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ABSTRACT

Individually Guided Education/Multiunit Schools-Secondary (IGE/MUS-S) is a research and development project currently in operation at the University of Wisconsin. As often happens in education, the operational need for the project was so great that it came into existence before it was formally justified in theory. This paper attempts to discuss the three major areas dealing with the IGE/MUS-S project. It provides the missing theoretical base by explaining in comprehensive form the significance and purpose of the project. IGE/MUS-S is described in terms of its operation as a project in the Wisconsin Research and Development Center; its commitment to an IGE system that provides continuous progress towards mutually established goals; its primary analytical tool--a 3-part division of the functions of education; its role in the ongoing process of change and innovation in education; problems that plague the educational process; and a set of 50 working statements on learning psychology. The paper also presents a general model for an alternative educational program, reviews current developments in the seven component areas that provide the focal points for the project, and discusses strategies and plans for implementation and future development. (Author)

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THEORETICAL PAPER NO. 44

IGE/MUS-S: AN INSTRUCTIONAL MANAGEMENT SYSTEM
FOR SECONDARY SCHOOLS

by

Katherine M. Koritzinsky
and
Steven J. White

Report from the Project on
Models for IGE/MUS-Secondary

Wayne W. Benson
Program Coordinator

Wisconsin Research and Development
Center for Cognitive Learning
The University of Wisconsin
Madison, Wisconsin

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Statement of Focus

Individually Guided Education (IGE) is a new comprehensive system of elementary education. The following components of the IGE system are in varying stages of development and implementation: a new organization for instruction and related administrative arrangements; a model of instructional programming for the individual student; and curriculum components in prereading, reading, mathematics, motivation, and environmental education. The development of other curriculum components, of a system for managing instruction by computer, and of instructional strategies is needed to complete the system. Continuing programmatic research is required to provide a sound knowledge base for the components under development and for improved second generation components. Finally, systematic implementation is essential so that the products will function properly in the IGE schools.

The Center plans and carries out the research, development, and implementation components of its IGE program in this sequence: (1) identify the needs and delimit the component problem area; (2) assess the possible constraints—financial resources and availability of staff; (3) formulate general plans and specific procedures for solving the problems; (4) secure and allocate human and material resources to carry out the plans; (5) provide for effective communication among personnel and efficient management of activities and resources; and (6) evaluate the effectiveness of each activity and its contribution to the total program and correct any difficulties through feedback mechanisms and appropriate management techniques.

A self-renewing system of elementary education is projected in each participating elementary school, i. e., one which is less dependent on external sources for direction and is more responsive to the needs of the children attending each particular school. In the IGE schools, Center-developed and other curriculum products compatible with the Center's instructional programming model will lead to higher student achievement and self-direction in learning and in conduct and also to higher morale and job satisfaction among educational personnel. Each developmental product makes its unique contribution to IGE as it is implemented in the schools. The various research components add to the knowledge of Center practitioners, developers, and theorists.

All that has been said of the importance of individuality of character and diversity in opinions and modes of conduct involves, as of the same unspeakable importance, diversity of education. A general state education is a mere contrivance for molding people to be exactly like one another: And as the mold in which it casts them is that which pleases the predominant power in the government, whether this be a monarch, a priesthood, an aristocracy, or the majority of the existing generation in proportion as it is efficient and successful, it establishes a despotism over the mind, leading by natural tendency to one over the body. An education established and controlled by the state should only exist, if it exist at all, as one among many competing experiments, carried on for the purpose of example and stimulus, to keep the others up to a certain standard of excellence.

John Stuart Mill
On Liberty, 1859

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Abstract

This theoretical paper attempts to discuss the three major areas dealing with the IGE/MUS-S project. The paper provides the missing theoretical base by explaining in comprehensive form the significance and purpose of the project. IGE/MUS-S is described in terms of its operation as a project in the Wisconsin Research and Development Center; its commitment to an IGE system which provides continuous progress toward mutually established educational goals; its primary analytical tool--a three-part division of the functions of education; its role in the ongoing process of change and innovation in education; problems which plague the educational process; and a set of 50 working statements on learning psychology. The paper also presents a general model for an alternative educational program, reviews current developments in the seven component areas which provide the focal points for the project and discusses strategies and plans for implementation and future development.

I

Basis for the Project

Introduction

IGE/MUS-S is a project of the Wisconsin Research and Development Center for Cognitive Learning, located at the University of Wisconsin, Madison. As often happens in education, the operational need for this project was so great that it came into existence before it was formally justified in theory. This paper attempts to do three things: (1) provide the missing theoretical base by explaining in comprehensive form the significance and purpose of the project, (2) present a general model for an alternative educational program and review current developments in the seven component areas which provide the focal points for the project, and (3) present strategies and plans for implementation and future development.

Administrative Origins

To begin it might be well to sketch a brief history of the Wisconsin Research and Development Center, since its founding concepts are ancestral to and integral with those of Individually Guided Education in the Multiunit School-Secondary. The center itself was founded in 1964 by Professor Herbert J. Klausmeier with funding from a USOE grant program. Its sole emphasis until quite recently was to develop programs and devise suitable structures for use in elementary schools, under a system called "Individually Guided Education" (IGE). The Individually Guided Education/Multiunit Elementary School model is an *instructional system* calling for flexible and individualized instructional practices within the framework of a unique pattern for organizing resources. The main features of this system have been described by Frank Chase: "(1) attention is focused on the individual learner; (2) systematic problem solving is

applied by educators to educational problems; (3) unit structure is employed to provide a healthy group size for learning; (4) staff training is made an essential part of the approach; and (5) autonomy and accountability are kept in balance" (8th Annual Report, 1971-72). Currently, IGE programs have been developed in reading, math, motivation, and prereading for use in individualized settings such as the multiunit organization. Because the unit organizational pattern used for grouping is such a prominent characteristic in schools using the IGE system of reading or math, these schools have become known as Individually Guided Education/Multiunit Elementary Schools (IGE/MUS-E). During 1971-72 the number of IGE/MUS-E's in the United States increased dramatically; at the beginning of the 1972-73 school year the operating number was about 1200 schools in 14 states. Having had such success at the elementary level, it was inevitable that the IGE system would be extended to the secondary level.

Because of the strong stimulus provided by participants in MUS-E schools, informal pressures for development of a secondary-level application of IGE reached fruition in 1972. Thus, IGE/MUS-S was founded (the "E" for "elementary" was replaced by "S" for "secondary"), and the search for practical modes of operation to implement IGE in secondary schools was begun. While the urgency of pressure from the field hastened the decision to start MUS-S, it was more a matter of committing funds to existing plans than of starting from scratch. The secondary school system of education that is eventually formulated by the project will likely abandon the multiunit school organizational pattern as found in the elementary school, but at present the title IGE/MUS-S identifies it as an IGE system of education in the MUS-E tradition.

To appreciate past and present substantive needs of the project, it is necessary to

understand events within the project to date. The following list of highlights should assist the reader in understanding the sequence of events that has led to current operations of the project:

January 1972

Professor Stephen J. Knezevich and Russell Way of the Wisconsin Department of Public Instruction prepared for review by selected professionals the first theoretical paper proposing use of IGE at secondary school levels.

April 1972

Professor Knezevich used a revised draft of the theoretical paper as the focal point of an "Invitational IGE/MUS-S Professional Workshop." A second workshop was scheduled for May but never materialized due to extensive revisions suggested in this first workshop.

June 1972

Professor Knezevich submitted a final revision of the original theoretical paper for publication as a working paper.

July 1972

Dr. Wayne Benson was hired as project coordinator to work directly with Professor Knezevich.

August 1972

Professor Knezevich left the R & D Center to pursue professorial duties full time within the Department of Educational Administration.

September 1972

Steven J. White, a graduate student in Educational Administration, was hired as a project assistant to work on the project 50% of the time; Katherine Koritzinsky was hired as a project specialist to work 40% of the time on the project. Dr. Benson left the project temporarily to undergo surgery.

November 1972

In the absence of Dr. Benson, Dr. William Bush, Deputy Director of the Center, supervised a model development task force of invited members to finalize the design of a secondary-level IGE model based on the Knezevich and Way paper.

Dr. Benson returned on a part-time basis, and in reviewing the results of the task force meeting with his project staff, decided to expand certain major features of the Knezevich and Way model and begin anew

December 1972

A student task force meeting was convened by the project to obtain basic input on a new model from students in the Madison area secondary schools.

A MUS-S newsletter was prepared for January mailing.

January 1973

Preparation of a general mailing list was initiated based on response to the first newsletter.

Two graduate students, Kathe Heterick and Raymond Schultz, were added as project assistants to work half-time on the project.

February 1973

New models for the MUS-S project were finalized.

Preparations for the NIE budget were completed for the project.

A needs and specifications paper was proposed which would include a description of the MUS-S project and provide a basis for R & D activities at the secondary level.

March 1973

The project hosted a teacher/principal task force meeting to finalize the design of the second-generation secondary-level IGE model. This meeting substantiated the revised design.

Preparations, including extensive field visits and presentations, were initiated to locate and obtain pilot situations for the September 1973 school year.

Preparation of staff development training materials was begun.

April 1973

The needs and specifications paper was completed.

Philosophy of Continuous Progress

The project (IGE/MUS-S) is a particular response to a problem that permeates all of education today. That is the problem of having students judged as failures or as being incapable of better progress because they do not fit the format of the present educational system. The project does not pretend to offer a final solution to this problem; its promise is that it will help lead to a workable solution.

Unlike most educational innovations, IGE has attempted to cure faults in the educational system by means of a comprehensive alternative system rather than a series of patches and repairs. The mission of the project has been and continues to be the creation of an alternative approach to educational practice at the secondary level within the framework of IGE. Therefore, the project is directed toward purposes which are evolutionary in nature, not revolutionary. Products of IGE/MUS-S are neither parallel to nor removed from existing practices. In short, our *raison d'être* is to provide an alternative management system for instruction within the present educational framework for those educators and communities who seek to modify or abandon certain traditional practices. Providing the stimulus for individual initiative in this effort is the belief that many contemporary needs in education would be better served by new approaches toward instruction and learning. It is not our intent to be critical of existing public schools or to compete with them, but rather to offer an alternative, a service to those who express interest, concern, and commitment to our IGE system of continuous progress.

Encompassing the entire project is the concept of continuous progress which forms the basis for IGE and other instructional systems designed to provide a high degree of individualization for students. It supersedes all attempts of the project to solve practical problems. The extent of individualization can vary considerably, but in each case one reaches the essential conclusion that failure of a student to learn is as much a fault of the system as a fault of the student. This is especially true at younger ages. Thus, when an educator decides to seek alternative and more effective ways to educate, he is actually accepting a degree of responsibility for student failure or lack of adequate progress in learning. Just such a search for alternatives led to development of the IGE system. Therefore, continuous progress is seen by this project as the embodiment of a philosophy in which educators share responsibility for student failure as well as success.

While the philosophy of continuous progress is not dependent on any one set of practices or system of education, the project accepts the belief that student progress can best be defined and facilitated by use of the instructional programming model. Use of this model promoted measurable progress by every student toward attainable goals without time constraints. Use of the model at the elementary-school level served as a vehicle for achieving continuous progress through individualization and suggested other operations that became component parts of an "educational system." Although several of the operations in that system had been used separately for many years, mixing them in a coherent blend made the resultant system unique. The particular blend at the elementary-school level became known as IGE, and assumed a quasi-philosophy of its own. It is a packaged product, but it retains a high potential for manipulation and tailoring to suit local situations.

It is the hope of the project to begin with the same philosophical base as found in continuous progress, to adopt the same foundation of instructional programming, and to use a system approach as found in IGE/MUS-E to produce an alternative system of secondary education that will duplicate the success of the elementary-school system.

Approach

Despite widespread challenges to traditional practices, the project recognizes that the goals to be accomplished through education remain fairly constant through time. The Governor's Task Force on Education in Wisconsin defined the goals of public education in eleven different areas: (1) self-realization, (2) human relations, (3) basic skills, (4) mental and physical health, (5) career education and occupational competence, (6) cultural appreciation, (7) lifelong learning, (8) citizenship and political understanding, (9) economic understanding, (10) physical environment, and (11) creative, constructive, and critical thinking. It seems fair to say that challenges to traditional practices often center on an inability of education to fulfill these types of goals for *all* students, rather than an inability to fulfill the goals per se. Broad, generalized goals, however, are often more confusing than helpful in determining proper activities and programs. New approaches and techniques must grow from a clear understanding of current practice and continuing concerns.

To understand and deal with general needs and problems for which specific answers must

be forthcoming, the project has defined education as a network of three component functions: schooling, training, and enlightenment. While these functions are not mutually exclusive in practice, they are valuable concepts in providing focal points for analysis of educational goals and activities.

The first of these, *schooling*, is composed of knowledge and skills which must be taught to and learned by all students (Coleman, 1972). An example is the proverbial and elusive three R's, which at one time were taken to be the sum total of education. Another definition might say that schooling consists of things which all reasonable educators can agree have to be learned at some point. A phenomenon of recent times is that the core of knowledge necessary to be successful and productive in our society continues to increase, so that what may have been "superfluous" learning a generation ago has now become "essential" learning. Of course, one can argue that such demands for advanced levels of education for the general populace are artificially contrived for the sake of an economic meritocracy. It is such differences of opinion that prevent agreement over the precise content in schooling which would clearly separate it from training and enlightenment.

Training is that education which provides skills and information necessary for a distinctive and productive role in society beyond mere subsistence. Trade and commercial training fall into this category fairly easily, and certain aspects of such studies as English and social studies are necessary for a number of occupations. Training can also consist of behavioral traits or characteristics which are either taught or reinforced in a school situation and which are considered necessary to a particular occupational status. The primary difficulty in isolating the training function is that students often receive training which they never fully utilize, yet which broadens their understanding of themselves. Furthermore, a student might elect to become trained purely for personal pleasure, then decide to use that experience in a productive fashion at some later date.

Enlightenment is a function of education that has no material justification beyond its intrinsic worth to an individual. In some cases the search for enlightenment by a scientist becomes theoretical research that may precede progress at the practical level. But the purpose behind education for enlightenment is not based on practical reward. The reward is an inner happiness or contentment which, like a hobby, means enduring long hard hours of drudgery that one would never accept for financial rewards. Content in this area

can be thought of as esoteric and philosophical in the classical tradition.

In each of the three functional areas just defined there are two levels for setting goals: general and specific. For instance, in schooling general goals might be learning to read, learning to perform arithmetic operations, and understanding civic organization. Such goals tend to set direction rather than suggest an activity. Specific goals clearly state the vehicle which is to be chosen to accomplish the general goal. An example within learning to read is to spend two months reading short stories to sharpen one's reading skills. Examples of general and specific goals in training are: become an author (general), and write a half-page paragraph about your vacation (specific). Examples of enlightenment goals: become knowledgeable about great minds in man's heritage (general); study the philosophies of the great men of history (general); read Plato's *Pliny* (specific).

Although this treatment of the three functions of education is admittedly brief and incomplete, it is sufficient to serve as a backdrop to a presentation of current problems and needs as identified by the project. It helps to understand the thrust of certain programs and organizational patterns generated by the project and to grasp the rationale for anticipating certain outcomes from them. IGE/MUSS purports to utilize these theoretical insights in its search for alternatives. Traditionally, all goal setting in the functional area of *schooling* is reserved for professional educators, who in turn elicit limited input from lay leaders in setting the general types of goals. There is virtually no formal structure for student input in the realm of schooling, for students are not deemed capable of deciding what knowledge is essential for subsistence in society.

In the realm of *training*, students in high schools have had a limited input in establishing general goals; however, it is useful here to point to the difference between being able to select an option from an array as opposed to originating an option unfettered by anything but imagination. With assistance from their families students have usually been able to select from several possible career choices. The choices are usually general business, pre-college (gateway to a new array of choices), trade/vocations, and dropping out. Once the general goal has been established by the student, the professional again begins to determine the type of instructional vehicle needed to achieve the goal; series of courses, sequence of exposure to operations, and so forth are all prescribed by the instructional staff.

Decisions concerning goals in the area

of *enlightenment* tend to be the reversal of the situation in training. Here professionals set all of the long-term general goals, within which students have a range of specific choices according to individual preferences. Thus, once a long-term goal such as learning U.S. history has been set, students often have the option of deciding which era to study. Or students in a literature class may select from a wide

range of readings. To a lesser extent students can choose specific courses to take in achieving general learning objectives which have been prescribed by professionals.

The aforementioned pattern of goal setting and decision making toward which traditional secondary-school practice leans can be charted in this fashion:

SCHOOLING	TRAINING	ENLIGHTENMENT
general - professional	general - students	general - professional
specific - professional	specific - professional	specific - students,

Again, it must be stressed that this explanation of current practice is simply to provide a theoretical base for analysis and communication of problem areas that occur in educational practice.

Using the three functions of education and the general and specific realms of goal setting found within each functional area, it is possible to study more closely those pressures for change that are being felt in secondary education. It has already been suggested that achievement of the goals of education must not only be successful for *all* students, but must be achieved at an optimal level for those who are currently finding limited success. In addition, it is a premise of the project that rather substantial modifications are imminent for the manner in which goals and activities are selected. In the area of schooling, there are identifiable trends toward a lowered age of emancipation and toward noncompulsory attendance. These trends restrict the amount of *schooling* that will be required of students at secondary levels. Bills of rights and administrative organizations to facilitate them will further erode the monopoly over *schooling* that has been held by professionals, since arbitrary changes or alterations in curriculum may necessitate joint action. Recognition of the accelerated rate at which some students assimilate their basic schooling has caused concern over finding appropriate activities and points of input for such students. Many students seek *training* experiences outside the normal domain of the public schools, which means the offerings which enable students to pursue pure self-enlightenment may have to be expanded. The most significant change that appears imminent is that students will have a clear voice in expanding their range of choices in the realms in which they already speak: general courses in *training* and specific learning experiences in the realm of enlightenment.

The foregoing statements have outlined

a dual approach to problem solving at the secondary-school level. The first phase, commitment to an IGE system within the framework of continuous progress, mandates that professional techniques and operations within the school be adjusted to ensure that each student can maximize individual achievement of educational goals. The second phase, realignment of forces within the goal-setting process itself, stresses that it is impossible for the school to maximize goal attainment by students if the students have no voice in stating desired outcomes. This latter consideration becomes critical as students approach adulthood in senior high school.

Review of Applicable Innovations

IGE/MUS-S is not the first attempt to respond to shortcomings in educational practice at the secondary level. It may be unique in using a systematic problem-solving approach, but many past innovations which have been spawned in isolation will be found in IGE at the secondary level. It will be helpful at this point to examine briefly some of the innovative strategies that have been generated by others: first, to evaluate their suitability for application in IGE; secondly, to examine the reasons for their success or failure; and thirdly, to determine what problem each sought to answer.

No educational program is totally satisfactory. Indeed, the complexity, rate of change, and contradictions in values of American society make the task of innovation an especially difficult one. There is ample reason to expect disenchantment with education's failure to be all things to all people. In response to pressure for change, educators across the nation have utilized federal legislation, private foundations, educational leaders, eminent scholars, national curriculum groups, and societal forces to generate new ideas. The quantity of inno-

vations produced has been staggering. They have included differentiated staffing, paraprofessionals, team teaching, interaction analysis, large-group instruction, independent study, year-round schooling, flexible scheduling, educational TV, video recording, nongraded schools, tracked schools, school-within-a-school, and schools without walls. Unfortunately, we are not able to discuss each of these innovations. However, we have chosen to concentrate on team teaching (Shaplin & Olds, 1964), alternative teaching (Smith, 1973), and scheduling (Wiley & Bishop, 1968) as key developments that have added to the foundations of our project.

Those who have been most heavily involved with innovation agree that problems in training, leadership, professionalism, and community have caused the greatest difficulty in effecting change. In the area of staff training, educators often have never learned how to conduct meaningful workshops, and the majority of teachers have not carried the messages from the workshop to the classroom. In many cases preservice college education and graduate training seem to produce obsolete programs and instruction. Considering leadership, too often the charisma attached to the administrator and his staff disappears when they leave a district. The original innovators are almost always replaced by moderates. Another failure in the leadership area is that procedures for ongoing change through involvement of students and staff are not built into the mechanism of the school decision-making process. In the realm of professionalism a major problem of maintaining momentum in an innovative school is that the staff reaches a point of satisfaction and never moves beyond it. Central office rules and regulations traditionally and professional agreements more recently have inhibited many schools attempting change. Regarding community, a major factor is that social and economic conditions may change its complexion. For instance, liberal communities may become conservative as a result of a limited financial base.

Team Teaching

Shaplin and Olds (1964, pp. 24-57) trace the origin of team teaching, beginning with the crisis period in American education following World War II. The major factors of this school crisis were the persistent shortage of teachers and the rise of the national birth rate. In the 1950's the crisis was accentuated by a mounting crescendo of criticism directed against the schools. This threatened their capacity to recruit and retain teachers and

to obtain funds necessary for development and expansion (ibid., p. 30).

Out of all the criticism emerged a climate favorable to change. Certain major directions were clear. A search took place for ways to create attractive new teaching positions with greater status, rewards, responsibility, and to improve the utilization of the existing teaching staff and facilities. Changing the recruitment, training, and certification of teachers provided increased collaboration between the schools and universities. A growing willingness and desire on the part of university personnel to work with schools made university training programs possible.

There were many types of efforts to provide more attractive and satisfying career opportunities in teaching through "position and rank" systems of classification. Of these, team teaching was just one of a group classified as "staff utilization" studies. It is unlikely that team teaching could have taken root unless it had been directly preceded by other projects devoted to similar but less comprehensive aims. First, many of the new teacher education programs placed heavy reliance upon apprenticeships and internships under the guidance of "master teachers" in the schools. Other projects explored the possibility of using teaching assistants or aides to free the teacher from clerical and other nonteaching duties. The Contract Correcting Project in Newton, Massachusetts, in which educated women served as readers for English teachers in order to permit heavier writing assignments for students was one example of the use of teaching assistants rather than clerical assistants.

There was a widespread effort to provide a broader audience for the highly skilled teacher by allowing him to lecture to large groups of students. Schools such as Newton High School in Newton, Massachusetts, and Evanston Township High School in Evanston, Illinois, concentrated upon developing large-group lectures.

A search took place for ways to create smaller human organizations within the larger-sized school structures. Interest in previously designed plans such as the campus plan, house plan, and decentralization of the large school was evident. Shaplin and Olds (1964, p. 34 ff) provide a history of the variety of administrative and instructional plans designed to bring flexibility into school organizations to allow for a greater variety of students for instruction and to provide opportunities for individualized instruction. Plans that were revised and studied during this time included the Winnetka Plan and Dalton Plan, developed around the 1920's, which emphasized individual rates of progress

through successive stages of the curriculum. Another model, the Dual Progress Plan, made the distinction between subject matters designated as "the cultural imperatives" and "the cultural electives." The Dual Progress Plan had close kinship with many team teaching plans because of the mutual concern for specialization in teaching, ability grouping, and sequential, nongraded progress in certain subjects. The Cooperative Group Plan, developed by James F. Hosis in the early 1930's, had much in common with present team teaching. Its primary purpose was to provide for individual differences of pupils, teachers, principals, and communities. Each teacher was responsible for only a part of the education and guidance of pupils, and each teacher was a specialist in a group of subjects or activities with a classroom designed for the specialty. Since the pupils in the group covered more than one grade, cross-grade instruction and continuous pupil progress were possible.

"Packaged" course material with textbooks, teachers' guides, supplementary materials, films, and laboratory equipment were developed in an attempt to revise the total school curriculum and provide for more efficient instruction and continuous pupil progress in specific areas. A search for ways to apply technological innovations in instruction brought educational television, improved audio-visual devices, tape teaching, and programmed instruction to the schools. Each of these developments required new adaptations in school organization including changes in existing teaching roles and responsibilities, and the creation of specialized jobs and new cooperative working groups within teaching. Instruction was affected in two ways: mass instruction through lectures, movies, television, and demonstrations was possible, and individualized instruction through language laboratories and teaching machines was introduced.

Thus, team teaching was not a radical educational innovation but the synthesis of a number of long-standing trends toward improved quality in education. These trends were concerned with the relationships among members of a working group, definitions of new roles and types of specialization, and group organization under the assumption that these new techniques would lead to greater efficiency in carrying out existing instructional goals. Team teaching became a panacea for known and suspected problems and a preventative for potential problems.

In 1956 the National Association of Secondary School Principals placed Dr. J. Lloyd Trump in charge of the Commission on the Experimental Study of the Utilization of the Staff in the Secondary School. In his discus-

sion of this commission Shawner (1968, pp. 21-25) states that the Commission, aided by the Fund for the Advancement of Education and the Ford Foundation, encouraged school systems to perform experiments to discover new and more effective ways of utilizing the staff. "Utilization of Staff" was the key phrase of the Commission's title, for in 1956 the teacher shortage in the United States seemed to many educators to have reached a proportion where education in this country was seriously threatened.

The initial publication of the Commission, *New Horizons for Secondary Schools*, emphasized the best utilization of teachers' time. A succeeding publication titled *Images of the Future* outlined the details of what has become known as the Trump Plan. It stressed not only the better utilization of teacher and student time, but also gave hope that schools would continue to improve the quality of present education even when faced with increasing teacher shortages.

The original Trump Plan suggested that students spend 40% of their time in large groups (around 150 pupils), 20% in small groups (around 15 children), and 40% in independent study. Independent study was the time when schools had the optimum chance to provide for individual differences in students, since during this time the student was engaged in activities particularly planned with his interests and capabilities in mind. Extensive time spent by teachers helping students plan their programs was written into this plan. In practice, schools altered the percentages of time originally suggested for large-group and small-group study (Shawner, 1958, p. 22).

Shawner continues that according to Trump, team teaching was an arrangement whereby two or more teachers with assistants planned, instructed, and cooperatively evaluated two or more class groups in order to take advantage of their respective special competencies as teachers. The major thrust of team teaching was to improve the quality of instruction, individualization, and the curriculum, to extend teachers' specialized competencies, and to provide a more flexible basis of organization in terms of students, staff, time, and curriculum.

According to Funaro (1969, pp. 401-403) the following operational features of team teaching were important in trying to accomplish the above objectives:

1. *Effective Staff Utilization.* Although team teaching could not be considered an inexpensive approach, it resulted in a greater return per dollar spent than traditional organizational patterns because it utilized staff more effectively.

