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STUDENT ENROLLMENT DECLINE:
ITS IMPACT AND ALTERNATIVES
FOR THE HIGH SCHOOL CURRICULUM

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STUDENT ENROLLMENT DECLINE: ITS IMPACT AND ALTERNATIVES FOR THE HIGH SCHOOL CURRICULUM

By

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ABSTRACT

STUDENT ENROLLMENT DECLINE:
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By

Barbara K. Martin

The Problem

The researcher's purpose was to investigate the impact of declining enrollment and to develop and test a model for examining alternative solutions to the problem. The model consisted of two parts: projections of future staff and student enrollment and simulations of alternative curriculum models.

The Projections

Prior to the study, the Cohort Survival technique was used to project the enrollments for each grade in each of the secondary schools in a large suburban school district. The researcher used these projections to project enrollments for each of the school district's high school courses for the years 1980, 1981, 1982, and 1983. Then, based on the district's class size policy, the number of sections needed for each course and for each content area were projected.

The number of necessary staff reductions was then calculated for each of the secondary schools. Then, the appropriate number of low seniority teachers was dropped from the secondary staff.

The Simulations

The information gained from the enrollment and staff projections was used to simulate four curriculum models: a standard curriculum, a core curriculum, a modified magnet plan, and an interdisciplinary model. The following procedure was used for each of the simulations. First, the model was described. Based on the projected school and course enrollments, the number of courses and programs was determined, staffing needs were determined, and each model was evaluated in terms of:

1. Its ability to provide for a variety of educational needs.
2. Its ability to accommodate the student body.
3. The availability of teachers to staff the model.
4. The availability of suitable building facilities.
5. Necessary changes in transportation.
6. Possible community reactions to the model.

Conclusions

It was found that:

1. The standard curriculum could not accommodate all of the students and did not provide for a wide variety of needs.
2. The core curriculum could not accommodate the student body.
3. The modified magnet could accommodate the student body and did provide for a variety of educational needs.
4. The interdiciplinary model could accommodate the student body and did provide for a variety of needs.

5. The modified magnet and interdisciplinary models would be the most difficult to implement.

Implications

The findings and conclusions of the study imply that school districts faced with declining enrollment must reorganize the curriculum or drastically reduce options for students. School districts must analyze their present and future staff needs and then investigate alternative curriculum models to determine which will best serve their needs. The procedures developed in the study could be a useful tool for accomplishing these tasks.

Dedicated to my parents

Einar E. and Sigrid I. Martin

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CHAPTER I

THE PROBLEM

The problem, its importance, and the significance of the study are discussed in this section. Also included are definitions, limitations, and assumptions.

Statement of the Problem

The researcher investigated the impact of declining enrollment on the high school curriculum. The researcher also identified possible solutions for the problems caused by the decline.

The Context of the Problem

In the 1950's school districts were faced with a rapidly growing enrollment. Finding more space and expanding the program to accommodate the increasing numbers of students were of primary concern. Associated with this growth was a feeling of optimism, and educators were enthusiastic about responding to the demands created by an increasing school population.

The educational community was so involved in the expansion that the slight drop in the number of births in the late 1950's went unnoticed. Then, in the early '70's, came the news of the "baby bust," and it became obvious that the decline in the number of births would be significant.

The National Center for Educational Statistics (1978) reported that the K-8 enrollment increased from 26.7 million in 1954 to 36.8 million in 1969, and then dropped to 33.6 million in 1976. It has been projected that by 1983 the K-8 enrollment will hit a low of 31.3 million. The 9-12 enrollment increased from 7.2 million in 1954 to 15.7 million in 1976. This enrollment is expected to drop to 13.2 million by 1986. At the national level the declining trend will begin to level off and reverse itself in the middle 1980's. This will be due to an increased number of females in their childbearing years at that time.

The Michigan Department of Education (1977) foresees a decline in enrollment through 1990. The decline will amount to a ten percent reduction in public-school enrollment over the five years from 1976 to 1981. This decline will not be uniform throughout the state. Oakland County is expected to have a decline of about 70,000 students, and the district under study will have a loss of 4,000 students or about thirty percent of the present school population.

Many school districts have already experienced the impact of the decline. As the number of students decreases, districts are forced to close schools. At times this has resulted in negative community feelings.

Because state funding is based on the number of students enrolled, many districts are operating with reduced state funds. The reduction in funds coupled with the fact that expenses do not drop proportionally with the decrease in the number of students has created a financial crisis for some districts.

The declining enrollment has made staff reduction a must. This, too, has caused severe problems. George Garver (Phi Delta Kappan,

September, 1978) describes the need for staff cuts as a real "trauma," causing serious problems with staff morale. He sees more resistance to change and less enthusiasm and excitement in his staff.

In many instances the school program has also been affected. Schools are no longer able to offer as wide a range of options, and the fact that staff morale has suffered results in a decrease in the number of new and innovative programs proposed. Carol Epstein (1976) states:

> If the children go and the money goes, can the educational program be far behind? More than twenty school districts reported cutting staff and/or program as a first step in dealing with declining enrollments. Several more stated that it is no longer possible to maintain the level of per-pupil expenditure called for in previous budgets. When something's gotta give that something is usually classroom teachers or specialists and programs most likely to be categorized as frills, an athletic program here, an instrumental music course there, advanced courses in math and science in one district, reading clinics or foreign language programs for elementary pupils in another (p. 11).

Mark Rodekhor (1975) also looked at the impact of declining enrollment on the school program. When comparing school districts with growing enrollment and those with a declining student population, he found that the rate of innovative programs was retarded in the declining districts.

One major factor in dealing with the decline is the negative attitude it has created. Carol Epstein (1976) states:

> Enrollment decline is generally viewed as a signal for retrenching, for tearing down what originally took great effort to build, and for a pessimistic outlook in contrast to the heady optimism that accompanied the growth period (p. 5).

It is no wonder that many educators are having difficulty creating ways to cope with the problem. Such negative feelings can only hinder the problem solving process.

The decline does not, however, have to be considered as negative. With proper planning this decline can work for rather than against school districts. Epstein (1976) hopes the period of decline will be a time to try new things that were not possible during the growth era. School districts must have a positive attitude if this is to happen.

There is evidence that active planning can payoff. Many school districts have already used the decline to their advantage. Seattle and Salt Lake City (Phi Delta Kappan, 1978) are two good examples of such districts. Seattle is presently using Magnet Schools with differentiated curricula and different styles of instruction. Salt Lake City has introduced new programs for both the gifted and for those students not on grade level.

It has been demonstrated that the decline can be dealt with and even used to improve the school system, but the key to success is a positive proactive attitude rather than a negative reactive attitude.

Importance of the Problem

The National Center for Educational Statistics (1978) has predicted that the nation's high schools will have to face the same problems of declining enrollment in the 1980's that the elementary school are facing in the 1970's. The problems created by the enrollment decline will be more complicated at the 9-12 grade level. The impossibility of closing secondary schools in some districts, the wide variety of special classes being offered and teacher certification requirements will all add to the dilemma.

In spite of the smaller number of students, high schools will still have to meet a wide variety of educational needs. Programs will have

to provide for college bound students, for students going to a trade school, for those who will be looking for employment, and for those who will be starting a family. There will be other challenges for the curriculum planners. The students who are entering our schools will not be like those of the past. Katherine Eisenberger (Phi Delta Kappan, 1978) states:

> I'm trying to paint a picture for curricular changes as well as accomodating fewer kids. They're going to be different kinds of kids--not children of the typical family of the past. We have students coming to our schools with greater support needs than in the past (p. 51).

Other challenges will come from the rapid changes that are happening in the world and the many new problems that our students will have to face in their future that will probably be very different than the present.

The combined effects of declining enrollment and the need for new kinds of programs will make curriculum planning a must. Katherine Eisenberger (1977) states:

> The challenge as well as the absolute need to evaluate current programs is upon us. The job is not only to cull and sift, retaining the best, but to change through redesign (p. 51).

She also warns that educators must be careful when using terms like "belt-tightening," "retrenchment," and "consolidation," stating:

> There is a potential danger, however, that these terms so suggestive of personal restriction and limitations, may also be applied to the environment or climate of the high school--specifically to the just dawning view that schools should be people places. A secondary school restrictive of student freedom steals from its learners the very ingredient basic to the futures-oriented curriculum: individual flexibility.

The impact of the decline on secondary curriculum is a problem that schools cannot ignore. The outcomes of the decline have already caused hostility in some communities. There is, however, still time to do

adequate planning for the secondary level. The plans made now can make the difference between success or failure in the 1980's. Cyril Sargent (1976) describes the importance of the problem:

> How well we handle this phenomenon in terms of equity, how well we succeed in avoiding actions which will inflame our already critical constituencies, will determine in a large measure how well we preserve the quality of our entire educational effort (p. 91).

Significance of the Study

Many school districts will have to make changes in the high school program due to the decrease in the number of students. These changes will require educators to project the number of students that will be taking the various course offerings. Based upon these projections and the projected staff, alternatives for planning the school program will have to be evaluated. Katherine Eisenberger (1978) recommends the use of simulations and case studies for planning at the high school level. The use of these techniques allows the school district to review relevant problems "dispassionately" and experiment with a variety of solutions.

As pointed out by many authors, few school administrators have the time or the necessary skills to deal with these demands. The proposed research constructed a method for projecting course enrollments, and then based upon those figures and the projected staff, determined those models that could be useful when redesigning the high school program for a smaller student population and reduced staff. This information will help educators attack the problem of declining secondary enrollment with a positive attitude. It will help schools to improve the curriculum in spite of the decreasing number of students.

Purpose of the Study

The researcher's purpose was to design a model for examining alternative solutions to the problem of declining high school enrollment. First, projections were made. These projections included the number of students who will enroll for each course and the number of teachers certified to teach each class. The researcher answered the following questions:

1. Are there any classes that will have a drop in enrollment so significant that it will be difficult to offer them?

2. Are there any content areas in which a teacher shortage or over supply will occur?

The second part of the study involved simulating the high school program of the 1980's, using different curriculum models as a basis for the program structure. For example: what would happen if two or three classes were combined into a core curriculum? In the second part of the study, the researcher answered the question: are there ways in which the high school curriculum can be organized in order to meet the demands of declining enrollment and the needs of the students?

Definition of Terms

The following definitions were used for the study.

Content Area

Content area refers to those areas specifically designated by the State of Michigan for the certification of secondary teachers.

Core Curriculum

A required part of the curriculum centering on the problems of youth and society.

Course

The word course denotes a specific class such as Algebra I, United States Government, or Biology I. Course section or class section denotes one classroom of students' taking a particular course.

Curriculum

The planned eductational experiences that occur during the regular school day. This definition does not include any extra-curricular activities. It does not include such things as the lunch period or the time waiting for buses, etc. It does include CO-OP and the career education programs.

High School

Grades 10-12 will be considered as the high school.

Model

A design for the curriculum. The organization and content.

School Program

See Curriculum.

Teacher Certification

The criteria set by the Michigan Department of Education for certification of teachers will be used. Majors and Minors refer to the major and minor areas of the undergraduate degree, provided these are certified areas.

Teaching Staff

Only those faculty members with secondary certification will be included in the study. The study will include all counselors and

specialists (reading teachers and special programs). Administrators will not be included.

Assumptions and Limitations

The following assumptions and limitations have been recognized.

Assumptions

1. The enrollment projections made by the district are accurate.
2. Past course enrollment is a predictor of future course enrollment.
3. Teachers will stay in the work force until age 65.
4. Seniority will continue to be the primary criteria for layoffs.
5. Teachers will not go back to school to earn certification in a new teaching area.
6. The technique to project staff reduction accurately predicts future staffs.
7. State mandated teacher certification requirements will remain the same.

Limitations

1. The study did not involve the elementary and 7-9 grade levels. These levels may have an effect on the 10-12 levels.
2. There may be appropriate curriculum models that were not included in the study.
3. There may be factors, not identified in the study, that would make one or more of the alternative models impossible.
4. Models that might be appropriate for the district under study may not be appropriate for districts with a different number of schools, different teaching staff, etc.

Site of the Study

The district under study has a student population of 17,600 and a teaching staff of 831. There are 3,802 students in grades 10-12, and 183 high school teachers, some of whom are parttime. This does not include support staff. The district is located in Oakland County, Michigan. The district is typical of others in several respects:

1. Student achievement scores are at the state average.
2. The teaching staff ranges in age from 22 to 65, the median age being 34 years. No one age group makes up more than 7.8% of the total staff (Appendix A).
3. The student population has peaked and is expected to decline severely in the future (Appendix B).

The district currently has three high schools housing grades 10-12. There are three junior highs including grades 7-9. The curricula in grades 7-12 are similar in all schools, basically organized around the separate disciplines. Some courses are required, others are elective (Appendix C).

The district has been involved in some planning for declining enrollment. Projections for each school have been made. Howard Heitzeg (1978) conducted a study to look at the effect of declining enrollment on staff professional growth. The Heitzeg study is indirectly related to the proposed study.

Overview of the Study

Chapter Two is a review of the related literature. Enrollment statistics, the impact of the enrollment decline, and various approaches to curriculum development are included.

Chapter Three is a description of the course enrollment projections and reduction of teaching staff. Both the methods for making the projections and the findings are included.

Chapter Four includes simulations of four different curriculum models. Each model is then analyzed.

Conclusions and recommendations for further study are reported in Chapter Five of the study.

CHAPTER II

REVIEW OF THE LITERATURE

The literature pertaining to three topics is reviewed here. These topics are: enrollment statistics, the impact of the decline, and various approaches to curriculum development.

Enrollment Statistics

The National Center for Educational Statistics (1978) made low, intermediate, and high alternative projections for the K-8 and 9-12 school enrollment. The Center's intermediate projections show that the K-8 enrollment will hit a low in 1983. At this time, there will be approximately 31.3 million students in grades K-8. This is a decrease of 5.4 million students since 1969. It is projected that the K-8 enrollment will begin to increase slightly in 1984. According to the intermediate projections, the 9-12 enrollment will drop to 13.2 million in 1986, a decrease of 2.5 million since 1976. No projections were made for dates beyond 1986.

The Michigan Department of Health (1978) reports that, with the exception of 1969 and 1970, births have declined from 1958 to 1976. The number of births reached a peak of 208,488 in 1957, and in 1976 there were 131,378. The number of births increased in 1977 to 138,416.

The Michigan Department of Education projects a steady decline in school enrollment through 1990. Between 1976 and 1981, there will be a decrease of 200,000 K-12 students. This decline will not be uniform

throughout the state. The greatest increase will occur in Livingston County, amounting to about 17%. While the greatest decrease, 18%, will be experienced in Wayne County.

The Impact of the Enrollment Decline

Declining enrollment has impacted districts in a variety of ways. Surplus space, community hostility, reductions in staff, and added duties and responsibilities for administrators are all results of the decline.

Facility Use

Carol Epstein (1976) reports that closing a school is usually considered the most drastic action that can be taken to solve the problem of surplus space. Yet, many school districts have been forced to close buildings. New York City alone has selected fifty schools for potential closing. There are some advantages to closing a school. For some districts, the closing provides an opportunity to renovate and repair the building. This was not always possible when schools were overcrowded. Closing a school does save the district some money. Garver and Thomas (Phi Delta Kappan, 1978) report that the money saved by closing schools in their districts has been used to hire teachers and start new programs.

There are other ways to deal with the problem of surplus space. Kenneth Pack and Edmond Weiss (1975) list several suggestions:

1. Reduce the class size.
2. Allocate the space for new programs.
3. Start an alternative school.
4. Devise mini-school programs for non-public school use.

5. Start early childhood programs.

6. Let colleges and universities use some of the space.

7. Start an extension center for the library.

The Community

Negative reactions to changes made because of declining enrollment have not been uncommon. The community does not like to have the school system it knows distrupted and changed. Katherine Eisenberger (1975) states:

> Of course they're irate, befuddled, impatient. Those parents of school age children, along with lots of other people, want more than one sound reason for why a school should be closed.

She lists some techniques that can help ease the tension. They are:

1. Open channels of communication in the community.

2. Gather ample information within the district.

3. Arrange for an entire class from a school to be abandoned to visit the receiving school.

4. Allow teachers to switch places with their counterparts in other schools.

5. Involve the community directly.

The Teaching Staff

As the number of students decreases, staff cuts become a must. Garver (Phi Delta Kappan, 1978) reports that in May, 1978, his district laid off 359 of the total 1,500 teachers. Layoffs result in a maturing staff, loss of enthusiasm and real problems with staff morale. The maturing staff may create problems. Heitzeg (1978) found that younger staff members have a higher level of formal professional-growth activity than their older counterparts. But it is the younger teachers

who will be laid off if cuts become necessary. Heitzeg points out that school districts will have to find new ways to encourage professional growth.

Carol Epstein (1976) describes four trouble spots concerning staff:

1. Inability or unwillingness of other districts to absorb unneeded teachers.
2. Contract agreements making reductions in force either difficult or impossible.
3. Last hired-first fired policies disrupting the racial or program balance of the staff.
4. Demands for wage increases despite reduced income from taxes and other sources.

Even though school districts do not want to cut staff, most don't have any other choice. William F. Keough (1975) states:

> Strictly from a dollars and cents point of view, a level will be reached beyond which the school district cannot economically afford to go. Teacher reductions are the first order of business because instructional salaries represent the biggest bite out of operating budget (p. 41).

He does recommend some measures that can help prepare for the cut backs.

1. Place a moratorium on teacher leave policies.
2. Offer one or two year termination contracts to new teachers.
3. Institute staffing needs studies.
4. Introduce early retirement incentive programs.

The School Program

Reduced numbers of students, an aging teaching force and fewer state dollars will surely have an effect on the school program. Carol Epstein (1976) reports that many school districts that did not plan

for the decline were forced to reduce the programs offered. The innovative electives were usually the first to go.

Keough (1978) agrees that the electives and special interest classes are usually the first to be eliminated. In many cases, these cuts do not result from a direct plan to reduce programs, but rather as a result of the district's inability to close a school. Frequently, the community opposition to a school's closing is so great that the district is forced to keep the school open. Then the only alternative is to cut the program. Keough also points out that the elimination of coordinators and program administrators can result in a "slow death" for the program. Keough identifies two possible ways to contract programs. The first is to completely eliminate a program. The second is to make slight reductions in all areas. Regardless of the method used, a master plan is a necessity.

There is evidence that if adequate plans are made, the school program can be saved and even improved. One high school in the Philadelphia area (NASSP, March, 1977) has used the modification of the number of courses offered as a means to plan more consistent course offerings. Because of budgetary cuts, the use of community resources and creative teacher-made materials has been stressed.

Flager High School (NASSP, March, 1977) has tried grouping classes and sharing programs and staff with other districts. By doing this, they can maintain a quality program.

In Champlain, New York (NASSP, March, 1977), classes have been opened to adults in order to increase the enrollment. This allows the district to keep classes that would otherwise be cut.

Administrative Skills

Russell G. Davis and Gary M. Lewis (1977) point out that most administrators learned their skills during the growth period. Budget and staff commitments were all made in terms of an expanding school population. Now administrators are facing the opposite situation and will have to develop different skills.

Katherine Eisenberger (1977) agrees that administrators will have to learn new skills. Because administrators are so heavily burdened with "administrative trivia," they will have to make time to plan for the future. One method of planning requires making a forecast of the future. This can be accomplished by following these five steps:

1. Establish ratio of secondary students to secondary staff.
2. Establish ratio of students to special area and support staff for each area.
3. Establish the projected number of students by grade level for the next 3, 5, 7, and 9 years.
4. Using present course offerings and programs as well as total staff ratios and class size, calculate the number of pupils for total staff for each area for the next 3, 5, 7, and 9 years.
5. Compare the above sets of figures with the present.

Ewald Nyquist (1977) believes that educators must learn to do detremental planning. In terms of the secondary principal, this means:

1. Determining which curriculum offerings are truly essential.
2. Determining the alternatives for delivering the essentials.
3. Determining which services beyond the essential are both feasible and desirable.

The Curriculum Models

There are many ways to operate the high school curriculum. Several models are presented in this section.

The Disciplines

King and Brownell (1966) propose a curriculum based upon the structure of the separate disciplines. That is, each school subject should be a separate discipline.

In a curriculum of this type, a course is defined as "a planned series of encounters with the structure of any discipline." A course is based upon the historic and current nature of the discipline. It embodies the plan for knowing the discipline.

The nondiscipline curriculum--occupational, social, and personal training--never replaces or overshadows the curriculum based upon the disciplines. If occupational training is to occur, it takes place after the liberal education, preferably in a special setting away from the regular school. Any subjects such as driver's training, grooming, or personal typing take place after school.

The Core Program

The core is a required part of the curriculum, designed to meet the "real" needs of students. Harold Alberty (1953) states that it is important for the school to offer a general education. This is the education that deals with ideals, attitudes, understandings, and skills that each person must possess. The general education should be required of all students. This part of the curriculum is referred to as the core. Alberty explains six ways in which the core can be organized:

1. Type one core is based upon separate subjects required of all students at a given level.

2. Type two core is based upon the informal correlation of some or all subjects required of all students at a given grade level.

3. Type three core is based upon the formal correlation of two or more required subjects.

4. Type four core is based upon the fusion of two or more of the required subjects.

5. Type five core is based upon common needs problems and interests of adolescents selected from established problem areas.

6. Type six core is based upon the teacher-student planned activities without reference to any formal structure.

The common needs of the student can be met in one of the six types of core programs and then the remainder of the day can consist of special-interest fields, such as mathematics, science, languages, literature, and vocational education.

