicated in an area entitled Curriculum Changes.

Analysis of Data From Survey Instrument

The data analysis provides a basis for describing how the local high school graduation requirements compare to those recommended by the Michigan State Board of Education. In addition, it provides a

comparison of the local high school districts' college preparation graduation recommendations to the Michigan College Presidents Council recommendations. The evaluation of these data using a discrepancies checklist, provides evidence to propose a model for high school requirements for graduation based on generalizations from theory and research.

Enrollment

Size of District

The high school districts for enrollment analysis were ranked into nine groups by size in relation to the numbers of pupils in the school district's Grades 9-12 enrollment.

Table 1 indicates the number and percentage of high schools for each group.

There was no particular or scientific reason for grouping school district populations by subsequent groups of 100 or more. Consideration for school size to be included in these sections was made on the basis of numbers of students. Compared to other schools in the state, most of the schools might well be categorized as rural with some recognized as rural remote. Like many of the school districts developed throughout the United States, schools in the Upper Peninsula were built in those areas sufficiently populated to make assembling a group of students feasible. While urban schools were developing classes for students at each level and ultimately into schools for varying age levels, sparsely populated areas, like many

Table 1

High Schools in Enrollment Groups

Group	Pupils	Number of high schools	Percent of total
1	0-100	10	18.5
2	101-200	16	29.6
3	201-300	7	13.0
4	301-400	7	13.0
5	401-500	5	9.2
6	501-600	2	3.7
7	601-700	3	5.5
8	701-833	2	3.7
9	1,129-1,406	2	3.7
Total		54	99.9

of the areas of the Upper Peninsula, were still working at gathering widely dispersed students into one center. Over time, these locations once bristling with a successful industrial economy have changed into smaller less successful economic areas. Towns and villages are less populated and struggle to hang on to their identity and their schools.

This study does not attempt to answer the question regarding ideal school size. The previous explanation was proffered on the basis of the need to divide schools into groupings for purposes of analyzing the data gathered. Following is a summary of some of

these data.

A descriptive comparison of the high schools in the Upper Peninsula was done by placing the high schools by enrollment into nine groups. Group 1 included schools with enrollments of 0 to 100 students. Group 2 followed in a similar grouping manner on through Group 9. The comparison of the local district's graduation standards to the state of Michigan graduation standards was done for each group. An analysis of where the district did not meet, met, or exceeded the standards is presented in a narrative description.

Hypothesis 1: There are discrepancies in standards for college-bound and non-college-bound Upper Peninsula high school students and those of the Michigan College Presidents Council and Michigan Department of Education using enrollment as a variable.

Hypothesis 1a: There are discrepancies in standards for college-bound Upper Peninsula high school students and those of the Michigan College Presidents Council and the Michigan Department of Education using enrollment as a variable.

As shown in Table 2, areas where the 10 schools in Group 1 (0-100 students) exceeded college-bound recommendations of the Michigan College Presidents Council standards for graduation were: 3 in social studies, 6 in science, 10 in health, and 1 in computers. Areas where these districts met the recommended standards were: 8 in English, 6 in social studies, 5 in mathematics, 2 in science, 3 in computers, 5 in foreign language, and 9 in physical education. Areas where these districts were below recommended standards were: 2

in English, 1 in social studies, 5 in mathematics, 2 in science, 6 in computers, 5 in foreign language, and 1 in physical education.

Table 2

Comparison of the Michigan College Presidents Council High School Graduation Recommendations to the Respective High School Recommendations for College-Bound Students for Group 1 (0-100 Students)

Area	Did not meet (-)	Met (0)	Exceeded (+)
English	2	8	0
Social studies	1	6	3
Mathematics	5	5	0
Science	2	2	6
Health	0	0	10
Computers	6	3	1
Foreign language	5	5	0
Physical education	1	9	0

As shown in Table 3, areas where the 16 schools in Group 2 (101-200 students) exceeded college-bound recommendations of the Michigan College Presidents Council standards for graduation were: 4 in social studies, 10 in science, 13 in health, 1 in computers, 2 in foreign language, and 14 in physical education. Areas where these districts met the recommended standards were: 14 in English, 11 in social studies, 11 in mathematics, 4 in science, 3 in health, 5 in computers, 7 in foreign language, and 2 in physical education.

Areas where these districts were below recommended standards were: 2 in English, 1 in social studies, 5 in mathematics, 2 in science, 10 in computers, and 7 in foreign language.

Table 3

Comparison of the Michigan College Presidents Council High School Graduation Recommendations to the Respective High School Recommendations for College-Bound Students for Group 2 (101-200 Students)

Area	Did not meet (-)	Met (0)	Exceeded (+)
English	2	14	0
Social studies	1	11	4
Mathematics	5	11	0
Science	2	4	10
Health	0	3	13
Computers	10	5	1
Foreign language	7	7	2
Physical education	0	2	14

As shown in Table 4, areas where the seven schools in Group 3 (201-300 students) exceeded college-bound recommendations of the Michigan College Presidents Council standards for graduation were: 2 in social studies, 4 in science, 7 in health, 1 in foreign language, and 7 in physical education. Areas where these districts met the recommended standards were: 7 in English, 5 in social studies, 4 in mathematics, 2 in science, 2 in computers, and 5 in foreign

language. Areas where these districts were below recommended standards were: 3 in mathematics, 1 in science, 5 in computers, and 1 in foreign language.

Table 4

Comparison of the Michigan College Presidents Council High School Graduation Recommendations to the Respective High School Recommendations for College-Bound Students for Group 3 (201-300 Students)

Area	Did not meet (-)	Met (0)	Exceeded (+)
English	0	7	0
Social studies	0	5	2
Mathematics	3	4	0
Science	1	2	4
Health	0	0	7
Computers	5	2	0
Foreign language	1	5	1
Physical education	0	0	7

As shown in Table 5, areas where the seven schools in Group 4 (301-400 students) exceeded college-bound recommendations of the Michigan College Presidents Council standards for graduation were: 5 in science, 7 in health, 2 in foreign language, and 6 in physical education. Areas where these districts met the recommended standards were: 6 in English, 7 in social studies, 7 in mathematics, 2 in science, 3 in foreign language, and 1 in physical education.

Areas where these districts were below recommended standards were: 1 in English, 7 in computers, and 2 in foreign language.

Table 5

Comparison of the Michigan College Presidents Council High School Graduation Recommendations to the Respective High School Recommendations for College-Bound Students for Group 4 (301-400 Students)

Area	Did not meet (-)	Met (0)	Exceeded (+)
English	1	6	0
Social studies	0	7	0
Mathematics	0	7	0
Science	0	2	5
Health	0	0	7
Computers	7	0	0
Foreign language	2	3	2
Physical education	0	1	6

As shown in Table 6, areas where the five schools in Group 5 (401-500 students) exceeded college-bound recommendations of the Michigan College Presidents Council standards for graduation were: 1 in social studies, 3 in science, 4 in health, 1 in foreign language, and 5 in physical education. Areas where these districts met the recommended standards were: 5 in English, 4 in social studies, 3 in mathematics, 2 in science, 1 in health, 1 in computers, and 4

in foreign language. Areas where these districts were below recommended standards were: 2 in mathematics and 4 in computers.

Table 6

Comparison of the Michigan College Presidents Council High School Graduation Recommendations to the Respective High School Recommendations for College-Bound Students for Group 5 (401-500 Students)

Area	Did not meet (-)	Met (0)	Exceeded (+)
English	0	5	0
Social studies	0	4	1
Mathematics	2	3	0
Science	0	2	3
Health	0	1	4
Computers	4	1	0
Foreign language	0	4	1
Physical education	0	0	5

As shown in Table 7, areas where the two schools in Group 6 (501-600 students) exceeded college-bound recommendations of the Michigan College Presidents Council standards for graduation were: 1 in science, 2 in health, and 2 in physical education. Areas where these districts met the recommended standards were: 1 in English, 2 in social studies, 2 in mathematics, 1 in science, and 2 in foreign language. Areas where these districts were below recommended standards were: 1 in English and 2 in computers.