This does not necessarily imply increased content and instructional specialization. What was necessary was the recognition and perfection of teaching skills—allowing the dynamic, dramatic person to concentrate much of his time on large-group presentations while the individual skillful in promoting dialogue, speculations, and inquiry could focus on small-group instruction so neglected in secondary education.

More personnel were used in various capacities—regular teachers, teacher interns, and instructional and clerical aides. However, staff utilization was not so inflexible that no allowance was made for the inclusion of the many good teachers who operated optimally in conventional classrooms.

2. *The Emergence of the Professional.* If the team-teaching program functioned well, most free time for teachers would be devoted to professional planning sessions in which decisions were continually being made relative to grouping, curriculum development, instructional approaches, scheduling, and school policy as it affected instruction. Such involvement demanded planning time. Schools which had considerable experience in team organization found that planning sessions were essential if learning was to be effective.

3. *Curriculum Development and Individualization of Instruction.* Team teaching was not a vehicle for the answer-centered curriculum. Team teaching dispelled the notion that the teacher was the arbiter of knowledge. Through mutual inquiry and discovery the teacher and student came to recognize that learning was an extremely worthwhile and enjoyable experience. Team teaching destroyed ready-made curricula; it demanded that each team formulate a curriculum which realistically met the needs of the students they taught.

4. *Role of the Principal.* Team teaching was not an administrator's dream. Bureaucratic efficiency expressed in terms of predictable time schedules and restrictive groupings of students was sacrificed. Curriculum and instructional needs determined time schedules, and students were met at points in their learning where help was needed.

Rather than a developer of curriculum, the principal was a promoter and coordinator of instruction. In this capacity he assisted his teams by clearing away administrative details and by maintaining an open and supportive atmosphere in which his teachers would feel free to take chances.

5. *Implications for the Supervisor and the Process of Supervision.* Team teaching gave the supervisor more of an opportunity to use his expertise in helping to improve instruction. He came to team meetings not as

a critic but as a resource member of the group. Team teaching provided built-in supervision by team members for one another. Here was the opportunity for continuous evaluation without fear of error and a chance for change in a positive atmosphere of mutual assistance. By placing in the hands of the teaching team the responsibility for professional decision making, basic curriculum construction, and modification of teaching behavior, team teaching provided a national inservice program.

While the Trump team teaching experiment was being coordinated by the Commission, two parallel studies were being undertaken in 1957, and are reported by Shaplin and Olds (1964, p. 2). One study joined three Massachusetts public school systems—Lexington, Concord, and Newton—with the Harvard Graduate School of Education to form SUPRAD, the School and University Program for Research and Development. One of the major team-teaching programs that emerged from this study was the Lexington project, which worked within the framework of the nongraded elementary school. Teachers in the Lexington school were organized into three major teams, utilizing clerical aides for routine tasks and planning the instructional program for each child on an individual basis.

The other study joined nine California school districts with the members of the Educational Faculty of the Claremont Graduate School. One of the prime examples of this study was the Claremont High School Team Teaching Program. In this, there was primarily a three-teacher team for social science students, two or three-teacher team in mathematics, two-teacher team in social studies, and a four-teacher art team. Large and small groups and laboratory techniques were employed by all teams.

A recent review (NASSP Bulletin, 1973) concludes that the team-teaching movement did not succeed to the degree anticipated ("Necessary Ingredients for Good Team Teaching," NASSP). Because of certain factors such as the over-emphasis on large-group instruction and the employment of half-hearted measures, the movement seemed inherently doomed. Teachers approached team teaching by keeping 90 or more students in large-group situations too much of the time. Passive, large-group activities did not actively engage students in the learning process. The necessary impersonality of large-group instruction hampered the emotional, social, and academic progress of certain students who needed consistent, individual contact with their teachers. Team teachers seldom became well enough acquainted with individual students in a large group to be able to meet their needs effectively.

There were additional problems. The per-student cost of team teaching was sometimes higher than the per-student cost of conventional teaching because many teams were comprised of nonprofessional aides, paraprofessionals, and clerical aides in addition to full-time certified teachers. Many teachers were not suited by training or disposition to engage in the cooperative planning and variety of procedures and resources that were essential to effective team teaching. The planning essential to productive team teaching often became complicated, and the end result did not justify the expenditure of professional time and energy. If individualized instruction in both the small and large groups was not planned well, team teaching was less effective than traditional classroom instruction.

Two further factors seemed to destroy teaching teams quickly: teacher incompetency and lack of team compatibility. When a conflict arose within a teaching team, it had a slow, smoldering quality, not immediately detectable by those who could possibly ameliorate it.

The phenomenon of team teaching will likely provide a number of beneficial inputs for IGE/MUS-S, either through demonstration of what to avoid or through demonstration of workable innovations. Team teaching was really an amalgamation of several ideas, not all of which appeared coterminously. One substratum of the larger picture was interdisciplinary studies, which relied too heavily on individual interpersonal relations of teachers and which demanded that teachers surrender a portion of their individual identities to the "larger group."

Other isolated innovations that appeared under the banner of team teaching, such as educational TV and differentiated staffing patterns, often met a sympathetic demise through no inherent flaw of their own. They never failed; rather, they passed from the scene by attrition. Partly this was because they were potential solutions for problems which had not yet arisen or been defined. Schools which have had success with some of these satellite innovations continue to employ them, indicating that the component innovations of team teaching are under-used and not dead.

Adele Davis claims that if any one of 40 basic nutrients is absent from the human diet, the other 39 cannot do their jobs. In an analogous manner it is quite possible that an essential idea was missing from early team-teaching endeavors, or that the particular mixture of ideas needed adjustment to suit local, varying conditions. Should IGE/MUS-S employ a variation of teacher teams, it would do so only as part of a general overall strategy that

provided all of the operational devices considered necessary to such a system. For instance, several existing secondary schools have already demonstrated the need for skills in using measurable performance objectives in these types of situations.

Alternative Schools

In many communities today students, parents, and teachers are accepting and even demanding options in public education. Alternative public schools are currently operating in several hundred communities in over 30 states and in Canada. Many more communities are exploring, planning, and developing alternative public schools. These alternative schools have developed with little or no communication among themselves and with little national or state coordination. They have not come as a response to a national educational crisis but have been developed to meet specific needs within their local communities.

What types of alternative public schools are in operation? Vernon Smith (1973) outlines the following variety:

Open Schools—Learning activities are individualized and organized around interest centers within the classroom or building.

Schools Without Walls—Learning activities extend throughout the community with much interaction between the school and the community.

Magnet Schools, Learning Centers, Educational Parks—A concentration of learning resources in one center is available to all of the students in the community.

Multicultural Schools, Bilingual Schools, Ethnic Schools—The emphasis is on cultural pluralism and ethnic and racial awareness.

Street Academies, Dropout Centers, Pregnancy-Maternity Centers—Learning programs for students in targeted populations are emphasized.

School-Within-a-School—Any of the above could be organized as a unit within a conventional school.

Integration Models—Any of the above could be organized with a voluntary population that is representative in racial, ethnic, and socioeconomic class makeup of the total population of the community.

Free Schools—Greater freedom for students and teachers is emphasized. This term is usually applied to private alternatives, but a very few are operating within public school systems today.

While each alternative public school has been developed within its community in response to particular local needs, Smith states

that most of the alternatives share some or all of the following characteristics:

1. They provide options within public education for students, parents, and teachers. Usually these choices are open to all, but there must always be a choice for some so that the alternative schools have a voluntary clientele.

2. The alternative public schools have a commitment to be more responsive to some need within their communities than the conventional schools have been.

3. The alternatives usually have a more comprehensive set of goals and objectives than their conventional counterparts. Most alternatives are concerned with the improvement of self-concept, the development of individual talent, the understanding and encouragement of cultural plurality and diversity, and the preparation of students for various roles in our society.

4. Alternative schools are more flexible and therefore more responsive to planned evolution and change. They have been designed to rely on feedback and formative evaluation as they develop and modify their programs.

5. The alternatives attempt to be more humane to students and teachers. They have fewer rules and bureaucratic constraints for teachers and students.

The free school movement is so widespread that in 1971 there were roughly 2,000 free schools in the United States. Among the leading free schools mentioned by Smith (1973) and the Harvard Educational Review (1972) are the Parkway Program in Philadelphia, Pennsylvania; the Berkeley Free School in Berkeley, California; the Many Roads School in Newton, Massachusetts; and the Metro High School in Chicago, Illinois. None as yet can be judged a success; they are still too new and experimental for any such assessments to be made.

As the prime example of the free school movement the Parkway School in Philadelphia stands out as the "school without walls" which is questioning the traditional assumptions about what constitutes an education. Under the auspices of the Philadelphia Board of Education and with funding from the Ford Foundation, a totally new institution was built. The experimental program began with only 143 students in the spring of 1969, expanding to 500 in the 1969-1970 school year. Parkway departs from tradition in a number of respects. One of the most striking is the absence of any building. "Learning is not something that goes on in special places called classrooms or in special buildings called schools," John Bremer, the program director, writes. "Rather, it is a quality of life appropriate to any and every phase of human

existence, or, more strictly, it is human life itself." The "school" is the city of Philadelphia. Learning is not confined to classrooms or to the conventional school day or year. Students are expected to choose at least one course or activity offered by one of the many scientific, business, cultural, and journalistic institutions in the Philadelphia area. The offering may be a formal course, a work-study program, a research assistantship, or an apprenticeship. The objective is to reconnect the school with the large community, not through the conventional field trip but through some continuing experience (ERS Circular, 1972).

In effect, the students plan their own education, subject to the constraints of the state education law which specifies minimum "Carnegie Units" for a high school diploma. The program is designed to provide the maximum opportunities for students to learn what they want to learn. In addition, the student will learn how to live with others as well as with himself (ERS Circular, 1972).

Avenues by which students construct educational goals for themselves might very well be incorporated into MUS-S, for this is a major feature of alternative schools now in operation. The emphasis on enlightenment advocated by the Parkway Program may not be acceptable to many persons since it appears to relegate training and schooling functions to positions of reduced importance. Furthermore, the capacity of any community to absorb large numbers of students is severely limited. Undoubtedly, the greatest success of Parkway and other such schools is the degree to which students can be motivated to maximize attainment of personally selected goals.

Scheduling

IGE/MUS-S at the present time tends toward a rather limited role for innovative scheduling techniques. They tend to be complicated, and are very flexible until the moment they are committed to paper, at which time they become rigid. The lessons of MUS-E are clear: teachers need blocks of time and space, as large as possible, which they can manipulate as they see fit. The fewer impositions placed on instructional procedures by planners and organizers the better. In a search designed to test this viewpoint, the subject of scheduling was examined.

As discussed in the ERS Circular (1972), the master schedule is the foundation of the secondary school. Its effectiveness can determine the success of the entire educational program. Traditionally scheduling was not

regarded as an area where creativity and innovation could be applied. However, in the early 1950's a few principals organized study teams and devoted hours to breaking out of the conventional schedule and working toward greater variability. This investment of labor provided several master schedules that could accommodate many of the features demanded by new approaches and different grouping practices (ERS Circular, pp. 1-6). In building an effective schedule several vital variables must be taken into account. While the list of prime variables is not long (i.e., time, teachers, students, facilities, and curriculum), each variable has a peculiar set of circumstances and limitations surrounding it and must fit into a complex but complete picture for a proper rationale to be developed.

Conventional schedule

The conventional schedule is characterized by

1. One-day cycling—the schedule repeats itself each day of the week for five school days
2. Standard-length periods of time—each period meets for the same number of minutes regardless of the subject matter involved
3. High levels of control over students' use of time.

Attempts to break the rigidity of the conventional schedule have taken several forms.

Flexible schedule

Because of the wide usage of the term "flexible scheduling" to connote change in the conventional schedule, the use of the term defies a generally accepted operational definition. Many schools tend to fasten this term onto any modification of the conventional schedule which facilitates new procedures. However, wide separation exists between these changes and the kind of scheduling proposed by those who are working with modular-computerized designs.

Variable class schedule

The variable class schedule or modular schedule has the following characteristics:

1. Five-day cycling—the schedule repeats itself every five days rather than the single-day pattern of the conventional schedule.
2. There are no standard lengths for

class periods. Class length is determined by subject and teaching method for a particular class.

3. Students do not spend all their time in formal class arrangements or study hall.
4. Teachers meet students in both formal and informal groupings throughout the weekly cycle.
5. A concept of facility use is introduced which concerns itself with what and how a subject is taught in any given facility at any given time.

The variable class schedule's real flexibility lies in the amount and degree of variability introduced with the five-day cycle as compared with the one-day cycle.

Computerized variable class schedule

There are two distinct kinds of computer programs presently on the market which are available to principals. For purposes of differentiation the first of these will be called "loading" programs. A computer program providing this service demands that the school

1. Gather all data pertinent to the building of the master schedule
2. Build the master schedule using the best judgment criteria drawn from the data gathered
3. Place the school-built master schedule in the computer along with the programs requested by all students.

The computer operation consists of placing or loading the student in the master schedule. Loading programs offer the school maximum search patterns for the best fit according to a predetermined master schedule prepared by the local school.

The second kind of computer program is represented by the Generalized Academic Simulation Program (GASP). GASP was developed in the late 1950's and has been used by several schools to date. Early GASP users include Wayland High School, Wayland, Massachusetts; Ridgewood High School, Norridge, Illinois; and Cohasset High School, Cohasset, Massachusetts. This computer program provides services vastly different from loading programs and demands that the school

1. Gather all data pertinent to the building of the master schedule
2. Prepare this material in some logical arrangement that serves the computer program.

The master schedule is built as well as loaded by the computer.

As the reader has probably noted, each scheduling device is dependent on the quality

of data assembled locally. Therefore the promise of scheduling in the facilitation of IGE is no brighter than the caliber of creativity and intelligence of local educators. Given the task of scheduling large blocks of time for their teachers, success will depend on the ingenuity of those familiar with local space constraints and trends in program offerings (Wiley & Bishop, 1968).

Problem-Solving Approach

If any generalization of past and current innovations can be made, it would most likely be that they share a problem-solving orientation. That is, despite great variances in philosophies and technology, innovators are striving to eliminate unmet needs. The net effect is a common bond on a level so basic that it is seldom if ever thought of as a theory—problem solving. Rather than try to construct a grandiose master plan, educators merely attempt to limit their concerns to particular areas. This is largely the approach toward change used by IGE/MUS-S except that the project attempts to appraise systematically and to construct its solutions in advance.

From the vague complaints of malaise in education such as, "We need more joy in education," and, "Much that is taught in school is useless in life," must be drawn the definitive diagnoses needed to effect cures (Silberman, 1970). Other problems, which might more accurately be termed symptoms, can be quickly listed:

- Routine has taken the place of purpose
- Tax revolts
- Teacher strikes
- Student dissent
- Rising expectations and inability to meet them
- Failure to prepare for increased leisure
- Education is divorced from real life
- There is preoccupation with order and control
- Failure is expected of sizable numbers of students
- Schools are not humane
- Schools do not capitalize on student interest
- Teachers spend most of their time maintaining discipline
- Vandalism, drugs, apathy
- Vocational and technical training is a "black sheep"
- Universities are producing archaic teaching skills
- Schools serve a white culture

Students are forced into lockstep course sequences

Many students are functionally illiterate
Learning styles of individuals are ignored
Dropouts, gifted students, working students, compulsory attendance, etc.

It is necessary to recognize that secondary education has closer roots to higher education than it does to elementary education (Inglis, 1918). This helps to explain many of the more specific operational complaints in secondary-level educational practice, such as:

- Departments and subject specialization prevent change
- "Academic" subjects have all the prestige
- Very few skill packages exist for secondary school instruction
- Graduation requirements are not stated in usable terms
- Students are locked into four-year programs
- Schools do not recognize variations in growth patterns
- Teachers have a limited repertoire of instructional techniques
- Too much emphasis is placed on competition
- Teachers leave a subject before some have mastered it
- Teachers introduce materials that are too difficult for the students
- Remedial students cannot function at the secondary level
- Time and knowledge are compartmentalized
- All decision making is centralized

There are a number of directions one can go in trying to eliminate problems in education; hopefully, most will not precipitate something worse in the way of side effects. For those with great wealth and virtually unlimited commitment, a program of community education as fostered by the Mott Foundation in Flint, Michigan, may be an appropriate answer. Other school systems may merely lengthen the list of approved textbooks for next year. MUS-S attempts an ambitious yet moderate undertaking, a basic system which schools can adapt to meet their needs to the extent they feel is required.

Psychology-Based Propositions for Educational Practice

IGE/MUS-S is more than just a rearrangement of several problem-solving innovations. The project makes explicit some assumptions about factors that can influence learning out-

comes, and relates these to learning theory. Every attempt has been made to maintain consistency between these assumptions and IGE at the secondary level. On a theoretical plane the project has adopted the somewhat shop-worn yet still valuable domains of learning developed by Bloom (1956): affective, cognitive, and psychomotor. MUS-S places most of its stress on the cognitive domain and less emphasis on the affective domain under the assumption that nearly all of the affective problems that appear in the school situation can be greatly alleviated when the student feels the aura of academic success and purpose.

As useful as the Bloom construct is for organizing thoughts and analyzing actions, it is limited in the amount of practical information it conveys. Those who work with students daily need serviceable applications of theory. To fulfill that need, the project has adopted a set of psychological axioms; they are compatible in every way with the system of educational practice and daily operations proposed by the project. Written by Goodwin Watson (1961), they are entitled "What Psychology Can We Trust?" The 50 propositions follow, somewhat revised and with brief comments, under nine major headings.

I. Learning Process

- A. *Behaviors which are rewarded (reinforced) are more likely to recur.*

This most fundamental law of learning has been demonstrated in literally thousands of experiments. It seems to hold for every sort of animal from earthworms to highly intelligent adults. The behavior most likely to emerge in any situation is that the subject found successful or satisfying previously in a similar situation. No other variable affects learning so powerfully. The best-planned learning provides for a steady, cumulative sequence of successful behaviors.

- B. *Reward (reinforcement), to be most effective in learning, must follow almost immediately after the desired behavior and be clearly connected with that behavior in the mind of the learner.*

The simple word, "Right," coming directly after a given response, will have more influence on learn-

ing than any big reward which comes much later or which is dimly connected with many responses so that it can't really reinforce any of them. Much of the effectiveness of programmed self-instruction (teaching machines) is that success is fed back immediately for each learner response. A total mark on a test, the day after it is administered, has little or no reinforcement value for the specific answers.

- C. *Sheer repetition without indications of improvement or any kind of reinforcement (reward) is a poor way to attempt to learn.*

Practice is not enough. The learner cannot improve by repeated efforts unless he is informed about how well each one has succeeded.

- D. *Threat and punishment have variable and uncertain effects upon learning; they may make the punished response more likely or less likely to recur; they may set up avoidance tendencies which prevent further learning.*

Punishment is not, psychologically, the reverse of reward. It disturbs the relationship of the learner to the situation and teacher. It does not assist the learner in finding and fixing the correct response.

II. Motivation

- A. *Readiness for any new learning is a complex product of interaction among such factors as (a) sufficient physiological and psychological maturity, (b) sense of the importance of the new learning for the learner in his world, (c) mastery of prerequisites providing a fair chance of success, and (d) freedom from discouragement (expectation of failure) or threat (sense of danger).*

Conversely, the learner will not be ready to try new responses which are beyond his powers or which are seen as valueless or too dangerous.

- B. *Opportunity for fresh, novel, stimulating experience is a kind of re-*

ward which is quite effective in conditioning and learning.

Experiments indicate that even lower animals (rats, dogs, monkeys) will learn as effectively when they receive rewards of new experience or satisfied curiosity, as they will when the rewards gratify desires for food, water, sex, or rest. One trouble with the typical school day is that it is too dull; pupils find too few stimulating new insights to reward their efforts.

- C. *The type of reward (reinforcement) which has the greatest transfer value to other life-situations is the kind one gives oneself—the sense of satisfaction in achieving purposes.*

Any extrinsic reward—candy, or stars on a chart, or commendation—depends on its dispenser. There is no need to strive if the reward-giver is out of the picture. Also, cheating (detour behavior) can sometimes win the extrinsic reward. The internal reward system is always present for the learner, and he sees little gain in fooling himself.

- D. *Learners progress in any area of learning only as far as they need to in order to achieve their purposes. Often they do only well enough to "get by"; with increased motivation they improve.*

One of the earliest psychological studies showed that telegraph operators with years of practice seldom rose in speed beyond the acceptable "main line" rate; they could, however, learn to send and receive much faster if special incentives were provided. Studies of reading speed show that practice alone will not bring improvement; a person may have read books for years at his customary rate, but with new demands and opportunities he may be able to double that rate.

- E. *The most effective effort is put forth by children when they attempt tasks which fall in the "range of challenge"—not too easy and not too hard—where success seems quite possible but not certain.*

A good illustration is the dart game. Where is it most fun to stand? So close that you can't miss? So far away that you can't make a decent score? The maximum fun is at the level of maximum challenge. If it proves too easy, one steps further back; if it proves too hard one steps a little closer. It is not reasonable to expect a teacher to set an appropriate level of challenge for each pupil in a class; pupils can, however, learn to set their own goals to bring maximum satisfaction and learning.

III. Teaching Methods

- A. *Children are more apt to throw themselves wholeheartedly into any project if they themselves have participated in the selection and planning of the enterprise.*

Genuine participation (not pretended sharing) has been found to increase motivation, adaptability, and speed of learning.

- B. *Reaction to excessive direction by the teacher is likely to be (a) apathetic conformity, (b) defiance, (c) scape-goating, or (d) escape from the whole affair.*

Autocratic leadership has been found to increase dependence of members on the leader and to generate resentment (conscious or unconscious) which finds expression in attacks on weaker figures or even in sabotage of the work.

- C. *Over-strict discipline is associated with more conformity, anxiety, shyness, and acquiescence in children; greater permissiveness is associated with more initiative and creativity in children.*

Comparison of children whose parents were at the most permissive extreme of home discipline with those who were most strict (both groups of parents loving and concerned) has shown more enterprise, self-confidence, curiosity, and originality in the youngsters from permissive homes. These children were also more friendly and less hostile than the strictly

disciplined children. The demand for more restrictive discipline runs counter to the call for more individuality.

- D. *Many pupils experience so much criticism, failure, and discouragement in school that their self-confidence, level of aspiration, and sense of worth are damaged.*

The pupil who sees himself at his worst in school is likely to place little value on study and to seek his role of importance outside the classroom. He may carry through life a sense of being not good for much. He is likely also to feel resentment at schools, teachers, and books.

- E. *When children (or adults) experience too much frustration, their behavior ceases to be integrated, purposeful and rational. Blindly they act out their rage or discouragement or withdrawal. The threshold of what is "too much" varies; it is lowered by previous failures.*

Pupils who have had little success and almost continuous failure at school tasks are in no condition to think, to learn, or even to pay attention. They may turn their anger outward against respectable society or inward against themselves.

- F. *Pupils think when they encounter an obstacle, difficulty, puzzle or challenge in a course of action which interests them. The process of thinking involves designing and testing plausible solutions for the problem as understood by the thinker.*

It is useless to command people to think; they must feel concerned to get somewhere and eager to remove an obstruction on the way. A situation in which the customary responses work smoothly does not call for thought; when they no longer serve, then one needs to think.

- G. *The best way to help pupils from a general concept is to present the concept in numerous and varied specific situations, contrasting experiences with and without the*

desired concept, then to encourage precise formulations of the general idea and its application in situations different from those in which the concept was learned.

For example, the concept of democracy might be illustrated not only in national government but also in familiar situations of home, school, church, jobs, clubs and local affairs. It is best understood when it is contrasted with other power structures such as autocracy, oligarchy, or laissez faire.

- H. *The experience of learning by sudden insight into a previously confused or puzzling situation arises when (a) there has been a sufficient background and preparation, (b) attention is given to the relationships operative in the whole situation, (c) the perceptual structure "frees" the key elements to be shifted into new patterns, (d) the task is meaningful and within the range of ability of the subject.*

The term "cognitive reorganization" is sometimes applied to this experience. Suddenly the scene changes into one that seems familiar and can be coped with.

- I. *Learning from reading is facilitated more by time spent recalling what has been read than by rereading.*

In one experiment (typical of many), students who spent 80 percent of their learning periods trying to remember what they had read surpassed those who spent only 60 percent of the time on recollection; 60 percent was better than 40 percent; 40 percent was better than 20 percent; and the poorest plan was to spend all the time reading and rereading the assignment. Trying to interpret and apply the ideas noted in reading is another good procedure.

- J. *Forgetting proceeds rapidly at first—then more and more slowly; recall shortly after learning reduces the amount forgotten.*

Within twenty-four hours after learning something, a large part is forgotten unless efforts are made to

prevent forgetting. A thing can be relearned more quickly than it was learned originally, however; and if it is reviewed several times at gradually increasing intervals it can be retained for some time. Some people apply this idea in remembering names of several persons to whom they have just been introduced. The first recall must come immediately; a second recall should follow about five minutes later, a third after half an hour, a fourth some hours later, and perhaps a fifth the next day. Then names will stick.

- K. *People remember new information which confirms their previous attitudes better than they remember new information which runs counter to their previous attitudes.*

Studies consistently show that individuals who feel strongly on a controversial issue, and who are asked to read presentations of both sides, remember the facts and arguments which support their feelings better than they recall those on the opposite side.

IV. Subject Matter

- A. *No school subjects are markedly superior to others for "strengthening mental powers." General improvement as a result of study of any subject depends on instruction designed to build up generalizations about principles, concept formation, and improvements of techniques of study, thinking, and communication.*

In Thorndike's classic investigation, high school pupils whose programs included "hard" subjects like mathematics and ancient languages did not consistently improve in "selective and relational thinking" during a school year any more than did students whose programs had substituted allegedly easier activities like dramatics or typewriting. Whether any subject develops general abilities or not depends very much on how it is taught. Memorizing won't strengthen memory, but students can learn how to use better techniques of remembering. Pupils who study science may or may not master the processes of scientific thought.

- B. *Children (and adults even more) tend to select groups, reading matter, TV shows and other influences which agree with their own opinions; they break off contact with contradictory views.*

Parents want children taught what they themselves value and believe. One of the basic educational problems is to preserve minds from being closed in—surrounded by like-minded associates, like-minded commentators, and like-minded publications.