Harold C. Hand (1973) also believes that it is essential to require all students to take some part of the curriculum. For Hand, this part of the curriculum is the "Common Learnings Course." This course would be based upon the unresolved problems of societal survival and the common real-life problems of youth. The school program would be structured in the following way:

1. Common Learnings Course

   2 hours grades 9-11

   1 hour grade 12

2. Health and Physical Education Activities

   1 hour required in all grades

3. Standard Specialized Subjects (English, Mathematics, Biology, Vocational Education)

Elective

Required on basis of pupil need

4. Guidance and Personnel Services
5. Activities Period

1 hour daily

Band, clubs, assemblies

Florence Stratemeyer (1973) bases her curriculum on persistent life situations. These are situations that reoccur in life from infancy to adulthood. Some examples are:

1. Getting along with others
2. Intergroup cooperation
3. Managing money
4. Being accepted in a group
5. Using tools, machinery, and equipment
6. Working with different racial and religious groups
7. Using safety measures
8. Dealing with success and failures

The scope of this curriculum is the range of persistent life situations. The content is the experiences in which these situations occur. Continuity is achieved because these situations happen over and over in daily life. The changing aspects of the situations as the learner matures determines the sequence.

Stratemeyer (1957) illustrates such a curriculum by describing a tenth grade program that was designed for students of varying abilities and backgrounds. The program centers around a core. There is also time for special courses, short term projects, and individual activities.

The core teachers have a broad background, with specialization in one or two areas, usually English, the social sciences, or natural sciences. Other teachers are specialists in art, music, mathematics, science, foreign language, industrial arts, and physical education.

The core program provides a time for working on aspects of persistent life situations that are important to the student. Any subject matter can be covered. The core is a three period block that is scheduled during the morning.

Service courses meet special needs in specific disciplines. These classes meet two or three times per week and are taught by the specialists. The specialists also offer service to the core classes when needed.

Laboratories offer both advanced and remedial instruction on a highly individualized basis. The specialists are responsible for the laboratory.

Planning and student guidance are the keys to the program. All teachers have time scheduled for both.

Curriculum Based on Broad Fields, Social Problems, and Modes of Thought

Bellack (1973) recognizes that there are problems with teaching the disciplines and with the teaching of youth problems. In an attempt to overcome these difficulties, he proposes a curriculum centered around broad fields, social problems, and modes of thought. In this curriculum model, two complementary perspectives are used to view knowledge.

The first is conceptual schemes and methods of inquiry associated with the broad fields of knowledge: the natural sciences, the social sciences, mathematics, and the humanities. The second perspective

focuses on modes of thought--the analytical, the empirical, the aesthetic, and the moral--that transcend the boundaries of the individual fields. These two views serve as the basis for the curriculum planning.

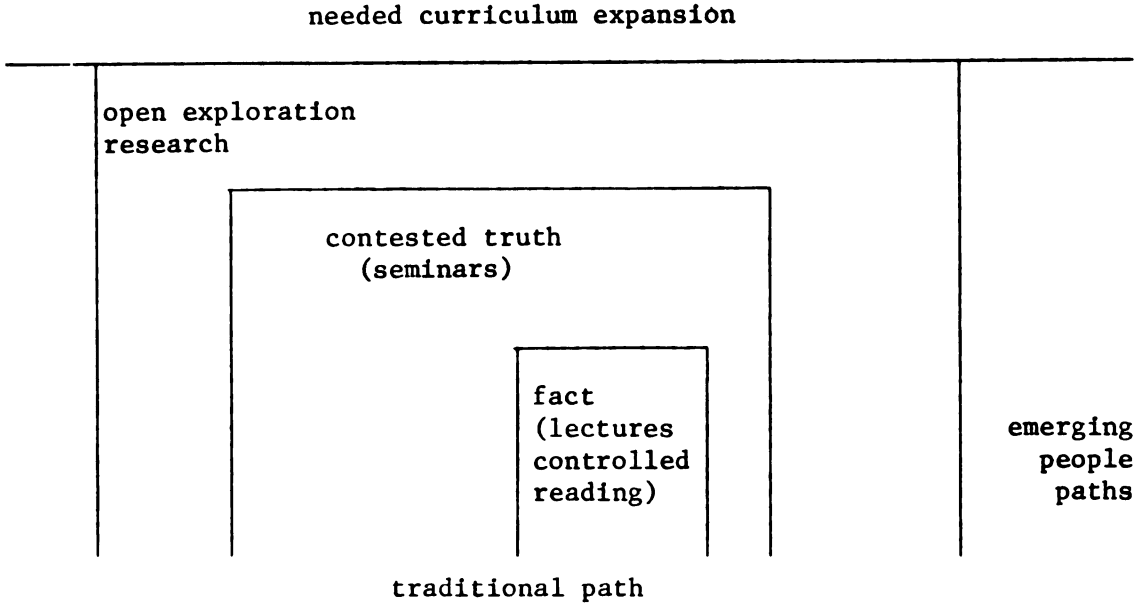
Curriculum Based on Individual Needs

Craig Wilson (1971) points out that in many cases the core curriculum schools were no different that the conventional high school. He describes a different way to organize the school program, called the open access curriculum. This curriculum can be characterized by first looking at what it is not. It is not fragmented or tracked. Students are not grouped by a master schedule, and no more than one-fourth of the curriculum is defined as core. Teachers and students are not scheduled for more than fifty percent of their time in formal teaching (information imparting) sessions.

Instead, the open access curriculum consists of large clusters of content, each including three types of knowledge and learning processes. Students are in direct charge of their own learning for at least fifty percent of their scheduled time. The open access curriculum involves cluster teaching and differentiated teaching roles. Wilson (1971) uses Figure 1 to illustrate the open access curriculum.

Jack Frymier (1972) charges that the schools of the past and of today have not adequately considered individual needs when planning the curriculum. His curriculum model begins with the premise that the human is the end and the subject matter, therefore, is the means. He states:

> There is nothing sacred or even worthwhile about subject matter except as a means for answering human needs (p. 79).



1. Multiple, rather than single, entry points.
2. Increased scope and content.
3. Abandonment of extended sequences and related tracking.
4. Learning styles related to both the nature of the disciplines and the methods of inquiry.
5. Differentiated teacher roles.

Figure 1. Open Access Curriculum (Wilson, 1971, p. 19).

In this article, two models for instruction are compared. In the conventional model, the student's response is expected to be consistent with the stimulus given by the teacher. This model works well for transmitting cultural heritage or teaching subject matter as viewed by a scholar, but it does not help to meet individual needs. The second model turns the conventional model around. In this model, the teacher takes in or observes the student, interprets what s/he sees, and then

based upon professional background and experience, responds. This model accounts for the needs of the individual.

In order to use the second model of instruction, schools will have to reorganize. This reorganization would require differentiated personnel: master teachers, specialist teachers, and paraprofessionals.

Master teachers would have extensive training in all subject matter fields. They would spend the majority of their time working with individual students. About fifteen percent of their time would be spent supervising and coordinating. Each child would meet weekly with a master teacher on a one-to-one basis for at least twenty minutes. The master teacher would observe and then identify appropriate learning activities for the students.

The subject matter specialists would be people highly competent in one subject. These teachers would be the givers of information and would plan their activities according to the needs identified by the master teachers.

Paraprofessionals would serve as homeroom managers. Their duties would be to provide a warm, nurturing home base for students and to keep records. This plan would require approximately five master teachers, twenty-four subject matter specialists and twenty paraprofessionals for each 750 students.

Frank Brown (1968) states:

> Every high school faculty should adopt as a major goal the purpose of developing students who not only have learned how to learn, but who are willing to accept the major responsibility for their own learning.

One way to meet this goal is to introduce independent study as part of the curriculum. Brown defines independent study as a program which places greater responsibility on students for their own learning.

The student must first apply for the independent study. The application describes the objectives, the area of investigation, the specific problem to be investigated, the background skills and knowledge necessary, plans for evaluation, and the time line. After the study, the student must have the quality of the work assessed by a review board.

There are three types of independent study:

1. The project is primarily teacher-directed. Teacher and student meet three or four times per week.
2. The study is more student-directed. Teacher and student meet two times per week.
3. The study is completely student-directed. The teacher and student meet once a week.

The amount of time students spend on independent study varies. Students may want to do a project or find the answer to an unsolved problem. This might take only one or two hours per day. Qualified students could become involved in "depth inquiry." In this type of study, the student devotes full time to probe deeply into one area of learning. Independent study can also involve some time in small groups.

Brown identifies two curriculum advantages of independent study. First, it makes the school program more flexible, and second, it allows students to experience unusual educational experiences.

Individually Guided Instruction (IGE) is another curriculum model designed to meet individual needs. Klausmeier (1977) describes IGE as a total system of schooling, consisting of seven interrelated

components. These are: the multiunit organizational-administrative arrangements, a model of instructional programming for the individual student, evaluation for educational decision making, compatable curriculum materials, a program of home-school-community relations, facilitative environments, and continued research and development. All of the components are essential, but the instructional programming is at the heart of the system.

Mercer (1976) outlines the IGE program that was implemented at Redondo Union High School. The school was divided into small learning communities that allowed for a more personal learning environment. The communities were the organizational structure through which the program was implemented. The students signed up for a learning community on the basis of autobiographical sketches of the teaching staff. Once the communities were formed, the students and teachers worked together to create a curriculum. Based on the needs of the students and the teachers' talents, courses were set up for each of the communities. Students were allowed to take courses in other learning communities as well as their own. Short electives were offered to all communities. Students had opportunities to work on Cooperatively Planned Units (CPU). These were similar to independent study.

Adding Flexibility to the Existing Schedule

By using flexible scheduling, team teaching, and independent study, a wider variety of courses can be offered. Evidence of this is given by Beggs (1964) who describes how the teachers in Decator, Illinois, reorganized their curriculum.

The plan is based on:

1. Large-group, small-group instruction	Students are in groups of 7-15 or in groups of 200.
2. Independent study	Time is provided for self-directed study where students work on their own.
3. Multimedia teaching aids	Structured use and independent use of audio-visual aids are part of the daily program.
4. Team teaching	Two or more teachers combine to work on common instructional problems.
5. Flexible scheduling	The activities and time schedule varies according to the needs of the course.
6. Facility reassignment	Individual study carrels, large group instructional areas, small group seminar rooms, and learning laboratories are all part of the school environment.

Beggs describes in detail the plans that lead to the completion of the reorganization. He also mentions the necessary changes in teaching staff. When the program was implemented, the school actually needed fewer teachers than were needed for the traditional program.

Moving Beyond the Walls of the School

Mark Shedd (1972) believes educators must eliminate the school walls that divide the school from the real world. He sees curriculum as the "total school experience." The Parkway program is an example of this type of curriculum. Shedd describes the program:

> Youngsters may learn photography at the museum of art, literature at the public library, journalism at the Philadelphia Inquirer, politics at the city hall, business at the Insurance Company of North America or Smith Kline, and French or perhaps car repair at the corner garage, and botany in

> Fairmont Park. Students pick their own courses, help select their own teachers, and generally make education fun (p. 63).

The Phi Delta Kappa Task Force on Compulsory Education and Transitions for Youth is convinced that by offering a program based on the aborigine walkabout, schools can help students make the transition to adulthood. Walkabout, the Phi Delta Kappa version, is a series of experiences that help the student grow into adulthood and community life.

The student selects challenging experiences that involve adult skills and responsibility. Seven challenge areas are suggested: logical inquiry, creativity, volunteer service, adventure, practical skills, world of work, cognitive development. Some example challenge activities are: conduct an environmental impact study, learn film making, teach Sunday school, grow a garden, intern with a lawyer, or learn to program a computer. The types of activities are endless, but the projects must meet certain requirements. The project must be initiated by the student and be experiential in nature. The projects extend the students' capabilities, involve an element of risk, and are intense. Each project involves out-of-school experience and interactions with persons of different ages. The student balances the time spent on individual work and group activities.

Schools wanting to offer a walkabout program must see that certain conditions are met. There must be equal opportunity for participation, a means for the identification and development of competency, appropriate evaluation, community involvement, support from the school system, and an operational budget. Staffing is crucial. The teachers must be willing to work closely with students, often devoting extra time to the project.

Once the program is initiated, students who elect to participate complete the three phases of the walkabout. The first is pre-walkabout in which a variety of survival skills is developed. The second phase is the actual walkabout; and the third phase, post-walkabout, involves the recognition of the accomplishments of the walkabout. Students who participate select a planning committee comprised of a parent, a teacher, a student, and a community member. Each student must write a challenge area contract, including a description of the project, level of achievement, preparatory activities, a time line, and a proposal for demonstrating accomplishment. The planning committee can assist the student in writing the contract.

Walkabout can replace all or part of the traditional program for those students who elect it. The walkabout may overlap with existing course work. Credit is not normally given for the walkabout.

CHAPTER III

ENROLLMENT AND STAFF PROJECTIONS

Course Enrollments

In 1979, the district's department of research and evaluation used the Cohort Survival Technique to project the enrollment for each school in the district. This technique uses the average number of children who survive from one grade level to the next to project future enrollments. A five-year period is used to determine the averages.

The district projections end with the 1983-84 school year. At that time, the secondary enrollment will begin to stabilize. The projections are displayed in Tables 3.1 and 3.2.

Course Enrollment Projects

The researcher used these projections to project the enrollment for each of the courses offered in the three senior highs. The following formula was used to make these projections:

$$\text{projected course enrollment} = (\text{current course enrollment}) \times \frac{(\text{projected total enrollment})}{(\text{present total enrollment})}$$

If a course were offered to tenth, eleventh, and twelfth graders, then the total school enrollment was used. If a course were limited to a certain grade level, then only the enrollment of that level was used as the total enrollment. These projections were made for 1980, 1981, 1982, and 1983.

Table 3.1. Junior High Enrollment

Crary

Grade	74-75	75-76	76-77	77-78	78-79	79-80	80-81	81-82	82-83	83-84
7	437	412	395	356	356	327	320	344	346	331
8	454	424	397	389	330	342	314	307	331	333
9	433	468	435	392	389	334	346	318	311	335
Total	1324	1304	1227	1137	1075	1003	980	969	988	999

Mason

Grade	74-75	75-76	76-77	77-78	78-79	79-80	80-81	81-82	82-83	83-84
7	536	486	497	451	478	410	401	432	434	415
8	505	541	482	514	442	480	411	402	433	436
527	509	529	494	496	439	477	409	400	431	
Total	1568	1536	1508	1459	1416	1329	1289	1243	1267	1282

Pierce

Grade	74-75	75-76	76-77	77-78	78-79	79-80	80-81	81-82	82-83	83-84
7	505	415	440	386	378	354	346	373	375	359
8	489	485	401	442	384	371	347	340	366	368
9	473	463	459	392	440	371	359	336	329	354
Total	1467	1363	1300	1220	1202	1096	1052	1049	1070	1081

Table 3.2. Senior High Enrollment

Kettering

Grade	74-75	75-76	76-77	77-78	78-79	79-80	80-81	81-82	82-83	83-84
10	481	523	473	524	460	468	404	416	375	367
11	461	435	495	459	485	431	438	378	390	351
12	424	401	380	421	381	415	369	375	324	334
Total	1366	1359	1348	1404	1326	1314	1211	1169	1089	1052

Mott

Grade	74-75	75-76	76-77	77-78	78-79	79-80	80-81	81-82	82-83	83-84
10	458	479	444	423	362	411	354	366	329	322
11	425	466	480	475	421	370	419	362	373	336
12	406	388	395	386	365	351	308	349	302	311
Total	1289	1333	1319	1284	1148	1132	1081	1077	1004	969

Township

Grade	74-75	75-76	76-77	77-78	78-79	79-80	80-81	81-82	82-83	83-84
10	499	490	559	493	482	480	414	427	384	376
11	450	469	458	483	463	443	441	381	393	353
12	443	438	406	436	459	433	415	412	356	367
Total	1392	1397	1423	1412	1404	1356	1270	1220	1133	1096

Based on the class size policy (Appendix D), outlined in the teacher contract, the number of sections needed for each course was determined. Then, the projected enrollment and number of class sections were totaled for each content area. Tables 3.3, 3.4, 3.5, and 3.6 display these totals. The projected enrollments for each course are found in Appendix E.

Analysis of the Course Projections

The analysis of the projections was based on two assumptions: a whole teaching day will continue to consist of five class sections, and each teacher will contact an average of 149 students per day. These are the present teaching conditions, and district administrators have indicated that there will be no change.

In order to analyze the course enrollment trends, the total decline in enrollment for the period of 1979-83 was computed for each content area. Then, the total number of class sections that could be dropped due to the decline was computed for each content area. Tables 3.7, 3.8, and 3.9 display the results of these calculations.

The decline in content area enrollment and the number of sections that could be cut were then used to determine those areas that could best afford to lose a teacher. Ideally, every time the enrollment in a content area declined by 149 students, five fewer sections would be needed and one teacher could be cut. By examining the data, the researcher concluded that the number of sections does not drop proportionally with the number of students. For example, Industrial Arts loses 145.7 students, but can drop only one class section. This occurs in those content areas in which there are a large number of

Table 3.3. Kettering's Total Enrollment and Number of Sections

Content Area	1979 Students	Sec.	1980 Students	Sec.	1981 Students	Sec.	1982 Students	Sec.	1983 Students	Sec.
Alternative Education	133	9	132.17	9	116.95	9	102.93	8	103.73	8
Art	270	10	246.4	10	237.85	10	221.58	10	214.04	10
Business	494	19	488.07	19	438.58	19	407.42	19	395.56	19
Distributive Education is included in Business										
English	1171	65	1622.92	63	1555.84	62	1442.08	59	1399.81	59
Foreign Language (French) (Spanish)	111	5	104.-4	5	98.09	5	91.68	4	88.45	4
Home Economics	276	9	268.12	9	244.58	9	225.07	9	219.92	9
Industrial Arts	716	28	703.94	28	635.34	28	590.07	27	572.86	26
Mathematics	812	30	764.68	29	717.47	29	668.27	27	646.37	26
Music (Instrumental) (Vocal)	125 71	1 3	114.07	1	110.12	1	102.58	1	99.10 56.74	1 3
Physical Education	684	16	639.42	15	603.97	14	564	13	544.33	13
Science	627	25	602.49	24	555.08	24	515.59	22	500.08	20
Social Studies	1054	37	1076.48	8	936.42	36	881.97	34	347.66	32

Table 3.4. Mott's Total Enrollment and Number of Students

Content Area	1979 Students	Sec.	1980 Students	Sec.	1981 Students	Sec.	1982 Students	Sec.	1983 Students	Sec.
Alternative Education program is not available at Mott										
Art	287	10	280.68	10	279.15	10	260.68	10	251.44	10
Business	376	16	370.16	16	366.77	16	343.76	16	331.12	16
Distributive Education	127	7	121.36	7	129.65	7	116.02	7	116.03	7
English	1493	62	1440.06	61	1443.14	61	1337.61	59	1293.79	59
Foreign Language (French) (Spanish)	63	3	62.52	3	62.2	3	58.06	3	52.02	2
Home Economics	218	11	214.71	11	213.9	11	199.94	10	193.15	10
Industrial Arts	597	31	587.6	31	586.9	31	547.73	31	529.82	30
Mathematics	552	24	538.87	22	538.29	22	501.29	21	484.57	20
Music										
(Instrumental)	77	1	75.06	1	74.78	1	69.71	1	67.28	1
(Vocal)	58	1	56.54	1	56.33	1	52.51	1	50.68	1
Physical Education	699	15	606.66	15	672.27	15	619.3	15	600.42	13
Science	503	21	490.3	20	488.48	20	455.38	19	439.51	18
Social Studies	1155	40	1128.15	38	115.92	37	1044.76	37	1004.6	36

Table 3.5. Township's Total Enrollment and Number of Sections

Content Area	1979 Students	Sec.	1980 Students	Sec.	1981 Students	Sec.	1982 Students	Sec.	1983 Students	Sec.
Alternative Education program is not available at Township										
Art	393	17	366.72	17	352.28	17	327.17	16	316.49	16
Business	943	34	924.94	34	887.38	33	817.89	33	797.59	32
Distributive Education is included in Business										
English	1633	55	1490.93	54	1451.52	53	1340.66	52	1298.27	50
Foreign Language										
(French)	108	5	102.58	5	98.41	5	90.74	5	88.45	4
(Spanish)	71	3	67.38	5	64.06	3	59.78	3	57.72	3
Home Economics	269	10	251.01	10	241.13	10	223.95	9	216.61	9
Industrial Arts	815	30	776.33	30	744.62	30	685.82	30	669.3	29
Mathematics	679	25	638.6	25	611.94	24	567.85	22	550.16	22
Music										
(Instrumental)	118	1	110.11	1	105.78	1	98.23	1	95.02	1
(Vocal)	68	2	63.45	2	60.96	2	56.61	2	54.76	2
Physical Education	639	15	567.13	15	562.29	13	514.69	13	500.60	13
Science	668	25	634.3	25	602.76	24	562.58	22	543.19	20
Social Studies	1218	41	1177.34	41	1121.37	40	1034.57	37	1010.65	36

Table 3.6. Health Occupations Enrollment Projections
Includes Students from All High Schools

	1979	1980	1981	1982	1983
Enrollment	212	198.88	193.52	180.12	174.03
Sections	14	14	14	14	14

Table 3.7. Kettering's Total Decline in Content Area
Enrollment and Course Selections, 1979-1983

Content Area	Decline in Students	Decline in Sections
Alternative Education	29.27	1
Art	55.96	0
Business	98.44	0
Distributive Education included in Business		
English	371.19	6
Foreign Language (French) (Spanish)	22.55	1
Home Economics	56.08	0
Industrial Arts	143.14	2
Mathematics	165.63	4
Music		
(Instrumental)	22.42	0
(Vocal)	14.26	0
Physical Education	139.67	3
Science	126.92	5
Social Studies	206.34	5

Table 3.8. Mott's Total Decline in Content Area Enrollment and Course Selections, 1979-1983

Content Area	Decline in Students	Decline in Sections
Alternative Education program is not available at Mott		
Art	35.56	0
Business	44.88	0
Distributive Education	10.97	0
English	199.21	3
Foreign Language (French) (Spanish)	7.98	1
Home Economics	24.85	1
Industrial Arts	67.18	1
Mathematics	67.43	4
Music		
(Instrumental)	9.72	0
(Vocal)	5.86	0
Physical Education	98.58	2
Science	63.48	3
Social Studies	150.4	4

Table 3.9. Township's Total Decline in Content Area Enrollment and Course Selections, 1979-1983

Content Area	Decline in Students	Decline in Sections
Alternative Education program is not available at Township		
Art	76.51	1
Business	175.41	2
Distributive Education included in Business		
English	334.03	5
Foreign Language		
(French)	19.55	1
(Spanish)	13.28	0
Home Economics	52.39	1
Industrial Arts	145.7	1
Mathematics	128.84	3
Music		
(Instrumental)	22.98	0
(Vocal)	13.24	0
Physical Education	138.40	2
Science	124.81	5
Social Studies	207.95	5

courses that presently have only one or two sections. As the district enrollment declines, the total enrollment in these courses drops by one or two students a year, but never enough to drop a class section.