Table 7

Comparison of the Michigan College Presidents Council High School Graduation Recommendations to the Respective High School Recommendations for College-Bound Students for Group 6 (501-600 Students)

Area	Did not meet (-)	Met (0)	Exceeded (+)
English	1	1	0
Social studies	0	2	0
Mathematics	0	2	0
Science	0	1	1
Health	0	0	2
Computers	2	0	0
Foreign language	0	2	0
Physical education	0	0	2

As shown in Table 8, areas where the three schools in Group 7 (601-700 students) exceeded college-bound recommendations of the Michigan College Presidents Council standards for graduation were: 1 in science, 3 in health, 1 in computers, and 3 in physical education. Areas where the districts met the recommended standards were: 2 in English, 2 in social studies, 1 in mathematics, 1 in science, and 2 in foreign language. Areas where districts were below recommended standards were: 1 in English, 1 in social studies, 2 in mathematics, 1 in science, 2 in computers, and 1 in foreign language.

Table 8

Comparison of the Michigan College Presidents Council High School Graduation Recommendations to the Respective High School Recommendations for College-Bound Students for Group 7 (601-700 Students)

Area	Did not meet (-)	Met (0)	Exceeded (+)
English	1	2	0
Social studies	1	2	0
Mathematics	2	1	0
Science	1	1	1
Health	0	0	3
Computers	2	0	1
Foreign language	1	2	0
Physical education	0	0	3

As shown in Table 9, areas where the two schools in Group 8 (701-833 students) exceeded college-bound recommendations of the Michigan College Presidents Council standards for graduation were: 1 in social studies, 2 in health, and 1 in physical education. Areas where these districts met the recommended standards were: 2 in English, 1 in social studies, 1 in mathematics, 2 in science, 2 in foreign language, and 1 in physical education. Areas where these districts were below recommended standards were: 1 in mathematics and 2 in computers.

Table 9

Comparison of the Michigan College Presidents Council High School Graduation Recommendations to the Respective High School Recommendations for College-Bound Students for Group 8 (701-833 Students)

Area	Did not meet (-)	Met (0)	Exceeded (+)
English	0	2	0
Social studies	0	1	1
Mathematics	1	1	0
Science	0	2	0
Health	0	0	2
Computers	2	0	0
Foreign language	0	2	0
Physical education	0	1	1

As shown in Table 10, areas where the two schools in Group 9 (1,129-1,406 students) exceeded college-bound recommendations of the Michigan College Presidents Council standards for graduation were: 2 in social studies, 2 in health, 1 in foreign language, and 2 in physical education. Areas where these districts met the recommended standards were: 2 in English, 2 in science, 1 in computers, and 1 in foreign language. Areas where these districts were below recommended standards were: 2 in mathematics and 1 in computers.

Hypothesis 1: There are discrepancies in standards for college-bound and non-college-bound Upper Peninsula high school students and those of the Michigan College Presidents Council and

Table 10

Comparison of the Michigan College Presidents Council High School Graduation Recommendations to the Respective High School Recommendations for College-Bound Students for Group 9 (1,129-1,406 Students)

Area	Did not meet (-)	Met (0)	Exceeded (+)
English	0	2	0
Social studies	0	0	2
Mathematics	2	0	0
Science	0	2	0
Health	0	0	2
Computers	1	1	0
Foreign language	0	1	1
Physical education	0	0	2

Michigan Department of Education using enrollment as a variable.

Hypothesis 1b: There are discrepancies in standards for non-college-bound Upper Peninsula high school students and those of the Michigan College Presidents Council and the Michigan Department of Education using enrollment as a variable.

As shown in Table 11, areas where the 10 schools in Group 1 (0-100 students) exceeded the Michigan Department of Education Standards for graduation were: 5 in English, 3 in social studies, 1 in mathematics, 1 in computers, 4 in foreign language, and 1 in physical education. Areas where the districts met the recommended standards were: 5 in English, 6 in social studies, 9 in mathematics, 10

in science, 4 in health, 8 in computers, and 1 in physical education. Areas where districts were below the recommended standards were: 1 in social studies, 6 in health, 1 in computers, 6 in foreign language, and 8 in physical education.

Table 11

Comparison of High School Graduation Standards to State of Michigan High School Graduation Standards for Group 1 (0-100 Students)

Area	Did not meet (-)	Met (0)	Exceeded (+)
English	0	5	5
Social studies	1	6	3
Mathematics	0	9	1
Science	0	10	0
Health	6	4	0
Computers	1	8	1
Foreign language	6	0	4
Physical education	8	1	1

As shown in Table 12, areas where the 16 schools in Group 2 (101-200 students) exceeded the Michigan Department of Education standards for graduation were: 8 in English, 4 in social studies, 2 in mathematics, 1 in science, 2 in computers, and 10 in foreign language. Areas where the districts met the recommended standards were: 8 in English, 10 in social studies, 13 in mathematics, 15 in science, 2 in health, 14 in computers, 4 in foreign language, and 3

in physical education. Areas where districts were below the recommended standards were: 2 in social studies, 1 in mathematics, 14 in health, 2 in foreign language, and 13 in physical education.

Table 12

Comparison of High School Graduation Standards to State of Michigan High School Graduation Standards for Group 2 (101-200 Students)

Area	Did not meet (-)	Met (0)	Exceeded (+)
English	0	8	8
Social studies	2	10	4
Mathematics	1	13	2
Science	0	15	1
Health	14	2	0
Computers	0	14	2
Foreign language	2	4	10
Physical education	13	3	0

As shown in Table 13, areas where the seven schools in Group 3 (201-300 students) exceeded the Michigan Department of Education standards for graduation were: 4 in English, 1 in mathematics, and 4 in foreign language. Areas where the districts met the recommendations were: 3 in English, 7 in social studies, 6 in mathematics, 7 in science, 2 in health, 5 in computers, and 2 in physical education. Areas where districts were below the recommended standards

were: 5 in health, 2 in computers, 3 in foreign language, and 5 in physical education.

Table 13

Comparison of High School Graduation Standards to State of Michigan High School Graduation Standards for Group 3 (201-300 Students)

Area	Did not meet (-)	Met (0)	Exceeded (+)
English	0	3	4
Social studies	0	7	0
Mathematics	0	6	1
Science	0	7	0
Health	5	2	0
Computers	2	5	0
Foreign language	3	0	4
Physical education	5	2	0

As shown in Table 14, areas where the seven schools in Group 4 (301-400 students) exceeded the Michigan Department of Education standards for graduation were: 3 in English and 5 in foreign language. Areas where the districts met the recommended standards were: 4 in English, 6 in social studies, 7 in mathematics, 7 in science, 7 in computers, 1 in foreign language, and 2 in physical education. Areas where districts were below the recommended standards were: 1 in social studies, 7 in health, 1 in foreign language, and 5 in physical education.

Table 14

Comparison of High School Graduation Standards to State of Michigan High School Graduation Standards for Group 4 (301-400 Students)

Area	Did not meet (-)	Met (0)	Exceeded (+)
English	0	4	3
Social studies	1	6	0
Mathematics	0	7	0
Science	0	7	0
Health	7	0	0
Computers	0	7	0
Foreign language	1	1	5
Physical education	5	2	0

As shown in Table 15, areas where the five schools in Group 5 (401-500 students) exceeded the Michigan Department of Education standards for graduation were: 3 in English, 1 in computers, and 4 in foreign language. Areas where the districts met the recommended standards were: 2 in English, 5 in social science, 5 in mathematics, 5 in science, 4 in computers, and 1 in foreign language. Areas where districts were below the recommended standards were: 5 in health and 5 in physical education.

As shown in Table 16, areas where the two schools in Group 6 (501-600 students) exceeded the Michigan Department of Education standards for graduation were: 2 in English, 1 in foreign language,

Table 15

Comparison of High School Graduation Standards to State of Michigan High School Graduation Standards for Group 5 (401-500 Students)

Area	Did not meet (-)	Met (0)	Exceeded (+)
English	0	2	3
Social studies	0	5	0
Mathematics	0	5	0
Science	0	5	0
Health	5	0	0
Computers	0	4	1
Foreign language	0	1	4
Physical education	5	0	0

and 1 in physical education. Areas where the districts met the recommended standards were: 2 in social studies, 2 in mathematics, 2 in science, 2 in computers, and 1 in physical education. Areas where districts were below the recommended standards were: 2 in health and 2 in foreign language.