- C. *What is learned is most likely to be available for use if it is learned in a situation much like that in which it is to be used and immediately preceding the time when it is needed. Learning in childhood, then forgetting, and then relearning when need arises is not an efficient procedure.*

It was once thought that childhood was the golden age for learning. We now know (see Proposition VI.G) that adults of forty can learn better than youths of fourteen and much better than seven-year-olds. The best time to learn is when the learning can be useful. Motivation is then strongest and forgetting less of a problem. Much that is now taught children might be more effective if taught to responsible adults.

- D. *The superiority of man over calculating machines is more evident in the formulation of questions than in the working out of answers.*

Is education too much concerned with answers, not enough with the generation of better questions? "Always the beautiful answer who asks a more beautiful question" (E. E. Cummings).

- E. *Television is the most frequently reported activity of elementary school pupils, occupying about the same number of hours per week as are given to school—far more than would voluntarily be given to school attendance.*

Television is qualitatively as well as quantitatively influential. The

pictures and sound have a lifelike impact, far more impressive than print. The proportion of their total knowledge which children today acquire in school has dropped to a small fraction. Communities deeply concerned about finding better textbooks have given very little effective attention to the more potent educational medium.

V. Evaluation

- A. *If there is a discrepancy between the real objectives and the tests used to measure achievement, the latter become the main influence upon choice of subject matter and method.*

The classic argument on the relative importance of heredity and environment is futile; both influence every human act and trait. Some traits (preferences in food or clothing, for example) are easily influenced by nurture, others (height, rate of skeletal ossification) only when extreme environmental differences are involved.

- B. *There are specific stages in individual development during which certain capacities for behavior appear. The manner in which these capacities are then utilized sets a pattern for later behavior which is highly resistant to change. If utilized then, they are likely not to develop later.*

The object which a baby duck regards as its mother and follows about is that which appears at a certain brief stage shortly after the egg has hatched. Children born blind who later recover their sight have lifelong difficulty recognizing objects which seem simple and obvious to youngsters with normal visual development. A child who does not experience affectionate care from one person (not necessarily the biological mother) during the period from six months to eighteen months of age may be emotionally handicapped for life. It is very difficult in later years to learn to speak a second language without a foreign accent. Adolescents who do not develop independence from

parents and a normal interest in the opposite sex during the 'teen years may never do either very well.

- C. *The most rapid mental growth occurs during infancy and early childhood; the average child achieves about half of his total mental growth by the age of five.*

In the first two years a normal child transforms the "big, buzzing, blooming confusion" of his first conscious experience to organized perception of familiar faces, spoken words, surroundings, toys, bed, clothing, and foods. He differentiates himself from others, high from low, many from few, approval from disapproval. He lays a foundation for lifelong tendencies toward trust or mistrust, self-acceptance or shame, initiative or passivity; and these vitally condition further mental growth.

- D. *During the elementary school years (ages six to twelve) most children enjoy energetic activity—running, chasing, jumping, shouting, and roughhouse. For most staid adults this is uncomfortable. Boys are generally more vigorous, active, rough, noisy and non-conforming than are girls.*

Only in relatively recent periods of human history have children been cooped up in classrooms, confined to desks, and marched in silent order. There is reason to doubt the biological appropriateness of the traditional school.

- E. *Not until adolescence do most children develop the sense of time which is required for historical perspective.*

The so-called facts of history—1492, 1776, and all that—can be learned by children but without any real grasp of what life was like in another period or in a different country. Most instruction in Biblical, ancient, medieval, and even modern history is no more real to children than are fairy tales.

- F. *The significance of the important biological transformations of*

pubescence (growth of primary sex organs, development of secondary sex characteristics, skeletal and muscular growth, glandular interaction) lies mainly in the meaning which cultural norms and personal history have given to these changes.

Adolescence is not necessarily a "stormy" period. It is vital in our culture because it is then that we expect boys and girls to achieve their identity. They must work out their vocational plans, their social life, their marriage, their politics, their religion, and above all, their concept of who and what they really are. They have one role at home, another with friends of their own sex, another with friends of the opposite sex, another at work, and still another in a school class. What is the true self behind all these masks?

- G. *Ability to learn increases with age up to adult years.*

The apparent decline is more a matter of motivation (see Proposition II.D) than of inability. Most adults don't need to take the trouble to change and to learn new skills. We can coerce children into school activities; adult education is mostly voluntary. Men and women can, if they wish, master new languages, new ideas, and new ways of acting or problem-solving even at sixty and seventy years of age.

VII. Individual Differences

- A. *No two people make the same response to any school situation. Differences of heredity, physical maturity, intelligence, motor skills, health, experiences with parents, siblings, playmates; consequent attitudes, motives, drives, tastes, fears—all of these and more enter into production of each individual's unique reaction. People vary in their minds and personalities as much as in their appearance.*

Because conformity can be coerced, the ever-present differences are often ignored. Almost everyone around us stops at the red light, comes to work on time, sees the

favorite TV programs. Children assemble in classes and take out their arithmetic books when told to do so. These similarities are misleading; the inner reactions are always varied.

- B. *Pupils vary not only in their present performance but in their rate of growth and the "ceiling" which represents their potential level of achievement. Some "late bloomers" may eventually surpass pupils who seem far ahead of them in grade school.*

Rates of growth are, moreover, irregular; mental growth is even more so than physical growth because it varies with encouragement and opportunity.

- C. *Children's gains in intelligence test scores and IQ's are positively related to aggressiveness, competitiveness, initiative, and strength of felt need to achieve.*

Some apparent dullness is due to lack of encouragement in the development of verbal and arithmetic skills. When these are not valued at home or by friends, it is hard to take them very seriously. Studies have shown gradual decline in IQ's in culturally deprived groups.

- D. *Pupils grouped by ability on any one kind of test (age, size, IQ, reading, arithmetic, science, art, music, physical fitness, and so forth) will vary over a range of several grades in other abilities and traits.*

Homogeneous grouping is literally impossible except for a given limited task. On another task, a little later, these same children will not perform alike. No teacher is justified in teaching children, however they may be grouped, as if they were all alike—little mechanical robots. A challenging assignment (see Proposition II.E) for one pupil may be too hard or too easy for another despite similarity in grade, age, IQ, sex, size, and school marks.

VIII. Group Relations

- A. *The right size of group for any activity depends on both the maturity*

of the individuals and the nature of the activity.

Hundreds or thousands may be spectators at a film, a TV presentation or a spectacle. Working, interacting groups seem to do best when composed of five to eight members. If the group is larger, some become performers and others spectators. At age six, spontaneous groups seldom exceed three or four children. Sizes now accepted for school classes are much too large for good cooperative work.

- B. *When groups act for a common goal there is better cooperation and more friendliness than when individuals in the group are engaged in competitive rivalry with one another.*

Some studies indicate that the more cooperative groups also produce results of better quality. The competitive emphasis directs attention toward winning rather than toward excellence of performance.

- C. *Children learn at an early age that peer consensus is an important criterion; they are uncomfortable when they disagree with their peers, and especially when they find themselves in a minority of one against all the others.*

Children naturally conform; they do not want to be seen as "different" from all the others. This is an important aid in socializing the human animal. "Independence" emerges in some adolescents as conformity to a specially selected reference group—often one not present at the moment.

- D. *Pupils learn much from one another; those who have been together for years learn new materials more easily from one of their own group than they do from strangers.*

Traditioned groups develop their own customary norms. They have signals which recall shared experiences. Peers can communicate economically and without barriers of status.

- E. *Children who differ in race, nationality, religion, or social class background, but who play together on a footing of equal status and acceptance, usually come to like one another.*

This is a particular instance of an important law in social psychology; frequency of interaction brings increased liking for one another. Generally, best friends are those who are most frequently seen—classmates, neighbors, work associates, companions in recreation. The relationship is circular. Those best liked are most often chosen as companions; those with whom we more frequently associate become better liked.

- F. *In most school classes, one to three pupils remain unchosen by their classmates for friendship, for parties, or for working committees. These "isolates" are usually also unpopular with teachers.*

A vicious circle operates. The rejection by peers and teachers intensifies the disagreeable characteristics and behavior of the isolates and makes it even more difficult to accept them. The task of the teacher is to break through the vicious circle—to try to bring out traits which will enable the isolate eventually to make friends. The relationship to an accepting and understanding teacher is the bridge to all other human beings.

- G. *Leadership qualities vary with the demands of the particular situation. A good leader for a football team may or may not be a good leader for a discussion group, a research project, or an overnight hike; leadership is not a general trait.*

In some groups, leadership is distributed among members. One person may propose an idea; someone else may lead in its development; a third person may remind the group of its goals or time limits; still another may help to raise morale. No one leader is required. Agenda may be adopted by consensus and followed by cooperative reminders as needed.

IX. Social Stratification

- A. *The socioeconomic class into which a child happens to be born strongly influences his life chances.*

Studies show differential infant-mortality rates, health services, mental growth, school performance, housing, recreation, vocational opportunities, type of church, and extent of community influence—all favoring the upper-class neighborhoods. Schools have a peculiar problem with social class; the school boards represent largely the upper strata; the teachers are drawn mainly from the middle layer; most pupils come from the lower classes.

- B. *Two thirds of the elementary school children of America come from lower-class homes; the one third who come from the lower-lower class usually find school very uncongenial.*

This is education's biggest unsolved problem. Even in the elementary schools, most teachers are reluctant to work in the culturally deprived areas of cities or of rural regions. As we try to keep all American adolescents in school until sixteen or eighteen years of age, we increase the problem. The "Blackboard Jungle" of the city slums and the "Tobacco Road" schools of the rural slums are tough for teachers and are unrewarding for the resistant pupils. Few successful experiments have yet been reported in devising publicly approved educational programs with strong appeal for these students and for teachers.

- C. *Children who are looked down upon (or looked up to) because of their family, school marks, social class; race, nationality, religion, or sex tend to adopt and to internalize this evaluation of themselves.*

Studies have shown that Negro children in a white-dominated society are more likely to pick the black-skinned doll than the white-skinned doll as "looking bad";

they unconsciously accept the prevailing norms of white superiority. Race and class and sex discrimination leads to self-concepts of over-valuation in the dominant group and under-valuation in the subordinate group.

- D. *Attitudes toward members of out-groups are usually acquired from members of one's in-group.*

White children get their attitudes toward Negroes not primarily from direct contact with Negroes but from their white parents and playmates. Similarly, attitudes toward other classes, other faiths, and other nationalities are acquired (like speech dialects or food preferences) from the nurturing group.

- E. *Children choose most of their "best friends" from homes of the same socioeconomic class as their own.*

An effort in one junior high school over a three-year period to increase interaction across the lines of socioeconomic class led to a drop in same-class choices from 75 to 66 percent. The norms of the larger community were more powerful than those generated within the school.

- F. *More girls than boys wish, from time to time, that they could change their sex.*

Sex discrimination in our culture has received much less attention than has race discrimination. While there has been some progress toward equality of opportunity in education, our culture still sees boys as primarily concerned with vocational achievement and only secondarily with love, marriage, and parenthood. For girls, the order is reversed; it is thought that their vocational achievement should properly be secondary. Thus it comes about that the top positions in government, industry, commerce, science, education, and religion are reserved for males. The conflict may be particularly acute in girls gifted with high intelligence and outstanding capacity for executive leadership.

Summary

Material presented in this chapter is primarily descriptive in nature. IGE/MUS-S is described in terms of (1) its operation as a project in the Wisconsin Research and Development Center, (2) its commitment to an IGE system which provides continuous progress toward mutually established educational

goals by all students through use of instructional programming and suitable organization, (3) its primary analytical tool—a three-part division of the functions of education, (4) its role in the ongoing process of change and innovation in education, (5) problems which often plague the process of education, and (6) a set of 50 working statements on learning psychology.

II Individually Guided Education/Multiunit Secondary School Model and Its Components

Chapter I contained a discussion of the major theoretical aspects upon which the project is based. Quickly, there were the philosophy of continuous progress, or the belief that the educational system must accept major responsibility for success and failure in learning; the commitment to 50 propositions for educational practice based on known psychological findings; and the belief that education is a complex process serving at least three discernible functions called schooling, training, and enlightenment. Progress of the project has met our expectations in the development of a workable mechanism by which to implement these basic concepts. Preliminary drafts and designs for an IGE/MUS-S system have been reviewed by selected educators and have been found to be operationally feasible and compatible with IGE theory.

Design and Development of the General Model

It is the intent of this chapter to present the general system through discussion of its seven component parts. The combination and interaction of these components represent the system of IGE currently being considered for use at the secondary school level.

The general model shown in Figure 2.1 is comprised of three parts, the first depicting school operations as commonly found in traditional practice, the second depicting IGE/MUS-S as a process which changes traditional practice through application of its seven components, and the third depicting the changed form of school operations at the end of the "flow." The model has been designed to emphasize the nature of IGE/MUS-S rather than provide a comprehensive description of school operations, and it thus appears

that IGE/MUS-S totally supplants traditional operations, which is somewhat misleading. There will be many school operations outside the realm of instruction, such as the business office, lunch program, and transportation, which will not be affected. There will also be much carryover from traditional instruction for a number of years, if for no other reason than the impossibility of purchasing entire new stocks of learning materials. Consider the use of "poetic license" when gauging the role of IGE/MUS-S in the future.

The needs to which traditional practice responds are not a great deal different from those to which IGE responds. While traditional practice often gives short shrift to its responsibility for dealing with student failure in learning, this is more a consequence of the traditional structural organization than of the professional educators themselves. That is, the old system often forces sensitive individuals to become insensitive to the needs of students if they are to fulfill their organizational roles. The traditional organizational structure does this because it assumes that every child is the same, and adjustment to individual student needs is by default dependent upon individual teacher stamina and initiative. The outcome of this assumption is that many students complete their secondary education with inadequate schooling, not because they were too stupid to learn, but because they were unable to learn at the speed or in the mode which had been prescribed for the "average student." These unfortunate students are often placed in training programs with which they cannot deal. On the other hand, very gifted students are often placed in enlightenment classes for which they have little interest and from which they draw virtually no productive economic skills. And the very process of intellectual enlightenment suffers almost fatally because it is expected

to accomplish the functions both of schooling for slow students and of training for fast students. The end result is often frustration for both teacher and student.

IGE/MUS-S is a facilitating instructional system which recognizes first and foremost that each individual student has a different mixture of met and unmet needs in each of the three areas of education: schooling, training, and enlightenment. Furthermore, through instructional means it attempts to accommodate a wide variety of learning styles so that progress in each of the three areas will be continuous.

Students have different needs for a variety of reasons. In the area of schooling, different rates of assimilation, levels of IQ, responsiveness to media forms, reception to interaction modes, and types of grouping will all have a profound effect on the rate and quality of learning. These factors which affect learning are also important in the area of training, but are not as critical as motivation and interest which usually are derived from unique individual experiences and family background. The ability of many training courses to capitalize on non-verbal learning styles as well as reliance on motivation and interest of the student, may help to explain why these areas are so often selected almost exclusively and invariably for nonverbal and slow learners. The area of enlightenment is perhaps the purest form of education, and the rarest. The use of IGE/MUS-S will enable teachers through specified objectives and flexibility of group organization and interaction to approach this delicate undertaking more honestly and to approach schooling and training more effectively. Instead of having all students undergo a general course in which the teacher is forced to badger students to learn for the sake of "success on the exam," students with the right combination of schooling and interest can be brought together and have some hope of grasping the intrinsic joy of learning. IGE for secondary schools is proposed in order to adjust better to the sum total of all these impinging needs.

When properly integrated in a school, the seven components of IGE/MUS-S should function simultaneously as a system with consequent improvements in teacher morale, administrator-teacher communication, student performance, and personal-social development of individuals. These components are (1) instructional programming, (2) learning climate, (3) measurement and evaluation, (4) organizational framework, (5) shared decision making, (6) home-school relations, and (7) research and development. Those who are familiar with IGE at the elementary school level will recognize some of these component titles as essen-

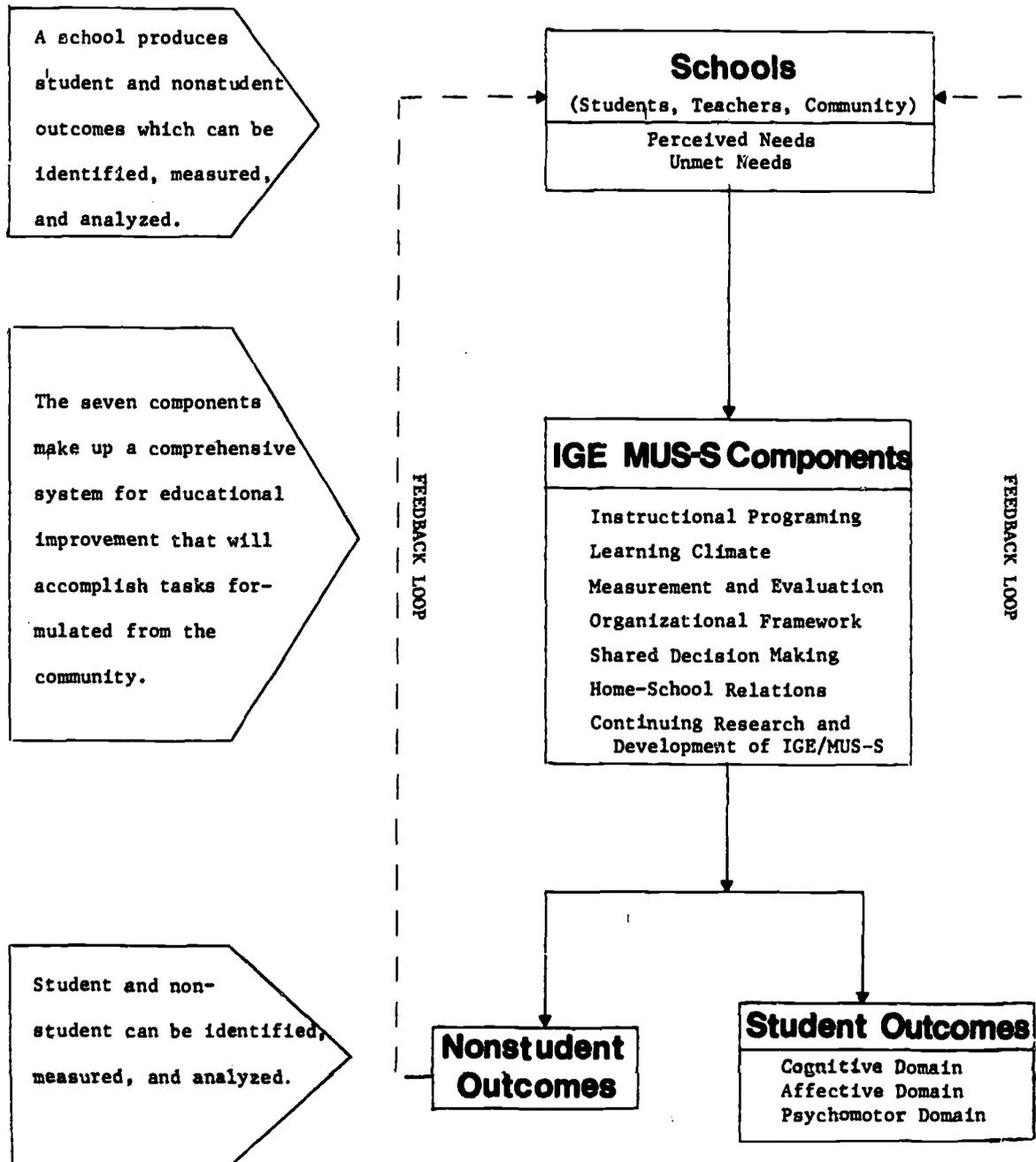
tially the same as those found in the MUS-E system. However, the content in some of these components is significantly different in MUS-S. The general model (Fig. 2.1) found on the following page illustrates the interrelationships between ongoing school operations and IGE/MUS-S.

The project has attempted to generate a dual set of models in each component to accommodate differences of philosophy, organization, and attitude found in secondary teaching levels. The levels are roughly equivalent to what are commonly referred to as junior high, middle, or intermediate schools, and senior high schools. While age-graded placement is largely abandoned by MUS-S, readers can use the clusters of Grades 6-9 and 9-12 to clarify the two levels for which models have been sketched. It will be seen in the following discussion that the organization component varies most between the two levels of secondary education, but that variation in this component greatly affects all other components in the system. Therefore, it became necessary for the project to develop two distinct sets of materials for each of the seven components which would serve the needs of two distinct situations. Aspects of components which appear to be identical in the two levels of MUS-S will often fulfill functions which are unique to general operations in junior and senior high schools.

It is important to understand the manner in which the intermediate and secondary models are to be utilized and applied by school districts. IGE/MUS-S is not a package of rigid dimensions to be plugged into a school system in the manner of a tape cassette. Rather, it is more like a set of building blocks: certain pieces are of small dimensions and can be used in isolation or in conjunction with several other blocks of varying size; other blocks are quite large, and increased adjustments are needed to use them in a new structure. Certainly school districts will have great latitude in selecting those features of IGE/MUS-S which best suit their local conditions. Just as certainly, the project must decide upon minimum combinations of components before granting permission for a district to claim operation in the IGE mode. While these minimums have not as yet been made final, their establishment is seen as necessary to guarantee that the total function of IGE is being delivered, even though a district may elect to implement a "stripped-down model." Adoption of the continuous progress philosophy as outlined in Chapter I is one of the primary ingredients; another is the use of the division type of organization in the senior high school. Conclusions beyond these are pending the outcome of piloting experiences.

Figure 2.1

Individually Guided Education Multiunit Schools - Secondary Model



Instructional Programing

The purpose of this section is to familiarize readers with dimensions and concepts of the instructional programing component of IGE/MUS-S. Instructional programing is one of seven components in the IGE/MUS-S system; its nature is such that it necessitates a somewhat broader presentation and explanation than is true of some of the other components.

The section begins with a discussion of general topics, the first of which is continuous progress. It is this portion that provides a working philosophy for the IGE/MUS-S system. An overall design is presented in the form of the continuous progress model; it treats the theory behind a secondary school program constructed on the basis of the continuous progress philosophy and the IGE/MUS-S system. The final part of the general topics section provides a vehicle for analysis of educational programs in terms of the extent to which they are individualized.

The last portion of the section deals with the more specific topics of how to use instructional programing techniques (and how to identify individualized instructional materials and experiences). The Instructional Programing Model (IPM) is explained as a way of providing curriculum structure. A general form of the IPM is presented, followed by the implications for practice at district, building, teacher, and student levels.

In handbook format is a section on individualized curricula that can be thought of as providing curriculum *content*. This format will be useful for instructional staff in evaluating commercially prepared and packaged or locally produced programs.

Continuous Progress

The notion of continuous progress implies that the school program must be ready to accommodate a student's state of preparedness, rather than preparing the student to meet arbitrary needs of the school program. Assuming that an educator can accept this notion, translation into practice requires that a study be made of each individual student to assess his or her particular state of preparedness. Such an investigation requires a standard for measurement, hopefully based on criterion-based professional judgment rather than population norms. These standards of measure or criterion-based reference marks usually grow out of a belief about what is desirable to learn. The usual way to communicate desirable goals for use in educational practice is to state them in terms of

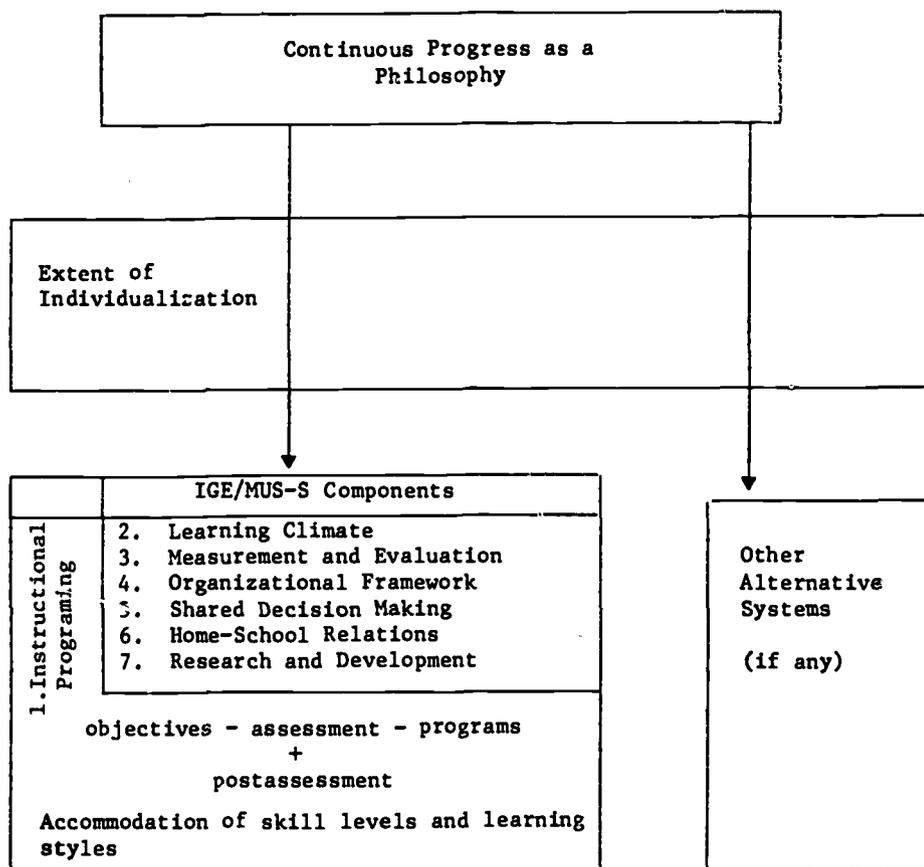
measurable objectives. Thus translation of the notion of continuous progress into practice requires a complementary set of operations called goal-setting and assessment. Once desirable outcomes are firmly in mind and a student's current ability to attain these outcomes is known, it remains to structure some type of learning experiences or instructional program to assist the student to achieve success in meeting that set of desired outcomes. Since the outcomes have hopefully been formulated in identifiable or measurable terms, it is quite natural to postassess a student to see if exposure or involvement in a program or experience has been successful. The final sequence of operations is goal setting, assessment, program development, and evaluation—none of which is mutually exclusive in practice.