In areas such as English, Social Studies, and Science, where there are classes with large numbers of sections, there is a larger number of sections that can be dropped due to the enrollment decline. But even in these areas, only five or six sections or the equivalent of one teacher can be dropped by 1983.

In the majority of the content areas, there is a change of two, three, or four sections. This represents only a fraction of a teacher. However, in some of these content areas, more than 149 students will be lost. Obviously, the ideal case does not occur. By 1983, only two English, two Social Studies, and two Science teachers could be cut without having to change or reduce the curriculum offerings. Since the district must begin reducing the teaching force in 1980, the problem is even more severe and alternatives must be explored.

Staff Projections

A study was made of the present staff and then projections were made to determine the make-up of the staff for 1980, 1981, 1982, and 1983.

Present Staff

For each content area, the number of teachers was calculated. In some cases, an area had a fractional number of teachers. Some of these teachers are working on a part-time basis, and others are working part of the day in a neighborhood private school.

Once the total number of teachers was determined, the student/teacher ratio was calculated for each content area. Tables 3.10, 3.11, and 3.12 display the data.

Table 3.10. Kettering's Current Staff and Student/Teacher Ratios

Content Area	Number of Teachers	Student/Teacher Ratio
Alternative Education	2	66.5
Art	2	135
Business	3 4/5	130
Distributive Education included in Business		
English	13	136.23
Foreign Language (French) (Spanish)	1	111
Home Economics	1 4/5	153.33
Industrial Arts	5 3/5	127.86
Mathematics	6	135.33
Music (Instrumental) (Vocal)	 1/5 2/5	 625 177.5
Physical Education	3 1/5	213.75
Science	5	125.4
Social Studies	7 2/5	142.43

Table 3.11. Mott's Current Staff and Student/Teacher Ratios

Content Area	Number of Teachers	Student/Teacher Ratio
Alternative Education program is not available at Mott		
Art	2	143.5
Business	3 1/5	117.75
Distributive Education	1	127
English	12 2/5	120.40
Foreign Language (French) (Spanish)	3/5	106.67
Home Economics	2 1/5	99.09
Industrial Arts	6 2/5	69.25
Mathematics	4 4/5	115
Music (Instrumental) (Vocal)	 1/5 1/5	 385 290
Physical Education	3	233
Science	4 1/5	119.76
Social Studies	8	144.38

Table 3.12. Township's Current Staff and Student/Teacher Ratios

Content Area	Number of Teachers	Student/Teacher Ratio
Alternative Education program is not available at Township		
Art	3 2/5	115.59
Business	6 4/5	143.09
Distributive Education included in Business		
English	11	148.45
Foreign Language		
(French)	1	108
(Spanish)	3/5	118.33
Home Economics	2	134.5
Industrial Arts	6	135.83
Mathematics	5	135.8
Music		
(Instrumental)	1/5	590
(Vocal)	2/5	170
Physical Education	3	213
Science	5	133.6
Social Studies	8 1/5	148.54

A study was then made to determine the teachers who are presently teaching out of their major areas of certification. Table 3.13 displays this information. Junior highs were included in this table because when the enrollment declines, teachers may have to be moved from junior to senior high or from senior to junior high.

Reduction of Staff

The secondary staff members were divided into four groups: (1) those hired after 1973, (2) those who will be 65 years old during the

Table 3.13. Teachers Presently Teaching Outside Their Major Areas

School	Present Teaching Assignment	Major Area
Township	English	Social Studies
	* Home Economics	Health
Kettering	English	Social Studies
	Social Studies	Library Science
	Biology	Mathematics
	Physical Education	Business
	Physical Education	English
	* Spanish	Social Studies
Mott	Biology	Physical Educ.
	Mathematics	Industrial Arts
	Mathematics	Industrial Arts
	Mathematics	English
Mason Junior High	* Mathematics	Art
	Industrial Arts	Physical Educ.
	Mathematics	Science
	* Homemaking	** NM
	English	History
	* Mathematics	** NM
	Physical Education	Science
	* Science	Mathematics
	English	Industrial Arts
	Mathematics	Social Studies
	Mathematics	** NM

Table 3.13, continued

		Mathematics	** NM
		Spanish	** NM
	*	English	Social Studies
		English	Music
Pierce		Business	Mathematics
		Mathematics	English
		Science	Physical Educ.
		English	Physical Educ.
		English	Homemaking
		Block	Physical Educ.
	*	English	Social Studies
		Mathematics	Industrial Arts
		Mathematics	Industrial Arts
		Mathematics	History
		Block	French
		Publications	Social Studies
		Mathematics	Physical Educ.
		English	Music
Crary		Mathematics	Science
		Art	Science
	*	English	Social Studies
		Englsih	Social Studies
		Mathematics	Industrial Arts
		History	English

Table 3.13, continued

	* Physical Education		Business Admin.
	Social Studies		English
	* Science	**	NM
	English		Social Studies
	Art		English

* These teachers are teaching out of their majors full-time. All others teach some classes in their majors and some in the areas identified on the chart.

**No major designated, elementary certification

period between 1980 and 1983, (3) those who will be 55-64 years old during the period between 1980 and 1983, and (4) all others. Table 3.14 displays the major areas of certification of the teachers in the first three groups.

The number of staff to be cut was determined. The following formula was used:

$$\#\text{ of staff cut} = \frac{(\text{decline in students}) \times 6}{149}$$

This formula is based on the facts that each student sees six teachers per day and one teacher's total class "load" is 149 students.

The number of staff to be cut at each school is shown in Table 3.15.

By 1983, the secondary schools will need twenty-seven fewer teachers. There were no teachers in the 65 years or older age group, so all teachers had to be cut by layoffs. By eliminating those teachers lowest in seniority, twenty-seven teachers were cut from the teaching

Table 3.14. Teachers Hired Between 1974-79

1979			1978		
**	Special Education	1		Library Science	1
	Industrial Arts	1		Physics	1
1977			1976		
	Biology	2		Biology/Chemistry	1
**	Special Education	4		Mathematics	1
	Business	1	**	Special Education	1
	Physical Education	1		Health Occupations	1
	English	1			
1975			1974		
	Physical Education	1		Biology	1
	English	4		Science	1
	Mathematics	1		Spanish	1
	Business	1	*	Counseling	1
	Library Science	1	*	Industrial Arts	4
	Spanish	1		Physical Education	2
	Social Studies	1		English	1
				Mathematics	2
				Art	1

* Hired late in year

** Special Education teachers and students are not included in the study because Special Education students are not included in the school enrollment. Also, Special Education programs are mandated so they will probably be kept in the program.

Retirement

65 and Older in 1983

There are no secondary teachers in this group.

55 and Older in 1983

Social Studies	7
Mathematics	6
Language Arts	1
French	2
Music	4
Homemaking	3
Industrial Arts	3
Science	4
Counseling	4
Physical Education	1
Business	1
Distributive Education	2
* NM	1
Vocational	1

* This is an elementary certification with no designated major. This teacher is presently teaching in a junior high.

Table 3.15. Staff Reduction by School Change in Staff

School	1980	1981	1982	1983	Total Change
Kettering	-5	-2	-3	-1	-11
Mott	-1	0	-3	-1	- 5
Township	-4	-2	-3	-1	-10
Crary	-1	-1	0	+1	-10
Mason	0	-2	+1	+1	0
Pierce	-1	0	+1	0	0

staff. The only time seniority was not used as the criteria for determining layoffs was in the case of special education. Because of the large number of mandated special education programs and the large number of students waiting to be tested to be admitted to the programs, special education teachers have not been laid off in the past years. District administrators confirmed that this is the one area that would not be cut according to seniority.

Table 3.16 displays the major areas of certification of those teachers to be cut, their present building assignments, and the years in which they will be laid off.

Analysis of Staff Projections

In 1979, each high school had more English teachers than teachers having any other certification. The second largest number of teachers was found in social studies. Students are required to take classes in these two content areas, so there has been a greater need for teachers with English and Social Studies certification. The Music and French

Table 3.16. Teachers to Be Laid off, Their Building Assignment and Year of Layoff

Kettering		
1 4/5	Biology/Chemistry	1980
1	Mathematics	1980
1	English	1980
1	English	1981
Mott		
1	Physics	1980
1	English	1980
1	Health Occupations	1980
Township		
1	Industrial Arts	1980
1	Physical Education	1980
1	Counselor	1982
1	Mathematics	1982
Crary		
1	English	1980
1	Physical Education	1981
1	Physical Education	1982
Mason		
1	Business	1980
1	Mathematics	1981
1	Business	1981
1	Library Science	1981

Table 3.16, continued

1	Social Studies	1981
1	Spanish	1981
1	English	1982
1	Art	1982
1	Industrial Arts	1983
Pierce		
1	Library Science	1980
1	English	1980
1	Industrial Arts	1982
1	Spanish	1982

departments have the smallest number of teachers, because students have not been electing classes in these areas.

In all areas, the average student/teacher ratio was below that specified in the teacher contracts. These ratios varied from one school to another, but Mott generally had the lowest ratios.

In each school there were some teachers who were teaching out of their major areas of certification, but in the majority of cases for only one or two hours per day. There were a far greater number of junior high teachers out of their major fields. In some cases, these teachers were not in their minor areas either. Mathematics and English were the areas in which the greatest number of sections were being taught by "non-majors." Ten social studies teachers were teaching out of their major areas. This was the largest group of their majors.

After studying the group of teachers who will be laid off, the researcher analyzed the future teaching staff. The data showed that there will be teacher shortages in a number of areas. One Physics teacher will leave Mott. Because only two Physics teachers will remain in the district, Physics will be taught by a teacher with a minor in the subject. One of the three Health Occupations teachers has low seniority. Therefore, the remaining Health Occupations teachers will have to increase their numbers of students. During 1980, Kettering will lose 1 4/5 Science teachers or thirty-six percent of the total Kettering Science department. Two Spanish teachers or approximately forty-three percent of the district's Spanish staff will be cut. Industrial Arts will lose three teachers, two from the junior highs. This could mean a reduction of the junior high Industrial Arts program.

The data indicated that only one Social Studies teacher will be cut; but, according to the course enrollment projections, the district could afford to lose more than one Social Studies teacher. Therefore, there could be an abundance of teachers in this area.

The junior highs have the largest number of low seniority teachers, but need to reduce the smallest number of teachers. This will require some transferring of teachers from senior to junior high. Depending upon the needs of the senior highs, this could result in an even-larger number of hunior high teachers teaching out of their major fields.

If some of the teachers from the 55-64 age group were to take early retirement, the teaching staff could show some marked differences. First, fewer low seniority teachers would be laid off. This could mean the district would be able to retain the Spanish and Industrial Arts

teachers since they have the highest seniority of those to be laid off. Second, there are seven Social Studies teachers in the 55-64 age group. If some of these teachers were to retire, the problem of surplus Social Studies teachers could be eliminated.

CHAPTER IV

ALTERNATIVE CURRICULUM MODELS

Four curriculum models were simulated in an attempt to test their effectiveness in solving the problems caused by declining enrollment. The four models were a standard curriculum with reduced course offerings, a social studies, English team-taught core program, an interdisciplinary team teaching curriculum, and a modified magnet school plan. The first three models were simulated by using the data from Kettering. Kettering was selected because it has a student population that is slightly less than that of Township and slightly higher than that of Mott, and Kettering must cut the highest number of teachers. The modified magnet would involve all three schools so that the simulation uses data from all.

The Standard Curriculum

Description of the Curriculum

In this curriculum, there is a reduced number of courses in English, Social Studies, Science, and Mathematics. The English curriculum consists of four required courses, a year long tenth grade course, a year in eleventh, a semester in twelfth, a semester of tenth grade speech. There are three additional elective courses--advanced eleventh and twelfth grade English and developmental reading. The social studies curriculum consists of three required courses--a semester of

Western Societies, a full year of United States History, and one semester of Government. There are no required mathematics courses. Students can elect from a choice of mathematics skills: Algebra, Geometry, Algebra II, Mathematical Analysis, and Calculus. Fortran was dropped because the enrollment was low and neighboring community colleges offer many computer classes. Math Life was dropped because the Business department and evening adult education both offer similar courses. Due to low enrollment, Practical Geometry was eliminated. The two year Algebra program was eliminated because the Math staff has previously considered dropping the program because there are some doubts as to its effectiveness. The Science program remains the same with the exception of Advanced Placement Biology and Advanced Placement Chemistry. These courses have been cut because similar courses are offered in local community colleges. All other content areas remain unchanged.

Rationale for the Selection

The course enrollment projections showed that there will be a number of English and Social Studies classes that will have enrollments below those specified in the contract. Many of the advanced Science and "speciality" Mathematics courses are offered at other institutions. For these reasons the standard curriculum was selected. None of the elective Business, Industrial Arts, Art, and Home Economics classes were cut because they are not frequently offered by other schools.

The Simulation

The number of teachers in each content area, the number of class sections, and the staff reductions were simulated for 1980, 1981, 1982, and 1983. Data for the simulations were taken from the district

enrollment projections and the course enrollment projections (Appendix E).

In 1980, the enrollment in Kettering is projected to be 1211, 404 tenth graders, 438 eleventh graders, and 369 twelfth graders. Based on a class size of twenty-seven for English classes, twenty-nine for Speech, and twenty-nine for Social Studies, the following English and Social Studies sections will be needed:

Tenth grade English	15
Eleventh grade English	16
Twelfth grade semester English	7
* Developmental Reading	3
* Ap eleventh grade English	1
* Ap twelfth grade English	1
Speech	7
Total:	50

Western Societies (semester)	7
United States History	15
Government	6
Total:	28

* The number of sections for these courses is based on the projected number of sections (Appendix E).

These courses would require ten English teachers and five and three-fifths Social Studies teachers, allowing a reduction of three English teachers and one Social Studies teacher. By making these reductions, there would be exactly enough English teachers and an excess of four-fifths Social Studies teacher.

In the Mathematics department, projections show there will be a need for the following number of sections:

Algebra II	5
Calculus	1
Geometry	5
Mathematics Analysis	4
Algebra I	5 *
Mathematics Skills	3
Total:	23

* Three sections have been added to accomodate those students who were in the two-year Albegra program and elect to take Algebra.

Four and three-fifths teachers are required to teach these twenty-three sections. A reduction of one teacher would accomodate the twenty-three sections with two-fifths of an extra teacher.

During 1980 and 1981, the science program would not be cut. This would allow those students who are presently in the advanced Science program to complete the program at Kettering. During 1980 and 1981, plans could be made to have Science students take their advanced classes at Oakland Community College or Oakland University. Table 4.1 displays the data for the 1980 simulation.

This results in the following excess teachers:

4/5 Social Studies
2/5 Mathematics
1/5 Science
1/5 Physical Education
2 Alternative Education

There are several options for using these teachers--some additional electives could be offered, independent study or a walkabout program could be introduced, or class sizes could be reduced.

By using the same procedure as used for 1980, the number of teachers, the number of sections, and the staff reductions were determined for 1981, 1982, and 1983. These data are displayed in Tables 4.2, 4.3, and 4.4.

Analysis of the Model

The first part of the analysis determines if the model can accommodate the number of students enrolled in the school. In order to do this analysis, student seat equivalents were calculated. The student seat equivalent represents a gross estimate of how many students the

Table 4.1. 1980 Simulation of Standard Curriculum

	Number of Teachers	Number of Sections	Number of Teachers Cut
Alternative Education	2	0	
Art	2	10	
Business	3 4/5	19	
English	10	50	3
Spanish	1	5	
Home Economics	1 4/5	9	
Industrial Arts	5 3/5	28	
Mathematics	23	5	1
Instrumental Music	1/5	1	
Vocal Music	3/5	3	
Physical Education	5 1/5	15	
Science	5	24	
Social Studies	6 2/5	28	1
		TOTAL STAFF CUT:	5

Table 4.2. 1981 Simulation of Standard Curriculum

	Number of Teachers	Number of Sections	Number of Staff Reductions
Alternative Education	1	0	1
Art	2	10	
Business	3 4/5	19	
English	10	49	
Spanish	1	5	
Home Economics	1 4/5	9	
Industrial Arts	5 3/5	28	
Mathematics	5	23	
Instrumental Music	1/5	1	
Vocal Music	3/5	3	
Physical Education	3 1/5	14	
Science	5	24	
Social Studies	5 2/5	27	1
		TOTAL STAFF REDUCTIONS:	2

Total number of extra teachers = 2 1/5

Table 4.3. 1982 Simulation of Standard Curriculum

	Number of Teachers	Number of Sections	Number of Staff Reductions
Alternative Education	1	0	
Art	2	10	
Business	3 4/5	19	
English **	9	46	1
Spanish	1	4	
Home Economics	1 4/5	9	
Industrial Arts	5 3/5	27	
Mathematics	4	20	1
Instrumental Music	1/5	1	
Vocal Music	3/5	3	
Physical Education	3 1/5	13	
Science *	4	20	1
Social Studies	5 2/5	26	_
		TOTAL STAFF REDUCTIONS:	3

Total number of extra teachers = 2 1/5

* one Advanced Placement Biology and Chemistry have been cut

** one English section must be taught by a Social Studies teacher with an English minor

Table 4.4. 1983 Simulation of Standard Curriculum

	Number of Teachers	Number of Sections	Number of Staff Reductions
Alternative Education	0	0	1
Art	2	10	
Business	3 4/5	19	
English	9	44	
Spanish	1	4	
Home Economics	1 4/5	9	
Industrial Arts	5 3/5	26	
Mathematics	4	20	
Instrumental Music	1/5	1	
Vocal Music	3/5	3	
Physical Education	3 1/5	13	
Science	4	20	
Social Studies	5 2/5	24	
		TOTAL STAFF REDUCTIONS:	1

Total number of extra teachers = 2

courses can serve. For example, in 1980, Kettering will have a total enrollment of 1211 students. Since the typical student takes six classes, 6 X 1211 or 7266 student seats are required. To determine the student seat equivalents of the model in 1980, the number of sections was multiplied by the class size. Table 4.5 displays these calculations.

Table 4.5. Student Seat Equivalents in the Model for 1980

Content Area	Number of Sections		Class Size	S.S.E.
English	50	x	27	1350
Social Studies	28	x	29	819
Mathematics	23	x	29	608
Business	19	x	27	513
Vocal Music	3	x	40	120
Instrumental Music	1	x	114	114
Art	10	x	25	250
Spanish	5	x	29	145
Industrial Arts	28	x	25	700
Physical Education	15	x	50	750
Home Economics	9	x	29	261
				6320

There are also a total of three and three-fifths extra teachers in the 1980 simulation. District administrators have stated that class sizes will not be reduced, so these teachers will teach extra classes. This amounts to eighteen extra sections that could be added to the curriculum. Assuming that each section could serve twenty-five students, there are 18 x 25 or 450 additional S.S.E.'s.

So, the total S.S.E. equals 6750. This is less than the 7266 required S.S.E. One solution would be to require each student to take only five classes. Then, the required S.S.E. would be 1211 x 5 or 6055. This amounts to an excess of 695 S.S.E. Table 4.6 displays the S.S.E. for each year.

Table 4.6. S.S.E.

Year	S.S.E. Required (6 Hour Day)	S.S.E. Required (5 Hour Day)	S.S.E. Available
1980	7266	6055	6820
1981	7014	3845	6547
1982	6534	5445	6130
1983	6312	5260	6848

Even though the S.S.E. is a gross estimate of the model's ability to accommodate the student body, it does prove that the model will not provide for a six hour day for each student. The model may be able to provide for five hours per day for each student.

The model must also be analyzed in terms of how well the various academic needs of the student body could be met. In the elective areas of Business, Art, Music, Industrial Arts, Spanish, Home Economics, and Physical Education there have been no reductions, so students' needs would be met as well as they are in the present curriculum. The Mathematics department would offer a more limited selection of classes for the student who is not planning to go to college. Advanced Science students would have fewer courses available. The most severe changes would occur in English and Social Studies. The model would provide

very little variety in these areas, and to a certain extent how well students' needs are met would depend on the provisions made by the individual teachers. If the extra teachers were used to supervise well planned independent study or walkabout programs, then the model could better provide for individual needs.

The implementation of the model would involve some staff transfers. These are displayed in Table 4.7.

Table 4.7. Staff Transfers for the Standard Curriculum Model

Year	Teachers Lost Due to Low Seniority	Teachers Transferred out of Kettering	Teachers Transferred into Kettering
1980	1 4/5 Bio/Chem 1 Mathematics 1 English	2 English 1 Social Studies	1 4/5 Science (probably from a junior high)
1981	1 English	1 Alternative Education with Social Studies certification	1 English
1982		1 Science (Bio/Chem) 1 Mathematics 1 English	
1983		1 Alternative Education with Social Studies certification	

Since most of the teachers who are transferred from the high schools will go to junior high schools, the junior highs could receive more Social Studies teachers, even though they have no need for additional Social Studies teachers. English teachers would also be transferred to the junior highs. There is some need for English teachers

in grades 7-9, but if each high school transferred two or three English teachers to the junior highs, an over-supply could result.

Within Kettering there would be only one instance when a class section would be taught by a teacher without a major in the content area. It should be noted that if this model were applied at Mott High School, all of the Physics and Physical Science classes would be taught by a Mathematics teacher.

The model would require no changes of the building facilities, but would result in excess space because fewer classes would be offered.

If students take classes at local colleges, plans would have to be made for transporting the students. Whose responsibility would it be? The school district's? The students'? Or the parents'? In all other cases, there would be no changes in transportation needs.

