A self-directed exploration-trial-implementation in-service process for a school faculty to use in preparing for variable modular scheduling.

John Charles Monnig

University of Massachusetts Amherst
A SELF-DIRECTED EXPLORATION-TRIAL-IMPLEMENTATION
IN-SERVICE PROCESS FOR A SCHOOL FACULTY
TO USE IN PREPARING FOR
VARIABLE MODULAR SCHEDULING

A Dissertation Presented
By
John Charles Monnig

Submitted to the Graduate School of the
University of Massachusetts in
partial fulfillment of the requirements for the degree of
DOCTOR OF EDUCATION
August 1976
Education
A SELF-DIRECTED EXPLORATION-TRIAL-IMPLEMENTATION IN-SERVICE PROCESS FOR A SCHOOL FACULTY TO USE IN PREPARING FOR VARIABLE MODULAR SCHEDULING

A Dissertation Presented

By

JOHN CHARLES MONNIG

Approved as to style and content by:

Dr. William Fanslow, Chairman of Committee

Dr. Horace Reed, Member

Dr. Richard Clark, Member

Grace J. Craig, Acting Dean
School of Education

August, 1976
ACKNOWLEDGEMENTS

I am indebted to the members of my committee, Dr. Richard Clark, Dr. Horace Reed and Dr. John Wideman. Their patience and assistance was invaluable.

There are others such as Dr. Dwight Allen, Mr. Robert Casanova, Dr. Melvin Heller, Dr. Gordon Hoke, Dr. Robin Swade, and Dr. J. Lloyd Trump who challenged, encouraged and assisted me not only in my doctoral program, but along with my committee members, deeply influenced my professional career, and my own life. To all of them, I am grateful that our paths have crossed.

My father, Justin T. Monnig, encouraged, and was proud of me. My wife, Joan, supported me long and patiently and she, Justin and Danielle have made it worthwhile.
ABSTRACT

A Self-Directed Exploration-Trial-Implementation In-Service Process For A School Faculty To Use In Preparing For Variable Modular Scheduling

February 1, 1977

John Charles Monnig, B. A., St. Mary's College

M. A. Adm., St. Thomas College, Ed. D., University of Massachusetts

Directed by: Professor William Fanslow

The purpose of this dissertation is to provide a model for a self-directed exploration-implementation in-service process to be conducted by a high school faculty which will lead to the adoption of a variable modular scheduling format in the high school.

The model is based on the premise that there are six major building blocks in a variable modular scheduling format.

The thirty-six week in-service process leads the faculty through a defined step by step process. During this process the staff fulfills specific research, evaluation and implementation tasks. This process eventually moves towards a faculty consensus and the production of a faculty-determined and constructed variable modular schedule for the school.

A coordinating committee is organized whose function is to direct and monitor the work of the faculty as they proceed through the thirty-six week process.
This enables the faculty to provide a self-correcting component through the coordinating committee. That component is designed to prevent the program from straying from the original objectives.
### TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Chapter</th>
<th>THE PROBLEM</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>I.</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Introduction</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>The Purpose</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>The Problem</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Delimitations of the Study</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Importance of the Study</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Definition of Terms</td>
<td>13</td>
</tr>
<tr>
<td>II.</td>
<td>JUSTIFICATION FOR THE STUDY</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>Introduction</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>Variable Modular Scheduling</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>Early Programs in the Schools</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>Evaluation of the Outcomes of Variable Modular Scheduling</td>
<td>24</td>
</tr>
<tr>
<td></td>
<td>Importance of the In-Service Process</td>
<td>33</td>
</tr>
<tr>
<td></td>
<td>Process of Planned Change</td>
<td>34</td>
</tr>
<tr>
<td></td>
<td>Motivational Factors and the Process of Planned Change</td>
<td>37</td>
</tr>
<tr>
<td></td>
<td>Basic Assumptions Underlying Selected Major Components of the In-Service Design</td>
<td>49</td>
</tr>
<tr>
<td></td>
<td>Summary</td>
<td>62</td>
</tr>
<tr>
<td>III.</td>
<td>THE FRAMEWORK OF A VARIABLE MODULAR SCHEDULE - BUILDING BLOCKS</td>
<td>63</td>
</tr>
<tr>
<td></td>
<td>Introduction</td>
<td>63</td>
</tr>
<tr>
<td></td>
<td>Building Blocks</td>
<td>64</td>
</tr>
<tr>
<td></td>
<td>Large-Group Instruction</td>
<td>64</td>
</tr>
<tr>
<td></td>
<td>Small-Group Instruction</td>
<td>68</td>
</tr>
<tr>
<td></td>
<td>Independent Study</td>
<td>71</td>
</tr>
<tr>
<td></td>
<td>Resource Center</td>
<td>74</td>
</tr>
<tr>
<td></td>
<td>Behavioral Objectives</td>
<td>75</td>
</tr>
<tr>
<td></td>
<td>Role of the Teacher-Counselor</td>
<td>78</td>
</tr>
<tr>
<td></td>
<td>Interrelatedness of the Building Blocks and the Support Given by Each to the Total Variable Modular Schedule</td>
<td>79</td>
</tr>
<tr>
<td></td>
<td>Individual Course Designs by Teachers</td>
<td>88</td>
</tr>
</tbody>
</table>
The Effect of a Variable Modular Schedule on Objectives, Organization and Utilization of Time and Energy by Teachers and Students