The purpose of beginning with this analysis of how continuous progress is translated into practice is to lead into a discussion of how continuous progress, IGE/MUS-S, and instructional programing are interrelated. These concepts represent three views of the same thing: *how to adapt the school to meet the needs of individual students*. Continuous progress is the philosophy which provides overall direction; IGE/MUS-S is the total system of components which is designed to facilitate continuous progress, and instructional programing is the specific technique in IGE by which to "fine-tune" the system to accommodate individual student needs. Figure 2.2 depicts the nature of these interrelationships.

It is also possible to generate a diagram of a more specific nature, limited to secondary school operations, which suggests ways in which a total school program may look, based on the continuous progress philosophy and IGE/MUS-S (Fig. 2.3). It can be termed an "outcomes and operations of IGE/MUS-S model" or more simply a "continuous progress model" (CPM). Because of its complexity, it is easier to construct in a horizontal fashion. But the flow of goal setting, assessment, program development, and postassessment shown in vertical fashion in the instructional programing models (Figs. 2.5-2.8) is intact. Operationally, there is little difference between the Instructional Programing Models (IPM) and the Continuous Progress Model shown here. They differ primarily in scope, with the IPM stressing short-term, practical application and the CPM stressing long-term, theoretical concepts. The models together attempt to eliminate assumptions about student proficiency levels in moving from lesson to lesson and year to year.

The model in Figure 2.3 reads from left to right, and shows courses of study in a series of lines. The length of each line suggests

Figure 2.2



duration or anticipated time regime for most students to attain exit proficiency.

The nature of the options in such a program will be highly dependent on local school systems. Among the choices they must evaluate are the following:

1. Student and/or teacher may construct a specific educational experience from an assembly of professionally prepared programs.
2. There may be options available to students in which they generate their own courses.
3. Points of entry into courses may be assigned or may be student choices.
4. It is possible to have tracks within which there are options.
5. Students may select their own interest divisions.
6. Within a given interest division, students may choose materials, experiences, and courses suited to their accelerated, normal, or remedial competencies.

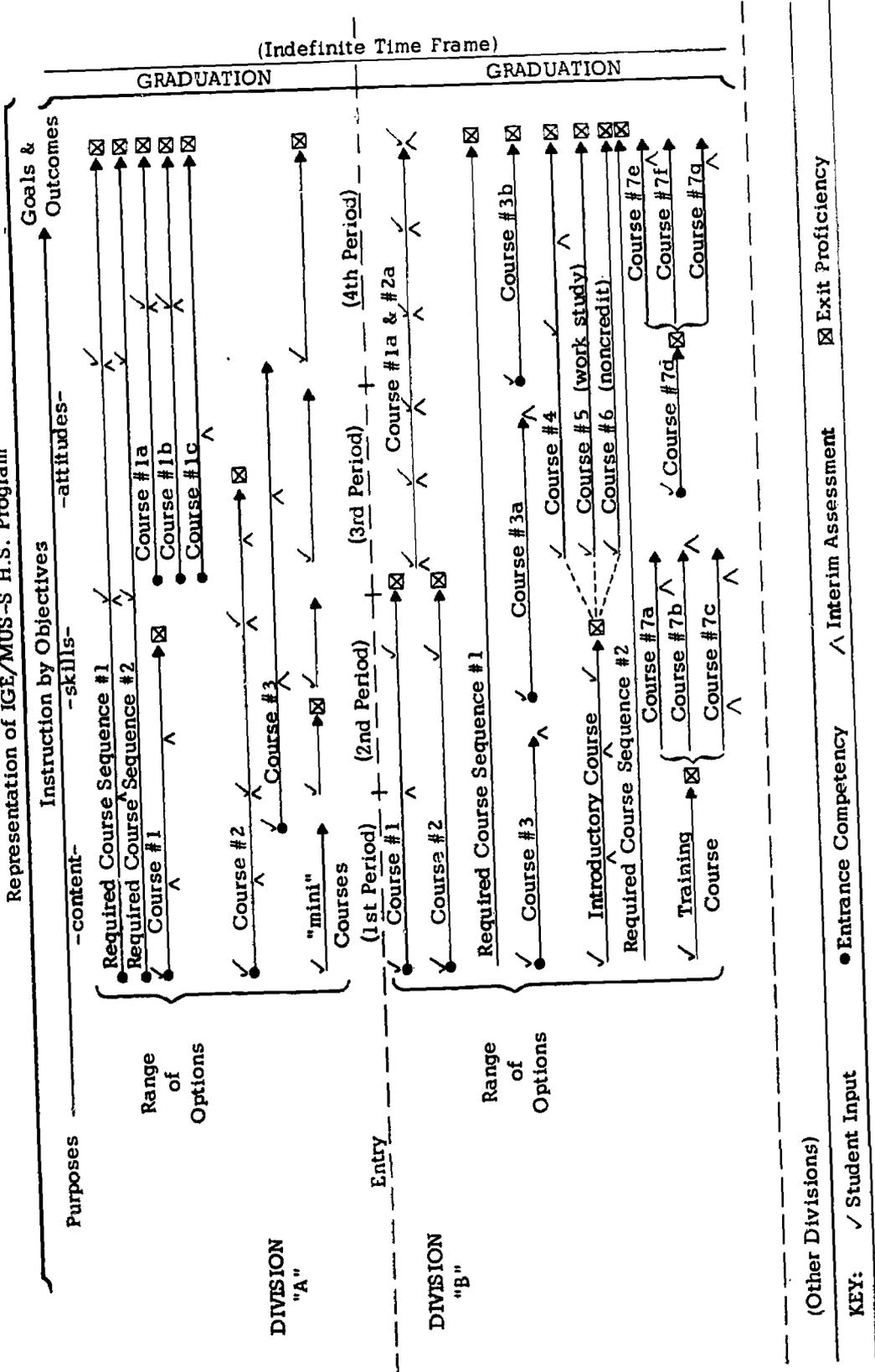
7. Teachers may or may not establish universal skills required in each division.
8. Courses may be of differing lengths and will establish variable time frames according to whether or not exit depends on proficiency or number of days attended, or both.
9. Students may or may not be compelled to commit themselves to courses of study that exceed a semester in length.
10. A major portion of student input will revolve around the extent of their options.

The major criterion for determining to what extent a student may originate his or her own educational programs and goals is the individual's social maturity. In addition, recent trends toward federal citizenship for students may require that they have a major voice in decisions that used to be reserved for professional staff. Certainly students of higher maturity must be guaranteed the right to have

Figure 2.3

CONTINUOUS PROGRESS MODEL

Representation of IGE/MUS-S H.S. Program



an input into their education, and those points at which students may have an input should be identified. To a certain extent, these points are provided for in the building level and student level IPMs.

The implementation of an objectives-based learning system necessitates the identification of criteria for setting objectives. Criterion-reference marks which should be considered are subject area norms, individual student's competencies based on age predictions and intelligence, school/district/community expectations, economic realities of marketable skills, teacher expectations of their own work, teacher expectations of student's work, and known student desires and performance levels. Specification of these criteria will in turn lead to identification of student needs in the cognitive, affective, and psychomotor domains; teacher competencies; and school/district/community requirements and resources.

Establishment and assessment of competency levels are an integral part of the CPM. For this purpose measurement tools must be constructed or selected in view of their ability to produce data applicable to evaluation of goal attainment. Whenever any objective is specified, it is possible to devise some means of measuring attainment or failure, so in general, identification of goals and objectives will dictate the nature of the procedure used for assessment. Local districts will have to establish exit assessment criteria that are in keeping with state requirements, local expectations, and professional conviction:

1. How many years will constitute a full secondary experience?
2. What shall constitute basic schooling for a high school graduate?
3. To what extent must marketable skills be taught?
4. Will social maturity be a factor in exit assessment?
5. What is to be done with the student whose entrance competencies exceed the exit criteria?
6. From what source will criteria and objectives be generated?

Use of the instructional programming model will help to answer some of these questions. It is a major method for eliminating assumptive measures of student proficiency and will help professionals to abandon rigid time frames for learning.

Individualization

Before introducing instructional programming techniques with the continuous progress IGE

system, it would be best if the reader studied the major variables of program development. Because this paper is directed toward production of programs and courses which accommodate individuals, the program variables are presented in a form which shows extent of individualization. Another way to look at this is to consider individualization to be a unit of measure with which to learn more about an educational program. And, like any unit of measure, "extent of individualization" is like inches, feet, and pounds—neither good nor bad, simply informative.

Using this type of analysis, the reader will be in a better position to understand operational aspects of secondary school programs in IGE/MUS-S. Furthermore, it is hoped that the reader will have a better idea of his own professional experiences and situation in individualized programs and can more accurately gauge his or her position in relation to IGE/MUS-S.

The schematic diagram in Figure 2.4 shows that the primary variable of any program is time. After establishing this primary variable, it is most important to know if goals and objectives are the same for all students, or if each student has unique goals and objectives. The next most important aspect of an individualized program is knowing who sets these goals and objectives. The amount of input by teachers as opposed to students will vary considerably in different situations, and is shown as the letters "T" and "S" with arrows. Materials and experiences constitute the techniques used to achieve the goals and objectives which have been established, and are listed as "materials" for the sake of brevity on the chart. "Common materials" are similar things planned for simultaneous use by groups of students; "individual materials" are unique to each student.

Basic characteristics of most educational programs can be isolated with the assistance of this diagram, and the positions of several have been designated as "areas." Placement and definition of MUS-S on the schematic diagram has not been finalized, but it hopes to adopt operations that cluster in the lower right quadrant: variable time frames, goals and objectives unique to each student, high student input into setting of goals and objectives, and completely individualized materials and experiences.

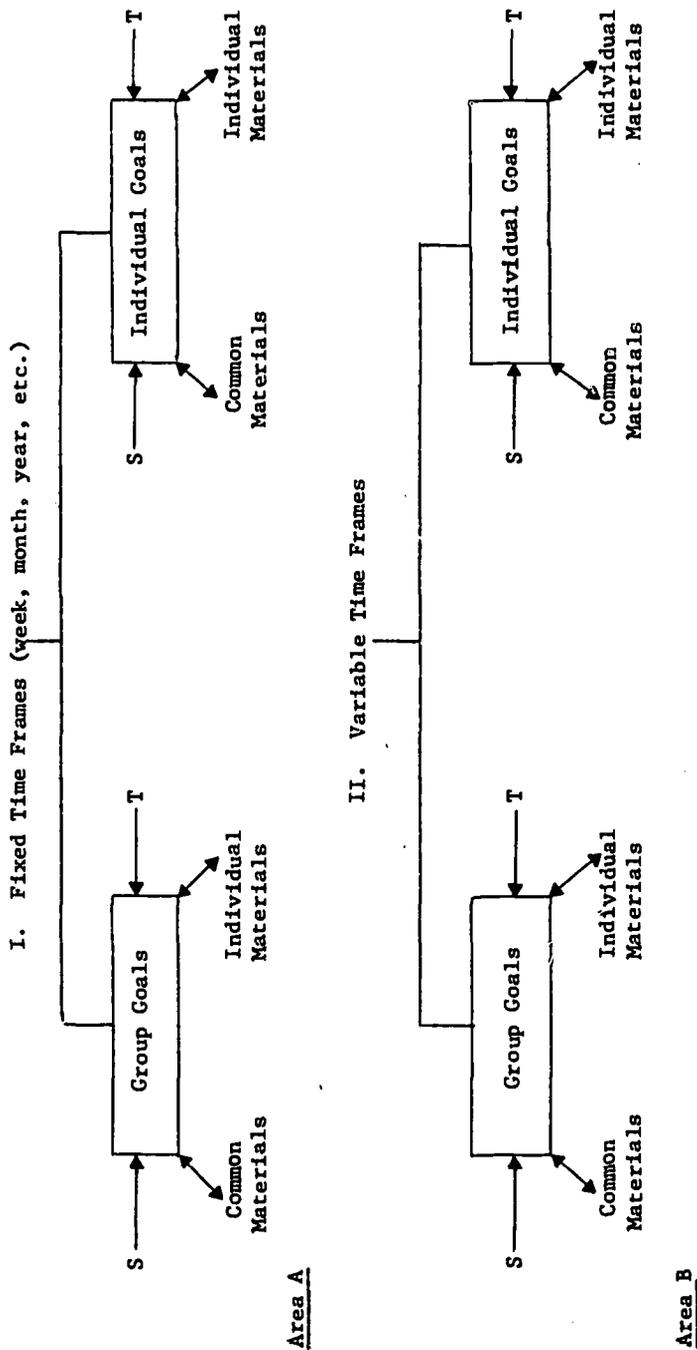
Structure of the IPM

The Instructional Programming Model is a subsystem of IGE designed for the selection and sequencing of teaching-learning techniques

Figure 2.4

PRIMARY VARIABLES OF PROGRAM DEVELOPMENT

This is a diagram showing four combinations of the major variables that determine the extent to which instructional programs are individualized.



- Area "A" - Traditional instruction in which all students must complete their studies at the same time, and everyone has the same goals, expectations, and materials as prescribed by the teacher
- Area "B" - IPI instruction in which students can take as much time as necessary to complete their studies, but in which they are required to go through the same sequence of materials as everyone else
- Area "C" - A free school situation in which there are no time constraints, individual goals are set by student and teacher, and unique materials and experiences are prescribed for each student

in accordance with chosen objectives. It is an outcomes-oriented system based on learning objectives. The four major functions of this system are

1. Formation of purposes and measurable performance of objectives for each learner
2. Preassessment for the purpose of diagnosis
3. Formation of instructional objectives and planning of instructional programs for each learner
4. Postassessment for the purpose of evaluation

These functions operate at each of four IPM levels (district, building, teacher, student), although application may differ slightly at each level. A discussion of each IPM level appears later along with a diagram for each level (Figs. 2.5-2.8).

With the advent of IGE/MUS-S it will be possible to commit school districts to IGE. For this reason it is felt that the scope of the IPM should be extended to include district, building, teacher, and student levels rather than simply general instruction to reflect the implementation of IGE characteristics at all levels. Increasingly districts are establishing, developing, and maintaining a system-wide IGE program, and the IPM will serve as a facilitator in the following areas:

1. As a guide to assessment of present instructional programing (including organization, philosophy, objectives, and assessment)
2. As a guide to reorganization of instructional programing (including organization, philosophy, objectives, and assessment)
3. As a definition of roles and responsibilities for participants in the educational process (including students, instructional and administrative staffs, and community)

The IPM may also be used to facilitate the development and implementation of individualized curricula and continuous progress. In addition, the IPM serves as a subsystem for practical application and implementation of other IGE components such as learning climate, home-school relations, and shared decision making.

The instructional programing process may be used to determine the needs which must be fulfilled for learning to take place. Some of these needs fall into the affective domain and are very much a part of the learning climate

component of IGE. In the IPM needs and resources are assessed prior to formation of instructional programs. This sequence provides the opportunity to evaluate the various aspects of learning climate and make appropriate changes where they are necessary.

In IGE shared decision making is assumed to operate at all levels and includes all the participants in the educational process. Two processes must be understood before shared decision making can result. They are (1) the understanding of the decision-making process of the individual, and (2) the understanding of the group process. It is felt that the IPM will facilitate the understanding and implementation of these decision-making processes by presenting a set of guidelines that define those decision-making activities which concern instructional programing.

The role of the home and community in the educational process is developed in IGE through the home-school relations component. Schools alone cannot undertake the total effort of educating the youth of today. Resources as well as expectations of home and community are important and valuable to the educational process.

The implementation of a home-school relations component requires that definite provision be made for input from home and community. It is the IPM in combination with the organizational framework of IGE which provides the guidelines for participation and input from home and community concerning instructional programing.

Thus, the IPM serves not only as a tool for development, implementation and evaluation of the curriculum, but it also serves as a facilitator for the IGE components of learning climate, shared decision making, and home-school relations.

District IPM

Step I involves stating a philosophy of education and setting broad educational outcomes for the student population of the district. Both of these tasks require the combined efforts of representatives from the community, professional staff, and student population. It is recommended that the final confirmation of philosophy and educational outcomes be made by either the central office or school board; however, input from the above-mentioned groups is very important. Shared decision making is a basic IGE component and should be operational at all levels; therefore, the Systemwide Policy Committee (SPC) may function as the structure for organizing and generating these statements.

The statement of philosophy should reflect IGE characteristics—especially the concept of continuous progress—as well as the nature of the particular school district. From this statement of philosophy will emerge the educational outcomes for the student population of the district. These broad educational outcomes should be formulated in terms of performance criteria, intellectual, physical and emotional needs, and the interest orientation of the student population. This statement of broad objectives helps to focus the attention and energy of district and building staffs on the educational priorities. It functions as a set of basic guidelines for the entire district.

Step II involves the assessment of needs and interests of the student population in terms of the expectations of school, community, and students. Available community and district resources must also be assessed before the resources can be allocated properly and instructional programs formulated. Facilities, equipment, instructional materials, and human resources must be evaluated in order to determine the feasibility of instructional programs, the effective and efficient use of resources, and the acquisition of additional new resources. Responsibility for these tasks lies with the SPC or central office with input from the community, staff, and students.

Step III involves making district resources available to facilitate the attainment of educational objectives, which is a responsibility of the central office staff or the SPC.

Resources which should be provided by the district are:

1. Physical facilities
2. Print and nonprint instructional materials
3. Equipment
4. Consultant services
5. Inservice materials and programs

Step IV involves assessing the attainment of district and building educational objectives. This is an evaluative measure to determine the effectiveness of instructional programming in terms of staff and student performance and the use of district resources.

This step requires the development of a means for evaluating the attainment of objectives, which in turn requires the development of criteria for assessing each area or level. The responsibility for this task lies with the central office or SPC.

If the district and building objectives are not attained, it will be necessary for the SPC to reassess the needs and resources of the district. It may even be necessary to reevaluate the district statement of philosophy or

statement of educational outcomes. The process of setting objectives and developing and assessing programs would be ongoing and thus would provide a continual renewal or strengthening of the total instructional program.

Building IPM

Step I involves the stating of educational outcomes and the range of objectives to be attained by the student population of the building. The broad educational outcomes set by the district should be used as guidelines. Criteria for setting building objectives may be derived from consideration of the following:

1. Level of achievement
2. Other performance related to level of achievement
3. Intellectual, emotional, and physical needs
4. Interest orientation

The range of objectives which a subgroup of students may be reasonably expected to achieve must be established. This requires the determination of student subgroups. Establishment of student subgroups may be based on one or more of the following criteria: age, intelligence, skill needs, grade level, or interest orientation.

The Instructional Improvement Committee (IIC) has the responsibility for development of these objective-setting tasks. The objectives formulated by the IIC help to focus the attention of the staff on the educational priorities for the student population of the building.

Step II involves the assessment of (1) student performance and level of achievement, and (2) resources needed to attain the educational objectives of the building.

Assessment of student performance and achievement is diagnostic in nature. Once broad educational objectives have been set, assessment of student ability in terms of those objectives can be carried out. Student subgroups and various instructional groupings may be determined after completing this diagnostic assessment.

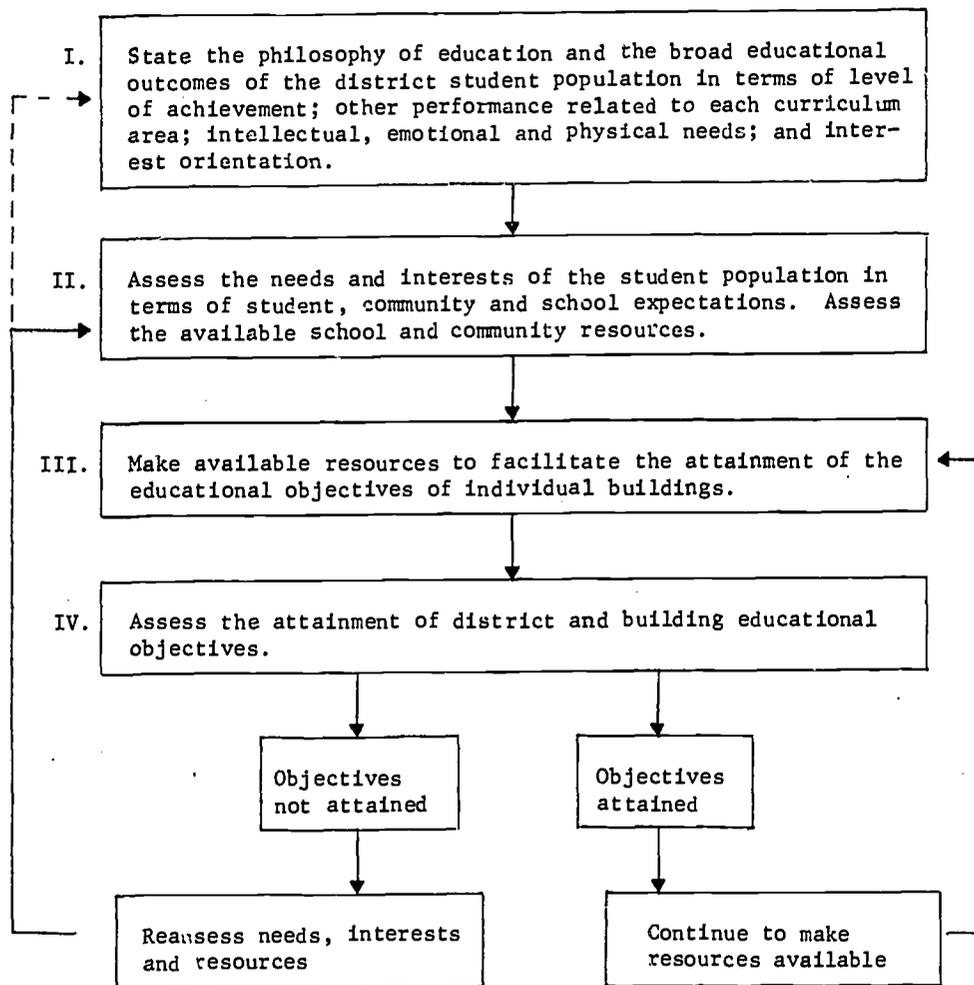
Assessment of building resources is a necessary prerequisite to formation of instructional programs. The IIC carries out this important function by establishing criteria for evaluation of resources. This step is meant to supplement the district's assessment of resources; it is recognized that each building has its distinctive characteristics in terms of resources and needs.

Step III involves making building resources available to facilitate the attainment of educa-

Figure 2.5

DISTRICT INSTRUCTIONAL PROGRAMING MODEL IN

IGE/MUS-S



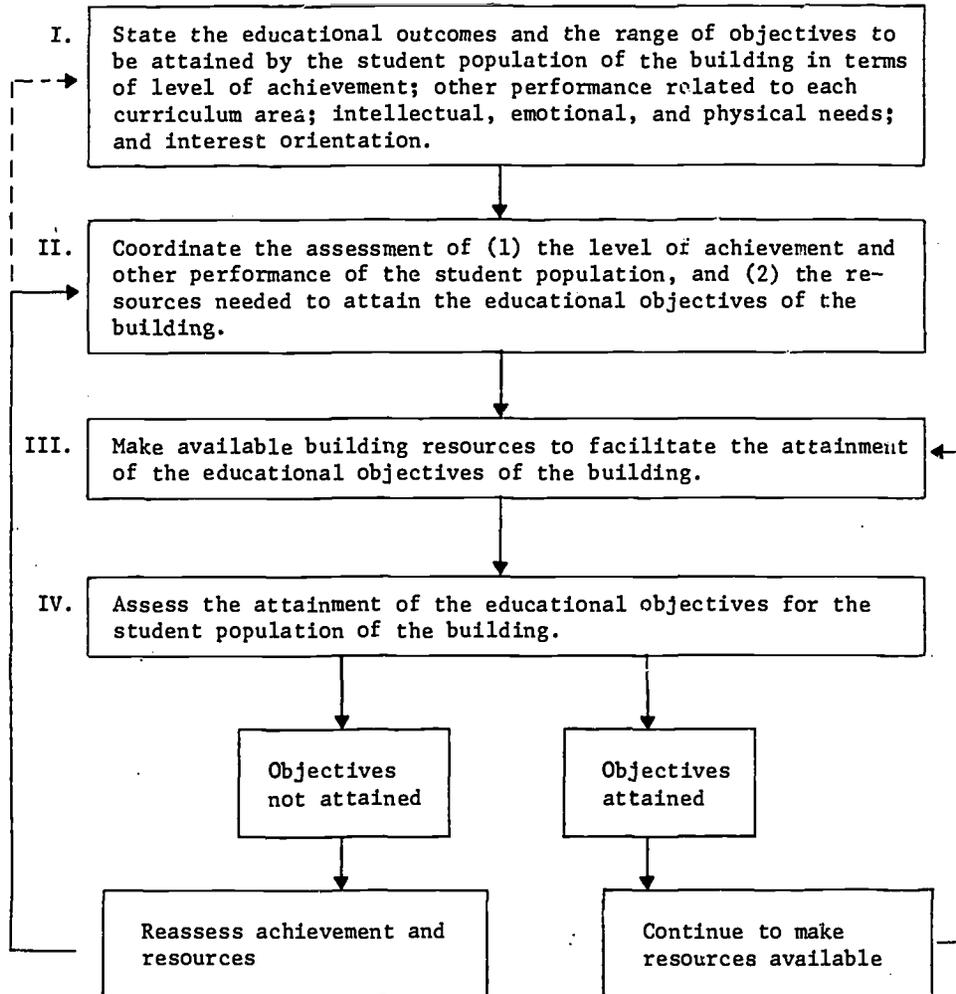
————— Feedback Loop

- - - - - Optional/Additional Course of Action

Figure 2.6

BUILDING INSTRUCTIONAL PROGRAMING MODEL IN

IGE/MUS-S



————— Feedback Loop

- - - - - Optional/Additional Course of Action

tional objectives. This again is the responsibility of the IIC; and, as at the district level, the IIC must set criteria for allocation and acquisition of human and material resources in order to provide for the best possible use of these resources. Generally speaking, the IIC will be engaged in evaluating and distributing resources which the district has allocated for the building.

Resources which might be administered by the IIC include:

1. Building facilities
2. Print and nonprint instructional materials
3. Equipment
4. Consultant services
5. Inservice materials and programs

Step IV involves assessing achievement of the educational objectives of the building. This is an evaluative step which is meant to determine the effectiveness of the instructional program, use of resources, and performance of staff.

The IIC should undertake the development of evaluative criteria for each subject area and follow the guidelines set by the district for general evaluation.