The researcher can only hypothesize as to the community reactions to the model. Undoubtedly there would be some displeasure because of the severe course reductions. Many parents would be pleased, however, that the Industrial Arts program and Business courses remain because they know these courses prepare students for the job market. Job skills are highly valued in the community.

The English, Social Studies Core

Description of the Model

In this model all tenth and eleventh graders are enrolled in a two-hour English-Social Studies block. Each block has two English and one Social Studies teachers and ninety students. Eleventh and tenth graders are mixed in the blocks. The students remain in the same block for two years, and the teachers plan a two-year English-Social

Studies program for their students. Teachers are free to group students in any way during the two-hour period. If two blocks meet during the same period, they can merge to form one large block.

Twelfth graders are required to take one semester of twelfth grade English and one semester of Government. If there is room in the tenth-eleventh grade block, twelfth graders can sign up for a third year of block.

All tenth graders are required to take one semester of Speech and one semester of Physical Education.

Students have several options in Mathematics. Advanced students take an Advanced Math Team. This is a one-hour program taught by four teachers. One hundred twenty students are in each of these teams which focus on Algebra II, Math Analysis, Calculus, and Fortran. The teaching team groups the students and can use large lectures, small groups, and/or independent study. Students who want to improve practical Math skills can elect the one-hour Practical Math Team which concentrates on Math life skills and practical Geometry. This team consists of two teachers and approximately sixty students. Students can also elect tranditional Ty I, Ty II, Algebra I, Geometry, and Math Skills classes.

In Science students can elect the traditional Earth Science, Physical Science, Biology, and 115 Biology classes. Advanced students can elect either a Chemistry-Physics team or the Advanced Placement Biology-Chemistry team. Each of these teams is taught by four teachers and has an enrollment of approximately 120 students. The teams are one-hour long, and, as in the Math teams, the teachers are free to schedule the students into large lectures, small groups, or independent study. All of the Chemistry-Physics students are scheduled into

the same advanced Math team, as are all the advanced Chemistry and Biology students. The Mathematics team is scheduled in the hour immediately following the Science team, so Science and Math teachers can plan together if they so desire.

All other content areas are the same as in the present curriculum.

Rationale for Selection of the Model

This model was selected because the English and Social Studies blocks could provide for more individual needs. The second reason for its selection was the possibility of increasing the number of course offereings in math and science by using team teaching.

Simulation of the Model

The researcher simulated the model for 1980, 1981, 1982, and 1983. All data for the simulation came from the district enrollment projections and the course projections (Appendix E).

In 1980, Kettering's enrollment will be 1211, 404 tenth graders, 438 eleventh graders, and 375 twelfth graders. In order to accommodate the 842 eleventh and tenth graders, nine English/Social Studies blocks would be needed. Seven Speech classes, seven twelfth grade English classes, and seven Government classes would be required. This schedule involves ten English and five Social Studies teachers. Table 4.8 displays a possible English-Social Studies schedule. The English teachers are numbered 1-10, and Social Studies teachers are labeled A-E.

This schedule allows for a staff reduction of three English teachers and two and two-fifths Social Studies teachers.

Table 4.8. Sample Schedule for English and Social Studies in 1980.

Hour				Speech	Government	12th English
1	1,2,A 7,8,D			9,10	B,C,E	3,4,5,6
2		3,4,B			E	9,10
3	1,2,A 7,8,D		5,6,C			
4		3,4,B				
5			5,6,C 9,10,E	1,2	A	
6				7	D	8

During 1980, no other changes would be made because more time would be required to plan for Mathematics and Science. Table 4.9 displays the data for 1980.

In 1981 Kettering's total enrollment is projected to be 1169, 416 tenth graders, 378 eleventh graders, and 375 twelfth graders. There would be no need to change the English-Social Studies program. Thus, no staff reductions could be made.

In Mathematics, the team programs would begin. There would be 258 students in Algebra II, Math, Analysis, and Calculus, so two teams of 129 students and four teachers would be needed. This is slightly over contract class size, but one of the extra teachers could aid in the teams. Projections show that there would be sixty-five Life Skills and Practical Geometry students. One team of two teachers could accommodate these students. One of the extra teachers could aid in this team. Data also show that the following additional sections will be needed:

Table 4.9. 1980 Simulation Teachers, Class Sections and Staff Reductions

Content Area	Number of Teachers	Number of Sections	Number of Staff Reductions
Alternative Education	2	0	0
Art	2	10	0
Business	3 4/5	19	0
English	10	9 blocks 14 other sections	3
Spanish	1	5	0
Home Economics	1 4/5	9	0
Industrial Arts	5 3/5	28	0
Mathematics	6	29	0
Instrumental Music	1/5	1	0
Vocal Music	3/5	15	0
Science	5	25	0
Social Studies	5	9 blocks 7 other sections	2 2/5
		TOTAL STAFF REDUCTIONS	5 2/5

There are 2 2/5 extra teachers

2 Algebra Ty I
3 Algebra Ty II
2 Algebra I
3 Math Skills
5 Geometry
15 TOTAL

Each advanced team is the equivalent of four sections, and the practical team is equivalent to two sections; therefore, there would be

ten sections of teams. The total number of sections would be twenty-five. This would require five teachers, allowing a reduction of one teacher.

In 1981, one of the alternative education teachers would also be cut. No other changes would be made. Table 4.10 displays the data for the 1981 simulation.

Table 4.10. 1981 Simulation Teachers, Class Sections and Staff Reductions

Content Area	Number of Teachers	Number of Sections	Number of Staff Reductions
Alternative Education	1	0	1
Art	2	10	0
Business	3 4/5	19	0
English	10	9 blocks 14 other sections	0
Spanish	1	5	0
Home Economics	1 4/5	9	0
Industrial Arts	5 3/5	28	0
Mathematics	5	25	1
Instrumental Music	1/5	1	0
Vocal Music	3/5	3	0
Physical Education	3 1/5	14	0
Science	5	24	0
Social Studies	5	9 blocks 7 other sections	0
		TOTAL STAFF REDUCTIONS:	2

One extra teacher (not including the extras used in Math blocks)

By 1982, Kettering's enrollment is projected to drop to 1089. At this time, there will be 375 tenth graders, 390 eleventh graders, and 327 twelfth graders. The 765 tenth and eleventh graders can be accommodated by nine blocks. The 324 twelfth graders require six sections of English and Government each semester. This results in only two fewer sections, so no teachers can be cut.

In 1982, it has been projected that 240 students will be enrolled in Algebra II, Math Analysis, and Calculus, so two advanced Math teams will be required. Projections show a total of sixty-four Life Skills and Practical Geometry students or one Practical Math team. These additional sections would be included:

2 Algebra Ty I
4 Geometry
3 Algebra Ty II
2 Algebra I
3 Math Skills
14 TOTAL

The blocks count as ten sections resulting in a total of twenty-four sections. There would be five Math teachers. This is one-fifth more than required. This extra person would aid in the Practical team because of its large enrollment.

In 1982, the Science teams would begin. Projections show there will be 130 students in Chemistry and Physics. These students and four teachers would make up one one-hour team. 139 students have been projected to take Advanced Chemistry and Biology. These students and four teachers would make up the second one-hour team. In addition, the following sections would be offered:

1 Earth Science
1 Physical Science
7 Biology
1 II5 Biology
10 TOTAL

The two teams are the equivalent of eight sections. Thus, there would be eighteen sections in the Science department. By cutting one teacher, four would remain creating an excess of two-fifths' teacher. This teacher would work in the two advanced teams because their enrollments are high.

In 1982, one Alternative Education teacher would also be cut. No other changes would be made. Table 4.11 displays the simulation data for 1982.

In 1983 Kettering's enrollment has been projected to be 367 tenth graders, 351 eleventh graders, and 334 twelfth graders, or a total of 1052 students. At this point, one of the English-Social Studies blocks can be dropped, as well as one of the sections of speech. This results in the following number of sections:

8 blocks of ninety tenth and eleventh graders
6 Government
6 Speech
6 twelfth grade English

This set of classes can be scheduled with nine English and five Social Studies teachers. Table 4.12 displays a possible teacher schedule. Teachers 1-9 are English, and A-E are Social Studies.

This would leave one-fifth English and two-fifths Social Studies teachers free to teach something else.

In Mathematics, 232 students have been projected to be in Algebra II, Math Analysis, and Calculus. These students would form two advanced Math teams. The sixty-two Life Skills and Practical Geometry students would make one practical team. In addition, the following sections would be needed:

Table 4.11. 1982 Simulation Teachers
Class Sections and Staff Reductions

Content Area	Number of Teachers	Number of Sections	Number of Staff Reductions
Alternative Education	0	0	1
Art	2	10	0
Business	3 4/5	19	0
English		9 blocks 13 other sections	0
Spanish	1	4	0
Home Economics	1 4/5	9	0
Industrial Arts	5 3/5	26	0
Mathematics	5	24	0
Instrumental Music	1/5	1	0
Vocal Music	3/5	3	0
Physical Education	3 1/5	13	0
Science	18	4	0
Social Studies	5	9 blocks 6 other sections	0

1 1/5 extra teachers (not including those extras aiding in Math and Science blocks)

Table 4.12. Sample Schedule for English and Social Studies in 1983

Hour						Speech	12th English	Government
1	1,2A					3,4		B
2			5,6C				7,8	D,E
3	1,2A	3,4B		7,8D			9	E
4			5,6C				9	E
5				7,8D	3,4B	1,2	9	A
6						5,6	9	

2 Algebra Ty I
4 Geometry
2 Algebra Ty II
2 Algebra I
3 Math Skills
13 TOTAL

The teams total ten sections, so the Math department would be offering twenty-three sections. No teachers would be cut, but the two-fifths extra teacher would teach in the Science teams. This would be a Mathematics teacher with Science minor.

In Science, 126 Physics and Chemistry students would make up one advanced team, and 135 advanced Chemistry and Biology students would make up the other. Because these teams are large, one of the extra teachers would serve as an aide. The following additional sections would be required:

1 Earth Science
1 Physical Science
6 Biology
1 II5 Biology
9 TOTAL

The two teams are equivalent to eight sections. The total number of Science sections would be seventeen. One teacher would be cut. This

would leave three Science teachers and the two-fifths Science minor from the Math department. Table 4.13 displays the data for the 1983 simulation.

Table 4.13. 1983 Simulation Teachers, Class Sections and Staff Reductions

Content Area	Number of Teachers	Number of Sections	Number of Staff Reductions
Alternative Education	0	0	
Art	2	10	
Business	3 4/5	19	
English	9	8 blocks 12 other sections	1
Spanish	1	4	
Home Economics	1 4/5	9	
Industrial Arts	5 3/5	23	
Instrumental Music	1/5	1	
Vocal Music	3/5	13	
Physical Education	3 1/5	17	1
Science	3	17	1
Social Studies	5	8 blocks 6 other sections	
		TOTAL STAFF REDUCTIONS:	3

1 2/5 extra teachers (not including those aiding in the teams)

Analysis of the Model

In order to determine whether or not the model could accommodate the total student body, S.S.E. were calculated for each year.

In 1980, the S.S.E. available from the model would be:

Art	10	x	25	=	250
Business	19	x	27	=	513
Spanish	5	x	29	=	145
Home Economics	9	x	29	=	261
Industrial Arts	28	x	25	=	700
Mathematics	29	x	29	=	696
Instrumental Music	1	x	114	=	114
Vocal Music	3	x	40	=	120
Physical Education	15	x	50	=	750
Science	25	x	29	=	725
Blocks	9	x	180	=	1620
English classes	14	x	27	=	378
Social Studies classes	7	x	29	=	203
Extra teachers	12	x	25	=	300
				TOTAL:	6775

In 1981, the S.S.E. available from the model would be:

Art	10	x	25	=	250
Business	19	x	27	=	513
Spanish	5	x	29	=	145
Home Economics	9	x	29	=	261
Industrial Arts	28	x	25	=	700

Mathematics classes	15	x 29	=	435
Advanced teams	2	x 129	=	258
Practical team	1	x 65	=	65
Instrumental Music	1	x 114	=	114
Vocal Music	3	x 40	=	120
Physical Education	14	x 5	=	700
Science	24	x 29	=	696
English-Social Studies blocks	9	x 180	=	1620
English classes	14	x 27	-	378
Social Studies classes	7	x 29	=	203
Extra teachers	5	x 25	=	125
		TOTAL:		6583

In 1982, the S.S.E. available from the model would be:

Art	10	x 25	=	250
Business	19	x 27	=	513
Spanish	4	x 29	=	116
Home Economics	9	x 29	=	261
Industrial Arts	26	x 25	=	650
Mathematics classes	14	x 29	=	406
Advanced teams	2	x 120	=	240
Practical team	1	x 64	=	64
Instrumental Music	1	x 114	=	114
Vocal Music	3	x 40	=	120
Physical Education	13	x 50	=	650
Science	1	x 269	=	269
Science classes	10	x 29	=	290

English-Social Studies block	9	x 180	=	1620
English classes	13	x 27	=	351
Social Studies classes	6	x 29	=	174
Extra teachers	6	x 25	=	150
		TOTAL:		6238

In 1983, the S.S.E. available would be:

Art	10	x 25	=	250
Business	19	x 27	=	513
Spanish	4	x 29	=	116
Home Economics	9	x 29	=	261
Industrial Arts	26	x 25	=	650
Mathematics classes	13	x 29	=	377
Advanced team	1	x 232	=	232
Practical team	1	x 62	=	62
Instrumental Music	1	x 114	=	114
Vocal Music	3	x 40	=	120
Physical Education	13	x 50	=	650
Science team	1	x 261	=	261
Science classes	9	x 29	=	261
English-Social Studies block	8	x 180	=	1440
English classes	12	x 27	=	324
Social Studies classes	6	x 29	-	174
Extra teachers	7	x 25	=	175
		TOTAL:		5980

Table 4.14 displays the S.S.E. data for 1980-1983.

Table 4.14. S.S.E. Required and Available 1980-1983

Year	S.S.E. Needed for a 6 Hour Day	S.S.E. Needed for a 5 Hour Day	S.S.E. Available
1980	7266	6055	6775
1981	7014	5845	6583
1982	6534	5445	6238
1983	6312	5260	5980

According to the S.S.E. estimates, the model would not allow all of the students to take six classes. It may be possible for all of the students to take five classes.

This model would be able to meet most of the needs of the student body. In Mathematics and Science, the student would have the same choices as in the present curriculum. The other elective areas would also be the same. In English and Social Studies, the creativity of the block teachers would determine how well students' needs would be met. If the extra teachers provided quality independent study or other programs, even more needs could be met.

The model does require some teacher transfers. These are displayed in Table 4.15.

These transfers amount to a total staff reduction of ten and two-fifths. Kettering needs to cut eleven teachers. This could be accomplished by cutting three-fifths of a counselor in 1982. This counselor could be shared with Township, where one counselor is lost due to low seniority.

Table 4.15. Staff Transfers for the Model

Year	Lost Due to Low Seniority	Transferred out of Kettering	Transferred into Kettering
1980	1 4/5 Bio/Chem	2 English	1 4/5 Bio/Chem
	1 Mathematics	2 2/5 Social Studies	1 Mathematics (with Science minor)
1981	1 English	1 Alternative Education (Social Studies)	1 English
		1 Mathematics	
1982		1 Alternative Education (Social Studies)	
1983		1 English	
		1 Science	

There are some cases each year from 1981 to 1983 where teachers must work in a Math or Science team even though they are not certified in either area. These teachers would serve primarily as aides because class sizes are large. This would allow these teachers on-the-job opportunities to learn to teach new subjects. Then, if they enjoyed the experience, they could take some university courses and earn new areas of certification.

In 1983, a Mathematics teacher must teach on a Science team. As indicated in Table 4.15, a Math teacher with Science minor was transferred to Kettering in 1980. (There are several such teachers in the junior high.) This teacher would have three years to improve skills

and prepare for the new teaching assignment. Also, because of the team teaching, s/he could receive additional help during the year.

As in the model described previously, the transfers required for this model could flood the junior highs with English and Social Studies teachers. The junior highs would receive none of the Spanish or Industrial Arts teachers that they need.

A very important part of this model is teacher team work. In-service time would be needed to plan blocks and Science and Math teams. Without team work, the model would not work.

There would be no major changes of building facilities. Block and team teachers would, however, need to be assigned to neighboring rooms.

There would be no need for additional transportation, except in the case of students involved in special independent study programs or those who only take five classes. When cases such as these occur in the present curriculum, it is the students' responsibility to provide transportation. This policy could be used in the new model.

Community reaction to the model would probably be mixed. Some parents would be pleased that the advanced Math and Science classes could continue and the elective programs would be left intact. Some parents, however, may feel that the model is too different or innovative.

Modified Magnet Model

Description of the Model

In this model students take the majority of their classes in their regular schools, but then may have to travel to another high school for certain speciality courses. Table 4.16 displays those special programs that are only taught at a central location.

Table 4.16. Location of Speciality Courses

Program	School
Advanced Mathematics	Kettering
Advanced Science	Kettering
Performing Arts	Mott
Health Occupations	Mott
Advanced Woodwork	Mott, Kettering
Trade and Industry	Township
Secretarial	Township
Vocational Automechanics	Mott
Foreign Languages	Kettering, Township
Economics	Kettering, Mott

All other areas remain the same at each school.

Rationale for Selecting the Model

Variations of the model have proved successful in other districts. Also, the district under study has already tried some magnet programs. These programs have eliminated some of the small classes and teacher shortages. For these reasons this model was selected.

Simulation of the Model

Industrial Arts classes have been scheduled so the following changes must be made:

1. Machine wood (an advanced woodworking class) was dropped at Township and the students bussed to either Kettering or Mott. Because this involved only twenty students from Township, Mott and Kettering did not need to add any classes.

2. All Trade and Industry students from Kettering and Mott will take the T & I co-op at Township. This requires Township to add one section of T & I co-op.

3. Vocational Automechanics and Automotive Industrial are the same class. They will be combined and taught at Mott. Student enrollment requies two sections.

Tables 4.17 displays the number of sections needed in each of the three schools.

Table 4.18 shows the total number of sections needed for the modified magnet Industrial Arts program. The total 1979 sections are displayed for comparison.

In 1978, eighteen teachers were needed. By using the magnet model and sharing teachers, one teacher could be cut in 1980 and one in 1983. No class sections would be cut.

All Math Analysis and Calculus classes are scheduled for Kettering. Mott and Township drop these classes, and Kettering adds sections to accommodate the transferred students. Table 4.19 displays the number of students in these classes and the needed number of sections.

During 1980, the class sizes are large, but because these are advanced classes this should be no problem. Table 4.20 displays the number of Math sections needed at each high school.

The total number of sections needed and the equivalent number of teachers are displayed in Table 4.21. Data for 1979 is shown for comparison purposes.

By sharing teachers, two teachers could be cut in 1980, one in 1982 and one in 1983.

Advanced placement Biology, Biology II, advanced placement Chemistry, and Physics are dropped at Mott and Township and offered only at

Table 4.17. Number of Sections Needed for Modified Magnet

KETTERING	1980	1981	1982	1983
Black and White Photography	3	3	3	3
Vocational Photography*	1	1	1	1
Automotive Mechanics	5	5	4	4
Engineering Drawing	1	1	1	1
Elementary Drafting	2	2	2	2
Architectural Drafting	1	1	1	1
Trade and Industry*	0	0	0	0
Fiberglass	2	2	2	2
Woodwork	4	4	4	3
Woodwork II	2	2	2	2
Metal Work	2	2	2	2
Automotive Mechanics II	1	1	1	1
Electricity	1	1	1	1
Power Mechanics	1/26	1/26	1/25	1/24

* a two-hour course

TOWNSHIP	1980	1981	1982	1983
Sh Mathematics	1	1	1	1
Drive Safely	3	3	3	3
Elementary Wood	2	2	2	2
Elementary Drafting	1	1	1	1
Trade and Industry	1*	1*	1*	1*
Auto Mechanics	3	3	3	2

Elementary Drafting**	1	1	1	1
Vocational Drafting	1*	1*	1*	1*
Trade and IndustryII	2	2	2	2
Elementary Metal**	2	2	2	2
Elementary Metal	1	1	1	1
Small Engine Repair**	2	2	2	2
Elementary Wood**	1	1	1	1
Machine Woodwork**	0	0	0	0
Vocational Automotive	0	0	0	0
Small Engine Repair	1	1	1	1
	29	29	29	28

* combined with other classes
** a two-hour course

MOTT

	1980	1981	1982	1983
Automotive Mechanics	5	5	5	4
General Electricity	2	2	2	2
Drafting	2	2	2	2
Cabinet Making	3	3	3	3
Construction Process	1*	1*	1*	1*
Electricity I	1	1	1	1
Electricity 4	1*	1*	1*	1*
Electricity 2	1	1	1	1
Vocational Drafting	1	1	1	1
Vocational Automotive	2	2	2	2
Vocational Welding	2	2	2	2
Trade and Industry	0	0	0	0

Developmental Co-op AM	2	2	2	2
Developmental Co-op PM	2	2	2	2
Automotive Mechanics II	0	0	0	0
	30	30	30	28

* combined with other sections

Table 4.18. Number of Industrial Arts Sections

	1979	1980	1981	1982	1983
Number of Sections	90	85	85	84	80
Teachers Needed .	18	17	17	16 4/5	16

Table 4.19. Mathematics

Course	1980	1981	1982	1983
Math Analysis Enrollment	220	196	185	178
Number of Sections	7	7	7	6
Calculus Enrollment	68	61	56	57
Number of Sections	2	2	2	2

Table 4.20. Number of Math Sections for Modified Magnet

KETTERING	1980	1981	1982	1983
Algebra Ty I	2	2	2	2
Algebra II	5	5	5	5
Practical Geometry	1	1	1	0
Fortran	1	1	1	0

Calculus	2	2	2	2
Geometry	5	5	4	4
Algebra Ty II	3	3	3	2
Math Analysis	7	7	6	6
Math Life	2	2	2	1
Algebra I	2	2	2	2
Math Skills	3	3	3	3
	33	33	31	27

MOTT

Math Skills	4	4	3	3
Algebra Ty 2	3	3	3	3
Algebra II	4	4	4	4
Geometry	5	5	5	4
Practical Geometry	1	1	1	0
Algebra I	2	2	2	2
	19	19	18	16

TOWNSHIP

Geometry	6	6	5	5
Math Skills	3	3	3	3
Algebra Ty I	1	1	1	1
Algebra II	5	5	4	4
Algebra Ty II	2	2	2	2
Business Math	1	1	1	1
Algebra I	3	3	3	3
Practical Geometry	0	0	0	1*
	21	21	19	20

* In 1983, Practical Geometry will be moved to Township. This program fits with the Industrial Arts program.