IVTIME-TABLE FOR THE EXPLORATION-TRIAL-IMPLEMENTATION PROCESS

Overview of the Thirty-Six Week Process
Weekly Time-Table
First Week
Second Week
Third Week
Fourth Week
Fifth Week
Sixth Week
Seventh Week
Eighth Week
Ninth Week
Tenth Week
Eleventh Week
Twelfth Week
Thirteenth Week
Fourteenth Week
Fifteenth Week
Sixteenth Week
Seventeenth Week
Eighteenth Week
Nineteenth Week
Twentieth Week
Twenty-first Week
Twenty-second Week
Twenty-third Week
Twenty-fourth Week
Twenty-fifth Week
Twenty-sixth Week
Twenty-seventh Week
Twenty-eighth Week
Twenty-ninth Week
Thirtieth Week
Thirty-first Week
Thirty-second Week
Thirty-third Week
Thirty-fourth Week
Thirty-fifth Week
Thirty-sixth Week
Summary
V Analysis of the Work of the Coordinating Committee

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>137</td>
</tr>
<tr>
<td>Composition of the Coordinating Committee</td>
<td>137</td>
</tr>
<tr>
<td>Authority of the Coordinating Committee</td>
<td>138</td>
</tr>
<tr>
<td>Relationship to Faculty and Building Block Teams</td>
<td>139</td>
</tr>
<tr>
<td>Relationship to Administrator in Charge of Scheduling</td>
<td>140</td>
</tr>
<tr>
<td>Leadership Role of the Coordinating Committee</td>
<td>141</td>
</tr>
<tr>
<td>Tasks of the Coordinating Committee</td>
<td>144</td>
</tr>
<tr>
<td>General</td>
<td>144</td>
</tr>
<tr>
<td>Large-Group</td>
<td>147</td>
</tr>
<tr>
<td>Small-Group</td>
<td>148</td>
</tr>
<tr>
<td>Independent Study</td>
<td>149</td>
</tr>
<tr>
<td>Resource Centers</td>
<td>150</td>
</tr>
<tr>
<td>Behavioral Objectives</td>
<td>151</td>
</tr>
<tr>
<td>Teacher-Counselor Role</td>
<td>152</td>
</tr>
<tr>
<td>Summary</td>
<td>154</td>
</tr>
</tbody>
</table>

VI Conclusions

| Section                                                        | Page |
|                                                              |      |
| Potential Problems                                           | 155  |
| Critical Leadership Role of the Principal                    | 158  |
| Discipline, Policies, and Regulations                        | 161  |
| Community Concerns                                           | 163  |
| Suggestions for Further Research                             | 165  |
## LIST OF FIGURES

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Taxonomy of Educational Objectives</td>
<td>43</td>
</tr>
<tr>
<td></td>
<td>Cognitive Domain</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Taxonomy of Educational Objectives</td>
<td>44</td>
</tr>
<tr>
<td></td>
<td>Affective Domain</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Preparing to Change to Variable Modular Scheduling - In-Service Process</td>
<td>65</td>
</tr>
</tbody>
</table>
CHAPTER I

THE PROBLEM

Introduction

Variable Modular Scheduling has been implemented in hundreds of high schools throughout the United States. While it has been successfully integrated in many schools, it has perhaps been a failure in even more schools. In addition, the staffs of many schools have desired to adopt a variable modular scheduling format, but have experienced difficulty in working through the practical steps of implementation.

In the past ten or more years, educators have been belabored with theory concerning variable modular scheduling. There have been a multitude of educational leaders who have encouraged and even harangued educators to utilize variable modular scheduling as a facilitating tool in the achievement of many other educational objectives.

Unfortunately, there have been few people who have moved past the theoretical and motivational stage to give much practical help to educators who wish to translate the theory into operational programs. The result has been that administrators and faculties who have attempted to implement variable modular scheduling have often experienced far more difficulties than should have been the case. More than a few administrators have found the implementation of the program consumed a major portion of their time. This time could have been better spent on the educational program itself, rather than on a facilitating tool for the educational program.
The Purpose

The purpose of this study is to develop a set of procedures to be used by the administrators and teachers of a high school faculty for an in-service program that will guide them through a one year self-directed exploration-implementation process leading to the adoption of a Variable Modular Schedule. The basic design is to translate the theory of variable modular scheduling into operational practices that can be understood and developed by the faculty. Two factors indicated the need for such a process:

1. Past in-service programs for assisting faculties to implement variable modular scheduling have been almost non-existent.

2. Problems encountered in the implementation of modular scheduling indicate the necessity of developing an in-service process that will ease the administrative task.

Another objective for developing an in-service process was the need to answer the following questions:

1. What types of problems are encountered in the operational procedures of variable modular scheduling in a high school?

2. What set of procedures should a faculty follow in order to prepare for and to successfully implement variable modular scheduling?