If certain objectives are not attained, it may be necessary to reassess student performance levels and resources needed to achieve building goals. In some cases it may be necessary to reevaluate the educational outcomes or range of objectives which were originally set by the IIC. Changes are expected to occur, and it is the continual process of objective-setting and evaluation which will facilitate the development of an effective and vital instructional program.

Teacher IPM

Step I involves stating long- and short-term educational objectives for each subject area. In setting these educational objectives entry- and exit-level competencies should be determined; that is, the desired level of competence necessary for a student to begin learning the course content and the level of competence necessary to indicate mastery of the skills and concepts for exit purposes. In determining these competencies a teacher should consider the nature of the subject area, the nature of the students, and the judgment and knowledge of the teacher.

It is recommended that teachers in each discipline generate the educational objectives for the subject areas which are part of that discipline. For example, math teachers would

decide the objectives for algebra, geometry, and calculus. It then becomes the task of the math teacher(s) in each division to organize these objectives into a scope and sequence which are consonant with the interest orientation of the division.

Step II involves assessing each student's level of achievement, learning style and motivation level. This is a diagnostic process which requires the use of a variety of assessment tasks (e.g., criterion-referenced tests, observations, work samples) for each curriculum area so that a learning profile may be established for each student. The assessment instruments may be developed by the teacher or may be selected from a variety of commercially prepared tests. Once a learning profile has been established it is possible to set appropriate, specific behavioral objectives for each student.

Step III involves the determination of short-term behavioral objectives. These objectives are specific in nature and are concerned with small units of work, such as individual skills or concepts, which may be learned during short periods of time.

At this point in the instructional programming process the student may share in the decision-making process of program development. Student responsibility for shared decision making is a vital part of instructional programming; however, it may be contingent upon each student's maturity and readiness for responsibility.

The student's advisor and parents also play a role in instructional programming. The shared decision-making process allows the student to discuss his personal educational goals with his advisor, teacher, and parents. It is felt that this process will facilitate learning for the student because each participant in the educational process will have a better understanding of the student's educational objectives.

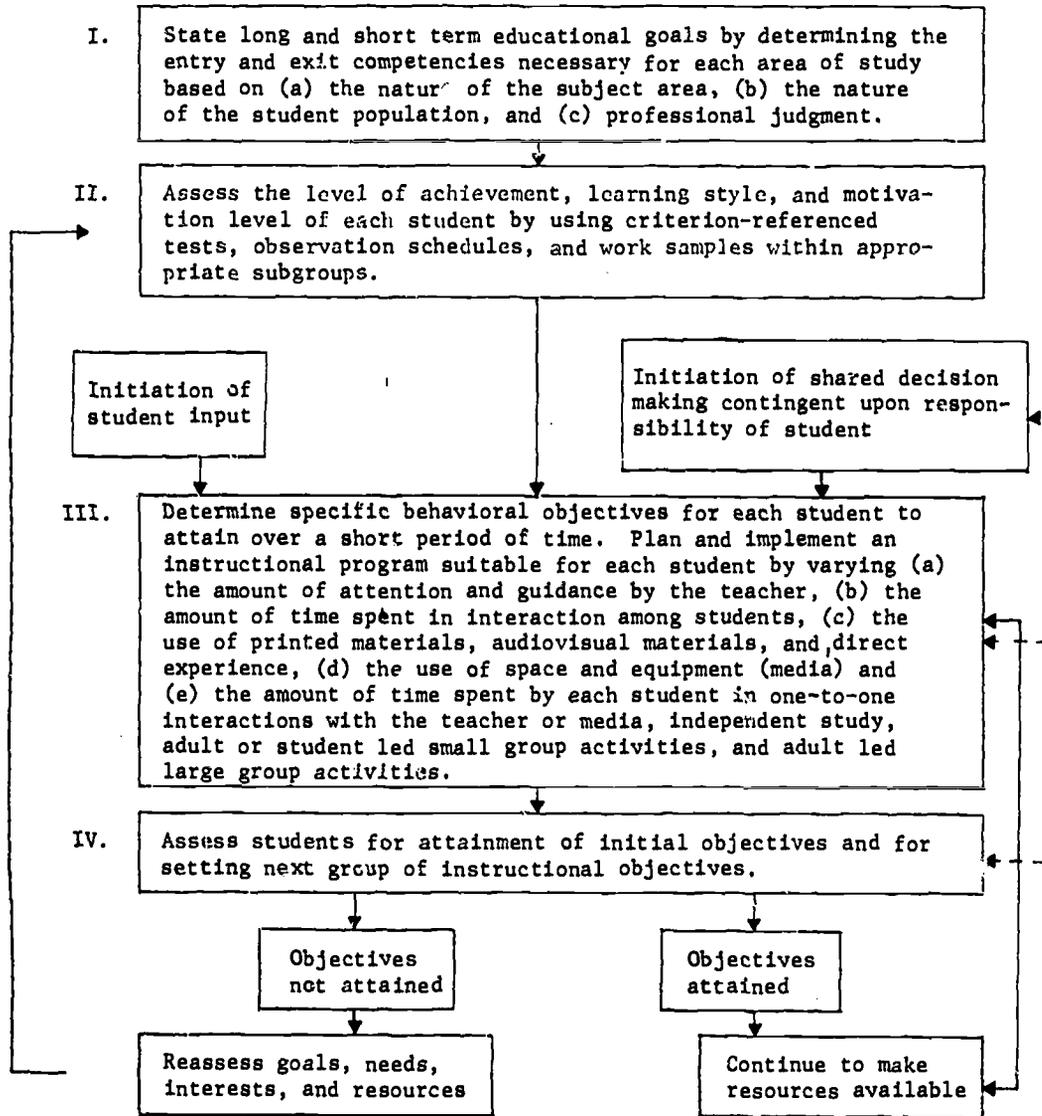
In addition to determining specific behavioral objectives, the division/team teachers must plan and implement a suitable instructional program. To do this a teacher must consider the following for each student:

1. The amount of attention and guidance by the teacher
2. The amount of time spent in interaction among students
3. The use of printed materials, audio-visual materials and direct experience
4. The use of space and equipment
5. The amount of time spent by each student in one-to-one interactions with the teacher or media, independent study, adult- or student-led small-

Figure 2.7

TEACHER INSTRUCTIONAL PROGRAMING MODEL IN

IGE/MUS-S



————— Feedback Loop
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group activities, and adult-led large-group activities.

Other considerations which must be taken into account are individual and group needs and staff assignment to teacher-learner (T/L) groups based on expertise.

Step IV involves assessing student achievement of educational objectives. This is an evaluative process which determines mastery of the objectives. Various methods of assessment may be used to determine mastery or exit competency (e.g., 80% score on criterion-referenced test, work samples, behavior change, teacher judgment). Some educational objectives may require several means of assessment to determine exit competency. Assessment of performance should be based on attainment of the objective. This is the reason that setting objectives and entry- and exit-level competencies is so important. For if these are clearly defined, then final evaluation of mastery is easier and more accurate.

When a student's performance has been evaluated and he has achieved mastery, then new objectives are set and a new instructional program is planned and implemented.

If a student does not attain the objective, he should be further evaluated by the teacher who taught the T/L group and the other teachers in the division/team if necessary. Consideration of the following items may help in determining the reasons for nonattainment of objectives.

1. Readiness for the objective
2. Additional practice necessary to achieve the objective
3. Methods used
4. Materials used

Student IPM

The student in an IGE school should have shared decision-making opportunities. Readiness for this responsibility will vary; however, the majority of students will participate to some degree or at some level in the shared decision-making process. The student IPM was devised to help students better understand their place in the total IGE system and to help them understand the process of instructional programming.

Step I involves determining the student's personal educational objectives. The process of determination of these objectives is carried out cooperatively with the student's parents, counselor, and advisor. This shared decision-making relationship should help to establish the student's educational goals based on his

own interests, abilities, and needs. At the same time that a student is trying to define his educational goals, he may discuss how he will achieve these goals. Some students may choose to emphasize independent research and study, others may feel the need for skill development and a greater amount of teacher guidance, and still others may desire to learn through direct experience.

When a student has formulated his educational objectives and decided upon areas of study, he should discuss the subject-area goals with the teachers in those content areas. If the student discovers that the course objectives are in conflict with his personal educational goals, he should confer with his advisor and/or counselor again. An attempt to resolve the conflict should be made before the student becomes involved in the course of study.

Step II involves shared responsibility for setting specific behavioral objectives and planning and implementing an instructional program. The degree to which the student becomes involved in these responsibilities is contingent upon his readiness and desire to do so. Participation in the educational process should be encouraged, for development of life-long learning skills is one of the goals of education.

In helping the teacher to plan and implement an instructional program, the student may help to determine:

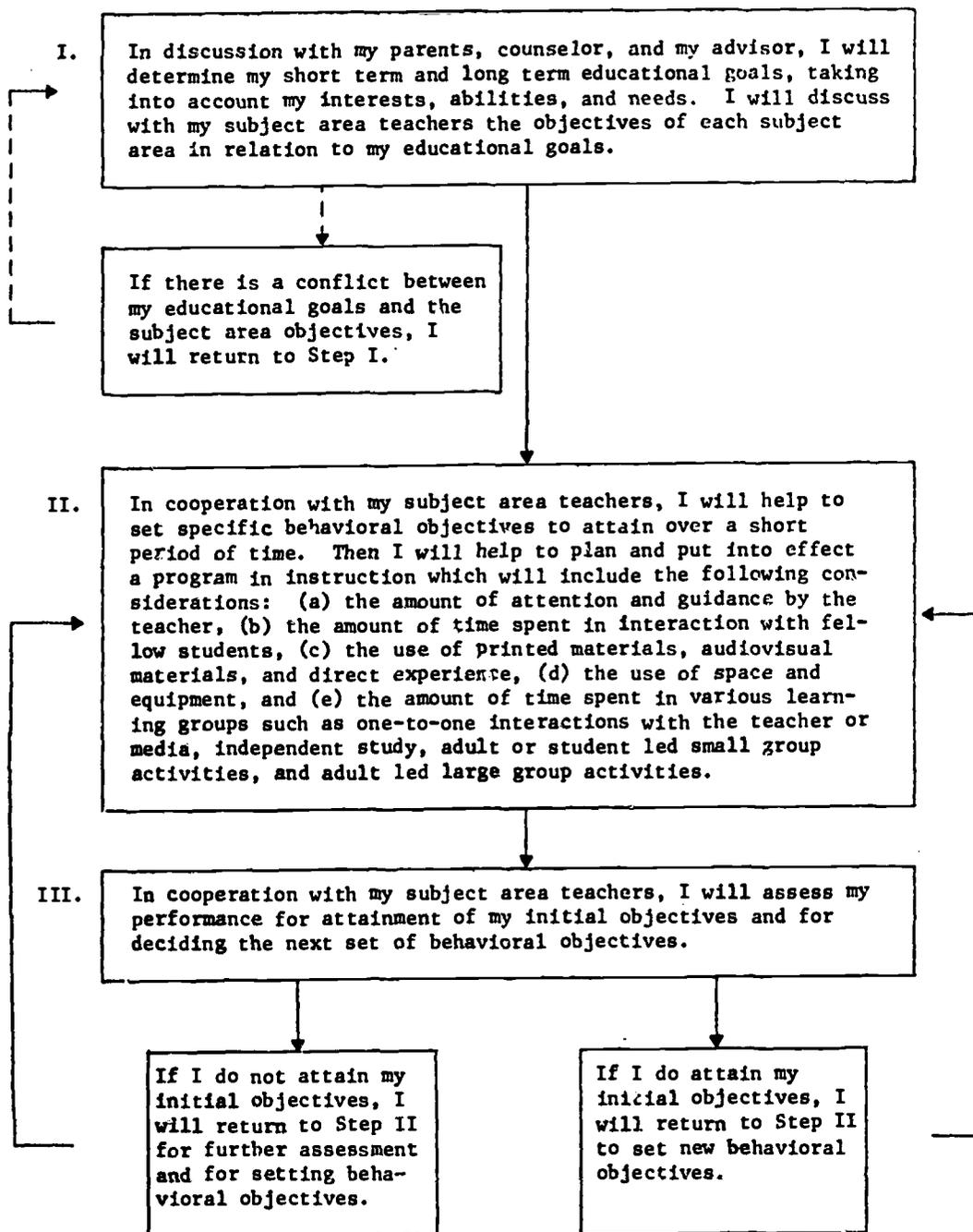
1. The amount of attention and guidance by the teacher
2. The amount of time spent in interaction with fellow students
3. The use of printed materials, audiovisual materials, and direct experience
4. The use of space and equipment
5. The amount of time spent in various learning groups such as one-to-one interactions with the teacher or media, independent study, adult- or student-led small-group activities, and adult-led large-group activities.

Step III involves the cooperational effort of student and teacher in assessing the student's performance and attainment of behavioral objectives. Situations will vary and so will the amount of student involvement in evaluation. In some cases students may decide when to test themselves, self-correct the test and record the results. This would be true when certain programmed learning materials are used. At other times a student may be asked to assess his own performance, and then his assessment would represent one aspect of the final

Figure 2.8

STUDENT INSTRUCTIONAL PROGRAMING MODEL IN

IGE/MUS-S



————— Feedback Loop

- - - - - Optional/Additional Course of Action

evaluation process. When working in small groups, students may become involved in evaluation of other students' performance.

There is a wide range of possibilities for student involvement in the evaluation process, and it is important that students participate in evaluation in as many ways as possible. In doing so they can begin to develop the skills necessary for evaluating their own goals, performance, values, and actions throughout life.

If a student attains his objectives, he may then begin to set new behavioral objectives and plan another instructional program.

If a student does not attain the objective, he may help the teacher to determine the reasons for nonattainment, and a course of action can then be cooperatively developed.

Learning Climate

Individually Guided Education (IGE) is a system which has several central components that are necessary for its application. IGE/MUS-S has identified seven components, and one that is of central importance is learning climate. Learning climate may be defined as the combination of those goals, attitudes, and values that affect learning. Basically, this definition describes a state of mind.

The learning climate which exists in any particular school is the result of the state of mind that the various people involved with the school have. In other words, the learning climate in a school is dependent on the attitudes of teachers, students, and other involved people. If these attitudes are conducive to learning, then there is a greater chance that learning will take place. The same reasoning applies to the values and goals of the people who are involved with the school.

Much of the present research and discussion of our schools shows that learning is not taking place in our schools. IGE/MUS-S believes that one of the reasons for this is that the learning climate in the school is poor. The teachers are frustrated, the students are "turned off," the curriculum is not relevant, and the parents are upset. One of the major factors contributing to this lack of learning lies in the affective domain, that part of learning which deals with emotions, attitudes, values, goals, and emotional development. The "traditional school" has never really concerned itself with this area. The cognitive process, intellectual learning, has been the main concern of the school system. Schools have adhered to the "three R's" philos-

ophy and have left the affective part of learning to the home.

It is necessary to consider and to develop ways to increase the affective learning in our schools. The affective domain is where values and attitudes are learned and where socialization takes place.

The Wisconsin Association of School Boards, Inc. (1971, pp. 9-14), has specified four areas useful in the development of a learning climate. They are (1) environment, (2) curriculum, (3) instruction, and (4) community.

Environment

An "environment for learning" in which

1. Teachers and pupils can interact freely with one another and with their peers.
2. Teachers share the responsibility of diagnosis, prescription, and evaluation of learner needs in a cooperative effort.
3. Maximum and optimum use of resources, efforts, and facilities is provided.
4. All the learning modes are recognized and employed.
5. Continuous progress is supported.
6. All available resources for learning are identified and made readily available for the learner.
7. Provisions are made for strong leadership.
8. Roles are defined and differentiated.
9. Cooperative planning is the operating model.
10. Community involvement and support are encouraged and solicited.

Curriculum

A curriculum in which

1. Educational goals are cooperatively determined by students and teachers.
2. Learning experiences are organized to meet individualized and group needs of students.
3. Learning experiences are organized for subgroups of one student or several students.
4. Learning experiences are organized for subgroups of students with common needs rather than with common ages.

5. Learning experiences are organized to emphasize critical thinking, valuing, attitudes, self-concept, and self-actualization in balanced proportions along with the cognitive skills.
6. The real world and the problems it presents to the early adolescent serve as focal points.
7. Students are provided instructional options in order that they may explore areas of interest and concern.
8. Personal-social developmental needs of children are stressed.
9. Student guidance is emphasized.
10. Students select advisors who will assist, guide, and counsel.
11. Humaneness is paramount.
12. Basic skills development is based upon continuous progress of individual students.
13. There is continuous student and teacher evaluation of progress toward realistic goals.
14. Evaluation of student progress is accompanied by immediate feedback to students.

Instruction

An instructional approach through which

1. Cooperative planning and teaching are involved.
2. Individual personal intellectual inquiry is stressed.
3. Performance objectives are determined.
4. Contractual agreements between student and teacher concerning performance criteria are included.
5. A variety of instructional materials and aids that are readily available to students are provided.
6. A variety of grouping patterns, e.g., large group, small group, independent study, paired learning, student- and teacher-led tutorials are utilized.
7. Variable lengths of learning periods are allowed.
8. Continuous appraisal of student progress and teacher effectiveness is included.
9. Instructional effectiveness is assessed by means of performance criteria and peer evaluation.

Community

A "community involvement" plan through which

1. Positive school-community relations are ensured and promoted.
2. Parents and community members are invited to visit school and to participate with students and faculty in goal setting, learning, and appraisal.
3. Residents' skills and talents are utilized as resources (volunteer and salaried) in the teaching-learning process.
4. Paraprofessionals from the community are employed as assistants in the teaching-learning enterprise.
5. Students are involved in community agencies and action programs.
6. A climate which encourages two-way and continuous communication between the school and the community is erected.
7. The school is recognized as a part of rather than separate from the community.

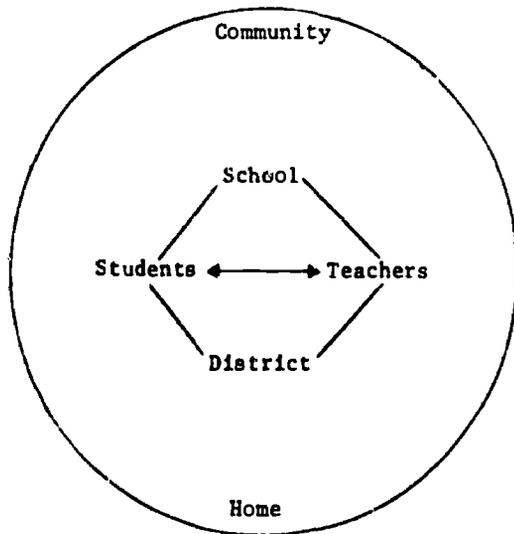
Given all of the above as statements that are necessary when one is implementing a learning climate, there is more that is necessary to ensure the development of a learning climate that will help produce the best possible education; that is, an analysis of the various factors that affect the learning climate in a particular school. Many of the above statements refer to different groups that have an effect on the learning climate. Unless these groups have an understanding of each other's effect on the learning climate and work together in promoting the best possible educational process, then all the ideas already expressed will not be of very much benefit.

Six groups have been identified as basic factors in the establishment of a learning climate. These six groups, called "determiners" of the learning climate, are

1. Students
2. Teachers
3. School
4. District
5. Home
6. Community

A pictorial representation of the interrelations between these six determiners is presented in Figure 2.9.

Figure 2.9



The large circle represents the learning climate in a particular school. All six determiners have an effect on how the particular learning climate functions. The basic, primary relationship is between the students and the teachers. It is here that the basic interaction that produces learning takes place. Unless both these elements are aware of their own and each other's effect on the learning climate, then the goal of the best possible education is likely to suffer due to misunderstanding and a lack of cooperation from both groups. Added to this primary relationship is the effect of the school and the district. Since both of these groups have an effect on both groups in the primary relationship, their effect must be taken into account. It is unrealistic to expect students and teachers to try to pursue an open and individualized type of educational process if the school and/or district are at odds with this type of education. This is one of the reasons why IGE/MUS-S has developed instructional programming models for both the district and the school. Likewise it is unrealistic to assume the school or district can pursue an IGE type of educational process without the cooperation of the students and the teachers. Thus, these four groups of determiners need to work closely together to develop the best learning climate. The last two determiners are the home and the community. Educators and educational researchers have mostly ignored the effect of the home and the community on the

educational process. IGE/MUS-S feels, and some recent educational research has shown, that the home and the community do have a real effect on the educational process and can be a definite asset to the school. Thus, to have an effectively operating learning climate, it is necessary to take the home and the community effect into account and to have their support for providing the best possible education.

Measurement and Evaluation

Information about student characteristics, achievement, learning styles, and motivation in the cognitive, affective, and psychomotor domains provides input into decision making, communication, and accountability processes necessary for a continually evolving learning environment. Criterion-referenced tests, work samples, and observations of behaviors should be used to assess student entrance competencies, student progress, and student exit competencies. This information should be fed back to the student, teacher, and parent to serve as a guide in determining each student's educational program. Norm-referenced tests may also be used to secure information about a student's abilities and achievements of a more general type. Information should also be obtained regarding the evaluation of each IGE/MUS-S component; based upon the results, revisions and new components for the secondary model can be developed.

Organizational Framework

Because the middle/junior high school emphasizes functions of education quite differently than does the senior high school, it is necessary that each be organized to facilitate its unique emphasis. The middle/junior high school places more emphasis on advanced schooling activities and on exploratory experiences; therefore, it needs a less specialized curriculum than is found in a senior high school. Also, students need to identify with a relatively small teaching unit at this level, both to assist personal relationships and to allow teachers to monitor skill development closely. The senior high school must provide opportunities for students to explore more highly specialized areas of study according to their own inclinations. Also, senior high students have less need for full-time participation in a restricted instructional unit, and it is not as important that teachers monitor basic skills. The next two sections explain

the type of organization proposed for middle/junior high schools and senior high schools respectively.

Middle/Junior High School

The vehicle used to implement IGE/MUS-S is the organization. It is a means to an end. It is *not* an end unto itself. The basic premise of clustering groups of teachers with groups of students is carried throughout middle/junior high school as well as throughout senior high school.

The primary method of clustering teachers in the middle/junior high school is to group the academic teachers as a unit and the elective teachers as another unit.

Middle/Junior high school is defined as an educational setting composed of students aged 11 through 14 years or more commonly as grades six through nine. An abundance of literature deals with the behavioral characteristics as well as the emotional and physical needs of students in this age group. It generally agrees that early adolescence has a wider range of differences in emotional, physical, and social maturity than any other developmental stage of school-age children. These diverse levels of maturation, within each individual and among individuals, demand instructional techniques different from those previously employed or those which may be employed in later stages of development.

Tasks and Goals

The Wisconsin Association of School Boards (1971, p. 8) identified several critical needs of early adolescence:

1. To understand himself (aptitudes, attitudes, interests, goals, strengths, and weaknesses)
2. To understand his relationship to his peers
3. To understand himself in relation to and as a part of his society
4. To develop those skills necessary to accomplish the others
5. To gain a sense of security in a resource-filled but sometimes inconsiderate environment

William Alexander and others (1968) developed their interpretation of the purposes of the middle school by stating that the middle school should

1. Service the educational needs of the

"inbetween-agers" . . . in a school bridging the elementary school for childhood and the high school for adolescence.

2. Provide optimum individualization of curriculum and instruction for a population characterized by great variability.
3. Relating to the foregoing aims, to plan, implement, evaluate, and modify in a continuing curriculum development program a curriculum which includes provisions for: (a) a planned sequence of concepts in the general education area; (b) major emphasis on the interests and skills for continued learning; (c) a balanced program of exploratory experiences and other activities, and services for personal development; and (d) appropriate attention to the development of values.
4. Promote continuous progress through and smooth articulation between the several phases and levels of the total educational program.
5. Facilitate the optimum use of personnel and facilities available for continuing improvement of schooling [Alexander, Williams, Compton, Hines & Prescott, 1968, p. 19].

Madison Public Schools, Madison, Wisconsin, reorganized its school district from a junior high school to a middle school organization. The first junior high school to convert to a middle school attempted to define its goals:

The middle school should create a learning environment that provides stability, promotes self-confidence, and one which is sensitive to the needs of each individual child. Within that environment

- . . . the child should develop a unique understanding of himself and his relationship with others.
- . . . the child should identify and explore his interests and abilities through a variety of contacts with a number of different subjects.
- . . . the child should have opportunities to develop his own interests and abilities.
- . . . the child should experience a gradual transition from child-centered elementary school experiences to the more subject-oriented secondary school experiences.
- . . . the child should develop basic

learning skills and have opportunities to apply these skills.

- . . . the child should develop a body of knowledge that is drawn from all subject areas.
- . . . the child should be able to transfer the skills and content learned in one subject area to another subject area.
- . . . the child should understand that change is a part of his life and have opportunities to develop positive attitudes toward it.
- . . . the child should make responsible decisions and exhibit increasing self-direction for his own learning program [La Follette Middle School Staff, 1969].

In synthesizing the goals and tasks of the middle/junior high school as derived from various sections of the country and in interviewing students, teachers, parents, principals, and board of education members, a general consensus of opinion was that the present organizational framework was not meeting the needs of the middle/junior high school. It was apparent that present middle/junior high schools were making *no* concerted and combined efforts to evaluate the process of how well they were meeting their defined goals and tasks.

The IGE/MUS-S middle/junior high school organizational framework is developed to ensure better success in terms of rearranging the five educational variables (teachers, students, time, space, and resources) into a more meaningful environment so as to allow the goals and tasks of the middle/junior high school to be more fully realized by each student.

Building Organization

The basic philosophy of IGE is that all operations at the middle/junior high school level be directed toward individualizing learning for the student. To achieve this purpose, the following organizational framework has been designed. An *instruction and research unit* (I & R unit) composed of a number of teachers and a number of students who carry the responsibility of teachers teaching and students learning.

An *Instructional Improvement Committee* (IIC) in which staff members work with the building principal to coordinate instructional decisions.

The *Systemwide Policy Committee* (SPC) which sets district goals and objectives.

The organizational structure of the MUS-S

(middle/junior high school) is essentially a straight-line hierarchy. There are, however, horizontal relationships that exist, and these relationships will be discussed later. The straight-line structural hierarchy of the unit, the IIC, and the SPC appear in Figure 2.10. A more detailed diagram of the building organization is shown in Figures 2.11 and 2.12.