Table 4.21.

	1979	1980	1981	1982	1983
Number of Sections	84	73	73	68	63
Number of Teachers	16 4/5	14 3/5	14 3/5	13 3/5	12 3/5

Kettering. Table 4.22 displays the total enrollment and number of sections needed for these classes.

Table 4.22

Course	1980	1981	1982	1983
Advanced placement Biology enrollment	90	77	69	69
Number of sections	3	3	3	3
Biology II	147	133	124	119
Number of sections	5	5	4	4
Advanced placement Chemistry enrollment	49	41	39	37
Number of sections	2	2	2	2
Physics enrollment	172	168	156	152
Number of sections	6	6	5	5

Table 4.23 displays the number of sections of Science offered at each of the high schools.

Table 4.24 displays the number of sections and teachers needed for all high school Science programs in the district magnet plan. Data for 1979 are displayed for comparison purposes.

By sharing teachers and using the magnet model, one Science teacher could be cut in 1980, one in 1982, and one in 1983.

Table 4.23. Number of Science Sections

MOTT	1980	1981	1982	1983
Biology	7	7	7	6
II5 Biology	1	1	1	1
Chemistry	4	4	3	3
Physical Science	1	1	1	1
Environmental Science	1	1	1	1
Health/Family	2	2	2	2
	16	16	14	14
TOWNSHIP				
Chemistry	5	5	4	4
Electronics	3	3	3	2
Biology	9	8	8	7
Health	1	1	1	1
Physical Science	2	2	2	2
	20	19	18	16
KETTERING				
Advanced placement Biology	3	3	3	3
Physics	6	6	5	5
Earth Science	1	1	1	1
Physical Science	1	1	1	1
Biology	7	7	7	6
Biology II	5	5	4	4
Chemistry	4	4	4	3

Advanced placement Chemistry	2	2	2	2
II5 Biology	1	1	1	1
	30	30	29	27

Table 4.24. Teachers and Sections for Science

	1979	1980	1981	1982	1983
Number of Sections	71	66	65	61	56
Number of Teachers	14 1/5	13 1/5	13	12 1/5	11 1/5

Mott would become the center for Performing Arts and advanced Speech classes. Kettering and Township would no longer offer radio classes, Theater Arts or Debate. Students would travel to Mott for these classes. Table 4.25 displays the number of sections that would be needed for the English program. In 1983, these changes would accommodate all but thirteen of the Performing Arts students and seven of the radio students. This will improve as the enrollment declines.

The total sections and number of teachers are displayed in Table 4.26.

By using the magnet, one teacher can be cut in 1980, 1981, and 1982. This would result in two-fifths extra teachers in 1980 and two-fifths too few teachers in 1981. In 1983 there would be a surplus of two-fifths teachers. In 1981 two classes would need to be cut preferably one from one high school and one from another.

In Social Studies, two changes have been made. First, Economics will no longer be offered at Township. These students can go to either Mott or Kettering. The second change involves School Services. In

Table 4.25. English Sections for Magnet Plan

KETTERING	1980	1981	1982	1983
Creative Writing	2	2	2	2
United States Literature	3	3	3	3
Debate	0	0	0	0
Independent Reading	2	2	2	2
Mythology/Folklore	2	2	2	2
Introduction to Literature	7	7	6	6
Seminar in Ideas	2	2	2	2
Research Seminar	2	2	2	2
Year Book	1	1	1	1
Arranging Compositions	5	4	4	4
American Literature 1900's	1	1	1	1
Contemporary American Literature	2	2	2	2
Advance Placement English	1	1	1	1
Study Skills	2	2	2	2
Literary Explorations	2	2	2	2
Discovering Composition	5	5	4	4
Developmental Reading	3	3	3	3
Expository Writing	2	2	2	2
English Grammar	2	2	2	2
Business English	2	2	2	1*
Advanced English	1	1	1	1
Play Production	0	0	0	0
Mass Media	2	2	2	2
Speech	8	8	7	7

Introduction to Radio	0	0	0	0
Radio Production	0	0	0	0
	59	58	55	54

* Any extra students can take this at Township in the Business Dept.

MOTT

Reading	1	1	1	1
Reading Improvement	4	4	4	4
Basic Writing	3	3	3	3
English Literature	1	1	1	1
Year Book	2	2	2	2
Speed Reading	4	4	4	4
Humanities	1	1	1	1
Shakespeare	1	1	1	1
Short Fiction	3	3	3	3
Speech	7	7	7	7
Grammar/English	6	6	5	5
Grammar Basic Writing	5	5	5	5
Advanced Composition	2	2	2	2
American Literature	1	1	1	1
Theater Arts	2	2	2	2
Creative Writing	3	3	3	3
English Literature	1	1	1	1
Science Fiction	1	1	1	1
College Board Reasoning	3	3	3	3
Mass Thinking	3	3	3	3
Special Projects in Speech	6	6	5	5

Debate	2	2	2	2
Introduction to Broadcasting	2	2	2	2
Reading Activities	5	5	4	4
School Activities	4	4	4	4
	64	64	62	62

TOWNSHIP

Language Skills	14	14	13	12
Speech	9	9	9	8
Descriptive Writing	2	2	2	2
Mass Media	1	1	1	1
Publication	1	1	1	1
Newspaper	1	1	1	1
College Skills	3	3	2	2
Mythology	2	2	2	2
Reading Development	1	1	1	1
REading Government	1	1	1	1
Reading United States History	1	1	1	1
College Composition	3	3	3	3
Performing Arts	0	0	0	0
Debate	0	0	0	0
Major World Authors	1	1	1	1
Major American Authors	1	1	1	1
Year Book	1	1	1	1
Technical Writing	1	1	1	1
Short Stories	2	2	2	2
Satire	2	2	2	2

Science Fiction	2	2	2	2
Detective/Mysteries	2	2	2	2
	52	52	520	48

Table 4.26. English Sections and Teachers

	1979	1980	1981	1982	1983
Number of Sections	182	175	174	167	164
Numbers of Teachers Needed	36 2/5	35	34 4/5	33 2/5	32 4/5

this class the students work in the school, but there is no actual classroom experience. In 1979 some of these sections were combined with other sections.

Table 4.27 displays the number of sections of Social Studies needed for the magnet plan. Leadership and Man and World have been cut during those years when there would be an insufficient number of teachers.

Table 4.28 displays the total number of sections and teachers needed for Social Studies.

This would allow a reduction of one Social Studies teacher in 1980, 1981, and 1982. There would be an excess of three-fifths of a teacher in 1983. Possibly some new sections could be offered.

The Business (Secretarial) magnet would not begin until 1982. At that time, all of the Secretarial courses would be offered at Township. The changes would involve the following classes: Shorthand, Shorthand II, Clerical Office Block, Clerical Office Training, Office Co-op Seminar, and Office Co-op. Business Machines would be dropped because the skills taught in this class are repeated in other classes.

Table 4.27. Social Studies Sections for the Magnet Model

KETTERING	1980	1981	1982	1983
Government	9	8	7	7
United States History	14	13	13	12
Western Society	5	5	4	4
General Psychology	3	3	3	3
Sociology	1	1	1	1
World Geography	4	4	4	3
Leadership	0	0	0	0
Economics	1	1	1	1
	37	35	33	32
MOTT				
United States History	12	12	12	11
Government	6	6	6	6
American History	12	11	11	11
Black History	1	1	1	1
Man and World	1	0	0	1
Sociology	1	1	1	1
Student Government	1	1	1	1
United States Government	1	1	1	1
Economics	1	1	1	1
Psychology	1	1	1	1
School Service	5*	5*	5*	5*
	37	36	36	35

* All of these sections are combined with others.

TOWNSHIP				
United States History	15	14	13	13
World Geography	1	1	1	1
Western Civilizations	6	6	5	5
Anthropology	1	1	1	1
Social Problems	5	5	5	4
Student Government	1	1	1	1
Reading Government	1	1	1	1
Reading United States History	1	1	1	1
School Service	5*	5*	4*	4*
Government	7	7	6	6
Psychology	1	1	1	1
Economics	0	0	0	0
	39	38	35	34

* All of these sections are combined with other sections.

Table 4.28. Social Studies Sections, Magnet Plan

	1979	1980	1981	1982	1983
Number of Sections	118	113	108	103	100
Number of Teachers	23 3/5	22 3/5	21 3/5	20 3/5	20

In 1982, these classes will have the following enrollments:

Shorthand	69
Shorthand II	21 (two hour classes)
Clerical Office Block	68 (two hour classes)
Office Co-op Seminar	48
Office Co-op	89 (two hour classes)
Clerical Office Training	37

Some of these classes would be combined as shown below:

Shorthand I	two sections
Shorthand II and Shorthand I	one section
Clerical Office Block	two sections
*Clerical Office Block and Clerical Office Training	one section
Office Co-op Seminar	two sections
**Office Co-op	two sections

* This would involve two different groups of training students, nineteen in the first hour and eighteen in the second.
** These class sizes are large, but there is no classroom expereince involved. All of the course is on-the=job training. In 1979 the co-op class enrollment was also high.

Table 4.29 displays the total number of sections and teachers needed for Business.

Table 4.30 displays the total number of sections and teachers needed for the model.

So, in 1982, two and two-fifths Business teachers can be cut. There would be one-fifth extra teacher in 1983, so either another class can be offered or one of the combination sections can be split.

By 1982 the French program can be moved to Township. There will be 142 students according to projections. This is equivalent to one teacher. The enrollment breakdown would be:

French I	69
French II	52
French III	19
French IV	12

This would require the following sections:

French I	2
French I & II	1
French II	1
French III & IV	1
	5

Table 4.29. Sections of Business Classes for Magnet Model

TOWNSHIP	1982	1983
Typing I	3	3
Business Math	4	3
Accounting	3	3
Shorthand/Transcription	1	1
Notehand	1	1
Computer Programming	2	2
Data Processing	1	1
Business Writing	2	2
Shorthand I	2	2
Student Store	3	3
Distributive Education	1	1
Distributive Education Co-op	1	1
Typing II	1	1
Law	1	1
Clerical Office Block	3	3
Office Seminar	2	2
Office Co-op	2	2
	39	38
KETTERING		
Bookkeeping	2	2
Clerical Office Block	0	0
Data Processing	1	1
Clerical Office Training	0	0
Office Co-op	0	0

Typing I	3	3
Shorthand	0	0
Notehand	1	1
Office Machines	0	0
Distributive Education	1	1
Business Arithmetic	1	1
Typing II	1	1
Distributive Education Co-op	1	1
	11	11

MOTT

Office Co-op	0	0
Accounting	2	2
Beginning Typing	2	2
Law	1	1
Intermediate Typing	2	2
Office Education	0	0
Clerical Office Block	0	0
Short Hand	0	0
Shorthand/Transcription	0	0
Office Co-op Seminar	0	0
	7	7

Table 4.30.

	1979	1982	1983
Number of Sections	69	57	56
Number of Teachers	13 4/5	11 2/5	11 1/5

So the three-fifth's French teacher at Mott could be cut. By making similar changes, the Spanish program could be moved to Kettering and three-fifth's teacher cut.

In 1980, one Health Occupations' teacher will be laid off due to low seniority, so the Health Occupations will be moved to Mott. In 1979, the three teachers had the following schedule:

Teacher 1

1st	Health Co-op 1	2 students
	Nursing Aid Co-op	4 students
2nd	Nursing Aid Skills	13 students
3rd	Health Occupations Senior	19 students
4th	NO CLASSES	
5th	Health Co-op	14 students
	Nurse Aid Co-op	3 students
	Cosmetology	4 students

Teacher 2

1st	Health Co-op	7 students*
2nd		
3rd		
4th	Nurses Aid Senior	22 students
	Cosmetology	3 students
5th	Health Occupations Senior	4 students*
6th	Health Co-op	13 students
	Nurses Aid	11 students*

Teacher 3

1st	Health Co-op	8 students*
2nd	Health Co-op	8 students*
3rd	Health Co-op	7 students*
4th	Cosmetology	4 students*
5th	Ward Clerk	21 students
6th	Health Co-op	22 students

* indicates classes that could accommodate extra students

Teacher 1 is to be laid off, but her students can easily be moved to the classes of Teachers 2 and 3. The extra students could be moved into those sections with an asterisk (*).

Other areas must make some staff reductions. In 1981, one Home Economics teacher will be cut. This will require no changes in the number of classes offered if the schools share teachers and all of the teacher aide sections are combined with other classes. This should be no problem because presently the three high schools do share some Home Economics teachers. Also, teacher aid is a course with no classroom experience. In 1979, most of these classes were already combined with others.

In 1982, one Art teacher would be cut. If the schools share teachers, this will mean each school will have to cut only one or two sections of Art. A similar situation occurs in Physical Education.

Analysis of the Model

In order to determine the approximate number of students the model could accommodate, the number of students was totaled for 1980, 1981, 1982, and 1983. This is a total including all three high schools.

Then the number of teachers was totaled for 1980, 1981, 1982, and 1983. Table 4.33 displays this information.

Table 4.31.

	1980		1981		1982		1983	
Art	7	2/5	7	2/5	6	2/5	6	2/5
Business	14	4/5	14	4/5	12	2/5	12	2/5
English	35	2/5	34	2/5	33	2/5	33	2/5
French	1	3/5	1	3/5	1		1	
Spanish	1	3/5	1	3/5	1	3/5	1	
Home Economics	6		5		5		5	
Industrial Arts	18		18		18		17	
Math	13	4/5	13	4/5	12	4/5	12	4/5
Instrumental Music		3/5		3/5		3/5		3/5
Vocal Music	1		1		1		1	
Physical Education	8	1/5	7	1/5	7	1/5	7	1/5
Science	14	1/5	14	1/5	13	1/5	12	1/5
Social Studies	22	3/5	21	3/5	20	3/5	20	3/5
Health Occupations	2		2		2		2	
TOTAL:	147	1/5	143	1/5	135	1/5	131	3/5

The district figures one teacher can contact 149 students, so for each year the number of teachers was multiplied by 149. In 1980, there will be 21, 932.8 student seat equivalents; in 1981, 21,336.8; in 1982, 20,144.8; and in 1983, 19,608.4. The number of student seat equivalents needed each year was found by multiplying the total 10-12

enrollment by six (a six-hour day). By doing this calculation, it was found that 21,372 would be needed in 1980; 20,796 in 1981; 19,356 in 1982; and 18,702 in 1983. If classes could be filled to maximum, the model would accommodate the students.

The model does require some teacher transfers. Table 4.32 displays the teachers to be transferred.

With this model, the junior high does gain back some of the Spanish and Industrial Arts teachers it will lose. There is also a gain of two Math teachers for the junior high.

In terms of meeting students' academic needs, this model does almost as well as the 1979 curriculum. There would be a few less offerings in Art, Physical Education, English, and Social Studies in 1980 and 1981, but the enrollment will drop enough by 1982 to reinstate these classes in the curriculum.

Building facilities could be a problem, especially at Kettering due to the increase in lab classes. This problem could be resolved by having classes share a lab and using a regular classroom when the lab is not needed.

Transportation would be a major problem because both teachers and students would be changing schools. Transportation could cause a negative community reaction to the model. Parents are aware that buses are not safe in inclement weather. They are also aware that students will miss five or ten minutes of a class when bussed to another school.

The fact that there would be no severe reductions in any program would please many parents.

Table 4.32. Teacher Transfers for Magnet Model

1980

1 Science (2 4/5 laid off, 1 4/5 transferred from junior high)

1 Health Occupations (laid off)

*2 Alternative Education

1 Physical Education (laid off)

1 English (2 laid off, transfer 1 from junior high)

*1 Social Studies

1 Industrial Arts (laid off)

2 Math (1 laid off, transfer 1 to junior high)

1981

*1 Physical Education

*1 Home Economics

*1 Social Studies

1 English (laid off)

1982

1 Math (laid off)

*1 Science

*2 2/5 Business

*3/5 French

1 Counselor (laid off)

*1 English

*1 Social Studies

*1 Art

1983

*1 Math

*1 Science

*3/5 Spanish

*1 Industrial Arts

*These teachers will go to the junior high.

Interdisciplinary Model

Description of the Model

In this model all students are enrolled in a five-hour interdisciplinary block. Each block has three to five teachers and ninety to 150 students. The blocks focus on various themes, and students sign up for the theme that best fits their needs. Teachers then plan a curriculum for the five-hour period of time. Students can take a course from a block other than their own if permission is granted from the teachers of both blocks. Students may also elect a sixth class from a list of electives, or they may take a shortened five-hour schedule.

Rationale for Selecting the Model

There are two reasons for the selection of this model. The researcher hypothesized that by grouping students into five-hour blocks, more courses could be offered by fewer teachers. Secondly, by using interdisciplinary blocks, teachers could work together to integrate the subjects and provide a more meaningful curriculum.

Simulation of the Model

In 1980 the enrollment of 1211 students can be accommodated by eight blocks of approximately 151 students. Each block would have five teachers. Course enrollment projections show that the following blocks could be used:

Block A	Teachers:	1 Math, 2 Science, 1 English, 1 Social Studies
	Major Theme:	Chemistry and Physics Advanced Mathematics
Block B	Teachers:	1 Math, 1 Science, 2 English, 1 Social Studies
	Major Theme:	Biological Sciences (Advanced and Advanced Placement classes)
Block C	Teachers:	1 English, 1 2/5 Social Studies, 1 Science, 1 3/5 Home Economics
	Major Theme:	Child Development, The Family, Biology and Chemistry as they apply to Home Economics will be included in the Science classes.
Block D	Teachers:	1 English, 1 Social Studies, 1 Math, 2 Industrial Arts
	Major Theme:	Woodwork, Metal Shop, and Fiberglass Practical Math skills, Algebra, and Geometry will be included
Block E	Teachers:	1 English, 1 Social Studies, 2 Business, 1 Math
	Major Theme:	Secretarial skills, Bookkeeping, Math skills, Algebra, Geometry, Data Processing
Block F	Teachers:	2 English, 1 Social Studies, 1 Business, 1 Alternative Education
	Major Theme:	Distributive Education, Business skills

Block G	Teachers:	1 English, 1 Social Studies, 2 Industrial Arts, 1 Science
	Major Theme:	Auto Mechanics, Trade and Industry Biology, Chemistry, Physical Science
Block H	Teachers:	1 English, 1 Math, 1 Art, 1 Industrial Arts, 1 Alternative Education
	Major Theme:	Design, Graphics, Photography, Drafting, Math skills, Algebra, Geometry

In each of the blocks, the English and Social Studies teachers would work to integrate their subjects with the major theme. Blocks A and B are primarily for the college bound student, so the appropriate English skills would be covered. In all blocks teachers would serve as counselors and help their students select learning activities that would be most beneficial.

The scheduling of the blocks would be crucial, because it would be necessary to plan for the case when students may need to take a course outside of his/her block. Displayed below is a diagram of how blocks could be scheduled:

First Hour	A	B			E	F		
Second Hour			C	D			G	H
Third Hour								
Fourth Hour								
Fifth Hour								
Sixth Hour								

Blocks C and D have been scheduled for the same time period because neither has both a Science and Math teacher. By scheduling them at the same time, students could take a Science or Math class even if their blocks did not offer any. In a similar way, blocks G and H have been scheduled for the same time. The two Business blocks are also

scheduled to allow students to take classes from either. Of course, the students who are members of a given block would be given first choice of any classes offered by their own block.

Below are several examples of the types of courses a block could offer. The enrollment statistics used have been taken from the course enrollment projections (Appendix E).

In Block A there are projected to be sixty-six Physics students and fifty advanced placement Chemistry students. Four of the advanced placement students will be in the block for only one hour, because they come from other high schools. So approximately fourty other Chemistry students could be included. It is not possible to determine the Math classes that these students would need or if they would be taking any Math at all, but it is known that all of the students would have taken Algebra I, a prerequisite for Chemistry. For the purposes of the study, it was assumed that the teachers surveyed the students and found that fifteen needed Calculus, fifty-five Algebra II, forty Mathematical Analysis, and sixteen Geometry. Based on these data, the following schedule could be planned:

			Teachers		
Hour	English	Social Studies	Science	Science	Math
First	Compos.	Lecture	Adv.Chem.	Physics	Math A*
Second	Sci. Fi. Lecture MWF Indend. Reading TTh	Indep. Study	Adv.Chem.	Physics	Math A*
Third	Compos.	Lecture	Ind.Study	Physics	Alg II*
Fourth	Sci. Fi. (see above)	Indep. Study	Chem.*	Ind.Study	Alg. II*

Fifth	Compos.	Lecture	Chem.*	Ind.Study	Geo./ Calc. Geo. lecture MWF Calc. lecture TTh

* Enrollment is low enough in these classes to allow students from other blocks to participate.

By offering lecture sections of approximately forty students, this scheduel can provide for all of the students in the block. The English and Social Studies offerings would probably change every ten weeks.

Block E would have twenty-one office co-op students, according to course enrollment projections. These twenty-one students would also be enrolled in a Clerical Office class. In addition there would be twenty-seven students needing Clerical Office Training and three who would be enrolled in a Clerical Office class, but not in co-op. The remainder of the block would be made up of students who wanted to take some Business courses, but who were not part of the Business program. They could be college bound, but not necessarily. Below is a sample schedule that could serve this block.

Hour	English	Social Studies	Math	Business	Business
First	Business English	Lecture	Geom.	Clerical Class for Co-op two hours	Clerical Training
Second	Compos.	Business Law	Algebra	(see above)	Typing
Third	Individualized Study Hour, English, Social Studies, and Math*			Shorthand	Book-keeping
Fifth	Compos.	Business Law	Data Proces.	Co-op	Book-keeping
Sixth	Business English	Lecture	Math Skills	Co-op	Typing

* This class was set up so that the co-op students could work on English, Social Studies, and Math during the one-hour when they are not in the Business program. Other students can take this, too.