3. What should be the components of a variable modular schedule?

4. How do these components relate to each other and to the success of a variable modular schedule?

5. What organizational techniques may be used for setting up a self-directed faculty, parent, and student study committee for dealing with the framework of variable modular scheduling?
The Problem

The problem is to design a thirty-six week in-service process that will provide this guidance to the staff. Successful implementation of a variable modular schedule involves an understanding of and simultaneous planning and integration of the six support mechanisms into the design. These six support mechanisms are called building blocks and the design includes an analysis of basic assumptions and rationales that explain the connection between the in-service format and the goal of implementing variable modular scheduling. By planning and initiating the change to a variable modular schedule according to a well thought out strategy, and by building in the appropriate support systems, the variable modular scheduling program will have a greater chance of success.

Delimitations of the Study

The components of the 36-week in-service process are both many in number and complicated in nature. The study of these components is limited to an identification of the components and a brief explanation of their position in the 36-week process. An in-depth exposition is given to only one component, that of the role of the coordinating committee, since it is believed that a careful analysis of this role will provide an understanding of all the components of the in-service process.

Four major components are selected as being critical to the implementation process and the assumptions identified which form the basis for supporting the inclusion of these components into the design of the in-service process. The rationale justifying the existence of these assumptions is developed in detail and represents the key thrust of the dissertation. To develop all of the components of the in-service program in depth, as well as the assumptions
underlying them, and the rationale supporting those assumptions, would be a totally unmanageable task and would only serve to dilute the significant contribution of the dissertation. Likewise, a number of components themselves are more subject to alteration by administrators and staffs while the major components, the assumptions underlying them, and their supporting rationale are more likely to be part of any final in-service plan that might be developed.

Importance of the Study

Whether administrators pursue change eagerly or reluctantly, school districts are being pressed to find appropriate ways to make changes within their own systems. They will have to develop some workable internal change mechanism, determine what changes are necessary, and decide how the changes can be best achieved and then put into practice.

To date, the researchers have not helped much in indicating clearly a format which school administrators and teachers can use to translate the change theory into practice. Few blueprints are available. Most districts need to design their own internal change mechanism based upon their own unique, local requirements. While it is certainly highly desirable that the administrators and teaching staff in a school acquire an understanding and commitment to a program by developing it by themselves, it does not follow that they must develop it in isolation without utilization of what has already been learned.

The lack of a course to follow was noted by Antonelli, in his article "Questions for the Innovator," NASSP Bulletin, February, 1973. He states that:

---

Although the need for change may be clear and the alternatives many, the course which the educator should follow is not always evident. Innovation must be directed at the learning experiences of the students. All too frequently, innovations are treated as ends and not as means. Innovations, not the students, have become the points of interest. Teaching materials and methods are changed without improving the learning experiences of the students. New programs are implemented with no discernible effect on the teaching learning process.

There seems to be a need for more attention to small-group design and in-depth discussion. At the administrative level, full agreement has not been reached on specific questions relating to profitable use of instructional time and acceptable student behavioral norms.

Gordon Cawelti² found indications that the latent power of the innovative movement in secondary education is largely unrealized. Comparing attitudes of students in traditional schools with those in innovative schools, Cawelti discovered that:

Over-all there were no significant differences between the two groups in their general attitude toward attending school each day. Over half the students in both kinds of schools were either indifferent or expressed a negative attitude about it......One might infer that so far there has not been dramatic change in teaching strategies or methods, and conditions such as irrelevance, boredom, improper pacing, and so forth, have not been greatly improved due to a new technique of scheduling.

As one began to analyze what went wrong in many of these so-called innovative schools, a judgement might be made that a better in-service program should have been used to help the staff prepare to change. But to do this one must

first know what organizational changes will be occurring because of the program—-in this case, a variable modular schedule.

The barriers against change in the schools are innumerable. Staffs must first deal with their own reactions against change. As Bennis, Benne and Chin⁵ note:

In addition to providing for the innovators and creating the conditions under which innovation thrives, we must also take care of the needs of the 'acceptors'—the majority of educators, those who must learn to accept and use these resources. We must not be content with lamenting the fact that most people are heeldragging resistors to change, suspicious of the new, and not very interested in creating new things.

Speaking of change and innovation, Blaine Worthen⁴ states:

The field of education has no real mechanism for planned change...many skilled innovators are unable to tell others how they achieve results...however, the mechanism must include staff involvement, evaluation, and provision for continued innovation.

The CASEA (Center for the Advanced Study of Educational Administration) Program 20's researchers⁵ directed their energies to the task of identifying the prominent factors that served to hinder or facilitate the implementation of innovations in schools—factors of which policy makers in the schools should be aware before embarking

---


on major change projects. The CASEA staff believed that many profitable innovations were floundering during their trials in schools not because of lack of intrinsic merit but because of installation difficulties.

Gard\(^7\) feels that the concept of modular-flexible scheduling has far-reaching implications for individualization. But the schedules employed seem to fall down in implementation, and become as rigid as any traditional schedule because they function on the same yearly or trimester schedule as the traditional system.

Glines\(^8\) sees the individual as the most important consideration relating to change. To focus on the student, four systems - teaching strategies, curricula, organizations and faculties, must be changed together. In choosing the best strategy, Havelock includes the analyzation of the characteristics of the innovation itself. How much adaptation will be required by the user? How much practice and trial? How long a delay before positive results are apparent? How much training is required?\(^9\)

\(^6\) Charters, p. 5.