As shown in Table 17, areas where the three schools in Group 7 (601-700 students) exceeded the Michigan Department of Education standards for graduation were: 1 in English and 1 in foreign language. Areas where the districts met the recommended standards were: 2 in English, 1 in social studies, 3 in mathematics, 3 in science, 3 in computers, and 1 in foreign language. Areas where the

Table 16

Comparison of High School Graduation Standards to State of Michigan High School Graduation Standards for Group 6 (501-600 Students)

Area	Did not meet (-)	Met (0)	Exceeded (+)
English	0	0	2
Social studies	0	2	0
Mathematics	0	2	0
Science	0	2	0
Health	2	0	0
Computers	0	2	0
Foreign language	1	0	1
Physical education	0	1	1

districts were below the recommended standards were: 2 in social studies, 3 in health, 1 in foreign language, and 3 in physical education.

As shown in Table 18, areas where the two schools in Group 8 (701-833 students) exceeded the Michigan Department of Education standards were: 1 in English, 1 in social studies, and 1 in foreign language. Areas where the above districts met recommended standards were: 1 in English, 1 in social studies, 2 in mathematics, 2 in science, 1 in health, 2 in computers, 1 in foreign language, and 2 in physical education. Areas where these districts fell below recommended standards were: 1 in health.

Table 17

Comparison of High School Graduation Standards to State of Michigan High School Graduation Standards for Group 7 (601-700 Students)

Area	Did not meet (-)	Met (0)	Exceeded (+)
English	0	2	1
Social studies	2	1	0
Mathematics	0	3	0
Science	0	3	0
Health	3	0	0
Computers	0	3	0
Foreign language	1	1	1
Physical education	3	0	0

Table 18

Comparison of High School Graduation Standards to State of Michigan High School Graduation Standards for Group 8 (701-833 Students)

Area	Did not meet (-)	Met (0)	Exceeded (+)
English	0	1	1
Social studies	0	1	1
Mathematics	0	2	0
Science	0	2	0
Health	1	1	0
Computers	0	2	0
Foreign language	0	1	1
Physical education	0	2	0

As shown in Table 19, areas where the two schools in Group 9 (1,129-1,406 students) exceeded the Michigan Department of Education standards were: 2 in foreign language. Areas where these two districts met recommended standards were: 2 in English, 2 in social studies, 2 in mathematics, 2 in science, 2 in computers, and 1 in physical education. Areas where these districts fell below recommended standards were: 2 in health and 1 in physical education.

Table 19

Comparison of High School Graduation Standards to State of Michigan High School Graduation Standards for Group 9 (1,129-1,406 Students)

Area	Did not meet (-)	Met (0)	Exceeded (+)
English	0	2	0
Social studies	0	2	0
Mathematics	0	2	0
Science	0	2	0
Health	2	0	0
Computers	0	2	0
Foreign language	0	0	2
Physical education	1	1	0

In the next section, the local high school graduation requirements are compared to the recommendations of the Michigan College Presidents Council by enrollment groupings.

As shown in Table 20, areas where the 10 schools in Group 1 (0-100 students) exceeded the Michigan College Presidents Council standards for graduation were: 1 in English, 3 in social studies, 10 in health, 3 in computers, and 9 in physical education. Areas where the districts met the recommended standards were: 4 in English, 6 in social studies, 1 in computers, 4 in foreign language, and 1 in physical education. Areas where districts were below recommended standards were: 5 in English, 1 in social studies, 10 in mathematics, 10 in science, 6 in computers, and 6 in foreign language.

Table 20

Schools That Did Not Meet, Met, or Exceeded the Recommended Graduation Requirements Set by the Michigan College Presidents Council for Group 1 (0-100 Students)

Area	Did not meet (-)	Met (0)	Exceeded (+)
English	5	4	1
Social studies	1	6	3
Mathematics	10	0	0
Science	10	0	0
Health	0	0	10
Computers	6	1	3
Foreign language	6	4	0
Physical education	0	1	9

As shown in Table 21, areas where the 16 schools in Group 2 (101-200 students) exceeded the Michigan College Presidents Council standards for graduation were: 4 in social studies, 13 in health, 2 in computers, 3 in foreign language, and 14 in physical education. Areas where these districts met the recommended standards were: 8 in English, 10 in social studies, 3 in health, 1 in computers, 6 in foreign language, and 2 in physical education. Areas where these districts were below recommended standards were: 8 in English, 2 in social studies, 16 in mathematics, 16 in science, 13 in computers, and 7 in foreign language.

Table 21

Schools That Did Not Meet, Met, or Exceeded the Recommended Graduation Requirements Set by the Michigan College Presidents Council for Group 2 (101-200 Students)

Area	Did not meet (-)	Met (0)	Exceeded (+)
English	8	8	0
Social studies	2	10	4
Mathematics	16	0	0
Science	16	0	0
Health	0	3	13
Computers	13	1	2
Foreign language	7	6	3
Physical education	0	2	14

As shown in Table 22, areas where the seven schools in Group 3 (201-300 students) exceeded the Michigan College Presidents Council standards for graduation were: 7 in health, 2 in computers, and 7 in physical education. Areas where these districts met the recommended standards were: 4 in English, 7 in social studies, and 4 in foreign language. Areas where these districts were below recommended standards were: 3 in English, 7 in mathematics, 7 in science, 5 in computers, and 3 in foreign language.

Table 22

Schools That Did Not Meet, Met, or Exceeded the Recommended Graduation Requirements Set by the Michigan College Presidents Council for Group 3 (201-300 Students)

Area	Did not meet (-)	Met (0)	Exceeded (+)
English	3	4	0
Social studies	0	7	0
Mathematics	7	0	0
Science	7	0	0
Health	0	0	7
Computers	5	0	2
Foreign language	3	4	0
Physical education	0	0	7

As shown in Table 23, areas where the seven schools in Group 4 (301-400 students) exceeded the Michigan College Presidents Council

standards for graduation were: 7 in health, 1 in foreign language, and 7 in physical education. Areas where these districts met the recommended standards were: 3 in English, 6 in social studies, and 4 in foreign language. Areas where these districts were below recommended standards were: 4 in English, 1 in social studies, 7 in mathematics, 7 in science, 7 in computers, and 2 in foreign language.

Table 23

Schools That Did Not Meet, Met, or Exceeded the Recommended Graduation Requirements Set by the Michigan College Presidents Council for Group 4 (301-400 Students)

Area	Did not meet (-)	Met (0)	Exceeded (+)
English	4	3	0
Social studies	1	6	0
Mathematics	7	0	0
Science	7	0	0
Health	0	0	7
Computers	7	0	0
Foreign language	2	4	1
Physical education	0	0	7

As shown in Table 24, areas where the five schools in Group 5 (401-500 students) exceeded the Michigan College Presidents Council standards for graduation were: 5 in health and 5 in physical

education. Areas where these districts met the recommended standards were: 3 in English, 5 in social studies, 1 in computers, and 4 in foreign language. Areas where these districts were below recommended standards were: 2 in English, 5 in mathematics, 5 in science, 4 in computers, and 1 in foreign language.

Table 24

Schools That Did Not Meet, Met, or Exceeded the Recommended Graduation Requirements Set by the Michigan College Presidents Council for Group 5 (401-500 Students)

Area	Did not meet (-)	Met (0)	Exceeded (+)
English	2	3	0
Social studies	0	5	0
Mathematics	5	0	0
Science	5	0	0
Health	0	0	5
Computers	4	1	0
Foreign language	1	4	0
Physical education	0	0	5

As shown in Table 25, areas where the two schools in Group 6 (501-600 students) exceeded the Michigan College Presidents Council standards for graduation were: 2 in health and 2 in physical education. Areas where these districts met the recommended standards were: 2 in social studies and 1 in foreign language. Areas where

these districts were below recommended standards were: 2 in English, 2 in mathematics, 2 in science, 2 in computers, and 1 in foreign language.

Table 25

Schools That Did Not Meet, Met, or Exceeded the Recommended Graduation Requirements Set by the Michigan College Presidents Council for Group 6 (501-600 Students)

Area	Did not meet (-)	Met (0)	Exceeded (+)
English	2	0	0
Social studies	0	2	0
Mathematics	2	0	0
Science	2	0	0
Health	0	0	2
Computers	2	0	0
Foreign language	1	1	0
Physical education	0	0	2

As shown in Table 26, areas where the three schools in Group 7 (601-700 students) exceeded the Michigan College Presidents Council standards for graduation were: 3 in health, 2 in computers, and 3 in physical education. Areas where these districts met the recommended standards were: 1 in English, 1 in social studies, and 1 in foreign language. Areas where these districts were below recommended standards were: 2 in English, 2 in social studies, 3 in

mathematics, 3 in science, 1 in computers, and 2 in foreign language.