In addition to the blocks, the following elective sections would be offered:

Content Area	Number of Sections
Art	5
Physical Education	16
Home Economics	1
Business	2
Spanish	5
Vocal Music	3
Band	1

The total model, including blocks and elective courses, requires the following teachers:

Content Area	Number of Teachers		
Mathematics	5		
Science	5		
English	10		
Industrial Arts	5		
Business	3	2/5	
Social Studies	9	2/5	(2 were teaching in Alternative Education)
Home Economics	1	4/5	
Art	2		
Physical Education	3	1/5	
Spanish	1		

Vocal Music	3/5
Band	1/5

The following staff reductions could be made:

Content Area	Number of Reductions
Mathematics	1
English	3
Industrial Arts	3/5
Business	2/5
TOTAL:	5

In 1981 the total enrollment has been projected to be 1169. Because there will be fewer students, the blocks can be reduced. Therefore, Block F was reduced to 120 students and four teachers. The Alternative Education (Social Studies) teacher would be cut because there is another Social Studies teacher in the block. This block was selected to be reduced because there are only forty students who are involved directly in Distributive Education, so there is no need to have a large Distributive Education block.

One counselor would also be cut from the staff. There should be less need for counseling services since all of the teachers in the block would counsel students. No other reductions would be made during 1981. This means the elective offerings would not change.

In 1982 the enrollment is projected to drop in 1089. At this time the size of the blocks could be reduced again. Block B could reduce one teacher because because the number of students in Advanced Biology classes is projected to decline significantly by this time. The English teacher would be the logical choice for reduction because the block

has two. Block F could again be reduced. One of the English teachers would also be cut from this block.

There would be a need to cut one elective teacher. This would probably be a Physical Education teacher, because projections show there will be a sizeable loss of Physical Education sections. Also there are 3 1/5 Physical Education teachers, and one or less teacher in all other elective areas. If the Physical Education teacher were cut, the number of Physical Education classes would drop by five.

By 1983 the number of Physics and Chemistry students would drop sufficiently to allow a reduction of one Science teacher in Block A. No other teachers would be cut. So in 1983 the following blocks would make up the majority of the curricular offerings.

Block A	Teachers:	1 Math, 1 Science, 1 English, 1 Social Studies
	Students:	120
	Major Theme:	Chemistry and Physics
Block B	Teachers:	1 Math, 1 Science, 1 English, 1 Social Studies
	Students:	120
	Major Theme:	Biology
Block C	Teachers:	1 English, 1 2/5 Social Studies, 1 Science, 1 3/5 Home Economics
	Students:	150
	Major Theme:	Child Development and the family
Block D	Teachers:	1 English, 1 Social Studies, 1 Math, 2 Industrial Arts
	Students:	150
	Major Theme:	Woodwork, Metal Shop, and Fiberglass

Block E	Teachers:	1 English, 1 Social Studies, 2 Business, 1 Mathematics
	Students:	150
	Major Theme:	Office and Clerical skills
Block F	Teachers:	1 English, 1 Social Studies, 1 Business
	Students:	90
	Major Theme:	Distributive Education
Block G	Teachers:	1 English, 1 Social Studies, 2 Industrial Arts, 1 Science
	Students:	150
	Major Theme:	Auto Mechanics and Trade and Industry
Block H	Teachers:	1 English, 1 Math, 1 Art, 1 Industrial Arts, 1 Alternative Education
	Students:	150
	Major Theme:	Photography, Drafting, Design, and Graphics

Analysis of the Model

The student seat equivalents were calculated for each year of the simulation. Table 4.33 displays the S.S.E. provided by the model and the S.S.E. required for a six-hour day for the entire student body.

Table 4.33. Student Seat Equivalents for the Interdisciplinary Block Model and Those Required for a Six-Hour Day

Year	S.S.E. Required for a Six-Hour Day	S.S.E. Available from the Model
1980	7266	7448
1981	7014	7238
1982	6534	6588
1983	6312	6403

Provided that the elective classes could be filled to capacity, the model could accommodate all of the students for a six-hour day.

This model can provide for a wide variety of academic needs. Each block has a Social Studies and English teacher, so the student can easily fulfill the district requirements. In addition the block teachers can plan their curriculum to meet the specific needs of the students. Because the model is scheduled in such a way that only the students from two teams are taking their electives during any one hour, the elective teachers could work with the teams to offer electives that are specifically planned to meet the students' needs.

The model does require some teacher transfers. These are outlined in Table 4.34.

Table 4.34. Teacher Transfers for the Interdisciplinary Model

Year	Layoffs Due to Low Seniority	Transfers out	Transfers in
1980	1 4/5 Science	2 English	1 4/5 Science
	1 Math	3/5 Industrial Arts	
	1 English	2/5 Business	
1981	1 English	1 Alternative Education	1 English
		1 Counselor	
1982		2 English	
		1 Physical Education	
1983		1 Science	

The model does not transfer a large number of Social Studies teachers to the junior high. No teachers are required to teach out of their major areas. Within a block, however, the teachers could plan the curriculum in such a way as to allow a teacher to teach in an area ofther than his/her major. For example: in the Physics/Chemistry block, a Mathematics teacher might offer a short course on Astronomy. Possibly this would be a hobby or special interest of the Math teacher. Teachers could always receive help or training from other teachers in the block. This model would require an increase in the amount of teacher planning time. Teacher in-service would be a must.

The model would require no additional transportation or building facilities. It would require, however, that teachers in the same block would have classroom in the same area of the school.

The model is very different from the present curriculum. This could raise some questions from the community. A community awareness program would be helpful to assure parents that their children would be receiving a quality education.

CHAPTER V

SUMMARY AND CONCLUSIONS

The researcher's purpose was to investigate the impact of declining enrollment on the high school curriculum. The researcher developed and tested a model for examining alternative solutions to the problem. The model consisted of two parts: projections of the future staff and student enrollment and simulations of alternative curriculum models.

In 1979 the district's department of research and evaluation used the Cohort Survival technique to project the enrollment for each of the district's elementary and secondary schools. These projections and the fourth Friday class counts were used to project high school course enrollments for the period from 1980 to 1983. The following formula was used to make these projections:

$$\text{projected course enrollment} = \text{current course enrollment} \times \frac{\text{projected total enrollment}}{\text{present total enrollment}}$$

Based on the class size policy outlined in the teachers' contract, the number of class sections needed for each course was projected. Then the projected enrollment and class sections were totaled for each of the current areas.

By examining the projected number of sections for any given content area, it was possible to determine those areas that could best afford to cut staff. A drop of five sections was considered equivalent to a reduction of one staff member. It was found that the number of sections

in any content area did not drop proportionately with the decline in students. So, even though a content area lost 149 students, the equivalent of one teacher, it did not lose five class sections. By 1983, only six secondary teachers could be laid off without disrupting the curricular offerings.

The number of necessary staff reductions was calculated by using the following formula:

$$\#\text{ of staff to be cut} = \frac{(\text{decline in students})}{149} \times 6$$

The number of necessary reductions was calculated for each of the secondary schools for each of the years from 1980 to 1983. It was found that a total of twenty-seven staff reductions--twelve in 1980, seven in 1981, seven in 1982, and one in 1983--would be necessary.

In order to project and analyze the future staff, the following background data were collected: the present number of high school teachers in each content area, the teachers teaching outside their major areas, the certification of each of the secondary teachers, and the age and seniority of each secondary teacher. Following the initial collection of data, all secondary teachers were placed in one of four categories: (1) those hired after 1973, (2) those who turn sixty-five years old during the period of 1980-1983, (3) those who will be fifty-five to sixty-four years old during the period of the study, and (4) all others. There were no teachers in the second group, so all staff members who were cut came from the first group. According to seniority, those staff members to be laid off were identified. By examining the future staff possible shortages in the areas of Science, Health Occupations, Industrial Arts, and Mathematics were identified. There were

also possible shortages in Physical Education and Spanish. A teacher surplus in the area of Social Studies was noticed. It was also noted that the majority of low seniority teachers were assigned to the junior highs, indicating the need to transfer high school teachers to the junior high.

The information gained from the enrollment and staff projections was used to simulate four curriculum models: a standard curriculum, a core program, a modified magnet, and an interdisciplinary team. The following procedure was used for each of the simulations. First, the model was described. The description included courses offered, basic requirements, and the organization of the courses and staff. Then, based on the projected school enrollment and course enrollments, the number of courses and programs was determined. Then, the number and areas of certification of the staff members were determined. Each model was then analyzed in terms of its ability to accommodate the student body. This evaluation was based on the number of student seats needed for a six-hour day. By multiplying the student enrollment by six, the minimum number of necessary student seats was determined. Then, the places available in the model were calculated by multiplying each class section by its class size and then totaling the seats. Ideally, the number of available student seats should have exceeded the number of necessary seats. Each model was also evaluated with respect to its ability to meet a wide variety of educational needs, the availability of teachers to staff the model, the availability of suitable facilities, increased transportation, and possible community reaction.

The standard curriculum model consisted of three required English courses, three required Social Studies courses, and a Speech class. The

English and Social Studies electives were eliminated. The number of offerings in Mathematics and Science was reduced by eliminating specialty classes with low enrollment and the most advanced placement classes. Elective classes in other areas were left unchanged. The model allowed a sufficient number of staff reductions, but it did not accommodate the entire student body for a six-hour day. There were sufficient student seats for a five-hour day. The model did not provide for the needs of advanced placement students, basic Mathematics students, or those interested in a variety of English classes. The model did, however, provide for a variety of other needs, including Industrial Arts, Business, Art, and Physical Education.

Some transferring of teachers was necessary, and this caused an increase in the number of Social Studies teachers in the junior high where there already were too many. There was only one high school teacher who would teach in a minor area of certification, but for only one period per day. No major changes in building facilities would be necessary.

The English-Social Studies core consisted of a required two-hour block in tenth and eleventh grade. Other requirements were one semester of twelfth grade English, one semester of United States Government, and one semester of Speech. In this model the number of Science and Mathematics courses was not severely reduced, but some of the classes were to be team taught. The offerings in the elective areas remained unchanged.

This model allowed for all necessary staff reductions, but it did not allow each student to take a six-hour day. The model provided for a variety of academic needs.

The core model required some teachers to teach outside of their major areas, but in all of these cases the teacher would be teamed with other teachers. The majority of teacher transfers involved moving English and Social Studies teachers to the junior high.

Facilities and transportation were not found to be a problem in this model.

In the modified magnet model, students took the majority of their classes at their "home" schools and were transported to a central location for various specialty courses. On a district-wide basis, only five class sections were cut--two English electives, two Social Studies electives, and Fortran. In this model, some teachers were shared by two schools.

The modified magnet provided a sufficient number of student seats to accommodate all of the students for a six-hour day. There was also a wide variety of course offerings.

No high school teachers were required to teach outside of their major areas, and the junior high did not receive an abundance of Social Studies teachers. Facilities and transportation were a definite drawback to this model.

Five-hour team-taught blocks were the basis for the interdisciplinary model. The blocks focused on various themes. Each block consisted of three to five teachers and between ninety and 150 students. Each team of teachers was responsible for creating a curriculum for its block. Students were allowed to take elective classes when they were not in block.

By using this model, it was possible to make all necessary staff reductions, and the students could still take a six-hour day. Because

the teachers planned a curriculum to meet the needs of their students, a wide variety of needs were met.

No teachers were required to teach outside of their major areas. There was only one Social Studies teacher transferred to the junior high. There were no problems with transportation or allocation of building facilities. A considerable amount of necessary workshop time was one drawback.

Conclusions

On the basis of the findings, it is possible to draw the following conclusions:

1. Because the number of class sections in a content area does not drop proportionately with the enrollment, there is a need to drastically cut courses and/or reorganize the curriculum.
2. When seniority is used as the criterion for determining staff reduction, teacher shortages and oversupplies occur in several content areas.
3. Because of the North Central requirements for high school, the junior high receives teachers who must be placed in content areas other than those of their majors.
4. If the number of teachers' taking early retirement increases, then there is a possibility of fewer teacher shortages and oversupplies in certain content areas.
5. The mandated Special Education programs affect the teacher layoffs.

6. With respect to meeting a variety of educational needs and providing each student with a six-hour school day, interdisciplinary teams and sharing teachers between buildings are the most efficient ways to organize the staff.
7. The modified magnet and interdisciplinary team make less of a negative impact on the junior high staff.
8. The models that provide the most course offerings and the best staff organization are the most difficult to implement.
9. None of the models causes a substantial increase in the number of high school teachers who must teach outside of their major areas.

Implications of the Study

Although the implications of the study are specific to the district to which it was applied, the findings and conclusions can be inferred to other similar school districts. The findings and conclusions imply that school districts faced with declining enrollment must reorganize the high school curriculum or drastically reduce the options for students. School districts should investigate both the possibilities of team-teaching and modified magnets. The implementation of either of these models requires careful planning. The model developed in the study could be a useful tool. Time and money must also be provided for staff in-service and training, if these alternatives are to be successful.

School districts must analyze their present staff and staffing needs. Plans should be made to provide opportunities for teachers to earn new certification. This must be done systematically so as not to create too many teachers in some areas. In the case that new teachers should be hired, school districts should look for applicants with double majorsmajors in the areas of greatest need. Districts must also begin to look for alternatives to the seniority system for staff layoffs. More emphasis should be placed on certification and contributions made to any curricular reorganization. A systematic evaluation program is another possible way to determine staff layoffs.

When making plans for the high school curriculum and staff, the junior high must not be neglected. Care must be taken not to "dump" unneeded teachers in seventh and eighth grade positions.

The study also has implications for universities and colleges. Undergraduate students must be advised as to the best areas of certification and encouraged to earn double majors. Universities should work with school districts to plan programs for teachers who would like to become certified in new areas. This program could be offered after school, on weekends, or in the summer so teachers would not have to interrupt their jobs. Higher education institutions could also provide curriculum consultants to help districts investigate alternatives, plan for the future, and implement new curriculum models.

As stated previously, the team-taught model and magnet plan can provide the greatest number of student options and cause the least negative effects on the junior high. These plans are also the most difficult and costly to implement. Because of the present financial conditions, many districts may hesitate to commit themselves to either

of these models. State and federal funding should be available for those districts planning any curriculum reorganization as a solution to the declining enrollment problem.

Implications for Further Study

The following study topics would be useful:

1. The replication of the study in another school district to discover if the curriculum models described can be useful in other districts.
2. A study of present teaching staffs to determine the types of teacher recertification programs most needed.
3. The development of computer software and trial scheduling of various curricum models.
4. The development and administration of a survey that would measure staff, community, and student attitudes toward the different curriculum models.
5. An investigation to determine some alternatives to the seniority system as the major criteria for staff layoffs.
6. A survey to determine the types of incentives that would encourage early retirement.
7. A survey to determine the practices presently being used to solve the problems caused by declining high school enrollment.
8. In-depth interviews with leading curriculum authorities to explore other curriculum models that could be used to alleviate the problems caused by the decline.

These studies must begin soon, so school districts have time to benefit from their findings.

Recommendations for the District under Study

Because secondary staff layoffs must begin with the 1980-81 school year, the dsitrict must make decisions about the curriculum immediately. Several activities should precede these decisions. First, the curriculum models described in the study should be simulated for Mott and Township. Any other alternatives should also be simulated. Then, the upcoming district in-service days could be used to hear staff reactions to the various alternatives. Once a decision has been made as to the best alternative, new computer software can be developed and used to build the school schedules. Plans must also be made to determine any necessary changes in building facilities or transportation. The community must also be informed and given a complete explanation of the new curriculum and the reasons for its selection.

Reflections upon the Study

Declining enrollment is a crisis for today's schools. In times of crisis, it is necessary for everyone involved to handle his/her responsibilities with commitment, care, and efficiency. Teachers and school administrators are responsible for delivering the best possible education to the student, even if that means some extra effort. The curriculum models that are the most effective in terms of meeting student needs are not the easiest to implement. They will take time and money. A decision must be made. Are educators willing to make an initial personal and financial investment to create a quality curriculum? Or is the easy way out better? The problem could be "solved" by offering

more large classes like study hall, Physical Education and Typing or by cutting all elective classes. If educators choose this solution, they deserve all the criticism they will received.

It is easy to become pessimistic when reviewing the findings and conclusions of the study. Many teachers will lose jobs, and the district will lose their valuable expertise. Many teachers will be faced with learning to teach new subjects. The junior highs will be staffed with teachers who are unprepared to deal with the very special problems of teaching preadolescents. If the findings are analyzed in light of the Heitzeg study that states professional growth decreases with age, the situation looks even more dismal.

Because it is counter productive to dwell on the negative, a better approach is to envision the most optimistic outcome and then decide what must be accomplished to reach that end. It is clear that the best possible outcome would be an improved curriculum, a better teaching staff with increased knowledge and new skills, and more active teacher participation in curriculum planning.

Whether or not this outcome is possible depends on whether or not everyone involved lives up to his/her responsibility. First, school administrators must make plans to systematically analyze the present curriculum and investigate possible alternatives. The model developed in the study could be used for this purpose. Administrators should encourage teachers to participate in this planning, and their suggestions should receive real consideration. Accurate communication of all decisions and progress is a primary responsibility. While completing the study, the researcher became convinced that rumors and misinformation only make the situation worse.

Once a curriculum model has been selected, a commitment must be made to teacher reeducation. Teachers will not only need to gain new subject expertise, but will also need new skills for teaching at different grade levels. Appropriate courses and in-service will be needed. These courses must be conveniently scheduled, and teachers who participate should be recognized. When planning teacher schedules, consideration should be given to those teachers who have been reassigned. They will be more successful if given a limited number of preparations and a permanent place to teach.

Teachers, too, have responsibilities. Unfortunately, many teachers see a mandatory transfer to a new content area or the junior high as a "demotion." They then decide to "slide by" until retirement. A reassignment can be seen, however, as an opportunity for professional growth, a time to learn new skills, and gain knowledge. If teachers are truly professionals, then this is the only reasonable attitude.

Those teachers who are fortunate enough to remain in their regular positions have an important part to play. By sharing lesson plans, learning activities and teaching techniques, these teachers can be valuable resources.

Thus far, the professional organization in the district under study has had a very limited involvement in looking for solutions to the problem. Any organization that considers itself professional would want to be involved in the decision-making. The professional organizations are in a perfect position to search for alternatives to the seniority system. They could also plan needed in-service and use their power to convince state officials to devise new policies for school financing.

Institutions of higher education could offer a needed service if they would schedule a wider variety of classes in the late afternoon or evenings. Presently, there are many graduate education classes scheduled at this time, but these are not as necessary as undergraduate Science, Mathematics, and Industrial Arts classes.

Declining enrollment can be seen as an insolvable problem or an opportunity for improvement and growth. If educators take this opportunity, they can begin an exciting adventure resulting in improved education. They can also prove to a sometimes critical clientele that they do have the knowledge and skills to solve the real problems of today's education.

APPENDIX A

NUMBER OF TEACHERS BY AGE

NUMBER OF TEACHERS BY AGE

AGE	FREQUENCY
22	4
23	10
24	20
25	40
26	31
27	34
28	59
29	65
30	48
31	32
32	27
33	30
34	37
35	32
36	21
37	15
38	14
39	25
40	17
41	13
42	20
43	16
44	11
45	15
46	16
47	16
48	16
49	24
50	10
51	15
52	13
53	4
54	13
55	9
56	7
57	1
58	4
59	8
60	2
61	5
62	1
63	2
64	2

APPENDIX B

WATERFORD SCHOOL DISTRICT

ENROLLMENT HISTORY AND FORECASTS

WATERFORD SCHOOL DISTRICT
ENROLLMENT HISTORY AND FORECASTS

	74-75	75-76	76-77	77-78	78-79	79-80	80-81	81-82	82-83	83-84
K	1210	1280	1184	1034	998	971	961	932	908	902
1	1149	1162	1241	1175	1006	972	946	936	908	884
2	1142	1148	1195	1212	1136	999	965	939	929	901
3	1171	1141	1139	1194	1176	1125	989	955	929	920
4	1199	1215	1156	1117	1174	1180	1129	993	959	933
5	1325	1202	1234	1159	1089	1173	1179	1128	991	958
6	1325	1333	1197	1235	1099	1076	1158	1165	1114	979
K-6	8521	8481	8345	8126	7678	7496	7327	7048	6738	6477
7	1478	1313	1332	1193	1212	1090	1067	1149	1155	1105
8	1448	1450	1281	1345	1156	1192	1073	1050	1131	1137
9	1433	1440	1422	1278	1325	1144	1180	1061	1039	1119
7-9	4359	4203	4035	3816	3693	3426	3320	3260	3325	3361
10	1438	1492	1476	1440	1304	1358	1172	1209	1088	1065
11	1336	1370	1433	1417	1369	1247	1298	1121	1156	1040
12	1273	1227	1181	1245	1205	1198	1091	1136	980	1011
10-12	4047	4089	4090	4102	3878	3803	3561	3466	3224	3116
7-12	8406	8292	8125	7918	7571	7229	6881	6726	6549	6477
K-12	16927	16773	16471	16044	15249	14725	14208	13774	13287	12954
SpEd					802	800	800	800	800	800
Adult Ed					339	285	285	285	285	285
Other					55	55	55	55	55	55
TOTAL	17811	17856	17661	17166	16445	15865	15348	14914	14427	14094

APPENDIX C

GRADUATION REQUIREMENTS

WATERFORD SCHOOL DISTRICT

GRADUATION REQUIREMENTS

WATERFORD SCHOOL DISTRICT

District Requirements

Each student must earn:

a minimum of fifteen credits

one credit in Physical Education

one credit in Mathematics (may be completed in ninth grade)

one-half credit in Speech

two and one-half credits in English

two credits in Social Studies (one-half credit must be in United States Government)

Kettering Requirements

Students must complete the Social Studies requirement by completing United States History and either Shaping Western Society or World Geography.

Mott Requirements

Students must complete their Social Studies requirement by taking World History and United States History.