Hicken recommends that emphasis for further improvement be placed on staff differentiation and use as well as further development of the new teaching techniques offered by modular scheduling. This is in line with Valencia's position that merely changing the scheduling arrangement will not result in greater learning; yet it can provide the conditions for teachers to change their role in the application of strategies and media most appropriate to the learner. The participants at the National Seminar on Modular Flexible Scheduling all agreed that flexible scheduling cannot be considered seriously except in combination with other closely related innovations such as open labs and the use of resource centers for independent activities.

Much of the literature centers on the identification of steps for faculties to take when changing their schedules.

Kenneth L. Fish offers advice on specifics when adopting a modular schedule.

1. Select a service bureau to meet the schedule.
2. Arrange for faculty study.
3. Focus on faculty needs.
4. Choose a scheduling assistant.
5. Establish parameters.


6. Have teachers develop optimum time patterns.
7. Prepare students.
8. Carefully work out a P.R. Program.
9. Schedule late entrants.\textsuperscript{13}

Swenson and Keys report on the procedure used for preparing flexible scheduling at Brookhurst Junior High School in Anaheim, California.\textsuperscript{14} The steps followed were:
1. Set up staff meetings with representatives of the various instructional areas to discuss the feasibility of making the length and frequency of class periods flexible. 2. Sent parents a letter explaining general goals – requesting their support. 3. Invited parents to a series of meetings in which the specifics and mechanics of the new program were explained. 4. Submitted a tentative plan to the board of education for approval. 5. Selected the staff to work with the flexible schedule. 6. Conducted a three week workshop for all members of the staff.

In the New Milford High School in N.J. numerous faculty committees were established to ensure proper planning, organization, and orientation of the program.\textsuperscript{15} Teachers volunteered for one of several committees relating to public meetings, teacher orientation, student orientation, student control, public relations, eighth grade orientation,


independent study, and evaluative measures to ascertain results of the program. The reaction to the program included high staff morale, students responding favorably, and supportive parents.16

Having made the observation that the professional staff had not reached full agreement on what constitutes profitable use of teacher time, and had not achieved full competence in handling the many and varied expectancies placed upon them, Hicken, in his evaluation of a senior high school modular program, recommended that high priority be given to the establishment of a curriculum planning council.17 This council would establish standing committees, one of which would be a staff development committee to make recommendations for improving the professional staff, in-service training, and for solving of staff problems. Also, a continuous program of in-service training of staff should be initiated. This program should emphasize two areas: (a) The development of staff skills relative to specific large-group, small-group and cooperative planning; and (b) Understanding the concept of continuous progress, the performance based curriculum, and the construction and use of appropriate independent study materials.18 These committees utilized the last three months of the school year to accomplish their stated objectives. This served not only to orient and plan all phases of the program, but to provide a smooth opening for the new program in the fall.19

16 Shockloss, p. 83.


19 Hicken, p. 18.
By contrast, the planning committees of the Port Washington School took three years. The first year was spent in preparation by teachers and administrators. They visited programs in other schools, studied the literature dealing with open labs, resource centers, large group instruction, small group instruction, and articles by teachers already implementing change. Conferences on flexible scheduling were attended, and literature distributed at in-service meetings for teachers.

The second year began the development of individualized instructional modules, learning packages and other software. There was a pilot program of 100 sophomores to determine the workability of the new scheduling patterns and different instructional modes. There were also parent informational meetings.

In the summer of 1971, each high school department had a workshop to prepare for the opening of school when numerous physical changes would be made. For each student, 35% of his time was unscheduled. Two problems usually associated with flexible scheduling, namely, open campus and monitoring student adjustment, were dealt with by providing seniors with open campus and sophomores and juniors with open school and off campus privileges with permission.

There is a lack of direction from the literature for procedures and recommendations for in-service programs that stress strategies that reflect an understanding of the process. A recent study by Weiss was an attempt to tie the process to the format. Following a review of the literature on modular scheduling and the process of change, and tested against twenty-five Metropolitan Twin Cities (Minneapolis) schools which had successfully made a scheduling change,

he prepared a readiness model for use by faculties so they would be "less inclined to repeat whatever mistakes the tested staff may have incurred." \( ^{21} \) Weiss identified nine phases along a continuum of change, from the sensing of change, Phase 1, to the stabilization of change, Phase IX. His work was designed to lead the staff through a smooth transition from the traditional arrangement to a modular format. Such transition involved giving attention to the effect of the change on the students, faculty and community.