Table 26

Schools That Did Not Meet, Met, or Exceeded the Recommended Graduation Requirements Set by the Michigan College Presidents Council for Group 7 (601-700 Students)

Area	Did not meet (-)	Met (0)	Exceeded (+)
English	2	1	0
Social studies	2	1	0
Mathematics	3	0	0
Science	3	0	0
Health	0	0	3
Computers	1	0	2
Foreign language	2	1	0
Physical education	0	0	3

As shown in Table 27, areas where the two schools in Group 8 (701-833 students) exceeded the Michigan College Presidents Council standards for graduation were: 1 in social studies, 2 in health, and 2 in physical education. Areas where these districts met the recommended standards were: 1 in social studies and 1 in foreign language. Areas where these districts were below recommended standards were: 2 in English, 2 in mathematics, 2 in science, 2 in computers, and 1 in foreign language.

Table 27

Schools That Did Not Meet, Met, or Exceeded the Recommended Graduation Requirements Set by the Michigan College Presidents Council for Group 8 (701-833 Students)

Area	Did not meet (-)	Met (0)	Exceeded (+)
English	2	0	0
Social studies	0	1	1
Mathematics	2	0	0
Science	2	0	0
Health	0	0	2
Computers	2	0	0
Foreign language	1	1	0
Physical education	0	0	2

As shown in Table 28, areas where the two schools in Group 9 (1,129-1,406 students) exceeded the Michigan College Presidents Council standards for graduation were: 2 in health, 1 in computers, and 1 in physical education. Areas where these districts met the recommended standards were: 2 in social studies and 2 in foreign language. Areas where these districts were below recommended standards were: 2 in English, 2 in mathematics, 2 in science, and 1 in computers.

Length of School Day

Hypothesis 2: The length of the school day of the high schools in the Upper Peninsula contributes to the discrepancies in

Table 28

Schools That Did Not Meet, Met, or Exceeded the Recommended Graduation Requirements Set by the Michigan College Presidents Council for Group 9 (1,129-1,406 Students)

Area	Did not meet (-)	Met (0)	Exceeded (+)
English	2	0	0
Social studies	0	2	0
Mathematics	2	0	0
Science	2	0	0
Health	0	0	2
Computers	1	0	1
Foreign language	0	2	0
Physical education	0	0	2

curriculum for both college-bound and non-college-bound students between existing graduation requirements in both the Michigan College Presidents Council and the Michigan Department of Education recommended graduation standards.

Hypothesis 2a: The six-period school day of the high schools in the Upper Peninsula contributes to the discrepancies in curriculum for college-bound students between existing graduation requirements in both the Michigan College Presidents Council and the Michigan Department of Education recommended graduation standards.

Hypothesis 2b: The six-period school day of the high schools in the Upper Peninsula contributes to the discrepancies in

curriculum for non-college-bound students between existing graduation requirements in both the Michigan College Presidents Council and the Michigan Department of Education recommended graduation standards.

The Michigan Department of Education does not have a recommended graduation standard for college-bound students. Therefore, Hypotheses 2a and 2b are presented as one. Comparison of the Michigan Department of Education high school graduation recommendations does not differ for college-bound and non-college-bound students.

As shown in Table 29, areas where the 20 schools having a six-period day exceeded the Michigan Department of Education standards for graduation by school were: 8 in English, 3 in social studies, 3 in mathematics, 1 in science, 11 in foreign language, and 1 in physical education. Areas where the districts met the recommended standards were: 11 in English, 13 in social studies, 17 in mathematics, 19 in science, 1 in health, 19 in computers, 4 in foreign language, and 5 in physical education. Areas where the districts were below recommended standards were: 1 in English, 4 in social studies, 19 in health, 1 in computers, 5 in foreign language, and 14 in physical education.

Hypothesis 2: The length of the school day of the high schools in the Upper Peninsula contributes to the discrepancies in curriculum for both college-bound and non-college-bound students between existing graduation requirements in both the Michigan College Presidents Council and the Michigan Department of Education recommended graduation standards.

Table 29

Comparison of the Michigan Department of Education High School Graduation Recommendations to the Respective High School Recommendations for Graduation in the Local Schools by School Period (6-Period Day, n = 20)

Area	Did not meet (-)	Met (0)	Exceeded (+)
English	1	11	8
Social studies	4	13	3
Mathematics	0	17	3
Science	0	19	1
Health	19	1	0
Computers	1	19	0
Foreign language	5	4	11
Physical education	14	5	1

Hypothesis 2c: The seven-period school day of the high schools in the Upper Peninsula contributes to the discrepancies in curriculum for college-bound students between existing graduation requirements in both the Michigan College Presidents Council and the Michigan Department of Education recommended graduation standards.

Hypothesis 2d: The seven-period school day of the high schools in the Upper Peninsula contributes to the discrepancies in curriculum for non-college-bound students between existing graduation requirements in both the Michigan College Presidents Council and the Michigan Department of Education recommended graduation standards.

As shown in Table 30, areas where the 29 schools with a seven-period school day exceeded the Michigan Department of Education standards for graduation by school were: 14 in English, 3 in social studies, 2 in mathematics, 4 in computers, and 16 in foreign language. Areas where the districts met the recommended standards were: 15 in English, 24 in social studies, 27 in mathematics, 29 in science, 8 in health, 24 in computers, 4 in foreign language, and 8 in physical education. Areas where the districts were below recommended standards were: 2 in social studies, 21 in health, 1 in computers, 9 in foreign language, and 21 in physical education.

Table 30

Comparison of the Michigan Department of Education High School Graduation Recommendations to the Respective High School Recommendations for Graduation in the Local Schools by School Period (7-Period Day, $\underline{n}$ = 29)

Area	Did not meet (-)	Met (0)	Exceeded (+)
English	0	15	14
Social studies	2	24	3
Mathematics	0	27	2
Science	0	29	0
Health	21	8	0
Computers	1	24	4
Foreign language	9	4	16
Physical education	21	8	0

Hypothesis 2: The length of the school day of the high schools in the Upper Peninsula contributes to the discrepancies in curriculum for both college-bound and non-college-bound students between existing graduation requirements in both the Michigan College Presidents Council and the Michigan Department of Education recommended graduation standards.

Hypothesis 2e: The eight-period school day of the high schools in the Upper Peninsula contributes to the discrepancies in curriculum for college-bound students between existing graduation requirements in both the Michigan College Presidents Council and the Michigan Department of Education recommended graduation standards.

Hypothesis 2f: The eight-period school day of the high schools in the Upper Peninsula contributes to the discrepancies in curriculum for non-college-bound students between existing graduation requirements in both the Michigan College Presidents Council and the Michigan Department of Education recommended graduation standards.

As shown in Table 31, areas where the five schools with an eight-period school day exceed the Michigan Department of Education standards for graduation by school were: 4 in English, 2 in social studies, 1 in computers, and 4 in foreign language. Areas where the districts met the recommended standards were: 1 in English, 3 in social studies, 5 in mathematics, 5 in science, and 3 in computers. Areas where the districts were below recommended standards were: 5 in health, 1 in computers, 1 in foreign language, and 5 in physical education.

Table 31

Comparison of the Michigan Department of Education High School Graduation Recommendations to the Respective High School Recommendations for Graduation in the Local Schools by School Period (8-Period Day, $\underline{n} = 5$)

Area	Did not meet (-)	Met (0)	Exceeded (+)
English	0	1	4
Social studies	0	3	2
Mathematics	0	5	0
Science	0	5	0
Health	5	0	0
Computers	1	3	1
Foreign language	1	0	4
Physical education	5	0	0

Hypothesis 2: The length of the school day of the high schools in the Upper Peninsula contributes to the discrepancies in curriculum for both college-bound and non-college-bound students between existing graduation requirements in both the Michigan College Presidents Council and the Michigan Department of Education recommended graduation standards.

Hypothesis 2a: The six-period school day of the high schools in the upper peninsula contributes to the discrepancies in curriculum for college-bound students between existing graduation requirements in both the Michigan College Presidents Council and the

Michigan Department of Education recommended graduation standards.