Township Requirements

Students must take United States History. Literature and Composition must be taken as part of the English requirement.

APPENDIX D

FROM WORKING CONDITIONS

WATERFORD SCHOOL DISTRICT

FROM WORKING CONDITIONS

WATERFORD SCHOOL DISTRICT

CLASS SIZE

1. The Association and the Board recognize that pupil/teacher ratio is one important aspect of a quality education program. The parties agree that class size should be lowered whenever practicable. The following are recognized as desirable:

Elementary:

Kindergarten, First and Second Grades	27 Pupils
Third through Sixth Grades	29 Pupils
Splits: Kindergarten, First, and Second Grades	26 Pupils
Third through Sixth Grades	28 Pupils

Secondary:

English, Industrial Arts, Arts & Crafts, and Speech	27 Pupils
Social Studies, Mathematics, Languages	29 Pupils
Block, Academic Business	30 Pupils
Science	As established by facilities
Business Labs	As established by facilities
Home Economics	As established by facilities
Physical Education	50 Pupils
Special Class for Handicapped or Mentally Retarded	20 Pupils
Special sight-saving, hearing-conservation classes	10 Pupils
Emotionally disturbed classes	10 Pupils
Drafting	35 Pupils
Vocational Shops	25 Pupils
Music	As established by facilities
Counselors	Ratios: 7-9: 425 to 1
	10-12: 325 to 1

2. It is agreed by the parties that the above class numbers shall not be applicable to those instances involving certain innovative and/or experimental programs or large group instruction. Such class numbers will not apply for other special grouping arrangements which may be agreed to by the staff and principal.

APPENDIX E

PROJECTED COURSE ENROLLMENTS FOR

WATERFORD SCHOOL DISTRICT

(GRADES 10-12)

PROJECTED COURSE ENROLLMENTS FOR

WATERFORD SCHOOL DISTRICT

(GRADES 10-12)

Legend

Acct	Accounting
Adv	Advanced
Alg	Algebra
Anal	Analysis
AP	Advanced Placement
Arch	Architectural
Arr Comp	Arranging Compositions
Auth	Authors
Beg	Beginning
Bio	Biology
Bk Keep	Bookkeeping
Bus	Business
B W Photo	Black and White Photography
Cab	Cabinet
Cer	Ceramics
Chm	Chemistry
Cl	Clerical/Clothing
Cons	Construction
Cr	Creative
Dist Ed (DE)	Distributive Education
Draft	Drafting
Disc Comp	Discovering Composition
El	Elementary
Elect	Electronics
Electr	Electricity
Eng	Engineering
Ens	Ensemble
Exp	Exploration
Expos	Expository
Fam	Family
Fr	French
Gen	General
Geo	Geometry
Gr	Grammar
Graph	Graphics
Hum	Human
Int	Intermediate
Intr	Introduction
Jew	Jewelry

Lit	Literature
Mech	Mechanics
Mj	Major
Mth	Mathematics
Myth	Mythology
Off	Office
Phys	Physical
Prac	Practical
Rec	Recreational
Res	Research
Sc	Science
Sh Hnd	Shorthand
Sk	Skills
Sm Eng Rep	Small Engine Repair
Sp	Spanish
T & I	Trade and Industry
Trans	Transcription
Typ	Typing
Voc	Vocational
W	World
West Civ	Western Civilization

Kettering

Alternative Education Program Enrollment

Course	1979	1980	1981	1982	1983
Optional Semester	74	83.23	66.55	57.50	59.27
Geography Study Skills	19	15.76	16.23	14.63	14.32
Western Civilization Study Skills	40	33.18	34.17	30.80	30.14
	133	132.17	116.95	102.93	103.73

Alternative Education Program Number of Sections

Course	1979	1980	1981	1982	1983
Optional Semester	6	6	6	5	5
Geography Study Skills	1	1	1	1	1
Western Civilization Study Skills	2	2	2	2	2
	9	9	9	8	8

Art Enrollment

Course	1979	1980	1981	1982	1983
Cer I, II	56	51.10	49.33	45.96	44.39
Jew/Met I	53	48.37	46.69	43.49	42.02
Gen Crafts	24	21.90	21.14	19.70	19.03
Design	26	23.73	22.90	21.34	20.61
Drawing I	84	76.66	74.00	68.93	66.59
Graph I, II	27	24.64	23.79	22.16	21.40
	270	246.40	237.85	221.58	214.04

Art Number of Sections

Course	1979	1980	1981	1982	1983
Cer I, II	2	2	2	2	2
Jew/Met I	2	2	2	2	2
Gen Crafts	1	1	1	1	1
Design	1	1	1	1	1
Drawing I	3	3	3	3	3
Graph I, II	1	1	1	1	1
	10	10	10	10	10

Business Enrollment

Course	1979	1980	1981	1982	1983
Bk Keep	87	79.39	76.64	71.40	68.97
[2]Cl Off Bl	23	24.83	20.62	19.55	18.76
Data Proc	28	30.23	25.1	23.8	22.83
Cl Off Tr	25	27.00	22.41	21.25	20.39
[2]Off Co-op	20	21.60	17.93	17	16.31
Typ I	114	104.03	100.43	93.55	90.38
Sht Hnd	23	21.00	20.26	18.87	18.23
Notehand	18	20.24	16.19	13.99	14.42
Off Mach	17	18.36	15.24	14.45	13.86
Dist Ed II	18	20.24	16.18	13.99	14.42
Bus Arith	25	22.81	22.02	20.52	19.82
Typ II	37	33.77	32.59	30.36	29.33
Dist Ed Co-op	20	22.49	17.99	15.54	16.02
	494	488.07	438.58	407.42	395.56

Business Number of Sections

Course	1979	1980	1981	1982	1983
Bk Keep	3	3	3	3	3
[2]Cl Off Bl	1	1	1	1	1
Data Proc	1	1	1	1	1
Cl Off Tr	1	1	1	1	1
[2]Off Co-op	1	1	1	1	1
Typ I	3	3	3	3	3
Sht Hnd	1	1	1	1	1
Notehand	1	1	1	1	1
Off Mach	1	1	1	1	1
Dist Ed II	1	1	1	1	1
Bus Arith	1	1	1	1	1
Typ II	1	1	1	1	1
Dist Ed Co-op	1	1	1	1	1
	19	19	19	19	19

English Enrollment

Course	1979	1980	1981	1982	1983
Cr Writing	48	43.80	42.28	39.39	38.05
US Hist Lit	83	75.74	73.12	68.11	65.80
Debate	16	14.60	14.10	13.13	12.68
Ind Reading	67	61.14	59.02	54.98	53.12
Myth/Folk	65	59.32	57.26	53.34	51.53
Intro Lit	215	196.21	189.40	176.44	170.45
Sem Ideas	59	53.84	51.98	48.42	46.77
Res Sem	47	52.86	42.27	36.52	37.65
Yr Book	30	27.38	26.43	24.62	23.78
Arr Comp	131	119.55	115.40	107.51	103.85
Am Lit 1900's	30	27.38	26.43	24.62	23.78
Cont Am Lit	63	57.49	55.50	51.70	49.94
Ap Eng (11)	31	32.10	27.70	28.58	25.72
Study Sk	56	51.10	49.33	45.96	44.39
Lit Expl	63	57.49	55.50	51.70	49.94
Disc Comp	142	129.59	125.09	116.53	112.57
Dev Read	66	60.23	58.14	54.16	55.32
Expos Wr	46	49.67	41.24	39.1	37.51
Eng Gr	60	54.76	52.86	49.24	47.51
Bus Eng	60	54.76	52.86	49.24	47.51
Ap Eng (12)	24	26.99	21.58	18.65	19.22
Play Prod	23	20.99	20.26	18.87	18.23
Mass Media	57	52.02	50.21	46.78	45.19
Speech	255	211.54	217.82	196.36	192.17
Intr Radio	26	23.72	22.90	21.34	20.61
Radio Prod	8	8.63	7.17	6.8	6.52
	1771	1622.92	1555.84	1442.08	1399.81

English Number of Sections

Course	1979	1980	1981	1982	1983
Cr Writing	2	2	2	2	2
US Hist Lit	4	3	3	3	3
Debate	1	1	1	1	1
Ind Reading	2	2	2	2	2
Myth/Folk	2	2	2	2	2
Intro Lit	7	7	7	6	6
Sem Ideas	2	2	2	2	2
Res Sem	2	2	2	2	2
Yr Book	1	1	1	1	1
Arr Comp	5	5	4	4	4
Am Lit 1900's	1	1	1	1	1
Cont Am Lit	2	2	2	2	2
Ap Eng (11)	1	1	1	1	1
Study Sk	2	2	2	2	2
Lit Expl	2	2	2	2	2
Disc Comp	5	5	5	4	4
Dev Read	3	3	3	3	3
Expos Wr	2	2	2	2	2
Eng Gr	2	2	2	2	2
Bus Eng	2	2	2	2	2
Ap Eng (12)	1	1	1	1	1
Play Prod	1	1	1	1	1
Mass Media	2	2	2	2	2
Speech	9	8	8	7	7
Int Radio	1	1	1	1	1
Radio Prod	1	1	1	1	1
	65	63	62	59	59

Foreign Language Enrollment

Course	1979	1980	1981	1982	1983
Sp I	56	51.10	49.33	34.96	44.39
Sp II	35	31.94	30.83	28.72	27.75
Sp III, IV	20	21.60	17.93	17	16.30
	111	104.64	98.09	91.68	88.45

Foreign Language Number of Sections

Course	1979	1980	1981	1982	1983
Sp I	2	2	2	2	2
Sp II	2	2	2	1	1
Sp III, IV	1	1	1	1	1
	5	5	5	4	4

Home Economics Enrollment

Course	1979	1980	1981	1982	1983
Design Home	30	32.39	26.89	25.5	24.46
Home Econ	29	26.47	25.55	23.80	22.99
Teacher Aide	85*	77.57	74.88	69.76	66.59
Home Fam	25	28.12	22.48	19.42	20.02
Fam Meal	28	25.55	24.67	22.98	22.20
Child Care	28	31.49	25.18	21.76	22.43
C.O.S.T.	51	46.54	44.93	41.85	40.43
	276	268.12	244.58	225.07	219.92

* 3 of these are combined with other classes

Home Economics Number of Sections

Course	1979	1980	1981	1982	1983
Design Home	1	1	1	1	1
Home Econ	1	1	1	1	1
Teacher Aide	5*	5	5	4	4
Home Fam	1	1	1	1	1
Fam Meal	1	1	1	1	1
Child Care	1	1	1	1	1
C.O.S.T.	2	2	2	2	2
	9	9	9	9	9

* 3 of these are combined with other sections

Industrial Arts Enrollment

Course	1979	1980	1981	1982	1983
B W Photo	75	68.44	66.07	61.55	59.40
[2]Voc Photo	15	16.20	13.45	12.75	12.23
Auto Mech	127	137.13	113.85	107.95	103.57
Eng Drawing	15	13.69	13.21	12.31	11.89
El Draft	57	52.02	50.21	46.78	45.19
Arch Draw	21*	19.16	18.50	17.23	16.65
[2]T & I	27	30.37	24.28	20.98	21.63
Fiber Glass	55	50.19	48.45	45.14	43.60
Woodwork	106	96.73	93.38	86.99	84.03
Woodwork II	45	48.59	40.34	38.25	36.7
Metal	51	46.54	44.93	41.85	40.43
Auto Mech II	25	28.12	22.48	19.42	20.02
Elect	28	25.55	24.67	22.98	22.20
Power Mech	27	24.64	23.77	22.16	21.40
	716	703.94	635.34	590.07	572.86

[2] Class meets for two hours.
* Class combined with another.

Industrial Arts Number of Sections

Course	1979	1980	1981	1982	1983
B W Photo	3	3	3	3	3
[2]Voc Photo	1	1	1	1	1
Auto Mech I	5	5	5	4	4
Eng Draw	1	1	1	1	1
El Draft	2	2	2	2	2
Arch Draft	1*	1	1	1	1
[2]T & I	1	1	1	1	1
Fiber Glass	2	2	2	2	2
Woodwork	4	4	4	4	3
Woodwork II	2	2	2	2	2
Metal Work	2	2	2	2	2
Auto Mech II	1	1	1	1	1
Electricity	1	1	1	1	1
Power Mech	1	1	1	1	1
	28	28	28	27	26

[2] Class meets for two hours.
* Class combined with another.

Mathematics Enrollment

Course	1979	1980	1981	1982	1983
Alg Ty I	55	50.19	48.45	45.14	43.6
Alg II	157	143.28	138.31	128.84	124.46
Pr Geo	18	16.43	15.86	14.77	14.27
Fortran	25	22.81	22.02	20.52	19.82
Calc	28	31.49	25.18	21.76	22.42
Geo	141	128.67	124.21	115.71	111.78
Alg Ty II	80	73.01	70.47	65.65	63.42
Math Anal	106	114.46	95.02	90.1	86.44
Math Life	60	54.76	52.86	49.24	47.57
Alg I	57	52.02	50.21	46.78	45.19
Math Sk	85	77.57	74.88	69.76	67.39
	812	764.68	717.47	668.27	646.37

Mathematics Number of Sections

Course	1979	1980	1981	1982	1983
Alg Ty I	2	2	2	2	2
Alg II	6	5	5	5	5
Pr Geo	1	1	1	1	1
Fortran	1	1	1	1	1
Calc	1	1	1	1	1
Geo	5	5	5	4	4
Alg Ty II	3	3	3	3	2
Math Anal	4	4	4	3	3
Math Life	2	2	2	2	2
Alg I	2	2	2	2	2
Math Sk	3	3	3	3	3
	30	29	29	27	26

Vocal Music Enrollment

Course	1979	1980	1981	1982	1983
Choir	55	61.86	49.46	42.73	44.05
Voc Ens	16	14.60	14.10	13.13	12.68
	71	76.46	63.56	55.86	56.74

Vocal Music Number of Sections

Course	1979	1980	1981	1982	1983
Choir	2	2	2	2	2
Voc Ens	1	1	1	1	1
	3	3	3	3	3

Instrumental Music Enrollment

Course	1979	1980	1981	1982	1983
Band	125	114.07	110.12	102.58	99.10

Instrumental Music Number of Sections

Course	1979	1980	1981	1982	1983
Band	1	1	1	1	1

Physical Education Enrollment

Course	1979	1980	1981	1982	1983
Basic	414	377.81	364.71	339.75	328.21
Adv	91	98.26	81.58	77.35	74.21
Rec	179	163.35	157.69	146.90	141.91
	684	639.42	603.97	564	544.33

Physical Education Number of Sections

Course	1979	1980	1981	1982	1983
Basic	10	9	8	8	8
Adv	2	2	2	2	2
Rec	4	4	4	3	3
	16	15	14	13	13

Science Enrollment

Course	1979	1980	1981	1982	1983
Ap Bio	53	59.61	47.66	41.18	42.45
Physics	72	65.71	63.43	59.09	57.08
Earth Sc	26	23.73	22.90	21.34	20.61
Phys Sc	21	19.16	18.50	17.23	16.65
Bio	228	208.07	200.85	187.11	180.75
Adv Bio	63	73.42	60.96	57.8	55.45
Chm	87	79.40	76.64	71.40	68.97
Ap Chm	46	49.67	41.24	39.1	37.51
II5 Bio	26	23.73	22.90	21.34	20.61
	627	602.49	555.08	515.59	500.08

Science Number of Sections

Course	1979	1980	1981	1982	1983
Ap Bio	2	2	2	2	2
Physics	3	3	3	2	2
Earth Sc	1	1	1	1	1
Phys Sc	1	1	1	1	1
Bio	8	7	7	7	6
Adv Bio	3	3	3	2	2
Chm	4	4	4	4	3
Ap Chm	2	2	2	2	2
II5 Bio	1	1	1	1	1
	25	24	24	22	20

Social Studies Enrollment

Course	1979	1980	1981	1982	1983
Govt	243	273.30	218.53	188.81	194.63
US Hist	382	395.55	341.36	352.20	316.98
West Soc	144	139.46	123.01	110.88	108.52
Gen Psych	86	96.72	77.34	66.82	68.88
Soc	31	33.47	27.79	26.35	25.28
W Geo	122	111.34	107.47	100.12	96.72
Leadership	24	21.90	21.14	19.70	19.03
Econ	22	24.74	19.78	17.09	17.62
	1054	1076.48	936.42	881.97	847.66

Social Studies Number of Sections

Course	1979	1980	1981	1982	1983
Govt	8	9	8	7	7
US Hist	14	14	13	13	12
West Soc	5	5	5	4	4
Gen Psych	3	3	3	3	3
Soc	1	1	1	1	1
W Geo	4	4	4	4	3
Leadership	1	1	1	1	1
Econ	1	1	1	1	1
	37	38	36	34	32

Mott

Art Enrollment

Course	1979	1980	1981	1982	1983
Jew M I	36	35.09	34.96	32.59	31.46
Adv Stone Craft	12*	12.1	11.83	11.23	10.77
Art Asst	11	10.72	10.68	9.96	9.61
Jew M II	27	26.32	26.22	24.44	23.59
Design	23	22.42	22.34	20.82	20.10
Adv Fine Arts	16*	16.13	15.78	14.98	14.36
Drawing	57	55.56	55.36	51.6	49.80
Cer	59	57.51	57.3	53.41	51.55
Design	15	14.62	14.57	13.58	13.11
Paint II	7	6.82	6.8	6.34	6.12
Draw II	24	23.39	23.31	21.73	20.97
	287	280.68	279.15	260.68	251.44

Art Number of Sections

Course	1979	1980	1981	1982	1983
Jew M I	2	2	2	2	2
Adv Stone Craft	4*	4	4	4	4
Art Asst	5*	5	5	5	5
Jew M II	1	1	1	1	1
Design	1	1	1	1	1
Adv Fine Arts	6*	6	6	6	6
Drawing	2	2	2	2	2
Cer	2	2	2	2	2
Design	1	1	1	1	1
Paint II	1	1	1	1	1
Draw II	1	1	1	1	1
	10	10	10	10	10

Business/Distributive Education Enrollment

Course	1979	1980	1981	1982	1983
Off Ed Co-op	35	35.29	34.51	32.77	31.41
Acct	60	58.49	58.27	54.32	52.43
Beg Typ	68	66.28	66.04	61.56	59.42
Bus Law	28	28.23	27.61	26.21	25.13
Int Typ	52	50.69	50.5	47.08	45.44
Off Ed	17	16.57	16.51	15.39	14.85
[2]Cl Off Block	23	23.19	22.68	21.53	20.64
Sh Hand	21	20.47	20.39	19.01	18.35
[2]Sh Trans	11	10.72	10.68	9.96	9.61
Off Cl Sem	27	26.32	26.22	24.44	23.59
	376	370.16	366.77	343.76	331.12
Dist Ed I	59	57.51	53.30	53.41	51.55
Dist Ed III	28	26.29	29.79	25.78	26.55
Dist Ed Co-op	40	37.56	42.56	36.83	37.93
	127	121.36	129.65	116.02	116.03

Business/Distributive Education
Number of Sections

Course	1979	1980	1981	1982	1983
Off Ed Co-op	1	1	1	1	1
Acct	2	2	2	2	2
Beg Typ	2	2	2	2	2
Bus Law	1	1	1	1	1
Int Typ	2	2	2	2	2
Off Ed	1	1	1	1	1
[2]Cl Off Block	1	1	1	1	1
Sh Hnd	2	2	2	2	2
[2]Sh Trans	1	1	1	1	1
Off Cl Sem	1	1	1	1	1
	16	16	16	16	16
Dist Ed I	5	5	5	5	4
Dist Ed III	1	1	1	1	1
Dist Ed Co-op	1	1	1	1	1
	7	7	7	7	6

English Enrollment

Course	1979	1980	1981	1982	1983
Reading	27	26.32	26.22	26.44	23.59
Reading Impr	85	82.85	82.55	76.95	74.27
Basic Writ	75	73.11	72.84	67.9	65.53
Eng Lit	26	26.22	25.64	24.34	23.33
Yr Book	29	29.24	28.6	27.15	15.02
Speed Read	111	111.92	109.46	103.92	99.61
Human	21	21.17	20.71	19.66	18.84
Shakes	14	14.12	13.81	13.11	12.56
Short Fict	78	76.03	75.75	70.61	68.15
Speech	224	204.37	211.3	189.94	185.90
Gr Eng	166	151.45	156.59	140.76	137.76
Gr B Writ	130	126.72	126.25	117.69	113.59
Adv Comp	45	45.37	44.38	42.13	40.38
Am Lit	25	25.21	24.65	23.4	22.43
Theatre Arts	29	28.27	28.16	26.25	25.34
Cr Writ	70	68.23	67.98	63.37	61.16
Eng Lit 2	13	12.67	12.62	11.77	11.36
Sci Fi	25	24.37	24.28	22.63	21.84
Col Bd Res	79	77.01	76.72	71.52	70.74
Mass Think	81	78.95	78.66	73.33	70.77
Sp Proj Speech	23*	22.42	22.34	20.82	20.10
Debate	23	22.42	22.34	20.82	20.10
Int Broad	32	31.19	31.08	28.97	27.96
Read Acc	43	41.91	41.76	38.93	37.57
Stu Activ	19*	18.52	18.45	17.2	16.60
	1493	1440.06	1443.14	1337.61	1293.79

English Number of Sections

Course	1979	1980	1981	1982	1983
Reading	1	1	1	1	1
Reading Impr	4	4	4	4	4
Basic Writ	3	3	3	3	3
Eng Lit	1	1	1	1	1
Yr Book	2	2	2	2	2
Speed Read	4	4	4	4	4
Human	1	1	1	1	1
Shakes	1	1	1	1	1
Short Fict	3	3	3	3	3
Speech	8	7	7	7	7
Gr Eng	6	6	6	5	5
Gr B Writ	5	5	5	5	5
Adv Comp	2	2	2	2	2
Am Lit	1	1	1	1	1
Theatre Arts	1	1	1	1	1
Cr Wr	3	3	3	3	3
Eng Lit 2	1	1	1	1	1
Sci Fi	1	1	1	1	1
Col Bd Res	3	3	3	3	3
Mass Think	3	3	3	3	3
Sp Proj Speech	6*	6	6	5	5
Debate	1	1	1	1	1
Int Broad	1	1	1	1	1
Read Ac	5	5	5	4	4
Stu Act	4*	4	4	4	4
	62	61	61	59	59

* Combined with other classes.