Following the advice of Thomas Woods that -

The load on teachers at all levels and at all times is heavy, and it is difficult enough for them to carry out existing programs, much less new ones. With a busy person every little bit helps---workshops, materials, guides, consultants---and any one of these may make the difference between adoption and rejection.\( ^{22} \) -

this study offers a self-instructional exploration-trial-implementation process for the faculty to use as a means of eliminating many of the barriers to internalizing educational change in their schools. Since many schools cannot rely on outside agencies for help in developing ways to change what they teach and the way they teach it, they can use this process as a guide to help them. Teachers need these guidelines and specialized information before they can be asked to implement new instructional methods. The process as detailed here will be useful to teachers and administrators as they go through the change from traditional format to one of variable modular scheduling. The study attempts to relate the three areas of concern in the


literature - the change process itself, new strategies, (change of scheduling format and modes of instruction) and in-service programs for teachers involved in change. The rationale and design of this in-service process will give the faculty an understanding of the major components necessary to make the change effective, and a sense of direction by providing the faculty with a systematic series of steps through which they will arrive at an ultimate goal in a predetermined period of time. This study has as a major benefit, the drawing of clear guidelines for the development of a variable modular scheduling format, which will enable people to check themselves as they progress through the in-service process. This process of developing such a sophisticated instructional program requires a long-term effort on the part of teachers and administrators.

**Definition of Terms**

For purposes of having a clear understanding of the terms used in this study, the following definitions are offered:

*Traditional* - A traditional high school schedule is one in which most courses meet five times each week, with the same number of students and teachers each time, and for the same length of time each meeting.

*Flexible Scheduling* - A term in popular use, is in fact, a contradiction. Flexible means capable of being changed, and a schedule connotes a fixed pattern. This contradiction in terms, and the wide variety of situations for which this phrase is being used, makes the term inappropriate as a descriptive definition. It will not therefore be used in this study.

*Variable Course Structuring* - Refers to the central educational operation that teachers carry out in defining their own course designs. This defining of course
designs by teachers is one of the real tests of the successful use of a variable modular schedule as a tool.

"Variable Modular Scheduling" - Is the resulting schedule when teachers do define their own course designs, making use of the building blocks needed.

"Module" - Is usually meant to connote a unit of time that can be used as a component in whatever context it occurs. In regard to a school schedule, it usually refers to a period of time that is typically shorter than a standard 55 minute period. A school may have anywhere from 12 to 32 shorter modules in the school day as compared to a traditional six or seven-period day.

"Building Blocks" - Components of the framework of variable modular scheduling.

"Large Group Instruction" - This type of instruction involves a large number of students and emphasizes the presentation of materials by the mass media technique. "Large group instruction is used to present concepts and principles which apply in common to all of the students in a course." 

"Small Group Instruction" - Small group instruction involves a small number of students and places major emphasis on face-to-face contact and group interaction.

"Independent Study" - Independent study has been interpreted broadly as those "activities in which the pupils engage when their teachers stop talking." 

"Resource Centers" - Areas in the school where provisions are made for areas for independent study and where equipment and materials are accessible.

---

23 Atilano A. Valencia, "Large Group Instruction", in Flexible-Modular Scheduling, p. 4.

"Behavioral Objectives" - "An objective is an intent communicated by a statement describing a proposed change in a learner - a statement of what the learner is to be like when he has successfully completed a learning experience."  

"Teacher-Counselor" - The teacher-counselor is a faculty member who aids the student in planning the use of his unscheduled time. Some other definitions that might be appropriately included here were worked out by Ronald G. Havelock and are relevant to this paper:

"Change" - Any significant alteration in the status quo... but usually meaning an alteration that is intended to benefit the people involved.

"Innovation" - Any change which represents something new to the people being changed. Also it usually means a change which benefits the people being changed.

"Change Process" or "Innovation Process" - How the change or innovation comes about.

"Planned Change" or "Planned Innovation" - Change or innovation that comes through a deliberate process which is intended to make both acceptance by and benefit to the people who are changed more likely.

"Change Agent" - A person who facilitates planned change or planned innovation.

---


CHAPTER II

JUSTIFICATION FOR THE STUDY

Introduction

A study by the National Association of Secondary School Principals was conducted between 1956 and 1961 under the leadership of Dr. J. Lloyd Trump. The purpose of the study was to make recommendations for the improved utilization of teaching skills. The recommendations of the committee were published in 1961 in a book entitled Focus on Change - Guide to Better Schools.

In its recommendations the NASSP study committee stated that the emphasis should be placed on the learner. The principal goals of the learner should be to develop positive attitudes toward learning and self-fulfillment, to learn to be responsible and resourceful in the pursuit of one's own ideas, to learn how to make use of resource material and personnel, in brief, to learn how to learn.

Dr. Trump, and others, through further writings, argue for schools that were based upon a more humanistic philosophy of education. They claimed that the schools, through a strict traditional schedule of classes, with equal amounts of class time per academic subject area, and teacher dominated activities, were impeding student growth and learning. Such school activities provided more harmful than helpful psychological impact.


29 Ibid.

Dr. Trump advocated new instructional modes, such as large group instruction, small group instruction, small group seminars, resource centers, open laboratories, team teaching, and new instructional technology. He emphasized the need for new roles for teachers and students so that better communication could take place.

Trump, and Brown\(^3\) along with Dwight Allen,\(^4\) believed that one had to change the three independent variables of staff, curriculum, and the organizational structure of the school, (or the school schedule) in order to bring about effective change.

The recommendations of the NASSP study committee\(^5\) were widely discussed and many programs were initiated in the schools. In fact, Trump and Baynham's book spelled out what is popularly known as the Trump Plan. Variable-Modular Scheduling is the institutionalization of the Trump Plan. It can schedule the reorganization of the school based on the principles of the large group, the small group, and individualized instruction.