As shown in Table 32, areas where the 20 schools with a six-period day exceed the Michigan College Presidents Council standards for graduation were: 6 in social studies, 8 in science, 19 in health, 1 in computers, 2 in foreign language, and 19 in physical education. Areas where the districts met the recommended standards were: 16 in English, 11 in social studies, 12 in mathematics, 7 in science, 1 in health, 3 in computers, 11 in foreign language, and 1 in physical education. Areas where the districts were below recommended standards were: 4 in English, 3 in social studies, 8 in mathematics, 5 in science, 16 in computers, and 7 in foreign language.

Table 32

Comparison of the Michigan College Presidents Council for High School Graduation Recommendations to the Respective High School Recommendations for College-Bound Students by School Period (6-Period Day, $\underline{n}$ = 20)

Area	Did not meet (-)	Met (0)	Exceeded (+)
English	4	16	0
Social studies	3	11	6
Mathematics	8	12	0
Science	5	7	8
Health	0	1	19
Computers	16	3	1
Foreign language	7	11	2
Physical education	0	1	19

Hypothesis 2: The length of the school day of the high schools in the Upper Peninsula contributes to the discrepancies in curriculum for both college-bound and non-college-bound students between existing graduation requirements in both the Michigan College Presidents Council and the Michigan Department of Education recommended graduation standards.

Hypothesis 2c: The seven-period school day of the high schools in the Upper Peninsula contributes to the discrepancies in curriculum for college-bound students between existing graduation requirements in both the Michigan College Presidents Council and the Michigan Department of Education recommended graduation standards.

As shown in Table 33, areas where the 29 schools with a seven-period day exceeded the Michigan College Presidents Council standards for graduation were: 4 in social studies, 17 in science, 27 in health, 1 in computers, 4 in foreign language, and 27 in physical education. Areas where the districts met the recommended standards were: 26 in English, 25 in social studies, 18 in mathematics, 10 in science, 2 in health, 8 in computers, 17 in foreign language, and 1 in physical education. Areas where the districts were below recommended standards were: 3 in English, 11 in mathematics, 2 in science, 20 in computers, 8 in foreign language, and 1 in physical education.

Hypothesis 2: The length of the school day of the high schools in the Upper Peninsula contributes to the discrepancies in curriculum for both college-bound and non-college-bound students between existing graduation requirements in both the Michigan College

Table 33

Comparison of the Michigan College Presidents Council for High School Graduation Recommendations to the Respective High School Recommendations for College-Bound Students by School Period (7-Period Day, n = 29)

Area	Did not meet (-)	Met (0)	Exceeded (+)
English	3	26	0
Social studies	0	25	4
Mathematics	11	18	0
Science	2	10	17
Health	0	2	27
Computers	20	8	1
Foreign language	8	17	4
Physical education	1	1	27

Presidents Council and the Michigan Department of Education recommended graduation standards.

Hypothesis 2d: The seven-period school day of the high schools in the Upper Peninsula contributes to the discrepancies in curriculum for non-college-bound students between existing graduation requirements in both the Michigan College Presidents Council and the Michigan Department of Education recommended graduation standards.

As shown in Table 34, areas where the five schools with an eight-period day exceed the Michigan College Presidents Council standards for graduation were: 3 in social studies, 4 in science, 4

in health, 1 in computers, 1 in foreign language, and 4 in physical education. Areas where the districts met the recommended standards were: 5 in English, 2 in social studies, 4 in mathematics, 1 in science, 1 in health, 1 in computers, 3 in foreign language, and 1 in physical education. Areas where the districts were below recommended standards were: 1 in mathematics, 3 in computers, and 1 in foreign language.

Table 34

Comparison of the Michigan College Presidents Council for High School Graduation Recommendations to the Respective High School Recommendations for College-Bound Students by School Period (8-Period Day, n = 5)

Area	Did not meet (-)	Met (0)	Exceeded (+)
English	0	5	0
Social studies	0	2	3
Mathematics	1	4	0
Science	0	1	4
Health	0	1	4
Computers	3	1	1
Foreign language	1	3	1
Physical education	0	1	4

Hypothesis 2: The length of the school day of the high schools in the Upper Peninsula contributes to the discrepancies in curriculum for both college-bound and non-college-bound students between

existing graduation requirements in both the Michigan College Presidents Council and the Michigan Department of Education recommended graduation standards.

Hypothesis 2b: The six-period school day of the high schools in the Upper Peninsula contributes to the discrepancies in curriculum for non-college-bound students between existing graduation requirements in both the Michigan College Presidents Council and the Michigan Department of Education recommended graduation standards.

As shown in Table 35, areas where the 20 schools with a six-period school day exceeded the Michigan College Presidents Council standards for graduation by school were: 3 in social studies, 19 in health, 3 in computers, 1 in foreign language, and 20 in physical education. Areas where the districts met the recommended standards were: 7 in English, 13 in social studies, 1 in health, and 10 in foreign language. Areas where the districts were below recommended standards were: 13 in English, 4 in social studies, 20 in mathematics, 20 in science, 17 in computers, and 9 in foreign language.

Hypothesis 2: The length of the school day of the high schools in the Upper Peninsula contributes to the discrepancies in curriculum for both college-bound and non-college-bound students between existing graduation requirements in both the Michigan College Presidents Council and the Michigan Department of Education recommended graduation standards.

Hypothesis 2d: The seven-period school day of the high schools in the Upper Peninsula contributes to the discrepancies in curriculum for non-college-bound students between existing graduation

Table 35

Comparison of the Michigan College Presidents Council for High School Graduation Recommendations to the Respective High School Recommendations for Non-College-Bound Students by School Period (6-Period Day, n = 20)

Area	Did not meet (-)	Met (0)	Exceeded (+)
English	13	7	0
Social studies	4	13	3
Mathematics	20	0	0
Science	20	0	0
Health	0	1	19
Computers	17	0	3
Foreign language	9	10	1
Physical education	0	0	20

requirements in both the Michigan College Presidents Council and the Michigan Department of Education recommended graduation standards.

As shown in Table 36, areas where the 29 schools with a seven-period school day exceeded the Michigan College Presidents Council standards for graduation were: 3 in social studies, 28 in health, 4 in computers, 2 in foreign language, and 26 in physical education. Areas where the districts met the recommended standards were: 13 in English, 24 in social studies 1 in health, 3 in computers, 14 in foreign language, and 2 in physical education. Areas where the districts were below recommended standards were: 16 in English, 2

in social studies, 29 in mathematics, 29 in science, 22 in computers, 13 in foreign language, and 1 in physical education.

Table 36

Comparison of the Michigan College Presidents Council for High School Graduation Recommendations to the Respective High School Recommendations for Non-College-Bound Students by School Period (7-Period Day, n = 29)

Area	Did not meet (-)	Met (0)	Exceeded (+)
English	16	13	0
Social studies	2	24	3
Mathematics	29	0	0
Science	29	0	0
Health	0	1	28
Computers	22	3	4
Foreign language	13	14	2
Physical education	1	2	26

Hypothesis 2: The length of the school day of the high schools in the Upper Peninsula contributes to the discrepancies in curriculum for both college-bound and non-college-bound students between existing graduation requirements in both the Michigan College Presidents Council and the Michigan Department of Education recommended graduation standards.

Hypothesis 2f: The eight-period school day of the high schools in the Upper Peninsula contributes to the discrepancies in

curriculum for non-college-bound students between existing graduation requirements in both the Michigan College Presidents Council and the Michigan Department of Education recommended graduation standards.

As shown in Table 37, areas where the five schools with an eight-period school day exceeded the Michigan College Presidents Council standards for graduation were: 1 in English, 2 in social studies, 4 in health, 2 in computers, and 4 in physical education. Areas where the districts met the recommended standards were: 3 in English, 3 in social studies, 1 in health, 3 in foreign language, and 1 in physical education. Areas where the districts were below recommended standards were: 1 in English, 5 in mathematics, 5 in science, 3 in computers, and 2 in foreign language.

Contemplated Changes for Graduation Requirements

This section is based on the subjective reactions of the participants in an open-ended question. The purpose was to collect incidents and identify incidents that relate to the graduation requirements for high school students. Question 5 in the survey reads as follows: "Are you contemplating any graduation requirement changes in the next few years?" A space was indicated for a yes and no answer indicating that if the question was answered yes, additional space was made available to explain the anticipated changes. The data analysis of this question is presented in the same format used in the preceding display on enrollment.