The basic premise for the organizational framework of the middle/junior high school is the *clustering of a group of teachers with a group of students for instructional purposes*.

Instructional and research unit. The multiunit middle/junior high school model retains the MUS-E concept of clustering a group of teachers with a group of students for instructional purposes. There are basically two types of I & R units, (1) the academic units of English, social studies, science, and math and (2) the special area units of art, music, industrial arts, home economics, and physical education. Foreign language subjects (if they are offered) can be placed in either type of I & R unit. Both types of I & R units have a block of time for instructional purposes as well as common planning time. The academic unit would not necessarily have the same students as the special area unit.

The academic unit with its block time and common planning time is charged with the responsibility of providing for educational experiences in the before-mentioned discipline areas. The opportunities for various grouping patterns, teaching strategies, combinations of in- and out-of-school experiences, and time elements that the academic unit can provide are unlimited. Basically, the special area unit provides for exploratory experiences allowing students to investigate various interest areas before their senior high school experiences with in-depth study and specialization. The special area teachers have the same opportunities for variation as the academic teachers, thus promoting and enhancing the interest areas of the students.

The student makeup of a unit can either be vertical or horizontal. In other words, it may contain students from only one grade level or from all grade levels. The philosophy of continuous progress/nongradedness, however, is more easily implemented with the vertical makeup of students.

Instructional improvement committee. With the existence of three, four, or five I & R units in a middle/junior high school, there is a very important need to maintain communications among staff. This is apparent when the utilization of common facilities is necessary for maximum educational value. Instead of rigidly scheduling common facilities (IMC, commons, cafeteria, and so forth) at the

Figure 2.10

MUS-S Organization

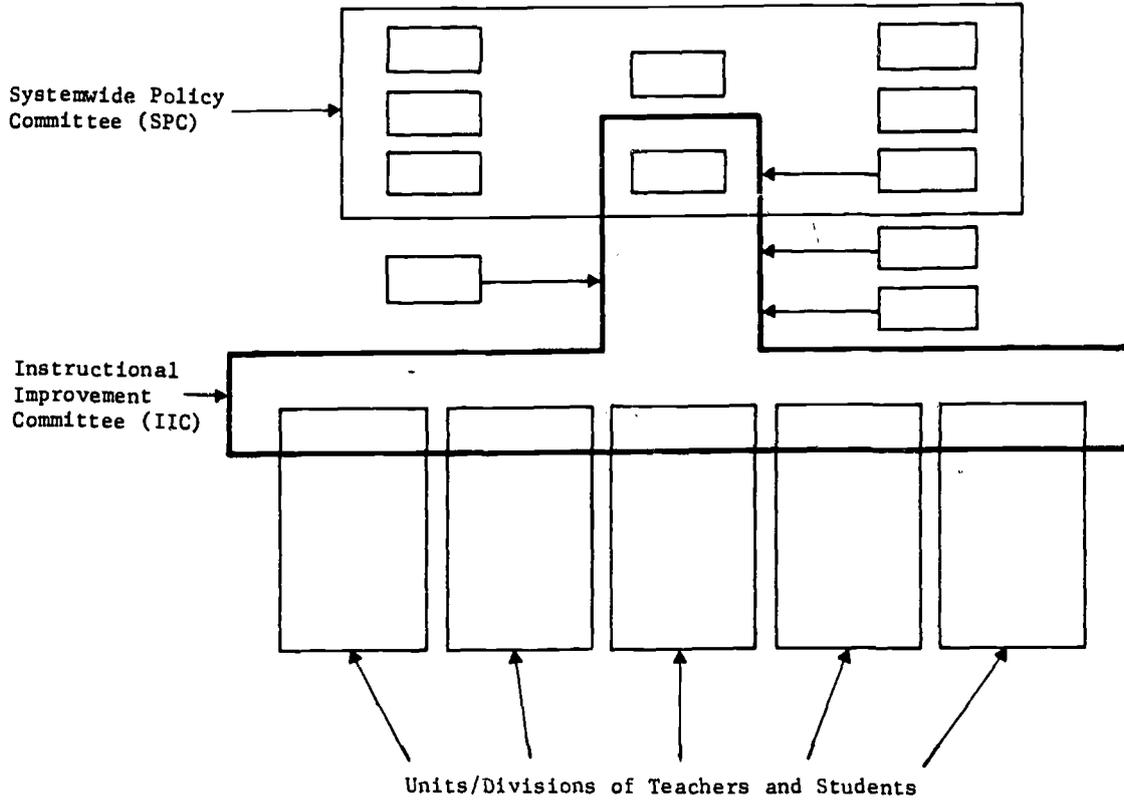


Figure 2.11

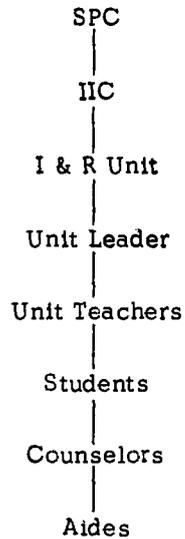
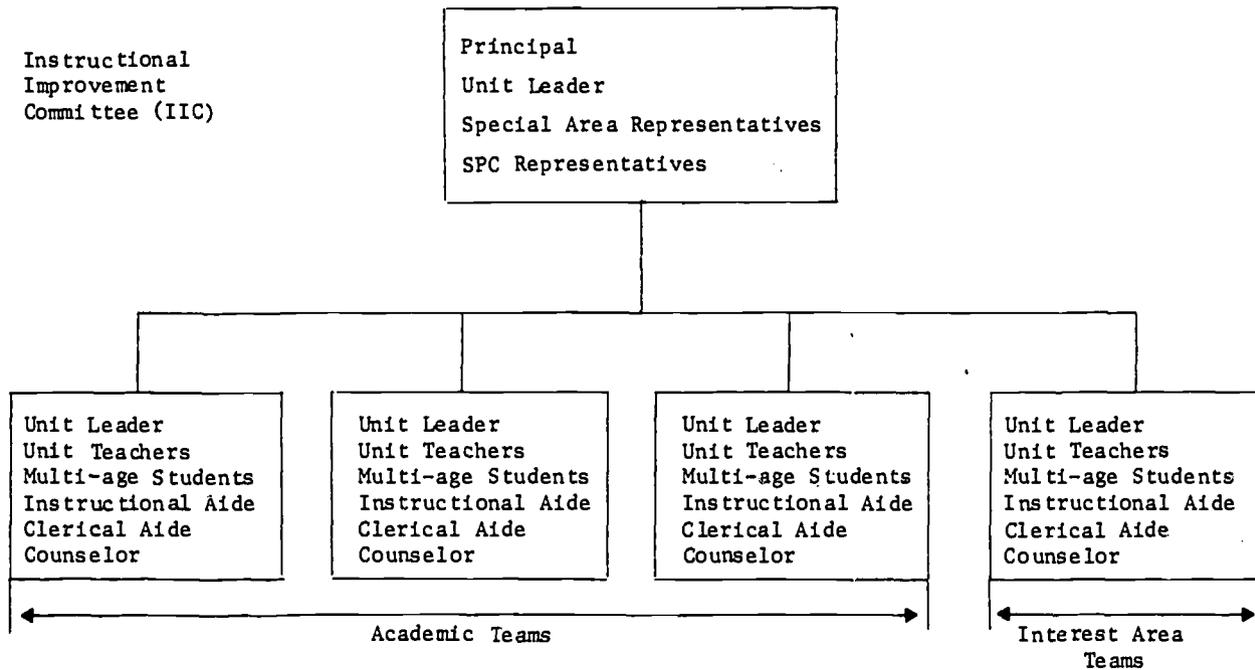


Figure 2.12

ORGANIZATIONAL FRAMEWORK OF AN IGE/MUS MIDDLE/JUNIOR HIGH SCHOOL



beginning of the year and then retaining the same schedule, a flexible weekly schedule is adopted.

The process of this kind of shared decision making concerning the instructional program is accomplished through the Instructional Improvement Committee (IIC).

The IIC has four main functions:

1. Stating the educational objectives and outlining the educational program for the entire domain within its jurisdiction
2. Interpreting and implementing systemwide and statewide policies that affect the educational program of the building
3. Coordinating the activities of the divisions to achieve sound educational outcomes for each student
4. Arranging for the use of facilities, time, and resources for maximum educational benefit to teachers and students

Thus, the IIC deals primarily with planning

and coordinating functions related to the instructional program.

The support services found at the middle/junior high school level generally make their major impact at the IIC level. This impact is in the form of general services to the school. Support personnel make their specific services available to teachers and students at the I & R unit level. Support service personnel generally consist of the school nurse, school social worker, school psychologist, behavioral disability teacher, guidance counselor, and teachers of the educable mentally retarded, learning disability, and so forth. These specialized personnel work with the IIC on an "ad hoc" or a "permanent" basis in regard to the overall instructional program of the school, but also work with the units on a teacher-student level. All support personnel are integrated with the instructional program to develop the maximum potential of each student in the school.

Systemwide policy committee. To facilitate the substantial change needed to move from a traditional to a multiunit middle/junior high school, the Systemwide Policy Committee

(SPC) is created as a third body in the organization. This group is less involved in instructional decisions and more concerned with general allocation of resources. The committee is chaired by the superintendent or his representative, and includes consultants and other central office personnel, and representatives from the IIC, from the I & R unit leaders and staff teachers and from students, the board of education, parents, and the general community. The SPC is responsible for

1. Identifying the functions to be performed in each MUS-S middle/junior high school in the district
2. Recruiting personnel for each MUS middle/junior high school in conjunction with the principal and providing for the necessary inservice training
3. Allocating the necessary resource materials
4. Disseminating relevant information within the district and community

The SPC is the policy-making body for the total MUS program in the school district and coordinates the activities of each school to the total school district.

The master schedule of a typical middle/junior high school is represented in Figure 2.13. The key concept of clustering groups of teachers with groups of students is shown along with the common planning time for the teaching group. Built into this organizational structure are block time for instructional purposes and common planning time for instructional decisions.

Personnel

Principal. The principal in a multiunit middle/junior high school has two major areas of responsibilities: (1) instructional leadership for the total building and (2) management responsibilities for the building. Each of these responsibilities is explained below.

1. Instructional Leadership

(a) The principal is responsible for promoting a positive, creative atmosphere for optimum growth and development for everyone in the school. The principal, by his very nature of being responsible for the building, sets the tone of the educational setting.

(b) The principal encourages a system of individually guided education that meets the needs and interests of all students in the building. Through leadership abilities the

principal develops a system whereby the teachers believe in and function in a program which identifies each student as an individual. This system must have a sound theoretical and philosophical background as well as a sound operational basis. Only through leadership ability can a total building progress as a single unit.

(c) The principal involves teachers in the decision-making process at the most appropriate instructional levels. Within the multi-unit middle/junior high school the process of shared decision making is initiated at two instructional levels: the Instructional Improvement Committee (IIC) and the Instruction and Research Unit (I & R unit).

(d) The principal provides the staff with stimulating, good sound inservice educational activities. The principal constantly strives to design educational programs which more adequately meet the needs and interests of each individual student. Through well-thought-out and well-organized inservice activities the staff will continue to design new and better instructional programs for students. Inservice activities can and should cover a wide range of activities, always attempting to meet the professional needs of the individual teachers. Activities such as presentations by district experts, university speakers, and private consultants, as well as building staff, have a part to play in various educational inservice activities.

(e) The principal coordinates the instructional operations and resources. As the person in charge of the total building in regard to educational experiences for the students, the principal must determine the necessary allocation of resources, both human and material. Through the use of his leadership expertise the management of these resources can be properly handled through the shared decision-making process.

(f) The principal supervises and evaluates the staff. This area of responsibility is delegated to the principal from the district officer. Through the guidance and direction of the principal the staff will grow in professional teaching skills. Only through mutual concern for students can the teacher-principal relationship develop into a truly supervisory and evaluative means for improving professional growth. This relationship must be positive and constructive, with supervision and evaluation the means to an end—not an end in themselves.

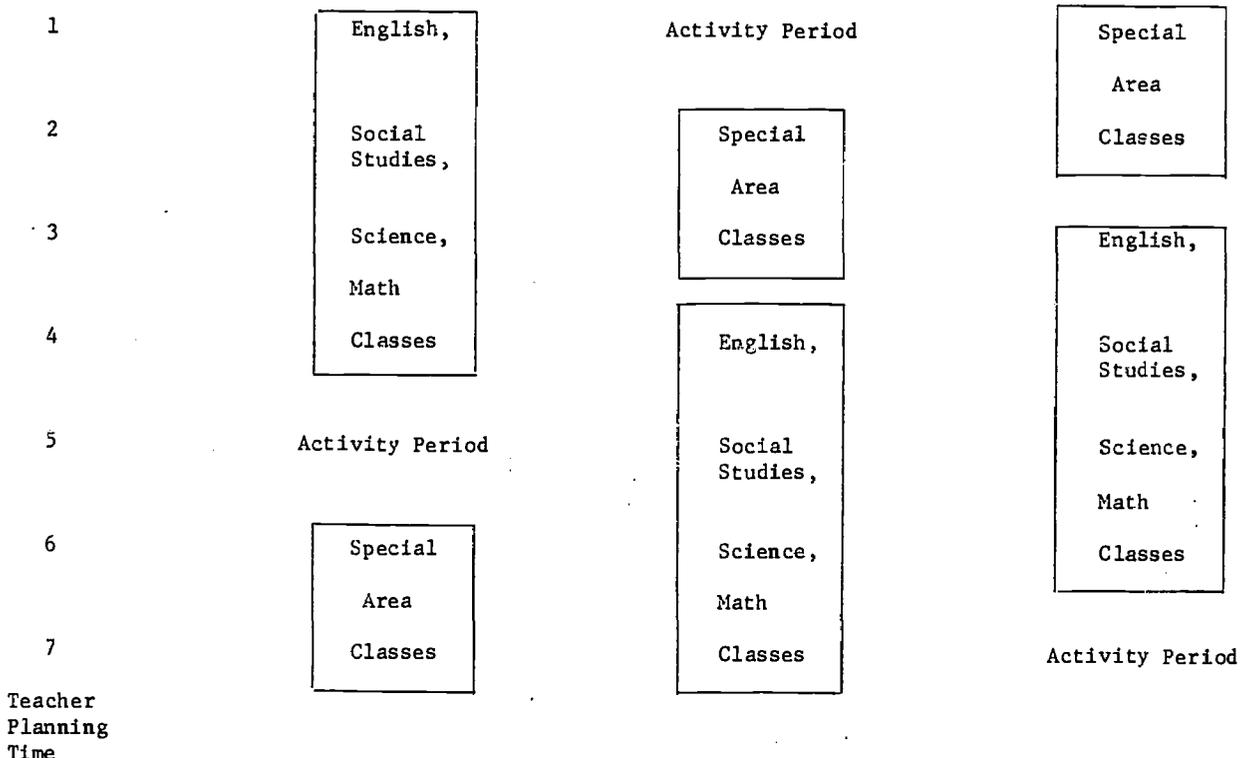
2. Management Responsibilities

(a) The principal has management responsibilities as a member of the Systemwide

Figure 2.13

PROTOTYPIC MASTER SCHEDULE
MIDDLE/JUNIOR HIGH SCHOOL

Periods



Policy Committee (SPC). This committee has definite functions to perform, and the ability to provide the proper input results in a functional SPC. Utilization of management skills results in the district-level responsibilities being met as the district progresses toward meeting the interests and needs of all students.

(b) Through the shared decision-making process with the IIC the principal coordinates the use of facilities, instructional materials, and equipment. The principal, as a manager of the building's resources, is held accountable for the operational aspects of the building, and through sound and proper management of these resources the educational experiences for the students will be at the optimum level.

(c) The principal must use management skills to work with the instructional units to utilize the unique talents and competencies of the staff members for the good of the students in the school. The principal, schooled

in interpersonal relations and group dynamics, manages the staff so as to allow them to grow in professional skills and expertise.

(d) Concern for the maintenance of the facilities and equipment is also the responsibility of the principal. A well-organized program for the purchase and upkeep of capital items is necessary. This results in an atmosphere which reflects a positive learning climate for both teachers and students.

(e) The utilization of shared decision-making processes to help determine the instructional program is a necessity in a multi-unit middle/junior high school. As a result of shared decision making, however, someone must provide the expertise in following through regarding these decisions. The role of the principal is to procure instructional materials and equipment to effectively carry out a program of individually guided education.

(f) The responsibility of being the com-

munications agent of the building falls upon the principal. It is through his managerial skills that home-school-community relations take on a more positive relationship. Either through the delegation of this task with the principal as an "overseer" or under the direct control of the principal, a communications network must be established. The communications include all aspects of the school, i.e., teachers, students, parents, and community.

(g) The recruitment and selection of new staff is a vital operation. Unit leaders and unit teachers are excellent sources for help in recruiting new staff. The new staff must be well oriented regarding the philosophy and objectives of the school.

The above-mentioned roles and responsibilities are not totally comprehensive in nature. They are meant to be indicative of the new role that the principal must fill in IGE/MUS middle/junior high school educational settings. Each local school district must supplement these responsibilities to meet local situations.

Unit leader. The unit leader is a teacher—not an administrator or a supervisor. This important concept must be maintained throughout the school operation if the unit is to function properly. The primary responsibilities of the unit leader are (1) instruction, (2) staff development, and (3) research and development, innovation, and diffusion. The roles and responsibilities of each of these three areas will be explained in detail below.

1. Instruction

(a) The unit leader assumes leadership in developing, carrying out, and evaluating an IGE program in the unit which includes objectives, materials, equipment, and activities. The unit leader works closely with the unit staff, the building principal, subject-matter specialists, school support personnel, and others.

(b) The unit leader coordinates the assessment of student characteristics and progress in the unit and helps teachers to properly place students in appropriate learning activities.

(c) The unit leader serves as a representative on the IIC regarding the unit's activities in the instructional program, the need for instructional materials and equipment, needs and requests for school support services, and many other areas of concern regarding the implementation of IGE.

(d) The unit leader schedules regular unit meetings to plan activities for the students in the unit. The unit leader must see that the agenda is prepared in advance, following

input from the unit teachers. The unit meeting is the heart of the unit's instructional program. This meeting combines the thoughts and efforts of the team in order to provide maximum educational experiences for their students.

2. Staff Development

(a) The unit leader coordinates with the principal and the IIC the preschool and inservice activities for the unit teachers. The preservice and inservice activities are for all staff, including interns, practice teachers, instructional aides, clerical aides, counselors, school support service personnel, custodians, students and parents. All staff must be oriented to and focused upon the concepts underlying IGE.

(b) The role of the unit leader is to strive constantly to help the teacher in the unit grow in professional skills, attitudes, and knowledge. Through well-planned and organized preschool and inservice activities the unit teacher can become better equipped to function in the multiunit middle/junior high school.

3. Research and Development, Innovation, and Diffusion

(a) Research is a necessary component of IGE. Research can be of varying degrees of intensity. The term "research" should be interpreted in its broadest sense. Teacher observations of student performances in gym, music, art, and so forth all constitute research. A staff's viewpoint of the educational achievement of its students constitutes research. Research is defined when assessment practices are used to further refine instructional techniques for the betterment of the individual students. The unit leader coordinates a constant review and analysis of each student that can lead to the maximum development of all students.

(b) The unit leader plans the development activities of the unit with appropriate personnel from the unit, building, central office, and other agencies.

The unit leader coordinates the development of a system of individually guided education within the unit, including a statement of objectives, the assessment of the capabilities of students, the instructional program and evaluation procedures.

The unit leader participates in preparing instructional materials, diagnostic procedures, and measurement instruments.

(c) Through visits, conferences, and reading the unit leader keeps abreast of innovations throughout the school system, the state, and the nation.

The unit leader stimulates as well as practices new instructional techniques within the unit and throughout the building.

(d) The unit leader assumes leadership in demonstrating new and innovative practices for visitors, and parents, by methods of briefing, simulation, and observation.

The unit leader's roles and responsibilities are many and varied. It is a most satisfying teaching position but demands many hours of involvement in the educational program.

Unit teacher. The main differences between the role of certified staff teachers in the unit and that of teachers in the traditional self-contained classroom regard planning with other members of the unit, working with many students in a multi-age setting, and performing at a more professional level. The higher level of professional activity is manifested in the way time is utilized, particularly in planning and shared decision making, in development and research activities, in preservice teacher education, and in several components of the instructional system such as formulating objectives for each student, assessing each student's characteristics, using new materials and equipment, and trying out new instructional procedures.

The unit teachers greatly enhance their professional skills, attitudes, and knowledge by the indication of their new roles and responsibilities. These are

(a) Teachers participate in the shared decision-making process related to the aspects of the instructional program. This shared decision-making process takes place at regularly scheduled unit meetings where each professional teacher can draw upon their talents and expertise to focus upon the true target of their responsibilities—the individual student.

(b) The teaming approach to the development and clarification of instructional objective is used. Opportunity for the teachers at the classroom level to make instructional decisions affecting the students each in their own individual way is the result of the organization.

(c) Teachers have the opportunity to combine the efforts of the team to assess and diagnose each student with the unit approach in which a number of disciplines all focus upon the individual from their respective areas. Only through this unified approach can sound educational decisions be made regarding the individualized instructional program for each student.

(d) Teachers may choose from a wide range of available materials and develop new materials from a team concept. Many individual teachers have excellent sources of teaching materials that, when placed in a "pool" to

be shared by the team, take on new meaning.

(e) The team or unit approach opens up many avenues of instructional techniques. Where the teacher in a self-contained classroom had difficulty developing various grouping patterns for instructional purposes, in the multiunit school with the availability of a number of teachers, a larger group of students, the flexibility of several rooms, and the opportunity to unit plan, teachers can provide for large-group instruction, small-group instruction, paired instruction, and independent study. The unit approach also utilizes the time variable to the best advantage. One week a flexible modular schedule may be used followed by a traditional schedule the next week. Each team has great flexibility in using the time variable.

In keeping with the IGE philosophy of providing for the total development of each individual student, the unit teacher serves as an advisor to a certain number of students in his or her unit. In an effort to humanize and personalize the instructional program and to ensure that students and parents involved in the junior high school will not go unnoticed or unassisted, the advisor-advisee program was developed.

The responsibilities of an advisor are many and varied. A few basic challenges are listed below:

1. The advisor will get to know each student and family as quickly as possible. The opportunities to call parents, set up meetings with them, and discuss the educational program regarding their offspring are limitless. Regular contacts with parents are essential.
2. The advisor will maintain complete records on each advisee. All items concerning the student are important. Areas of discipline, school progress, involvement in activities, interest areas, and parent's name, address, and phone number are all important. A complete record of calls and conferences must be made.
3. The advisor will set up and maintain regular meeting times for his group. An ideal time is during the activity period. Certain days can be set aside for the advisor-advisee group meetings as well as individual conferences. The closeness of the teacher-student relationship is developed during this time.
4. The advisor will help to establish the educational program of his advisees. The utilization of "shared decision

making" with the student and parents as co-partners in the educational experience of the student is truly a great opportunity.

The above roles and responsibilities represent only a portion of new roles that teachers play in the multiunit middle/junior high school. The additional roles that can be created are limited only by the creativity of the team itself.

Guidance personnel. Guidance personnel in the multiunit middle/junior high school truly are a part of the team. No longer does the counselor work only with "problem" students, do administrative work, or plan programs for the college-bound students. The guidance counselor has responsibilities in three general areas, (1) parents, (2) teachers, and (3) students.

A relationship representing the school and the home must exist between the parents and the counselor. The counselor is attached to the unit or units while working within the local established counselor/student ratio. He may also serve as the communications link between the teacher and the home.

The counselor is the accumulator of information concerning each student. This information comes from parent conferences, the school nurse, the past cumulative records, conferences with other staff members, and other sources.

In a unit the counselor meets either on a regularly scheduled basis or an "on call" basis. The counselor is an integral part of the team approach. As the unit leader and teachers plan instructional strategies for the coming week with discussion centered around individual students, the counselor provides information regarding each student under discussion.

The counselor also has the responsibility of working with teachers in improving their skills in teacher-student relationships. Teachers must know and understand their strengths and weaknesses in teaching individual students. The counselor acts as the "catalyst" in matching the strengths of teachers with the needs and interests of students.

The counselor also works with individual teachers involved in the advisor-advisee program. Although many of the duties associated with the advisor's role appear to be guidance oriented, the counselor has the predominant guidance role. The advisor-advisee relationship between the teacher and student is not meant to replace the counselor-student-teacher relationship, but to be supplemental to the total guidance program. The counselor and

principal are the "overseers" in the advisor-advisee program.

Counselors also work with units and individual teachers regarding the activity program in the multiunit middle/junior high school organizational framework. The counselor is instrumental in providing background information on student interests and needs. The counselor must play an active part in the activity program by regularly working with teachers and parents and by participating in various interest areas with groups of students.

A word of caution regarding the new counseling role in the multiunit school: the counselor must be a visible person to teachers, students, and parents. The counselor must not conduct his total responsibilities behind the closed doors of his office; this creates a sense of negativism, of not being a member of the team, of working only with problem students or of bad rapport with parents. Many of the duties of the counselor must and can take place in classrooms, cafeteria, and IMC, thus providing a sense of positive "openness."

The current literature indicates that counselors must expand their roles and responsibilities to help students deal with all experiences of life. Future counseling must help students become "self-aware" and build "self-worth." With this new concept, counselors can become involved in all aspects of a student's school life. Areas of conduct, attendance, skills, development, and physical and social development are all included for a positive guiding relationship between the counselor and the student.

The multiunit middle/junior high school organization allows the counselor to fulfill the broader roles and responsibilities of the profession for the betterment of the individual student.

Instructional materials center personnel. The instructional materials center (IMC) personnel are vital members of the team in the middle/junior high school. The IMC is a natural outgrowth of the organizational framework of the multiunit school. It is an extension of the classroom and encourages greater individualization. The IMC director is involved in various tasks at levels appropriate to the instructional program. The IMC has an impact on three levels: (1) IIC, (2) I & R unit, and (3) student level.

The IMC director is a member of the IIC. Through this shared decision-making body the expertise and talents of personnel in the instructional materials field can have an impact on the total instructional program of the building. Through the common exchange of ideas and requests, the IMC director can properly allocate existing resources as well as coordi-

nate the purchases of additional instructional resources.