Variable Modular Scheduling

Variable Modular Scheduling is an operating framework characterized by classes of unequal length which meet at differing periods throughout the week and which are geared to the individual needs of the student. The philosophy is that each student has unique abilities, aspirations, and experiences to bring to the learning situation. Each course in the curriculum is different in terms of conceptual depth and educational benefit. Since learning is an individual matter, it takes place at an individual rate. Individual students learn widely different things from exposure to the same course content. To optimize learning pupils should be able to proceed at "a self-determined pace on self-directed subjects to achieve self-evaluated and self-satisfying goals." Variable Modular Scheduling affects the student in that it allows him the opportunity to develop responsibility for his own time and the depth of his own education.

Dr. David Beggs of Indiana University, who has done considerable work in the area of Variable Modular Scheduling, offers these specific objectives: (1). To improve instruction; (2). To use teaching talent more effectively; (3). To provide students with the opportunity to study independently; (4). To provide a practical means of individualized instruction; (5). To conserve teacher

---

34 James E. Heathman and Alyce J. Nafziger "Scheduling for Flexibility" Las Cruces, New Mexico. Educational Resources and Information Center and Clearinghouse on Rural Education and Small Schools, n.d.

35 Mildred McQueen "Individualized Instruction" Education Digest, April, 1971 p. 26.

time; (6). To provide better sized learning groups; and (7). To provide better use of facilities. To this may be added these reasons for adopting this kind of schedule: (1). To achieve variable time patterns; (2). To weigh courses; (3). To give students greater participation in the school program by allowing them to take additional electives; and (4). To break the monotony of the traditional schedule. Each of these provides the school administrators with an increase in his options to implement more effective programs for students.

Davis and Bechard want the school schedule to enhance the attainment of sound educational objectives. Their pamphlet describes various "master" schedules for variable modular scheduling: (1). Simple block schedules, (2). Back-to-back schedules, (3). Interdisciplinary schedules, (4). School-wide schedules, (5). Open-lab schedules, (6). Rotating schedules, (7). Block-modular schedules and (8). Flexible-modular schedules. The authors believe that a flexible-modular schedule allows teachers to change group size, group composition, and class length according to the purpose of the lesson.

Valencia tends to agree that time configurations can be planned to correspond to the instructional modes used in attaining the course objectives. Less structured time in

---


38 Swaab, p. 39.


the curriculum helps alleviate the problems that arise with many time patterns in the scheduling process. About 35%-40% of the student's time should be unstructured. Facilities should be more fully used by keeping classrooms in constant use and by providing teachers with offices. Curriculum should be more diversified to accommodate all students rather than just college preparatory students. These possibilities are all present when a variable class schedule is employed.  

Early Programs in the Schools

White, in 1967, describes a modified flexible scheduling program at Horton Watkins High School in St. Louis. The Innovative English Program is designed to encourage high school students to work independently and to share their reactions and ideas with others. Each student attends one large-group instructional session (frequently taught by a team), two seminar discussions with a teacher and ten other students, and two independent study periods each week. The student in independent study time may use the library, view a filmstrip, confer with a teacher, take an exam, or study. Progress is facilitated by the use of student "work packages" that explain a unit's purpose and provide an outline and explanation of activities to be completed by the student. Teachers are free, White explains, to create and structure their own courses while students pursue their independent study, research, and do creative projects.


42 Christine White, "Development in English at Horton Watkins High School, St. Louis, Missouri." St. Louis, 1967.
In 1968, the Department of Industrial Engineering and the School of Education at Stanford University published a booklet describing the Stanford School Scheduling System (S-4), as an example of innovative scheduling. The document surveys innovations in flexible scheduling and variable course design in secondary education, discusses the school scheduling problem, and outlines schedule construction using the S-4.

The S-4 has the following advantages: (1). It is a technique that enables the construction of complex flexible schedules; (2). It requires precise definition of the design of the course offered; and (3). It encourages professional personnel to explore in detail the appropriateness of time, class size, pupil grouping, and use of staff and facilities.

According to Allen and DeLay,\(^4\) the S-4 can free administrators from the burden of scheduling without loss of opportunity to make vital educational scheduling decisions. Experimentation with curriculum alternatives requires variable modular scheduling.

Petrequin and Tapfer describe Stanford's field implementation of computerized modular scheduling at Marshall High School in Portland, Oregon.\(^4\) When the program was started, the basic schedule was changed from the traditional seven-period day to one divided into twenty-one


modules of twenty minutes each. With advisory help, students preregistered in the spring for the following year and the computer utilized their schedules to prepare the master plan. Flexibility was achieved through the adoption of four teaching-learning modes: large group instruction, small group instruction, medium-sized groups for laboratory activities, and independent study situations.