Table 37

Comparison of the Michigan College Presidents Council for High School Graduation Recommendations to the Respective High School Recommendations for Non-College-Bound Students by School Period (8-Period Day, $\underline{n}$ = 5)

Area	Did not meet (-)	Met (0)	Exceeded (+)
English	1	3	1
Social studies	0	3	2
Mathematics	5	0	0
Science	5	0	0
Health	0	1	4
Computers	3	0	2
Foreign language	2	3	0
Physical education	0	1	4

As shown in Tables 38 and 39, a total of 54 responses were recorded. There were 19 responses indicating there were no contemplated graduation requirements in the ensuing year. Similarly, 19 responses favored raising or changing course requirements next year. Twelve responses indicated a willingness to comply with the Michigan Outcomes Model, while 4 responses indicated a desire to share programs or consolidate with another district.

As shown in Table 39, a total of 54 responses were recorded. There were 19 responses indicating no contemplated graduation requirements in the following year. Six of these responses were

Table 38

Responses for Question 5 by Enrollment Group

Group	No change	Raise or change course requirements	Michigan outcome model	Share or consolidate
1 (n = 10)	3	3	2	2
2 (n = 16)	5	6	3	2
3 (n = 7)	3	1	3	0
4 (n = 7)	1	3	3	0
5 (n = 5)	1	4	0	0
6 (n = 2	2	0	0	0
7 (n = 3)	2	1	0	0
8 (n = 2)	1	1	0	0
9 (n = 2)	1	0	1	0
Totals (n = 54)	19	19	12	4

Note. One response from Group 7 did not fit into the table which was: "Might increase dropout rate."

from schools with six-period days; 13 were from seven-period days, and 0 responses came from the eight-period day schools. Nineteen responses indicated a desire to raise or change graduation requirements in 1992-93. Of these 19 responses, 9 were from six-period schools, 7 were from seven-period schools, and 3 were from eight-period schools. Twelve responses indicated desire to correspond with the state of Michigan Outcomes Model. Five of those responses

were from schools with six-period days, 5 were from schools with seven-period days, and 2 were from schools with eight-period days. Four responses indicated a desire to share curriculum or consolidate with another school district. One of these responses came from a school with a six-period day and 3 responses from a school with a seven-period day.

Table 39

Responses for Question 5 by Class Period

Periods	No change	Raise or change course requirements	Michigan outcome model	Share or consolidate
6 (n = 20)	6	9	5	1
7 (n = 29)	13	7	5	3
8 (n = 5)	0	3	2	0
Totals (n = 54)	19	19	12	4

Tables 40 and 41 contain the responses to Question 6: "What barriers do you have or foresee in changing the graduation requirements in your school?

As shown in Tables 40 and 41, 28 responses indicated no anticipated barriers in changing graduation requirements. Twenty-one responses indicated a need for more money in order to change graduation requirements. One response indicated the school district anticipated being on line in a telecommunications effort during

1992-93 which would lead to eventful changes in graduation requirements. Two responses indicated a problem in complying with state of Michigan School Improvement guidelines leading to requirement changes, and two responses indicated anticipated difficulty on selling the school board and staff on proposed graduation requirement changes.

As shown in Table 41, a total of 54 responses were recorded. Twenty-eight responses indicated no anticipated barriers in changing graduation requirements. Of this total, 9 responses came from schools with six-period days, 17 responses came from schools with seven-period days, and 2 came from schools with eight-period days. A total of 21 responses indicated anticipated difficulty in changing graduation requirements due to the lack of money. Of this number of responses, 10 came from schools with six-period days, 8 from schools with seven-period days, and 3 from schools with eight-period days. One response indicated the school district anticipated being on line in a telecommunications effort during 1992-93 leading to eventual change in the graduation requirements. This one response was recorded from a school with a seven-period day. Two responses indicated anticipated difficulties in meeting the state of Michigan requirements for school improvement. These 2 responses came from schools with seven-period days. Finally, there were two responses indicating expected difficulty in convincing staff and school board members to change graduation requirements. One of these responses came from a school district with a six-period day and one from a school with a seven-period day.

Table 40

Responses for Question 6 by Enrollment Group

Group	None	Finance	Telecommunications feasibility	State requirements for school improvement	Selling school board & staff
1 (n = 10)	6	3	1	0	1
2 (n = 16)	11	5	0	0	0
3 (n = 7)	3	3	0	1	0
4 (n = 7)	2	4	0	0	1
5 (n = 5)	1	3	0	1	0
6 (n = 2)	2	0	0	0	0
7 (n = 3)	1	1	0	0	0
8 (n = 2)	2	0	0	0	0
9 (n = 2)	0	2	0	0	0
Totals (N = 54)	28	21	1	2	2

Table 41

Responses for Question 6 by Class Period

Group	None	Finance	Telecommunications feasibility	State requirements for school improvement	Selling school board & staff
6 (n = 20)	9	10	0	0	1
7 (n = 29)	17	8	1	2	1[a]
8 (n = 5)	2	3	0	0	0
Total (N = 54)	28	21	1	2	2

[a]One response from 7-period day did not fit into Table 41 which was: "Might increase dropout rate."

Summary

The data collected by the survey instrument were analyzed in this chapter. Included in the data were the variables of enrollment size and number of periods. This information was presented in table format and it related to local graduation standards to Michigan Department of Education recommendations and to the Michigan College Presidents Council recommendations. In addition, two open-ended questions were added to the end of the survey and the responses were tabulated and analyzed. The two open-ended questions were:

1. "Are you contemplating any graduation requirement changes in the next few years?"

2. "What barriers do you have or foresee in changing the graduation requirement in your school?"

With one exception, the enrollment variable was not an important factor in course offerings when comparing local graduation standards to state standards. The enrollment variable comparing local graduation standards to the Michigan College Presidents Council recommendations did not indicate enrollment was a factor. There is a difference in graduation standards when a comparison of the local school district graduation requirements are compared to the college-bound recommendations of the local district in relation to the Michigan College Presidents Council high school recommendations; however, enrollment is not a variable.

Six-period and seven-period days were not a variable with respect to the recommendations made by the Michigan Department of

Education or the Michigan College Presidents Council. The eight-period day was a variable because it enabled local districts to meet or exceed the standards in some of the academic areas.

With respect to the open-ended question regarding enrollment: "Are you contemplating any graduation requirement changes in the next few years?" enrollment was a variable. The same question, when analyzed by class periods, indicated that the number of periods in a day was a variable.

The question addressing foreseen barriers in changing graduation requirements was not affected by enrollment. When analyzed by class periods, there were discrepancies.

CHAPTER V

SUMMARY, CONCLUSIONS, RECOMMENDATIONS, AND FUTURE RESEARCH

Introduction

Provided in this chapter is a summary of the study and a description of the limitations of the study. Conclusions regarding the study are discussed, followed by recommendations based on the study.

Summary

This study focused on assessing the graduation requirements of high schools in the Upper Peninsula of Michigan by comparing them to the requirements for graduation from the Michigan Department of Education and the recommendations for graduation from the Michigan College Presidents Council. The end result of this assessment would be a recommended model curriculum for high school graduation that would meet the needs of students making plans to attend college/ technical schools, or enter the world of work.

A review of the relevant literature revealed that much has been written on the need for change in high schools nationally; however, most of the authors are involved with recommendations on student outcomes or changes in how students learn or think. Only a few authors and reports have made actual recommendations on graduation requirements.

Enrollment is one of the variables examined in the study. Curricular offerings were examined on the basis of the number of students enrolled in the respective high schools. With one exception, all schools were equally above or below when the standards were compared. Size of the school by enrollment number did not make a difference in whether schools met, did not meet, or exceeded required or suggested standards for graduation. Gwinn School District in the enrollment group of 701 to 833 met or exceeded state requirements for graduation in all areas except in the health requirement. It should be noted that Gwinn receives Impact Aid, which may make them unique, because of the presence of an Air Force Base in its school district.

The number of class periods (six, seven, or eight) in the day was also examined. The eight-period day was a variable because all schools operating in this category were able to offer more of an opportunity to students to attend more classes and thereby meet required and recommended levels.

There were two open-ended questions included in the survey addressing the issue of contemplated changes in graduation requirements and expected barriers in the accomplishment of those changes. School enrollment size and the number of class periods in the school day were both variables. Lack of money or the need to raise additional millage to cover costs for adding new programs was cited by many schools unilaterally as a critical issue.