Foreign Language Enrollment

Course	1979	1980	1981	1982	1983
Fr I	39	38.02	37.87	35.31	34.08
Fr II	21	20.47	20.39	19.01	18.35
Fr III	4	4.03	3.94	3.74	3.59
	64	62.52	62.2	58.06	56.02

Foreign Language Number of Sections

Course	1979	1980	1981	1982	1983
Fr I	2	2	2	2	1
Fr II	1	1	1	1	1
Fr III	1*	1	1	1	1
	3	3	3	3	3

* Combined with Fr II.

Home Economics Enrollment

Course	1979	1980	1981	1982	1983
C.O.S.T.	45	43.86	43.7	40.72	39.32
Cl Spec	29	28.27	28.16	26.25	25.34
Fam Meals	14	13.65	13.6	12.67	12.23
Hamk Ltd	13	12.67	12.62	11.77	11.36
Teach Aide	51*	51.42	50.29	47.75	45.77
Hum Dev	28	27.29	27.19	25.35	24.47
H Ec Sem	7*	6.57	7.45	6.45	6.64
Child Lab	27	27.22	26.63	25.28	24.23
H Ec Co-op	4*	3.76	4.26	3.68	3.79
	218	217.71	213.9	199.94	193.15

Home Economics Number of Sections

Course	1979	1980	1981	1982	1983
C.O.S.T.	3	3	3	2	2
Cl Spec	1	1	1	1	1
Fam Meals	1	1	1	1	1
Hmk Ltd	1	1	1	1	1
Teach Aide	6*	6	6	6	5
Hum Dev	1	1	1	1	1
H Ec Sem	1*	1	1	1	1
Child Lab	1	1	1	1	1
H Ec Co-op	1*	1	1	1	1*
	11	11	11	10	10

* Some of these sections are combined with others.

Industrial Arts Enrollment

Course	1979	1980	1981	1982	1983
Auto Mech	134	130.62	130.13	121.31	117.08
Gen Elec	50	48.74	48.56	45.27	43.69
Draft	31	30.22	30.11	28.06	27.09
Cab Making	79	77.01	76.72	71.52	69.03
Cons Proc	14*	13.65	13.6	12.67	12.23
Cons Proc II	16	16.13	15.78	14.98	14.36
Elect 1	9	8.77	8.74	8.15	7.86
Elect 4	1*	.94	1.06	.92	.95
Elect 2	7	6.82	6.8	6.34	6.12
[2]Voc Draft	9	9.07	8.88	8.43	8.06
[2]Voc Auto	15	15.12	14.79	14.04	13.46
[2]Voc Weld	67	67.56	66.07	62.73	60.12
[2]T & I 1 Co-op	16	16.13	15.78	14.98	14.36
[2]T & I Co-op	3*	2.82	3.19	2.76	2.84
Div Co-op am	3	2.92	2.91	2.72	2.62
Div Co-op pm	14	13.65	13.6	12.67	12.23
[2]Auto Ind	19	17.84	20.22	17.49	18.02
	616	606.55	605.87	565.47	547.02

Industrial Arts Number of Sections

Course	1979	1980	1981	1982	1983
Auto Mech	5	5	5	5	4
Gen Elect	2	2	2	2	2
Draft	2	2	2	2	2
Cab Making	3	3	3	3	3
Cons Proc	1*	1	1	1	1
Cons Proc II	2	2	2	2	2
Elect 2	1	1	1	1	1
Elect 4	1*	1	1	1	1
Elect 2	1	1	1	1	1
[2]Voc Draft	1	1	1	1	1
[2]Voc Auto	1	1	1	1	1
[2]Voc Welding	2	2	2	2	2
T & I 2	1	1	1	1	1
T & I	1*	1	1	1	1
Div Co-op am	2	2	2	2	2
Div Co-op pm	2	2	2	2	2
[2]Auto Ind	1	1	1	1	1
	32	32	32	32	31

Mathematics Enrollment

Course	1979	1980	1981	1982	1983
Math Sk	84	81.88	81.58	76.05	73.4
Alg Ty 2	82	79.93	79.63	74.24	71.65
Alg II	113	110.15	109.74	102.3	98.73
Geo	138	134.52	134.02	127.93	120.58
Prac Geo	17	16.57	16.51	15.39	14.85
Alg I	59	57.51	57.3	53.41	51.55
Math Anal	42	42.35	41.42	39.32	37.69
Calc	17	15.96	18.09	15.65	16.12
	552	538.87	538.29	501.29	484.57

Mathematics Number of Sections

Course	1979	1980	1981	1982	1983
Math Sk	4	4	4	3	3
Alg Ty 2	4	3	3	3	3
Alg II	4	4	4	4	4
Geo	5	5	5	5	4
Prac Geo	1	1	1	1	1
Alg I	3	2	2	2	2
Math Anal	2	2	2	2	2
Calc	1	1	1	1	1
	24	22	22	21	20

Music Enrollment

Course	1979	1980	1981	1982	1983
Band	77	75.06	74.78	69.71	67.28
Conc Choir	58	56.54	56.33	52.51	50.68

Music Number of Sections

Course	1979	1980	1981	1982	1983
Band	1	1	1	1	1
Conc Choir	1	1	1	1	1

Physical Education Enrollment

Course	1979	1980	1981	1982	1983
P E Alt	27	26.32	26.22	24.44	23.59
Phys Ed	272	274.26	268.23	254.65	244.08
P E Asst	18*	17.55	17.48	16.3	15.73
P E (10)	382	378.53	360.34	323.91	317.02
	699	666.66	672.27	619.3	600.42

Phyiscal Education Number of Sections

Course	1979	1980	1981	1982	1983
P E Alt	1	1	1	1	1
Phys Ed	6	6	6	5	5
P E Asst	5*	5	5	5	5*
P E (10)	8	8	8	7	7
	15	15	15	13	13

Science Enrollment

Course	1979	1980	1981	1982	1983
Bio	193	188.13	187.43	174.73	168.64
II5 Bio	13	12.67	12.62	11.77	11.36
Chm	84	81.88	81.58	76.05	73.4
Physics	59	57.51	57.3	53.41	51.55
Phys Sc	29	28.27	28.16	26.25	25.34
Env Sc	28	27.29	27.19	25.35	24.47
Hum Phys	41	39.96	39.82	37.12	35.82
Health Fam	56	54.59	54.38	50.7	48.93
	503	490.3	488.48	455.38	439.51

Science Number of Sections

Course	1979	1980	1981	1982	1983
Bio	7	7	7	7	6
II5 Bio	1	1	1	1	1
Chm	4	4	4	3	3
Physics	2	2	2	2	2
Phys Sc	1	1	1	1	1
Env Sc	2	1	1	1	1
Hum Phys	2	2	2	2	2
Health Fam	2	2	2	2	2
	21	20	20	19	18

Social Studies Enrollment

Course	1979	1980	1981	1982	1983
W Hist	388	354	366	329	322
Govt	178	167.15	189.4	163.89	168.77
Am Hist	342	364.63	315.02	324.6	292.40
Black Hist	29	29.24	28.6	27.15	26.02
Mand World	9	9.07	8.88	8.43	8.08
Soc	29	29.24	28.6	27.15	26.02
St Govt	21	20.47	20.39	19.01	18.35
Sch Serv	85*	82.85	82.55	76.95	73.24
U S Govt	15	14.09	15.96	13.81	14.22
Econ	29	29.24	28.6	27.15	26.02
Intro Psych	30	28.17	31.92	27.62	28.45
	1155	1128.15	1115.92	1044.76	1004.60

Social Studies Number of Sections

Course	1979	1980	1981	1982	1983
W Hist	13	12	12	12	11
Govt	6	6	6	6	6
Am Hist	13	12	11	11	11
Black Hist	1	1	1	1	1
Mand World	1	1	1	1	1
Soc	1	1	1	1	1
St Govt	1	1	1	1	1
Sch Serv	5*	5	5	5	5*
U S Govt	1	1	1	1	1
Econ	1	1	1	1	1
Intro Phych	1	1	1	1	1
	40	38	37	37	36

* 4 of these combined.

Township

Art Enrollment

Course	1979	1980	1981	1982	1983
Jew M 1, 2	71	66.25	63.64	59.11	57.18
Cer 1, 2	52	48.52	46.61	43.29	41.88
Design	96	89.58	86.05	7-.92	77.31
Crafts 1,2	50	46.66	44.82	41.62	40.26
Draw 1, 2	73	68.12	65.44	60.77	58.79
Paint 1, 2	51	47.59	45.72	42.46	41.09
	393	366.72	352.28	327.17	316.49

Art Number of Sections

Course	1979	1980	1981	1982	1983
Jew M 1, 2	3	3	3	3	3
Cer 1, 2	2	2	2	2	2
Design	4	4	4	3	3
Crafts 1, 2	2	2	2	2	2
Draw 1, 2	3	3	3	3	3
Paint 1, 2	2	2	2	2	2
	17	17	17	16	16

Business Enrollment

Course	1979	1980	1981	1982	1983
Typ I	141	131.57	126.39	117.38	113.55
Bus Math	117	109.18	104.88	94.4	94.22
Acct	95	88.65	85.16	79.09	76.50
[2]Sh Hnd Trans	13	12.91	12.81	11.07	11.41
Notehand	28	26.13	25.1	23.31	22.55
Comp Prog	48	44.79	43.03	39.96	38.65
Intr Data Proc	31	28.93	27.79	25.81	24.96
Bus Writ	59	55.06	52.89	49.12	47.51
Sh Hnd I	36	35.63	33	31.17	29.97
Stud Store	33	30.79	29.58	27.47	26.57
Dist Ed	24	23.83	23.66	20.44	21.07
[2]Dist Ed Co-op	42	41.7	41.4	35.77	36.88
Typ II	38	35.46	34.06	31.63	30.60
Law	33	32.66	30.25	28.57	27.47
[2]Cl Off Tr	33	30.79	29.58	27.47	26.57
Off Sem	24	22.4	21.51	19.98	19.33
[2]Off Co-op	45	44.53	41.25	38.97	37.46
	973	924.94	887.38	817.89	797.59

Business Number of Sections

Course	1979	1980	1981	1982	1983
Typ I	4	4	3	3	3
Bus Math	4	4	4	4	3
Acct	3	3	3	3	3
[2]Sh Hnd Trans	1	1	1	1	1
Notehand	1	1	1	1	1
Comp Prog	2	2	2	2	2
Intr Data Proc	1	1	1	1	1
Bus Writ	2	2	2	2	2
Sh Hnd I	2	2	2	2	2
Stu Store	3	3	3	3	3
Dist Ed	1	1	1	1	1
[2]Dist Ed Co-op	1	1	1	1	1
Typ II	1	1	1	1	1
Law	1	1	1	1	1
[2]Cl Off Tr	1	1	1	1	1
Off Sem	1	1	1	1	1
[2]Off Co-op	1	1	1	1	1
	34	34	33	33	32

English Enrollment

Course	1979	1980	1981	1982	1983
Lang Sk	496	414	427	384	376
Speech	289	269.68	259.06	240.59	232.73
Des Writ	61	56.92	54.68	50.78	49.12
Mass Media	31	30.68	28.42	26.84	25.80
Publ	30	27.99	26.89	24.97	24.16
Newspaper	24	22.4	21.51	19.98	19.33
Coll Sk	72	71.25	66.01	62.34	59.93
Myth	61	56.92	54.68	50.78	49.12
Read Dev	23	21.46	20.62	19.15	18.52
Read Govt	12	11.91	11.83	10.22	10.54
Read U S Hist	20	19.73	17.05	17.58	15.79
Coll Comp	85	84.12	77.92	73.6	70.75
Perf Arts	26	24.26	23.31	21.64	20.94
Debate	18	16.8	16.14	14.98	14.50
Mj W Auth	31	30.68	38.42	26.84	25.80
Mj Am Auth	32	31.67	29.34	27.71	26.64
[2]Yearbook	23	21.46	20.62	19.15	18.52
Tech Writ	30	27.99	26.89	24.97	24.16
Sh Stor	61	56.92	54.68	50.79	49.12
Satire	63	58.79	56.47	52.45	50.73
Sci Fi	60	55.99	53.78	49.95	48.32
Det Myst	62	57.85	55.58	51.61	49.93
	1633	1490.93	1451.52	1340.06	1298.97

English Number of Sections

Course	1979	1980	1981	1982	1983
Lang Sk	15	14	14	13	12
Speech	9	9	9	9	8
Desc Writ	2	2	2	2	2
Mass Media	1	1	1	1	1
Publ	1	1	1	1	1
Newspaper	1	1	1	1	1
Coll Sk	3	3	3	2	2
Myth	2	2	2	2	2
Read Dev	1	1	1	1	1
Read Govt	1	1	1	1	1
Read U S Hist	1	1	1	1	1
Coll Comp	3	3	3	3	3
Perf Arts	1	1	1	1	1
Debate	1	1	1	1	1
Mj W. Auth	1	1	1	1	1
Mj Am Auth	1	1	1	1	1
[2]Yearbook	1	1	1	1	1
Tech Writ	1	1	1	1	1
Sh Stor	2	2	2	2	2
Satire	2	2	2	2	2
Sci Fi	2	2	2	2	2
Det Myst	2	2	2	2	2
	55	54	54	52	50

Foreign Language Enrollment

Course	1979	1980	1981	1982	1983
Sp I	28	26.13	25.1	23.31	22.55
Sp II	23	21.46	20.62	19.15	18.52
Sp III, IV	20	19.79	18.34	17.32	16.65
	71	67.38	64.06	59.78	57.72
Fr I	37	34.53	33.17	30.8	29.80
Fr II	40	37.33	35.86	33.3	32.21
Fr III	17	16.82	15.58	14.72	14.15
Fr IV	14	13.9	13.8	11.92	12.29
	108	102.58	98.41	90.74	88.45

Foreign Language Number of Sections

Course	1979	1980	1981	1982	1983
Sp I	1	1	1	1	1
Sp II	1	1	1	1	1
Sp III, IV	1/3	1/3	1/3	1/3	1/3
Fr I	1	1	1	1	1
Fr II	2	2	2	2	1
Fr III	1	1	1	1	1
Fr IV	1/5	1/5	1/5	1/5	1/4

Home Economics Enrollment

Course	1979	1980	1981	1982	1983
Hum Dev	103	96.11	92.33	85.75	82.94
Teach Aide	37*	34.53	33.17	30.8	29.80
H.E.L.P.	19	17.73	17.03	15.82	15.30
Fam Meals	27	25.19	24.02	22.48	21.74
Child Dev	31	28.93	27.79	25.81	24.96
Home Ltd	25	23.33	22.41	20.81	20.13
Design	27	25.19	24.2	22.48	21.74
	269	251.01	241.13	223.95	216.61

Home Economics Enrollment

Course	1979	1980	1981	1982	1983
Hum Dev	4	4	4	3	3
Teach Aide	6*	5	5	5	5
H.E.L.P.	1	1	1	1	1
Fam Meals	1	1	1	1	1
Child Dev	1	1	1	1	1
Home Ltd	1	1	1	1	1
Design	1	1	1	1	1
	10	10	10	9	9

* 5 of these are combined with other classes.

Industrial Arts Enrollment

Course	1979	1980	1981	1982	1983
Shop Math	28	26.13	25.1	23.31	22.55
Drive Safety	99	92.38	88.74	82.42	79.72
El Wood	50	46.66	44.82	41.62	40.26
El Draft	22	20.53	19.72	18.31	17.72
T & I Co-op	1*	.99	.99	.85	.88
Auto Mech	76	70.92	68.13	63.27	61.20
[2]El Draft	12*	11.2	10.76	9.99	9.66
[2]Voc Draft	12	11.91	11.83	10.22	10.54
[2]T & I Co-op	49	48.65	48.3	41.73	43.02
[2]El Metal	48	44.79	43.03	39.96	38.65
El Metal	25	23.33	22.41	20.81	20.13
[2]Sm Eng R	49	48.49	44.92	42.43	40.79
[2]El Wood	25	23.33	22.41	20.81	20.13
[2]Machine Wood	21	19.6	18.82	17.48	16.91
[2]Voc Auto	26	25.73	23.84	22.51	21.64
Sm Eng R	30	27.99	26.89	24.97	24.16
	815	776.33	744.62	685.82	669.3

Industrial Arts Number of Sections

Course	1979	1980	1981	1982	1983
Shop Math	1	1	1	1	1
Drive Safety	3	3	3	3	3
El Wood	2	2	2	2	2
El Draft	1	1	1	1	1
T & I Co-op	1*	1	1	1	1
Auto Mech	3	3	3	3	2
[2]El Draft	1	1	1	1	1
[2]Voc Draft	1*	1	1	1	1
[2]T & I	1	1	1	1	1
[2]El Metal	2	2	2	2	2
El Metal	1	1	1	1	1
[2]Sm Eng R	2	2	2	2	2
[2]El Wood	1	1	1	1	1
[2]Mach Wood	1	1	1	1	1
[2]Voc Auto	1	1	1	1	1
Sm Eng R	1	1	1	1	1
	30	30	30	30	29

Mathematics Enrollment

Course	1979	1980	1981	1982	1983
Geo	177	165.17	158.66	147.35	142.54
Math Sk	75	69.99	67.23	62.44	60.40
Ty I	34	31.73	30.48	28.3	27.38
Alg II	140	130.64	125.5	116.55	112.74
Ty II	53	49.46	47.51	44.12	42.68
Bus Math	21	19.6	18.82	17.48	16.91
Math Anal	65	64.32	59.59	56.28	54.1
Alg I	92	85.85	82.47	76.59	74.09
Calc	22	21.68	18.74	19.32	19.32
	679	638.6	611.94	567.85	550.16

Mathematics Number of Sections

Course	1979	1980	1981	1982	1983
Geo	6	6	6	5	5
Math Sk	3	3	3	3	3
Ty I	1	1	1	1	1
Alg II	5	5	5	4	4
Ty II	2	2	2	2	2
Bus Math	1	1	1	1	1
Math Anal	3	3	2	2	2
Alg I	3	3	3	3	3
Calc	1	1	1	1	1
	25	25	24	22	22

Music Enrollment

Course	1979	1980	1981	1982	1983
Acapella Choir	25	23.33	22.41	20.81	20.13
Mixed Choir	43	40.12	38.55	35.8	34.63
	68	63.45	60.96	56.61	54.76
Band	118	110.11	105.78	98.23	95.02

Music Number of Sections

Course	1979	1980	1981	1982	1983
Acapella Choir	1	1	1	1	1
Mixed Choir	1	1	1	1	1
Band	1	1	1	1	1

Physical Education Enrollment

Course	1979	1980	1981	1982	1983
P E Asst	34*	31.73	30.48	28.3	27.38
Tennis/Volley	225	209.96	201.69	187.31	181.19
Gen P E	296	247.06	254.82	229.16	224.39
Foot/Bask	33	30.79	29.58	27.47	26.57
Gymn	22	20.53	19.72	18.31	17.72
Soft/Bask	29	27.06	26	24.14	23.35
	639	567.13	562.29	514.69	500.60

Physical Education Number of Sections

Course	1979	1980	1981	1982	1983
P E Asst	6*	6	5	5	5*
Tennis/Volley	5	5	4	4	4
Gen P. E.	7	7	6	6	6
Foot/Bask	1	1	1	1	1
Gymn	1	1	1	1	1
Soft/Bask	1	1	1	1	1
	15	15	13	13	13

Science Enrollment

Course	1979	1980	1981	1982	1983
Chm	127	125.68	116.43	109.97	105.71
Elect	74	69.05	66.33	61.6	59.59
Physics	54	50.39	48.41	44.95	43.49
Bio I	261	243.55	233.96	217.28	210.18
Bio II	35	34.64	32.09	30.31	29.13
Health	26	24.26	23.31	21.64	20.94
Phys Sc	59	55.06	52.89	49.12	47.51
Adv Pl Bio	32	31.67	29.34	27.71	26.64
	668	634.3	602.76	562.58	543.19

Science Number of Sections

Course	1979	1980	1981	1982	1983
Chm	5	5	5	4	4
Elect	3	3	3	3	2
Physics	2	2	2	2	2
Bio I	9	9	8	8	7
Bio II	2	2	2	1	1
Health	1	1	1	1	1
Phys Sc	2	2	2	2	2
Adv Pl Bio	1	1	1	1	1
	25	25	24	22	20

Social Studies Enrollment

Course	1979	1980	1981	1982	1983
U S Hist	460	455.21	421.71	398.31	382.89
World Geo	33	30.79	29.58	27.47	26.57
West Civ	180	167.96	161.35	149.85	144.95
Anthrop	26	24.26	23.31	21.64	20.94
Soc Prob	148	138.1	132.67	123.21	119.18
Stud Govt	31	28.93	27.79	25.81	24.96
Read Govt	12	11.2	10.76	9.99	9.66
Read U S Hist	20	18.66	17.93	16.65	16.11
Sch Serv	38*	35.46	34.06	31.63	30.60
Govt	219	217.43	215.86	186.52	192.28
Psych	31	30.68	28.42	26.84	25.8
Econ	20	18.66	17.93	16.64	16.11
	1218	1177.34	1121.37	1034.57	1010.05

Social Studies Number of Sections

Course	1979	1980	1981	1982	1983
U S Hist	15	15	14	13	13
World Geo	1	1	1	1	1
West Civ	6	6	6	5	5
Anthrop	1	1	1	1	1
Soc Prob	5	5	5	5	4
Stud Govt	1	1	1	1	1
Read Govt	1	1	1	1	1
Read U S Hist	1	1	1	1	1
Sch Serv	5*	5	5	4	4
Govt	7	7	7	6	6
Psych	1	1	1	1	1
Econ	1	1	1	1	1
	41	41	40	37	36

* 4 of these sections combined with other classes.

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