The General Learning Corporation (1970) developed an operating manual for administration of the Fort Lincoln New Town Education System of Washington, D. C. The manual focused on elements allowing growth of policies and procedures to serve particular needs. Specifications are detailed regarding information flow, storage, output, time cycles, and provisions for staffing, authority, and responsibility. The area covered included registration, attendance, safety, and transportation of students. 45

Warden and Leidich record one small school's adaptation of variable scheduling and the reactions of the school's staff and students to one year of the schedule's operation. The purpose of their experimental paper was to show how one school staff could adapt a concept such as variable modular scheduling without devoting major amounts of time or investing in computers or other costly equipment. 46

To provide a guide for implementation of variable modular scheduling in industrial education, Resnick examined modular schedules already established in the

---


industrial education departments of various schools. Results show that formal arrangements existed even though the schools were experimenting with an innovative program, and that almost fifty percent of the schools studied used large-group instruction, mostly as a one-teacher presentation. The study further reveals that most schools allow their students forty percent of unscheduled time with the honor system used in safety, clean-up, tool usage, and attendance during open-lab modules. The general pattern of industrial education programs includes one large-group meeting per week, two structured labs, and the use of open labs.

David Cooper describes the types of learning environments in two Lexington, North Carolina middle schools where the program was made possible by a federal grant under Title III, ESEA. Time structures, learning and study were set up into five kinds of learning: (1). Basic mods: Students are involved in regular classroom instruction; (2). Probe or Help time: Students having problems with their studies use this time for special help. Those progressing well can do homework, read newspapers, or study for the coming week's work; (3). IDLE (Individually Directed Learning Experience): The student exhibiting exceptional responsibility directs his own study, under the general supervision of a support teacher; (4). Seminars: Students participating in seminars share an


opportunity to take an active and meaningful role in depth studies or selected topics; (5). Developmental Classes: Students participate in traditional classroom studies emphasizing the teaching of basic skills. After students have completed certain defined objectives during the various class work periods established for the 36-week school year, they are given tests to determine their progress. A student can take a test in advance. If he passes, he can then use class time for special study or research. Students who fail go on to the following week's study; but, during probe or help time, they study the work failed and get ready to take another test. Students know in advance and in detail what is expected of them in each subject for each week.

At Dillingham High School (grades 7 - 12) in rural Alaska, the Dillingham School District established a schedule and curriculum that provides students and teachers with an active voice in determining their educational experiences. The school year is divided into sixty-day trimesters and classes are scheduled in sixty-three minute time blocks consisting of three twenty-one minute modules. The school district reports favorable reaction to the new schedule from students, teachers and outside evaluators. 49

Evaluation of the Outcomes of Variable Modular Scheduling

Most studies to evaluate the effectiveness of variable modular scheduling have investigated pupil progress, parent reaction, and the effectiveness of various teaching plans. Dr. James Maxey, in a report on a series of studies carried out in three separate school districts using variable modular scheduling, (Fresno United District of California, LaDue High School in Missouri and Delevan-Darien High School in Delevan, Wisconsin) made the following conclusions about

---

techniques to be used in evaluating variable modular scheduling. 1. Observable behavior can be evaluated by recording patterns of classroom behavior; 2. Student, teacher, and parental views can be assessed in opinionaires; 3. Relative effectiveness of large-group, small-group and independent study activity can be evaluated through the use of opinionaires; 4. Teaching effectiveness can be determined through comparative achievement testing.

Dr. G. P. Speckhardt, Assistant Professor of Education, in his dissertation to the North Central Association, which was later reviewed in the Nation's Schools, gave an evaluation of a small high school in Broomfield, Colorado. This school had an enrollment of 400 students and used a schedule of 27 modules of 15 minutes in length. A neighboring high school in the same district was used as a control school. Matched groups of students from the experimental school and the control school were used to compare the result. Students were divided into sub groups of boys and girls, with three grade levels and three achievement levels: low, average, and high, were established for the study. There were no permanent ability levels in this high school. The three instruments that they used primarily, were "Iowa Tests of Educational Development", the "Watson-Glazer Critical Thinking Appraisal" and the "Brown Holtzman Survey of Study Habits and Attitudes". The following were some of Dr. Speckhardt's observations:


1. The studies show that most students and teachers approved of the modular system.

2. Unsupervised study time caused more problems than any of the instructional methods. Low achievers reported more problems than the average or high achievers. Sophomores reported more problems than did juniors or seniors.

3. Most students and teachers felt the students learned as well or better than they would in a more traditional school. Results of tests supported this opinion.

4. The experimental school students showed a higher ability to interpret reading materials in the social studies section of the Iowa test. The students at neither school showed any superiority in study skills and attitudes. The sophomores of the experimental school showed a greater academic superiority over their counterparts at the control school. Juniors of the experimental school showed equal but not greater academic growth compared to the juniors in the control school.

5. Traffic in the counseling office in the experimental school increased markedly. Some of the major conclusions reached about variable modular scheduling as practiced by the experimental school were:

   A. Variable modular scheduling can be adopted without adversely affecting the attitude of students and teachers.

   B. Variable modular scheduling contributes to improved student ability and critical thinking.

   C. Variable modular scheduling does not necessarily lead to improved study habits and attitudes.

   D. Variable modular scheduling leads to, at least, equal academic achievement as found in more traditionally scheduled schools and to a greater achievement in some areas.
E. Students, especially low achievers, need help and understanding in accepting their responsibilities under variable modular scheduling.