Attitude and disposition of school board and faculty members

was also cited as a barrier to proposed curricular changes affecting several schools.

Conclusions

Enrollment

Testing Hypothesis 1, comparing high school graduation standards to the state of Michigan graduation standards using the nine groupings by size of high school enrollment, Group 8 with an enrollment of 701-833 with n = 2 met or exceeded all state requirements except one in health. With one exception, size was not a variable where school districts did not meet, met, or exceeded Michigan Department of Education standards for graduation. Common areas where all high schools in the Upper Peninsula do not meet state of Michigan standards were: health, foreign language, and physical education. Common areas where schools in the enrollment grouping of 701-833 exceed state of Michigan standards are English and foreign language. The two schools in this enrollment group are Gwinn, located in the heart of the Upper Peninsula, and Sault Ste. Marie, on the peninsula's eastern edge.

Using the same enrollment groupings in comparison of local high school graduation standards to the Michigan College Presidents Council recommendations for graduation, school size was not a factor in determining whether these schools did not meet, met, or exceeded recommendations made by the Michigan College Presidents Council.

Hypothesis 1a was not supported by the study. In comparing

local high school graduation standards for college-bound students with the Michigan College Presidents Council recommendations for college preparation in Tables 2 through 10, size of the school district was not a variable. Common areas where these schools did not meet the Michigan College Presidents Council recommendations were in the curriculum areas of mathematics, computers, and foreign language. Analyzing where the high school districts exceeded the Michigan College Presidents Council recommendations, the common areas were in science, health, and physical education.

Hypothesis 1b was supported by the study. The regular high school graduation standards for non-college-bound students did not meet the Michigan College Presidents Council graduation recommendations in critical areas for technological school entry or college entrance. In fact, none of the high schools examined by either enrollment or number of class periods in the school day came close to addressing the needs of the non-college-bound student who wants or needs training in a technical preparatory field. Specifically, the areas of English, mathematics, science, computers, and foreign language are necessary for a student to enter technical school or college preparatory programs. The investigator believes that non-college-bound students preparing to graduate from a high school in the Upper Peninsula are ill equipped to meet entry requirements in a post high school program. Schools in the Upper Peninsula should be examining a technical preparatory or two-plus-two curriculum for students not planning on attending a four-year college program.

Analysis of the data indicates that most of the school districts exceed the Michigan College Presidents Council requirements in the areas of health and physical education. These two nonacademic areas could be reduced and replaced with more academic courses. The above data were presented in Tables 11 through 28.

Period/Length of School Day

Results of the study lent support to Hypothesis 2, which was that the length of the school day affects curriculum for college-bound students. Students attending schools with eight-period days had more of an opportunity to take additional classes in preparation to meet college entrance requirements and to compete at these levels. Both the Michigan Department of Education requirements and the Michigan College Presidents Council recommendations were affected by the difference in students attending schools in districts with eight periods. These differences are reported in Tables 29 through 37. They are summarized below:

Hypothesis 2

Six-Period Day. The curriculum areas where schools with a six-period day did not meet the state of Michigan recommended graduation standards were: English, social studies, health, computers, foreign language, and physical education.

Areas where schools exceeded the state's recommended graduation standards were: English, social studies, mathematics, science, foreign language, and physical education.

Seven-Period Day. The curriculum areas where schools with a seven-period day did not meet the state of Michigan recommended graduation standards were: social studies, health, foreign language, and physical education.

Areas where they exceeded the state recommended graduation standards were: English, social studies, mathematics, computers, and foreign language.

Eight-Period Day. The curriculum areas where schools with an eight-period day did not meet the state of Michigan recommended standards for graduation were: health, computers, foreign language, and physical education.

Areas where schools exceeded the state recommended graduation standards were: English, social studies, computers, and foreign language.

Summary. In the nonacademic areas for schools with six-, seven-, and eight-period days, the common areas where schools did not meet the state of Michigan recommended standards for graduation were in health and physical education. The six- and seven-period days were not supported as variables in meeting state of Michigan academic standards in English, computers, and foreign language. The eight-period day did have one deficiency in the area of foreign language.

Areas where schools with six-, seven-, and eight-period days exceeded state requirements were: English, social studies, computers, and foreign language.

The eight-period day (n = 5) appears to allow schools to better meet the Michigan Department of Education standards for graduation requirements.

Hypotheses 2a, 2c, and 2e

Hypotheses 2a, 2c, and 2e are examined next. A comparison was made between the Michigan College Presidents Council recommendations for college-bound students with local Upper Peninsula high schools' recommendations for college-bound students. Reference to these hypotheses can be found in Tables 29 through 31.

Six-Period Day. Hypothesis 2a stated that the six-period day contributes to the discrepancies in curriculum for college-bound students when comparing existing graduation requirements in both the Michigan College Presidents Council and the Michigan Department of Education recommended graduation standards. This statement is supported by the study.

The curriculum areas where schools with a six-period day did not meet the Michigan College Presidents Council recommendations for college-bound students were: English, social studies, mathematics, science, computers, and foreign language (all of these are academic areas).

Areas where schools exceeded the Michigan College Presidents Council recommendations for college-bound students were: social studies, science, health, computers, foreign language, and physical education.

Seven-Period Day. Hypothesis 2c stated that the seven-period day contributes to the discrepancies in curriculum for college-bound students when comparing existing graduation requirements in both the Michigan College Presidents Council and the Michigan Department of Education recommended graduation standards. This statement is supported by the study.

The curriculum areas where these schools did not meet the Michigan College Presidents Council recommendations for college-bound students were: English, mathematics, science, computers, and foreign language.

Areas where they exceeded the Michigan College Presidents Council recommendations for graduation for college-bound students were: social studies, science, and foreign language (all academic areas) and in the nonacademic areas of health and physical education.

Eight-Period Day. Hypothesis 2e stated that the eight-period day contributes to the discrepancies in curriculum for college-bound students when examining existing graduation requirements in both the Michigan College Presidents Council and the Michigan Department of Education recommended graduation standards. This statement is not supported by the study. The curriculum areas where schools with an eight-period day did not meet the Michigan College Presidents Council recommendations for college-bound students were in the academic areas of: mathematics, computers, and foreign language.

Curriculum areas where they exceeded the Michigan College Presidents Council recommendations for graduation were in the

academic areas of: social studies, science, computers, and foreign language, as well as the nonacademic areas of health and physical education.

Summary. High schools with six- and seven-period school days were less able to meet the needs of students planning on attending college following high school graduation. The eight-period day not only provided students with the opportunity to take more classes to attend college, it also exceeded the recommended standards more often than the six- and seven-period day.

Hypotheses 2b, 2d, and 2f

Next, Hypotheses 2b, 2d, and 2f, a comparison of the Michigan College Presidents Council high school graduation recommendations to the respective high school recommendations for non-college-bound students by school period are examined. Reference to these hypotheses can be found in Tables 29 through 31 and are summarized below.

Six-Period Day. Hypothesis 2b stated that a six-period day contributes to the discrepancies in curriculum for non-college-bound students when examining existing graduation requirements in both the Michigan College Presidents Council and the Michigan Department of Education recommended graduation standards. This statement is supported by the study.

Curriculum areas where schools with six-period days did not meet the Michigan College Presidents Council recommendations for non-college-bound students were: English, social studies,

mathematics, science, computers, and foreign language. Of extreme importance is the fact that they are all below standards in three key academic areas: English, science, and mathematics.

Areas where they exceeded the Michigan College Presidents Council recommendations for non-college-bound students were: social studies, health, computers, foreign language, and physical education.

Seven-Period Day. Hypothesis 2d stated that a seven-period school day contributes to the discrepancies in curriculum for non-college-bound students when examining existing graduation requirements in both the Michigan College Presidents Council and the Michigan Department of Education recommended graduation standards. This statement is supported by the study.

Areas where schools with a seven-period day did not meet the Michigan College Presidents Council recommendations for non-college-bound students were: English, social studies, mathematics, science, computers, and foreign language.

Areas where they exceeded the Michigan College Presidents Council recommendations for non-college-bound students were: social studies, health, computers, foreign language, and physical education.

Eight-Period Day. Hypothesis 2f stated that an eight-period school day contributes to the discrepancies in curriculum for non-college-bound students when examining existing graduation requirements in both the Michigan College Presidents Council and the

Michigan Department of Education recommended graduation standards. This statement is supported by the study.