The IMC director is also included in the weekly I & R unit meetings, either on a regularly scheduled or "on call" basis. The director acts as a general resource person to the units, with responsibilities similar to those at the IIC level. Materials not commonly found in the classroom generally are used in the IMC. The director's responsibility is to provide maximum utilization of these resources in order for the entire student population to benefit from the IMC.

During the unit meetings the IMC director helps the team determine the criteria for selecting appropriate instructional materials, and evaluates and orders additional IMC materials to support the educational objectives.

The IMC personnel also perform functions at the student level. In this area the director assumes responsibilities for cataloging, processing, and instituting organizational procedures that will achieve effective dissemination of materials. The director is responsible for providing a creative climate where students can move freely about with a variety of instructional materials and tools readily accessible. These materials should be (1) appropriate to the maturity and educational level of the students who use them and (2) many and varied to meet individual abilities and interests.

In summary, the IMC director is an integral part of the instructional program. The director is a member of the teams (IIC and I & R unit), whose major function is to provide an educational climate to meet the individual needs and interests of the student body.

Teacher aides. A vital member of the instructional team in the multiunit middle/junior high school is the teacher aide. Basically there are two types of aides, instructional and clerical. Their roles and responsibilities differ in respect to the students, but also may overlap in respect to record keeping and other duties.

The instructional aide works very closely with the unit leader and unit staff. The aide may actually become involved in the instructional program doing various tasks such as supervising a small group of students from the unit in the IMC; tutoring various groups of students in a drill session; doing assessment testing of individuals and helping to administer large group testing; assisting in drama productions and projects; and handling audiovisual equipment. These are only representative, and many more responsibilities can be added depending on local school operations.

An important premise must be thoroughly understood by all staff members—the instruc-

tional aide *does not* teach students. An instructional aide follows the guidance and direction of the teachers in the unit. It is the teacher who diagnoses and prescribes the educational experiences of the students, and it is the instructional aide who helps implement the educational experiences.

The clerical aide is exactly what the name implies. The clerical aide performs functions not necessarily associated with teaching, but handles the small "administrative" chores of the classroom teacher such as collecting money, supervising lunch periods, taking and recording attendance, making instructional resources, typing and correcting tests, and so forth. The list is endless, and will vary according to each individual school.

The proper utilization of instructional and clerical aides is dependent upon the skills and training of the aides. Roles and responsibilities will vary according to these and other local conditions. In all, aides are a vital component of the team approach in the multiunit middle/junior high school educational setting.

Support personnel. School support personnel are generally classified as the auxiliary services given to a school. These auxiliary services vary according to local school needs. Some of the more common service positions are school nurse, school social worker, school psychologist, and learning disabilities teacher.

The school support personnel perform at three levels within a school building. These levels are (1) IIC, (2) I & R unit, and (3) student.

Support personnel can be either regular members of the IIC or can be "on call" to the committee. The policies and functions they perform are determined by the IIC. Their talents and expertise are utilized in the improvement of the total instructional program which is always striving toward better individualization for all students.

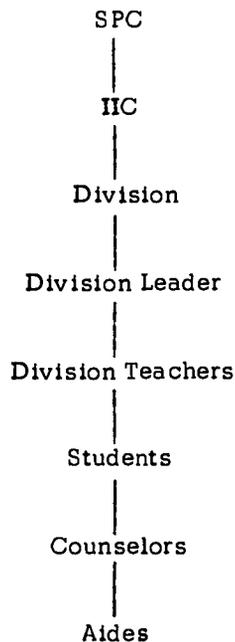
The school support personnel function as part of the team approach at the I & R unit level on a more concrete basis. Here the stress is toward individual students with specific emphasis on diagnosis, prescription, and treatment. The I & R unit relies on the school support personnel as part of a joint effort toward working with students in the instructional program. The support personnel work with individual students only when the students' problems become so serious that they are beyond the training and expertise of the teacher. A one-to-one relationship between the support personnel and the student is necessary under these circumstances.

Senior High School

It is the philosophy of individually guided education (IGE) that all operations at the senior high school level be directed toward individualized learning for the student. To ensure success, the five educational variables (teachers, students, time, space, and materials) are rearranged to create a more meaningful yet manageable environment. The two key variables, teachers and students, provide the basic organizational clusters for the senior high school. In this context the total organizational framework is designed around student interests and needs and teacher interests and talents relating to the following three major organizational units: (1) divisions, (2) the Instructional Improvement Committee (IIC), and the Systemwide Policy Committee (SPC).

The organizational structure of the senior high school is essentially a straight line hierarchy as shown in Figure 2.14. There are, however, horizontal relationships that exist (see Fig. 2.15), and these will be discussed later.

Figure 2.14



Divisions

The multiunit secondary school model retains the concept of clustering a group of teachers with a group of students with common interests and needs as their common denominator. Each of these clusters is called a division. Schools may have several divisions that cover

broad career or curriculum areas and that include variable team clusters. Five units (divisions) have been designed as one alternative into the organizational framework of the senior high school to reflect all areas of career clusters. The five units are (1) environmental science, (2) applied technology, (3) management science, (4) community studies, and (5) communication arts.

The *environmental science division* deals with man and his relationship to the environment. General interest areas of agribusiness, natural resources, marine science, and environmental control encompass this division. Basic high school courses currently offered in many high schools fit neatly into this division, e.g., physics, chemistry, biology, animal science, agriculture, plant science, social studies, economics, math, English, international relations, and geography.

This division is designed to accommodate *all* students with interests and needs in this broad general area. All students are in an individualized program and can be expected to develop to their maximum capabilities. Students who are preparing for advanced technical training or college will satisfy all entrance requirements.

The *applied technology division* coordinates the talents and interests of teachers with the interests and needs of students to form a construction-related area. Typically offered high school courses within this division are woodworking, electricity, electronics, science, auto and power mechanics, math, English, graphic arts, and drafting.

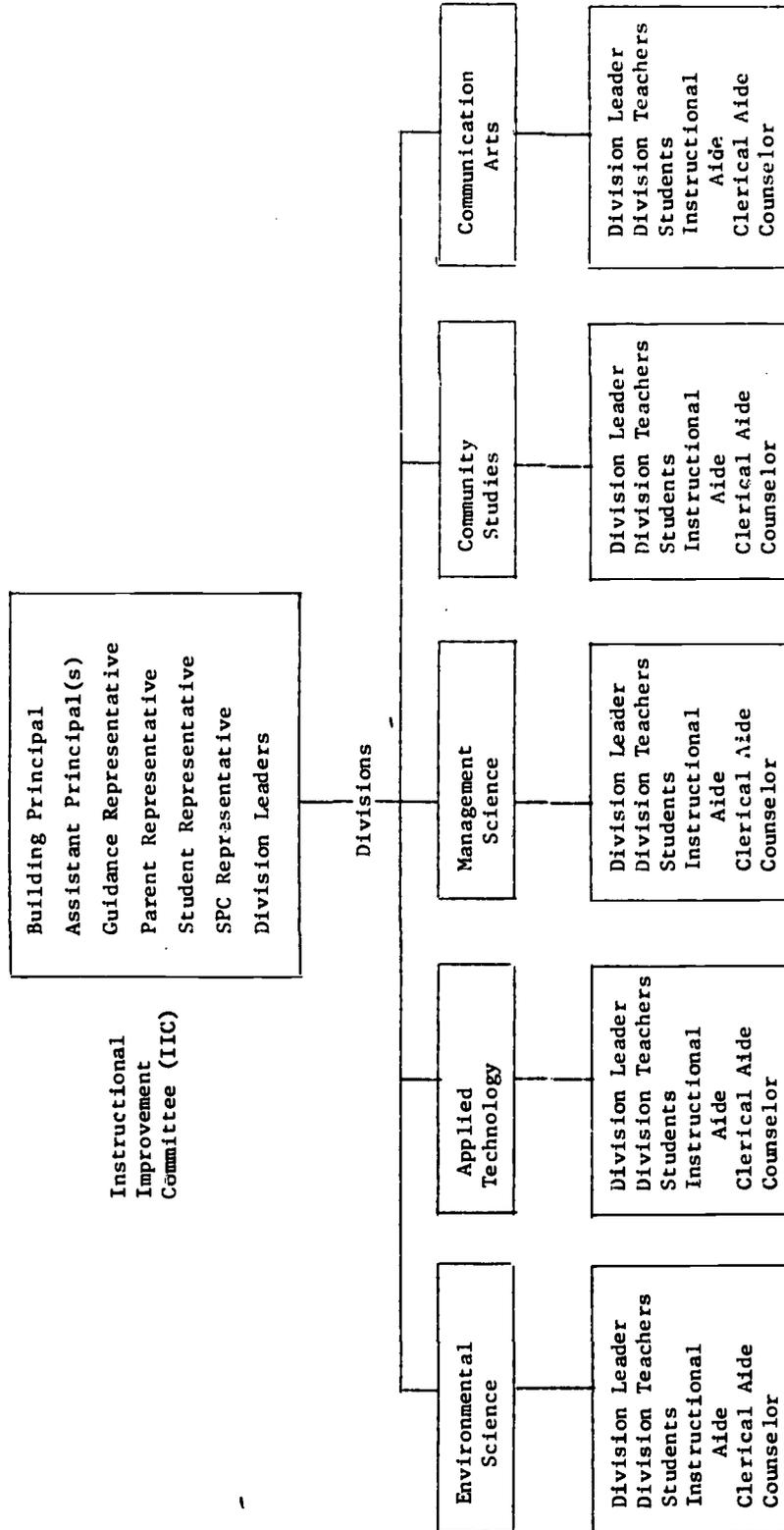
This division encompasses all interests ranging from trade occupations to various types of engineering professions. Students should be exposed to a full range of opportunities whether they plan to enter a work field immediately or to pursue a post-high school education.

The *management science division* includes the areas of business and office services along with manufacturing and transportation services. Management science skills may encompass the control and direction of goods and services. High school subjects commonly found in this division would be English, math, social studies, economics, typing, secretarial procedures, bookkeeping, marketing procedures, and advertising. Students enrolled in this division receive all related capstone benefits regardless of their post-high school plans.

The *community studies division* is concerned with public and private service to the community and related areas. This division includes the type of service utilized within a community, e.g., medicine, law, family services, citizenship, consumer education, psychology, sociology, and public service.

Figure 2.15

ORGANIZATIONAL FRAMEWORK OF AN ICE/MUS HIGH SCHOOL: ONE ALTERNATIVE



Community studies allows for great flexibility in meeting the interests and needs of its students. As a major thrust this division provides high school students with the experience of performing a service for others while learning.

One aspect of community studies is public service which can be divided into six basic areas: (1) senior citizens, (2) ecology service, (3) hospital service, (4) tutorial service, (5) voter service, and (6) mental health service. These basic areas are self-explanatory.

The *communication arts division* encompasses the area of communication in all forms to and with people. The ability to communicate with words, sounds, and objects provides the basic objectives of this division. High school courses commonly found in this division are English, social studies, literature, math, foreign language, art, sculpture, music, speech, drama, journalism, and radio/TV.

A synonym for this division may be called the "performing arts" area. This division is extremely comprehensive in nature but allows for the in-depth study needed for interested high school students. The opportunity to express creativeness in words, sounds, and objects is massive and students can be expected to develop to their potential utilizing the resources of the school and the community.

Instructional Improvement Committee (IIC)

With the existence of three, four, or five divisions in a high school there is a very important need to maintain communications among staff. This is apparent when the utilization of common facilities is necessary for maximum educational value. Instead of common facilities (gym, IMC, commons, cafeteria, and so forth) being rigidly scheduled at the beginning of the year and then remaining so scheduled, scheduling of these common facilities changes to a flexible weekly basis. Only through common effort, understanding, and a shared decision-making process can maximum utilization of common facilities be accomplished.

This kind of shared decision-making process is accomplished through the Instructional Improvement Committee (IIC). The IIC has four main functions:

1. The IIC states the educational objectives and outlines the educational program for the entire school.
2. It interprets and implements system-wide and state-wide policies that affect the educational program of the building.

3. It coordinates the activities of the divisions to achieve a sound education for each student.
4. The committee arranges for the use of facilities, time, and resources for maximum educational benefit to teachers and students.

Thus, the IIC deals primarily with planning and coordinating functions related to the instructional program.

The many support services found at the senior high school level usually make their major impact at the IIC level in the form of general services to the school. Specific services are provided at the division level where the services involve teachers and students. Support services personnel consist of the school nurse, school social worker, school psychologist, behavioral disability teacher, guidance counselor, and teachers of EMR, LD, and so forth. These specialized personnel may work with the IIC on either an ad hoc or a permanent basis in regard to the overall instructional program of the school, but also work with the divisions at the teacher-student level. All support personnel are a part of the instructional program aimed at the development of maximum potential of *each* student in the school.

Systemwide Policy Committee (SPC)

To facilitate the substantial change needed to move from a traditional comprehensive high school to a comprehensive multi-division high school, the SPC was created as a third body in the organization. This group is less involved in instructional decisions and more concerned with allocation of resources. The committee is chaired by the superintendent or his representative and includes consultants and other central office personnel, representatives from the IIC, division leader representatives, staff teacher representatives, student representatives, board of education representatives, parent representatives, and general community representatives. The SPC

1. Identifies the functions to be performed in each MUS high school in the district
2. Recruits personnel for each MUS high school in conjunction with the principal and provides for the necessary inservice training
3. Allocates the necessary resource materials
4. Disseminates relevant information within the district and community

The SPC is the policy-making body for the total MUS program in the school district. It coordinates the activities of each school with those of the total school district. The SPC is a necessary support force for the proper fulfillment of the instructional program in each MUS school.

Shared Decision Making

One of the key components of IGE/MUS-S is shared decision making. The process is an extremely complex one which requires an understanding of individual and group dynamics through which the shared decision-making process is accomplished. Such an understanding is mandatory for putting the IGE/MUS-S component of shared decision making into operation.

Research into the decision-making process is in its early stages. The decision-making process is basically an individually internalized intellectual activity. There are many facets that must be considered in understanding how problems are solved. As Brim, Glass, Lavin, and Goodman (1962) stated:

First, there are variables pertaining to the characteristics of the individual (his attitudes, beliefs, abilities, motives) which customarily are referred to as the individual's personality. Second, there are variables pertaining to the external observable situations in which individuals may find themselves. . . . Finally, there are variables which describe the momentary state of the individual resulting from the interaction of a specific situation with the characteristics of the individual's personality [p. 46].

It is essential to provide some definitions of decision making to provide a base for common interpretation and agreement. Koontz and O'Donnell (1964) defined decision making as "the actual selection from among alternatives to a course of action" (p. 135). Culbertson, Jacobson, and Roller (1960) believed that decision making "is a primary source of control and definer of action" (p. 370).

Writers and researchers throughout the years have wrestled with definitions of decision making. Generally, a common thread links all definitions. This thread suggests that there are always alternatives to the solution of a situation or problem. The alternatives are sifted, and one is chosen to promote action in that particular situation.

Scholars of the process have attempted to organize the decision-making process into

steps or sequences. Probably the best-known sequence of the process is attributed to Dewey (1910). He believed that problems are solved in the following steps or sequences: (1) perplexity or doubt, (2) identification of the problem, (3) research for facts, (4) form-relation of a possible solution, (5) solution testing and when necessary a reanalysis of the problem, and (6) the application of the correct solution (p. 17). In a study of the complexities of decision-making variables Wilson and Alexis (1964, pp. 180-195) stated that there are six elements common to all decisions: (1) the environment, (2) the decision maker, (3) the goals or objectives, (4) the alternative actions, (5) an order of alternatives, and (6) the choice or selection of one alternative or some combination of alternatives.

The literature shows that goals or objectives play a significant part in all decisions. Human beings must have goals, either recognized or latent, in order to move in a predetermined direction. People have various goals according to their interests. Goals are established for work, for recreational activities, for the family, for the church, and for social status. In many instances these goals may come into conflict with one another in the decision-making process. Thus, the selection of an alternative for the solution of a problem may be partially based on the acceptance of a goal that has no observable relationship to the problem at hand. Miller and Starr (1967) stated that "conflict between goals can occur in a number of ways: (1) conflicts between the individual's roles; (2) conflicts between group objectives; and (3) conflicts between the individual's role and the group objectives" (p. 47). Griffiths (1959) took a similar position when he stated, "In an important sense, all decisions are a matter of compromise. The alternative that is finally selected never permits a complete or perfect achievement of objectives, but is merely the best solution that is available under the circumstances" (p. 6).

Intertwined in the decision-making process is the variable of values. The term "value" may be defined as something intrinsically valuable or desirable to a particular individual at a particular point in time, and as such, values are an integral part of the decision-making process. Morrel (1960) stated:

a . . . percentage of the decisions of an individual relates to his structure of values—these decisions determine his ultimate ends. Such value decisions are based upon the varying backgrounds and accumulated experience of the individuals concerned. Since each person

carries around a different conceptual structure or framework of ideas in his mind, decisions are measured by one's personal standards rather than by objective standards [p. 8].

Values help an individual maintain internal consistency. An individual strives toward internal balance by avoiding dissonance and by making decisions to maintain consonance. The term "dissonance" is equated with inconsistency and the term "consonance" is equated with consistency (Benson, 1970).

When dissonance occurs, a human organism will try to regain internal harmony and balance among his opinions, attitudes, knowledge, or values using the three following methods:

- (1) By changing one or more of the elements involved in dissonant relations
- (2) By adding new cognitive elements that are consonant with already existing cognition
- (3) By decreasing the importance of the elements involved in the dissonant relations [Festinger, 1957, p. 264].

With this background into the complex world of decision making by individuals, it becomes apparent that the term "shared decision making" is equally complex in terms of practice.

Shared decision making can be defined as the participation of individuals and/or groups within specified parameters in decisions affecting the variables critical to their performance of defined responsibilities.

As it relates to IGE/MUS-S, shared decision making involves a number of levels: (1) student and student, (2) student and teacher, (3) teacher and teacher, (4) teacher and administrator, (5) administrator and administrator, (6) school and parents, (7) school and community, and (8) parents and community.

Student and Student

If we accept both the premise that education is learning for life and the premise that education takes place outside as well as within the school facility, then interaction between students is of the utmost importance in regard to the total educational development of the individual.

Shared decision making between students takes place in all aspects of their endeavors. It may manifest itself in the areas of social, educational, or religious environments. Shared decision making is generally a matter of compromise between two or more individuals.

Students working together as a class, in small groups, in paired units, or within a total school population results in many shared decisions. Understanding the decision-making processes of the individual and the group results in shared decision making. The teacher (or leader) is responsible for instilling an understanding of these processes in all students so that the shared decision-making process can function on a student-to-student level.

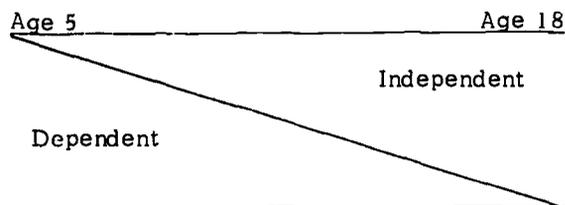
Student and Teacher

The practice of shared decision making between student and teacher is an acknowledged practice in the self-contained classroom. However, within the concept of IGE/MUS-S shared decisions take an expanded role. The IGE/MUS-S organizational framework, which clusters groups of teachers with similar interests and talents with groups of students with similar interests and needs, expands the utilization of shared decision-making practices to assist the total development of each student.

The number of shared decisions made between teacher and student is dependent upon the level of responsibility (maturity) of the student and the student's past experiences with the shared decision-making practice. The level of responsibility for each student is assessed using age, IQ, and grade as criteria. All variables involved in maturity have to be considered in determining the amount of shared decision making.

A rough rule of thumb that can be used in allowing more student input into the shared decision-making process is depicted in Figure 2.16.

Figure 2.16



At age five a student begins to provide input into the shared decision-making process regarding his educational experiences. However, the degree of responsibility of a five-

year-old child is relatively small. At age eighteen a student also provides input into the shared decision-making process regarding his educational choices, but the degree of responsibility should be large. One of the purposes of an educational system is to develop and nurture the ability to participate in shared decision making.

Teacher and Teacher

In the past teachers practiced the shared decision-making process to varying degrees. In IGE/MUS-S, however, the shared decision-making process between teachers takes on a totally new importance. Teachers within a division *must* relate to each other concerning the total educational experiences and development of each student in their division.

For the process of shared decision making to function it is necessary that each teacher understand the complexities of individual decision making as well as group dynamics within the division.

Teacher and Administrator

The organizational framework of IGE/MUS-S allows for decisions affecting the instructional program to be shared between the administrator and the division leaders and staff. The device for this is called the Instructional Improvement Committee (IIC). Major decisions affecting the instructional program were formerly vested in the administrator (principal). The principal may have utilized teacher, student, or parent input for helping in arriving at decisions, but at times this input was either ignored or never requested.

Shared decision making at the IIC level should maximize opportunities for each student to have the best in educational experiences during his association with the educational system.

Administrator and Administrator

This area of shared decision making may involve several levels and various situations. The Systemwide Policy Committee (SPC) is the prime example of shared decision making. Other levels may include meetings of central office staff, district high school principals, building principal and assistant principals, and so forth. The focus is always toward students, and decisions affecting them must be made in their interests.

School and Parents

It is apparent that in order for the school to fulfill its purpose and for the parents to accomplish their objectives, they *must* arrive cooperatively at decisions which affect the student. Proper communication and cooperation can result in a shared responsibility arrived at through the shared decision-making process.

School and Community

The community involves more than parents of children in school. It encompasses all people within the school attendance area including senior citizens, adults without children, and other interested nonparent groups such as service and fraternal organizations.

The concern here is for proper input from the community into decisions which affect the educational system and in turn the students' educational experiences. Areas of the instructional program which have a direct bearing on the community are co-op, work-study, and school service programs; capstone courses; and volunteers and aides.

If it is a basic premise of the district that educational development takes place outside as well as inside the school facility, then the community must provide the necessary input and in some instances shared decision making into the instructional program.

Parents and Community

The lines of communication must remain open between parents of school children and other members of the community. Parents are often involved at different levels of the instructional program, and this places a sense of responsibility on them to provide information concerning this instructional program to the community. The community is then responsible for determining the goals of education for the schools.

Parents convey the image of the school to the community. They are one of the more vital sources of information that a community has for determining the proper function of its schools.

Home-School Relations

It has long been recognized that the school alone cannot do the total job of educating the youth of today. Different writers have alternately blamed the school and the

home for what they feel is a lack of properly educated young people. The school has been accused of not being responsive enough to its students. The community has said that schools are at fault for not giving children the best education (while the community is neglecting its own responsibility for the educational process). One cannot entirely blame either the school or the community for the educational problems that have occurred. Each party has an effect on the educational process, and thus both are to blame for any educational failures.

The dual responsibility of home and school for the education of students is of central importance to the IGE/MUS-S system. Both home and school help determine what is to be learned, why students should learn, and how they are to learn. Yet often this dual responsibility has not been considered in discussions of educational reform. The school's responsibility is relatively obvious, but the effect of the home and community has not been fully considered in discussions of education.

Effect of Home and Community on Educational Process

The following points will be considered in assessing the effect of the home and community on the educational process and in determining how IGE/MUS-S will utilize this effect:

1. If the home environment does not encourage education, then the students from these homes will not do as well in school.
2. The home and the school may have different goals and thus the students are caught in the middle.
3. The home is of major importance in determining the student's emotional reactions, attitudes, perceptions, and values and thus directs the way in which the student will approach the school.
4. Childhood learning predisposes youth to good or poor mental health and thus to the way youth act and react in school.
5. A child's way of learning begins at home and is thus carried over to school.
6. Parents and the community often do not know what is happening at school.
7. Parents often feel that if they get a letter from the school, then their child has done something wrong.
8. Both the school and the community

have built up stereotypes of the other and these stereotypes may have no basis in reality.

9. The school has failed to inform the community of what is going on in school (except when a student is a behavior or academic problem) and thus the community and home can do little to help the educational process.
10. Parents are often not aware of the psychological development of their children and thus may not be giving the proper support their children need.
11. An air of mystery hangs over the school and thus home and community may be antagonistic because they do not understand the school.
12. Our society is rapidly changing and the school of yesterday is not the school of today; thus home and community may be confused as to what the school is.

Why a Home-School Relations Organization?

Considering just the small sample of effects listed above, the need for active participation by the community in the educational process is obvious. Yet the community's participation needs to be structured and organized in order to be effective in providing the best possible education for students. This is why IGE/MUS-S feels the need for a home-school relations organization. The purpose of such an organization is to promote student learning by setting up a communications network between administrators, unit/division leaders, teachers, specialists, parents, students, and the community at large. It will also help to ensure that the community is aware of what the school is doing and vice versa so that the dual responsibility of the school with the home and community can be coordinated.

Basically this organization will have the following three functions:

1. Be an information organization in the sense that both the school and the community need to be informed of the practices and needs of each other.
2. Be an advisory organization. The school needs to be aware of the support of the community in providing the best education possible.
3. Be a resource organization which both the school and the community can draw upon.

Responsibility for Starting the Organization

IGE/MUS-S feels that the school holds the initial responsibility for starting a home-school relations organization. When a school system adopts the IGE/MUS-S program, it accepts all seven components of the system, one of which is home-school relations. Since the community may not know of the IGE/MUS-S system, the school needs to inform them about IGE/MUS-S, and the home-school relations organization could be one way to do this. There already may be a parent-teacher association or some similar existing organization which could be transformed into the type of home-school relations organization needed by IGE/MUS-S.

Some points useful in the development of a home-school relations organization were suggested by Ringness (1969):

1. Considerable information on the mental health principle and how it relates to the work of the school is needed. Data can be gained from reading, discussion, lectures, workshops, inservice groups, consultants, and others.
2. There must be clear ideas of the needs for the schools involved. Studies must be made. This requirement is not for "research" so much as for identification and ranking of problems and clarification of their nature.
3. There must be ideas of what can reasonably be undertaken, resources available, and staff possibilities.
4. Machinery must be devised so that action can be taken.
5. Principles must be applied.
6. Evaluation of results must be made and modifications of the program introduced if necessary [pp. 440-441].

The community, through the home-school relations organization, can work with the Systemwide Policy Committee (SPC) and help the system direct its resources and energies. The organization can be a supporting force to be used by the SPC when making district policy decisions, and it can help remind the SPC that the students are the central factor in its decisions.

The home-school relations organization can also help direct educational practices at the school level by working with the Instructional Improvement Committee (IIC) and the division/unit personnel. Some possible func-

tions of the organization with respect to an individual school were stated earlier. The organization will be most involved at the local school level since it can be a resource supplier and a source of paraprofessionals.

Research and Development

Continuing research and development to generate knowledge and to produce tested materials and procedures is an important component of IGE/MUS-S. Development-based research is needed to refine the seven IGE/MUS-S components, and research on learning and instruction will generate knowledge that in turn will lead to improved educational techniques and procedures. Each school, too, must engage in active research in order to design, implement, and evaluate its instructional program and organization.

Summary

The strength of IGE/MUS-S lies not in any one of the seven components, but rather in their interaction as a total system. It is a case of the whole being greater than the sum of its parts. It is equally as important to realize that IGE/MUS-S does not have the power to cure all the problems of education; it can play a major, but essentially bounded, role. In those areas for which IGE is suitable, it is anticipated that a number of desirable outcomes will accompany its implementation. These anticipated outcomes include:

1. Learner units composed of multi-age groupings of two or more grade levels in a multidiscipline area
2. A system of continuous progress for all students
3. An organization of teams of instructional specialists (The size of the team and number of disciplines represented may vary.)
4. A unit composed of 90-200 students depending on the objectives of the students
5. The appointment of division/unit leaders in each team
6. Cooperative planning by the unit of instructional strategies
7. The sharing of decision making as it affects the instructional program
8. Variable instructional grouping patterns within units
9. Individually guided education instructional approaches within units

10. Use of the Instructional Programing Model in the school
11. Use of criterion-referenced evaluation instruments in the school
12. An ongoing program of research and development in the school
13. A student's schedule allowing him maximum utilization of the educational resources of the community
14. An opportunity for each student to participate in the decision-making process regarding his educational goals. The amount of input into the decision-making process is dependent upon the responsibility level of the student
15. A home-school communications network regarding the total school objectives and pupil progress

Providing that proper implementation of IGE/MUS-S has taken place, certain benefits can be expected. These benefits can be categorized into three areas: (1) students, (2) teachers, and (3) parents and community. The following represent only a partial listing of the benefits derived from IGE/MUS-S:

Students

- *1. Opportunity to pursue interest areas throughout their high school years
2. Learning becomes "learning for life"
- *3. Association with other students with like interests and needs
- *4. Flexibility to change as interest and need change
- *5. Availability of cooperative interest and need experiences with the community
6. The relevancy of a combined curriculum
7. A block of time which can be scheduled to better utilize the educational resources
8. An advisor-advisee relationship with one teacher
9. A more fulfilling process of meeting the school and community goals of education
10. A more humane, personalized learning climate
- *11. The utilization of the entire curriculum as a medium for integrating knowledge and attitudes about occupational choice including important social, economic, and personal factors that influence and are influenced by occupational choice

12. A shared decision-making process regarding their educational goals and experiences
13. The concept of continuous progress
- *14. The flexibility of selecting courses from more comprehensive curriculum offerings
15. Assessment as an individual student

*Applies to senior high school only.

Teachers

- *1. The selection of a division based on interest
- *2. The common denominator of interest areas with students
3. An advisor-advisee relationship with small groups of students of similar interests
4. The availability of team planning to make decisions regarding time, space, students, and resources
- *5. The common denominator of interest areas with teachers
6. A more humane, personalized learning climate
7. Opportunity to teach "learning for life"
8. A block of time which can facilitate progress toward the realization of the school and community goals of education for all students
9. A shared decision-making responsibility concerning the total educational experience of individual students
10. The utilization of school-community resources in total student development
11. The utilization of varying instructional techniques (large group, small group, independent study, and paired grouping)
- *12. The responsibility of maintaining course content in depth and in relationship to the thrust of the division
13. A more positive parent interest and involvement in the educational process.
14. The opportunity to broaden curriculum offerings
15. Opportunities for professional growth
16. Ability to assess students as individuals and plan educational programs based on student's needs, abilities, and interests

*Applies to senior high school only.

Parents and Community

1. Realization of educational goals of the community
2. Shared decision making by parents, students, and teachers with respect to educational goals of the community
3. Shared decision making by parents, students, and teachers with respect to individual student goals and interests
4. Involvement in educational process outside school facility
5. Involvement, knowledge, and understanding of school-within-a-school facility
6. Fulfillment of community needs through student interest
7. Contribution to total learning climate
8. Support for continued progress and reevaluation of educational system
9. Close relationship with teachers, administrators, and students
10. Shared decision making about instructional programs as participant in the Instructional Improvement Committee
11. Shared decision making about policy decisions as a participant in the Systemwide Policy Committee

III Strategy for Implementation

Operational Approach to the Project

Since the project is moderately staffed and funded, it has been and will remain imperative that the project rely heavily on the services of practitioners in the field for creative input and practical advice. The primary means for accomplishing this is a combination of paid professional workshops for development and refinement of concepts and procedures to be implemented in IGE/MUS-S. Participants in previous workshops have been identified through their contact with R & D Center personnel and by means of requests made to district and university leaders to provide people capable and experienced in innovative education. Finally, in keeping with a commitment to provide practitioners with an attractive alternative to traditional school organization, development of theory and structure is oriented primarily to solution of perceived problems.

Another outgrowth of the search for optimum ways to use the resources available to the project was a predilection toward liberal use of theoretical models. By use of this device design specifications are readily available to school districts and professionals who can easily generate incidental materials and manage adaptations of overall procedures which are beyond the capacity of the project to provide.

Once the basic designs have been set the matter of implementation will follow the model utilized by the R & D Center for dissemination and testing of all of its products. This is a sequence of piloting and small- and large-scale field testing. Prior to and coincidental with established implementation procedures the project will generate a series of print and nonprint materials to be used for training teachers and administrative staffs and which can be modified for informative purposes. These materials will be continuously altered and revised as experience proves neces-

sary. When servicing of pilot operations becomes a full-time consideration, expansion of staff will occur.

Plans for Implementation

Briefly, the project hopes to move forward simultaneously on three fronts: (1) through the use of advisory forces and pilot operations, refine the design of the system which has been presented in this paper; (2) locate, install, and service a series of pilot programs to determine the feasibility of the system and to serve as a test bed for refinement and more widespread dissemination; (3) generate and subsequently refine in practice a series of staff-development materials for districts which elect to implement IGE/MUS-S. The remaining pages discuss current plans for achieving these three steps.

Veterans of IGE at the elementary level will recall that the prescribed program for implementation of Center products requires pilot testing followed by small- and large-scale field testing, respectively. In addition, a change model has been adopted which provides for a sequence of developmental phases: awareness, installation, maintenance, and institutionalization. All of these steps and concepts have been incorporated into MUS-S plans for implementation. Quite naturally, however, the interests of project personnel are at this time directed almost completely toward preparations for pilot operations.

Scope of Work

A specific goal for the generation and pilot testing of the secondary models has been developed to ensure the completion and implementation of the secondary models. The following list of activities provides the project staff with specific guidelines and objectives.

Activity 1: *Development of IGE/MUS-S
Conceptual Framework*

1. Develop IGE/MUS-S conceptual models, 10/72-3/73 (Staff)
2. Present the IGE/MUS-S models to IGE/MUS-S Ad Hoc Task Force, 11/72 (Benson, White, Koritzinsky)
3. Present revised version of IGE/MUS-S models to Ad Hoc Task Force, 3/73 (Staff)
4. Prepare operational version of IGE/MUS-S models based upon feedback from Ad Hoc Task Force, 3/73-4/73 (Benson, White, Koritzinsky)
5. Refine IGE/MUS-S models based upon pilot center experience, 7/74 (Benson, White, Koritzinsky)
6. Develop needs and specifications paper on IGE/MUS-S, 3/73 (Staff)

Activity 2: *Staff Development and
Related Materials*

1. Review and critique MUS-E staff development materials, 9/72 (Staff)
2. Prepare specifications for SDWM, 3/73 (Staff)
3. Develop pilot SDWM, including print and nonprint materials, 3/73-6/73 (Staff)
4. Submit pilot SDWM to date to Ad Hoc Task Force for evaluation and guidelines, 4/73 (Staff)
5. Utilize SDWM in pilot schools (P-UL), 6/73 (Staff)
6. Utilize SDWM with total staff of pilot schools, 8/73 (Staff)
7. Prepare working paper of IGE/MUS-S staff development strategies, 8/74 (Staff)

Activity 3: *IGE/MUS-S Awareness Conference
& Model Development Orientation #2*

1. Develop plans for IGE/MUS-S awareness conference and model development orientation #2, 9/73 (Benson, White, Koritzinsky)
2. Complete plans for IGE/MUS-S awareness conference and model development orientation #2, 10/73 (Benson, White, Koritzinsky)
3. Invite participants to IGE/MUS-S awareness conference and model development orientation #2, 11/73 (Benson, White, Koritzinsky)
4. Complete final arrangements for IGE/MUS-S awareness conference and model development orientation #2, 11/73 (Koritzinsky, White)

5. Convene IGE/MUS-S awareness conference and model development orientation #2, 1/74 (Staff)

Activity 4: *Ad Hoc Task Force and
Advisory Council*

1. Identify the roles and responsibilities of IGE/MUS-S Ad Hoc Task Force, 10/72 (Staff)
2. Select and initiate invitations to Ad Hoc Task Force, 10/72 (White, Koritzinsky)
3. Convene IGE/MUS-S Ad Hoc Task Force, 11/72 (White, Koritzinsky)
4. Initiate invitations to Ad Hoc Task Force committee meeting #2, 3/73 (White, Koritzinsky, Staff)
5. Convene Ad Hoc Task Force #2 meeting, 4/73
6. Invite Ad Hoc Task Force members to IGE/MUS-S awareness conference, 11/73 (Koritzinsky)
7. Identify roles and responsibilities of IGE/MUS-S advisory council, 12/72 (Benson, White, Koritzinsky)
8. Select and initiate invitations to IGE/MUS-S advisory council members, 2/73 (Benson, Staff)
9. Develop plans for advisory council meeting, 3/73 (White, Koritzinsky, Staff)
10. Convene advisory council meeting, 5/20/73 (Staff)

Activity 5: *Pilot Centers*

1. Further develop criteria for IGE/MUS-S pilot centers, 11/72-2/73 (Benson, Staff)
2. Develop pilot agreement and finance structure for pilot centers, 12/72-2/73 (Benson, Woolpert, Harritt)
3. Identify and select two to four IGE/MUS-S pilot centers, 3/73-4/73 (Benson, White, Koritzinsky)
4. Invite potential pilot center superintendents, board of education members, community laymen, principals, and prospective unit leaders to MUS-S orientation conference, 4/73 (White, Koritzinsky)
5. Convene pilot center orientation conference, 5/73 (Staff)
6. Principal-Unit Leader workshop, 6/73 (Staff)
7. Curriculum development summer workshop for pilot centers, 6/73-7/73
8. Pre-opening school workshop for pilot centers, 8/73 (Staff)

9. Monitor IGE/MUS-S pilot center operations, 9/73-6/74 (Staff)
10. Prepare preliminary report on IGE/MUS-S pilot center operations, MUS-S model feasibility, and staff development materials, 12/73 (Staff)
11. Prepare final report on IGE/MUS-S pilot center operations, MUS-S model feasibility, and staff development materials, 8/74 (Benson, Hubbard)

**Activity 6: Curriculum Development
Summer Workshop**

1. Develop financial allocations for curriculum summer workshop for pilot, center principals and prospective unit leaders, 2/73 (Staff)
2. Formulate performance objectives for summer workshop, 4/73 (Staff)
3. Design an evaluation format to measure outcomes of curriculum summer workshop, 4/73 (Benson, Hubbard)
4. Determine scope and sequence of the curriculum summer workshop, 5/73 (Staff)
5. Explain purpose and format of summer workshop to personnel at pilot center orientation conference, 5/73 (Staff)
6. Convene and direct summer workshop, 6/73-7/73 (Staff)
7. Prepare an evaluation report of the curriculum summer workshop, 8/73 (Benson, Hubbard)

Activity 7: IGE/MUS-S Newsletter

1. Compile a mailing list of interested personnel to receive the MUS-S Newsletter, 1/73 (Koritzinsky)
2. Develop a format of articles to be included in the newsletter, 1/73 (Benson)
3. Write and/or request articles to be used in the newsletter, 1/73 (Staff)
4. Initiate mailing of newsletter, 1/73 (Koritzinsky)
5. Follow up on additions, subtractions, and corrections of the mailing, 2/73-12/73 (Koritzinsky)
6. Develop format of future newsletters, 2/73-12/73 (Koritzinsky)
7. Coordinate the publication of future newsletters, 2/73-12/73 (Koritzinsky)

Activity 8: Evaluation of IGE/MUS-S

1. Develop evaluation of "principal-unit leader" staff development workshops, 5/73 (Hubbard, Benson)
2. Prepare evaluation plan for IGE/

MUS-S pilot centers, 7/73 (Hubbard, Benson)

3. Prepare an evaluation report on staff development workshops, 8/73 (Hubbard)
4. Conduct an evaluation of "principal-unit leader" staff development workshops and staff development materials, 9/73-12/73 (Hubbard)
5. Conduct the evaluation of IGE/MUS-S pilot centers, 9/73-6/74 (Benson, White, Koritzinsky, Hubbard)
6. Prepare the evaluation report of IGE/MUS-S pilot centers, 8/74 (Benson, White, Hubbard, Koritzinsky)

Activity 9: Staff Planning for IGE/MUS-S

1. Conduct periodic staff reviews of component status, accomplishments, and projected activities, 10/72-8/74 (Benson)
2. Prepare FY74 Program Plan, 8/73 (Benson)

Advisory Committees

In an attempt to involve teachers, students, administrators, and community members in the initial and continuous development of the IGE/MUS-S model, the project has organized several advisory groups to serve as consultant organizations to the MUS-S project staff. While serving various functions, each group contributes to the progress and success of the entire project.

Ad Hoc Task Force

Membership: This committee is composed of secondary school principals and superintendents, University of Wisconsin School of Education personnel, and Wisconsin Department of Public Instruction representatives.

Functions: The primary function of this committee is to help with the conceptualization of the IGE/MUS-secondary models. In this capacity the task force serves as a "think tank" for the theoretical development of the IGE/MUS-secondary school.

Ad Hoc Teacher/Principal Task Force

Membership: This committee is composed of secondary principals and teachers, each representing individual middle/junior and senior high schools.

Functions: This group serves as a "reaction agent" to the theoretical development of the secondary models and helps to determine whether the concepts developed are practical, efficient, and workable in a secondary setting. In addition, this committee reviews specifications for staff development materials and pilot center criteria in terms of their own expertise and experience.

Ad Hoc Student Task Force

Membership: This committee is composed of two student representatives from each high school in the Madison area, including the parochial and free schools.

Functions: This student group provides the project with an excellent opportunity to learn about the current trends, concerns, interests, and problems that face high school students today. In addition to orienting the project about high schools today, the committee reacts to the development of the secondary models and provides feedback and reactions about their role in the IGE/MUS-secondary setting.

Advisory Council

Membership: This council is composed of representatives from the Wisconsin Department of Public Instruction and the University of Wisconsin-Madison campus.

Functions: This council assists in the assessment of the secondary models and the staff development materials and acts as resource personnel in specific areas of expertise.

National Evaluation Committee

Membership: This committee is composed of scholars and practitioners in the field of education and representatives from the University of Wisconsin-Madison School of Education and R & D Center personnel.

Functions: This group reviews the progress and projections of each Center program including the IGE/MUS-secondary project, considers the project problems which require attention, and makes suggestions for improvement.

School Advisory Council

Membership: This council is composed of members from multiunit schools and other educational agencies dealing with multiunit schools.

Functions: The council receives information about Center products and field test opportunities and exchanges information of mutual interest with other multiunit personnel.

Wisconsin Department of Public Instruction Advisory Committee

Membership: This committee is composed of representatives from the Wisconsin Department of Public Instruction, R & D Center representatives, and IGE/MUS-secondary staff members.

Functions: This committee reviews the development of the secondary models and materials and determines the joint relationship the two agencies might have in implementing the secondary school designs in the state of Wisconsin.

Teacher Education Network

Membership: This network is composed of representatives from schools of education who are working in conjunction with the R & D Center in training IGE/MUS-secondary teachers.

Functions: The network representatives serve their own geographical area by (1) training their own university students to become IGE/MUS-S teachers, (2) serving as consultants to the local IGE/MUS-S schools in the area, and (3) conducting the inservice workshops for local IGE/MUS-S school staffs. In addition, the network members work closely with the R & D Center MUS-S staff in coordinating the staff development program and reviewing the project materials.

Ad Hoc Committees

Membership: These committees are composed of teachers, central office staff of school districts, university personnel, education agency members, consultants, teachers, parents, students, and community members interested in the development of the MUS-S school. These persons are categorized in the MUS-S newsletter mailing list.

Functions: The committee members serve when needed as readers or task force members dealing with any or all of the IGE/MUS-S component areas in Individualized Curricula, Facilitative Environments, Home-School Relations, Scheduling, Measurement and Evaluation, Continuous Progress, Instructional Programming Model, Program Implementation, Organization of the I & R Unit, Research and Development, Shared Decision Making, and Student Input.

Pilot Centers

The pilot program for the IGE/MUS-secondary project will begin in September, 1973, and continue through June, 1975. During this time, both the middle/junior high school model and

senior high school model will be tested, and the inservice materials and services will be evaluated. The following agreement outlines the services expected of both pilot schools and the Research and Development Center.

MEMORANDUM OF AGREEMENT
BETWEEN
THE WISCONSIN RESEARCH AND DEVELOPMENT CENTER FOR COGNITIVE LEARNING
AND
(PILOT SCHOOL)
(Name of District)

The Wisconsin Research and Development Center for Cognitive Learning (Center) and _____ (District) agree to cooperate during the 1973-74 school year in the implementation of an Individually Guided Education/Multiunit School-Secondary program. This program will consist of the model development, materials, and strategies relating to IGE/MUS-S. The pilot test will be at _____.

- A. The Center will provide at no cost to the District:
1. Plan, staff, and operate a five-day IGE/MUS-S orientation workshop for local school administrators, central office personnel, and principals and unit leaders of the pilot school.
 2. Plan and operate a curriculum workshop for secondary pilot schools during a three-week summer session (following the one-week IGE/MUS-S orientation workshop). The inclusive dates are June 11-July 3, 1973.
 3. Provide financial support to the principals and unit leaders for the four-week workshop. The financial support is equivalent to the District's summer curriculum employment rate per person.
 4. Prepare and provide to the pilot schools a set of prototypic IGE/MUS-S staff development workshop agendas to assist the pilot school personnel in planning pre-opening school workshops.
 5. Provide prototypic audiovisual materials and single-copy handbook(s) required for implementation of IGE/MUS-S for use in the pre-opening school workshops and other staff development workshops. These materials are for loan purposes only.
 6. Provide two days of consultant help to each school at their pre-opening school workshop.
 7. Provide on-site visits to each school as needed to assist the principals and their staffs. (A maximum of four days per semester.)
 8. Provide assistance through telephone conferences as needed.
 9. Establish an IGE/MUS-S newsletter to facilitate an exchange of information among participating schools and interested secondary practitioners and personnel (optional).
 10. Conduct "Interim Evaluation Workshops" for principals, unit leaders,

teachers, students, and community representatives of the pilot school. These are to be held on school inservice days throughout the school year.

11. Design procedures and instruments for securing baseline data to determine the progress of IGE/MUS-S pilot schools.
12. Maintain a working relationship between the Center and the pilot school for a minimum of _____ years or less as Center funds permit or at the mutual agreement of both parties.

B. The District agrees to:

1. Provide the name(s) of schools implementing IGE/MUS-S.
2. Provide for principals and key personnel to attend a five-day IGE/MUS-S orientation workshop.
3. Provide for principals and key personnel to attend the three-week curriculum workshop following the orientation session.
4. Plan and conduct a ____-day pre-opening school workshop for all staff.
5. Conduct inservice assessment workshops throughout the school year. There shall be _____ Interim Evaluation workshops per school year.
6. Cooperate in planning and facilitating the evaluation process with the R & D Center.

C. The term of this agreement shall be from the time it is fully executed until June 30, 1974. However, the Center reserves the right to gather follow-through data until June 30, 1975.

Accepted by:

 Dr. William Bush, Deputy Director
 Wisconsin Research and Development
 Center for Cognitive Learning

 Date

Agreed to:

 (Signed)

 (Title)

 (District)

 (Date)

Field Test Schedule

The field-test schedule over the next four years (1973-1977) is projected below, but is subject to change with each year.

Year	Type of Field Test	Number of Schools		Type of New School
		Old	New	
September, 1973	Pilot		4	(4) Junior/Middle
September, 1974	Pilot	4	12	(8) Junior/Middle (4) Senior High
September, 1975	Small Scale	16	20	(15) Junior/Middle (5) Senior High
September, 1976	Small Scale	36	30	(15) Junior/Middle (15) Senior High
September, 1977	Large Scale	66	50-100	

The project is in the process of selecting several pilot schools for September, 1973. The following statements were used by the pilot schools to determine when their school was ready for IGE/MUS-S:

1. The school has a high degree of openness, trust, and adoptiveness.
2. The school has personnel who are generally younger and have less professional experience.
3. The personnel perceive few obstacles to becoming more innovative.
4. The staff is generally satisfied with existing working conditions.
5. The staff is generally *not* satisfied with the problem-solving adequacy of professional meetings.
6. The staff is generally satisfied with the time, however, devoted to problem solving in professional meetings.
7. The staff perceives themselves (individually *and* as a group) as an important source(s) of innovation.
8. The staff can communicate with others in the system regarding their own innovations or the innovations of others.
9. The administrator perceives himself as supporting innovation.

Timetable for Production of Staff Development Materials

Present plans for implementation of IGE/MUS-S in an existing school situation call for use of printed materials similar to and based on the contents of this paper. These will in turn be used to produce lecture presentations as well as nonprint materials. The combinations of these types of materials in an organized workshop environment will constitute the heart of preservice awareness and skill-development training for professionals.

As the conceptual development of the MUS-S model progresses and more and more schools begin to be interested in becoming pilot schools, staff development materials need to be refined and produced to orient and train each interested school and community. With this in mind, the MUS-S project has projected the following master plan for all audiovisual materials to be developed within the four-year period 1973-1977.

The progression to be followed in conjunction with each set of inservice materials is (1) to develop slides with accompanying scripts, (2) to refine slides and scripts and produce filmstrips, and (3) to create a 16mm motion picture when appropriate.

Nonprint Materials

<u>Type of A/V Material</u>	<u>Subject</u>	<u>Year Started</u>	<u>Year Completed^a</u>
Filmstrips	Instructional Programing Model Continuous Progress	1974	1974
Filmstrips	Organization of MUS-Junior High School/ Middle	1973	1973
Filmstrips	Organization of MUS-Senior High School	1974	1975
Filmstrips	Roles and Responsibilities for Junior High School/Middle Personnel	1973	1973
Filmstrips	Roles and Responsibilities of Senior High School Personnel	1974	1975
Filmstrips	Learning Climate	1974	1975
Filmstrips	Home-School Relations	1974	1975
Filmstrips	Day in Life of MUS-S Senior High Student	1975	1976
Filmstrips	Learning Problems	1975	1976
Filmstrips	Day in Life of MUS-S Teacher	1975	1976

^aIt is anticipated that these materials will be revised approximately two years after development.

<u>Type of A/V Material</u>	<u>Subject</u>	<u>Year Started</u>	<u>Year Completed^a</u>
Filmstrips	Measurement and Evaluation	1975	1976
Filmstrips	Research and Development	1975	1976
Filmstrips	Overview of MUS-S	1973	1973
16mm Motion Picture	Overview of MUS-S	1975	1976
Transparencies	An assortment of transparencies to meet specific needs and purposes	1973	1977

Printed Materials

<u>Type of Material</u>	<u>Year Started</u>	<u>Year Completed^a</u>
Working Draft - Overview of MUS-S	1973	1975
Working Draft - IPM, Continuous Progress	1973	1975
Working Draft - Learning Climate	1973	1975
Working Draft - Organization of MUS-Junior/Middle High School	1973	1975
Working Draft - Organization of MUS-S Senior High School	1973	1975
Working Draft - Roles and Responsibilities of Senior High School Personnel	1973	1975
Working Draft - Roles and Responsibilities of Junior High School Personnel	1973	1975
Working Draft - Shared Decision Making	1973	1975
Working Draft - Home-School Relations	1973	1975
Working Draft - Management and Evaluation	1973	1975
Working Draft - Research and Development	1973	1975
Needs and Specifications Paper	1973	1973
Handbook (to include material on each MUS-S component)	1973	1975
Brochure Overview	1974	1975
Inservice Manual and Simulation Guide	1973	1975
MUS-S Newsletter	1973	Continuous
Pilot School Newsletters	1973	Continuous
Performance Objectives - Implementation Guide	1974	Continuous
Other materials relating to scheduling, supervisor, etc.		

^aIt is anticipated that these materials will be revised approximately two years after development.

Future Research and Development Activities

As the secondary project continues to grow and evolve into a permanent program at the R & D Center, several activities associated with research and development activities should be considered as future adjuncts to the secondary models. In this regard three major parallel efforts are needed to provide breadth and substance to the secondary project:

1. Efforts are needed to develop and provide curricular packages on the secondary level to be utilized in IGE/MUS-secondary schools. Programs such as *Developing Mathematical Processes* and *Wisconsin Design for Reading Skill Development* could expand to include the secondary level. Additional curriculum areas dealing with science, environment, human relations, music, law, and medicine might be conceived as new courses to be introduced into the secondary setting.

2. Certain portions of the IGE/MUS-

secondary project rely upon anticipated outcomes from other projects in the R & D Center. It is reasonable to hope that closely related projects such as home-school relations, music, art and physical education within IGE, IGM, and the peer tutoring project could be incorporated at the secondary level with only minor adjustments.

3. Teacher education institutions are needed to develop new training programs for IGE/MUS-secondary teachers throughout the nation. These schools could work closely with the R & D Center in training new teachers for new roles and retraining experienced secondary teachers for their changed responsibilities. In this way new curricula, products, ideas, and procedures can be funneled into the secondary schools.

Research and development is a continuous process, and new ideas, additions, and adaptations can only add to the success and freshness of the IGE/MUS-secondary schools.

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