Curriculum areas where schools with an eight-period day did not meet the Michigan College Presidents Council recommendations for non-college-bound students were: English, mathematics, science, computers, and foreign language.

Areas where they exceeded the Michigan College Presidents Council recommendations for non-college-bound students were: English, social studies, health, computers, and physical education.

Summary. The number of periods in the school day is not a variable for this comparison. None of the high schools in the Upper Peninsula offer the required credits for the non-college-bound students to enter a vocational/technical program or enter college.

Contemplated Changes for Graduation Requirements

There were two open-ended questions on the survey. They were Questions 5 and 6. Question 5 asked: "Are you contemplating any graduation requirement changes in the next few years?" The results are as follows:

Responses by Enrollment Group

Sixty-five percent of the respondents indicated they were contemplating changes in future graduation requirements. Twenty-two percent were basing anticipated graduation requirement changes on the emerging design of the Michigan Outcomes Model.

Another observation is that four respondents (15%) of the 26 groups with the smallest student enrollment indicated that they would consider sharing or consolidating school programs.

Responses by Class Period

Responses by class period did not vary from the responses by enrollment. One observation is that the school districts who currently operate with an eight-period day indicated they did not wish to share programs or participate in a consolidated effort.

Question 6 was: "What barriers do you have or foresee in changing the graduation requirements in your school?"

Responses by Enrollment Group

Thirty-nine percent of the respondents indicated that finance was the biggest barrier to changing graduation requirements. Over 50% of the respondents indicated that no barriers for change would be anticipated.

Responses by Class Period

Analysis of the responses by class period did not vary with responses made by enrollment group.

Recommendations

Based in part on the analysis of the study and literature reviewed, the following recommendations are made regarding graduation standards:

1. The analysis of class periods indicates that the eight-period day meets or exceeds the comparative standards better than the six- or seven-period day. It is recommended that the state of Michigan implement incentive financing to encourage districts to adopt the eight-period day. This emphasis should encourage all students to take more academic subjects. Alternate ways of offering the eight-period day before or after the regular school day via cable, satellite, or correspondence should be explored. Compressed, 2-week, special summer courses would provide another alternative for expanding academic opportunities. Another viable approach to providing diversity in curriculum is to provide a student exchange program. This plan could have special implications for non-college-bound students. Work study programs could be structured to demonstrate the value of advanced technical training before entering the world of work.

2. The area of finance was a barrier on contemplated changes in graduation standards. It is recommended that the nonacademic areas where school districts exceed the recommended standards, such as health and physical education, could be reprioritized and more emphasis placed on academic subjects.

3. Sharing and consolidation were considerations of smaller enrollment districts. The advent of closed circuit television providing the opportunity to share programs and teachers will enhance this process. It is recommended that schools implement the use of electronic media to expand curriculum. Where there is limited demand in smaller districts, teachers could be shared by two or more

districts or contracted through the intermediate school district. Portable classrooms with special equipment could be moved from location to location by semester.

4. The state requirements for school improvement were a frequent reason given for changing graduation requirements. The Michigan Department of Education and the state legislature must recognize their influence and responsibilities when they enact these curriculum recommendations. Graduation requirements by themselves without recognizing the course content of these subject areas may be superfluous. The Crawford Ogemaw Oscoda Roscommon (COOR) Intermediate School District located in Roscommon, Michigan, did an analysis of course content in subject areas such as algebra and several other academic areas and found wide discrepancies among students in the level of competency or natural achievement tests which led to the districts within the intermediate system to strengthen their teaching strategies in these courses. Without examining course content, the simple act of adding additional courses may not improve educational outcomes. The quality of teaching is an area not addressed by the study and should be examined in relation to presenting course content to the now recognized varied learning styles of the student. The need for adequate funding and staff development monies is crucial for improving graduation standards. Any changes which are mandated must take the above into account.

5. The review of literature supported the idea that the Michigan Department of Education and local school districts should develop a technical and college-bound student curriculum standard for

graduation. The global economy has created a need for a technically trained and better educated work force in the United States.

6. It is recommended that the model curriculum for the college-bound high school student be the one developed by the Michigan College Presidents Council which appears as Table 42.

Table 42

Model High School Graduation Standards

Subject area	Years of study
English	4
Social studies	3
Mathematics	4
Science	3
Computer	1
Foreign language	2
Fine and performing arts	2

7. The adoption of the Michigan Department of Education guidelines for the development or implementation of technology education should be followed to meet emerging student needs. The curriculum emerges from three strands of technology, which include industrial arts, transportation, energy, biochemical technologies, including health, agriculture, waste treatment, and communications.

8. It is recommended that the local school district should analyze where their students matriculate for technical training and

incorporate a two-plus-two plan (a plan where a high school student in the 10th grade enters a planned technical preparation curriculum to articulate to one or several technical preparation institutions) with these colleges and universities.

Future Research

The focus of the study compared the local high school graduation standards to those recommended by the Michigan Department of Education and the Michigan College Presidents Council. Some areas that were not addressed and could be related are fiscal implications, staff development, and postsecondary training.

The study indicated a need to examine the enrollment group 1,129-1,406 further. While limited in number, the results of this study implied that there could be a difference between school districts in this enrollment group meeting or exceeding graduation standards. A study of rural schools of this enrollment size could determine if this enrollment group could be a significant variable.

An analysis of financial expenditures for instruction could be done to determine if this is a variable in meeting graduation standards. Instruction is an area reported in the Michigan financial data that is limited to classroom cost only. The per pupil expenditure in this limited area may be relevant. Teachers' salaries, level of teacher preparation, and years of experience all impact per pupil expenditures. The higher the training and experience of staff members, the greater the cost of per pupil instruction. These variables also relate to class size.

The cost to a school district to increase to an eight-period day may be influenced by the language of the labor contracts and the qualifications of available staff. A study of the labor contracts could be done to determine the cost of this move. A more complicated study would be to profile staff competencies to teach alternative academic courses presently not offered.

The above statement relating to staff profile indicates the need for further study to determine the cost of retraining staff to meet the curriculum offerings of a technical program and college-bound graduation standards.

The majority of the Upper Peninsula high school graduates usually attend institutions in the state of Michigan or neighboring states. These postsecondary institutions should be identified and a study conducted to determine the state of the art of the present high school curriculum to determine what is needed to collaborate on a two-plus-two technical curriculum.

APPENDICES

Appendix A

Survey Instrument

SURVEY INFORMATION

Date of contact:_____

School district name:_____

1. Total enrollment 9-12 _____

2. Number of class periods in the day (please circle) 6 7 8

3. Total number of credits required for graduation:_____

4. Course credit requirements for graduation and recommendations for graduation for college preparation

Please indicate the number of graduation requirements for each discipline area

a) English_____
b) Social Studies_____
c) Math_____
d) Science_____
e) Computer Science_____
f) Other (please indicate name and hours required)
Name:_____
Hours required for graduation_____

Please indicate recommended college prep courses for each discipline area

a) English_____
b) Social Studies_____
c) Math_____
d) Science_____
e) Computer Science_____
f) Other (please indicate name and hours required)
Name:_____
Hours required for graduation_____

5. Are you contemplating any graduation requirement changes in the next few years? Yes_____ No_____

If the answer is yes, what areas would you anticipate these to be in?

_____

6. What barriers do you have or foresee in changing the graduation requirements in your school?_____

_____

Appendix B

Approval Letter From Human Subjects Institutional Review Board

Human Subjects Institutional Review Board

Kalamazoo, Michigan 49008-3899

WESTERN MICHIGAN UNIVERSITY

Date: December 5, 1991

To: Patrick Manning

From: Mary Anne Bunda, Chair Mary Anne Bunda

Re: HSIRB Project Number: 91-12-03

This letter will serve as confirmation that your research protocol, "Identifying a recommended 9-12 curriculum for high schools in the upper peninsula of michigan" has been approved under the exempt category of review by the HSIRB. The conditions and duration of this approval are specified in the Policies of Western Michigan University. You may now begin to implement the research as described in the approval application.

You must seek reapproval for any changes in this design. You must also seek reapproval if the project extends beyond the termination date.

The Board wishes you success in the pursuit of your research goals.

xc: Warfield, EDLD

Approval Termination: December 5, 1992

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