F. Teachers need help in using new methods and in adopting new roles.

G. Problems created by the adoption of a variable modular scheduling system are different from, but not necessarily greater than, problems found in more traditional schools.

H. Variable modular scheduling leads to more individualization of instruction than does the traditional schedule.  

A study team headed by William Alexander examined thirty-six independent study programs in schools across the nation in 1966. He found that students were selected for independent study mainly on the basis of their expressed interest in that type of activity and through the identification of particular types of abilities which made independent study especially suited to them. No single criterion seems to have been applied. Slightly less than half of the students surveyed were studying in the areas of English (24%) and Social Studies (25.3%) with the remainder studying in ten other areas. A total of 11.6% of the students were engaged in independent study in two or more areas.

Evans, in a study of nine schools having variable modular schedules, found that independent study programs were successful to the degree that the independent study

52 Speckhardt, pp. 32-33.


54 Ibid, pp. 103-106.
time was structured. 55 By structuring independent study is meant that the teachers gave assistance in the selection of problems and provided guidance throughout the time of study. It was found that students often became confused and unproductive when they had little or no guidance in their work. These observations were also reported in several descriptive commentaries such as that of Gaynor Petrequin. 56

Alexander found that in both expectations and satisfaction, students ranked independent study in the non-academic subjects higher than they did the academic subjects. 57 He felt that the higher ranking of the non-academic subjects was due to the nature of these subjects which lend themselves so readily to projects. He also found that students who had the highest expectations for independent study had been doing it the most number of semesters. Evans points out that students prefer independent study when the program is planned in such a way that they can feel secure in what is expected of them and in what limits are placed upon them. But he also felt that academic subjects would have received a higher acceptance in independent study if there had been less emphasis on the library type of project. 58


57 Alexander, Hynes & Assoc., pp. 72-112.

58 Evans, pp. 190-278.
Evaluation of achievement in schools having a variable modular schedule consistently shows that the students do at least as well as students in other schools. Speckhardt found that, overall, students did as well on all measures of achievement and critical thinking as the control school. On some areas of the Iowa Tests of Educational Development (ITED), namely, Social Studies, Use of Sources or Information, and Correctness and Appropriateness of Expression, the experimental group performed better than the control group at the .01 level of significance. Keim reports that on all measures of the Metropolitan Achievement Tests, students performed as well as or better than they did before variable modular scheduling was introduced into the two high schools of the district. Their performance in reading was especially improved. Achievement in the Spokane (Washington) Public Schools favored the schools on the variable modular scheduling. The Sequential Tests of Educational Progress (STEP) and the Watson-Glaser Test of Critical Thinking were given. Twenty-six comparisons were made and nine of them were significant at the .05 level. Six of these favored the experimental group. The most significant results were in critical thinking and in reading, both of which favored the experimental group.

---


Similarly, the students at the Delavan-Darien School (Wisconsin) showed gains on the Iowa Tests of Educational Development "which were greater than the majority of the schools comprising each of the norm groups." Delavan-Darien (Wisconsin) High School conducted two interesting studies of what students do during their unscheduled time. The first was a Headcount study. The second was a Shadow study. These studies would probably not be a part of an evaluation program of a school using a traditional schedule. During the Headcount study, the number of students who frequented the open labs, student lounge, cafeteria area, etc., was tabulated, as well as the number of modules of time during an instructional cycle for which the unscheduled facilities were available. It was found that 60.5% of a typical student's time was scheduled, and 39.5% of his time was unscheduled.

The data collected revealed that well over two-thirds of the available unscheduled time was spent by students engaged in learning activities, and only 23% of the unscheduled time was spent in relaxing activities (cafeteria-student lounge). Objective evidence was tabulated to show that students were indeed making use of free access areas meaningfully during their unscheduled time. Also, the study revealed the need for spaces in the Library Resource Center, and ways in which to better use all of the open lab facilities.

The second study was called the Shadow study simply because a random sample of students was shadowed by trained observers. The observers were senior education students from the University of Wisconsin and were trained to shadow a random student

---

for sixteen modules or one complete school day. Eighty-one such students were shadowed. Nearly equal representation from each grade level was also determined. The students ranged from well above average to well below average on the Iowa Tests of Educational Development composite scores.

The study revealed that as students progress from grades 9 through 12, the ratio of unscheduled time to scheduled time increases. Some students of lower ability were found to abuse the unscheduled time opportunity. These students tended to waste time in the student lounge and cafeteria. 63

Several experiments have been performed with regard to gains specifically in science. Hug found that equal gains in cognitive skills can be made through the use of independent study, small-group instruction, large-group instruction or a combination of these modes of instruction, in biology. 64 Williams found no significant difference on subject matter achievement, understanding of science, or attitude toward science was found for students in chemistry using large-group instruction, small-group instruction, and independent study with the experimental group. A significant difference favoring the experimental group was found in the interest of science. 65 Inskeep found that students could learn selected units of chemistry through independent study as well as through the traditional

---


65 Homer Williams, A Comparative Study of Two Patterns of Class Organization in Teaching High School Chemistry, Athens, Georgia, University of Georgia, 1966.
program. 66 Sund used biology students, who were somewhat above average in verbal reasoning and numerical ability, in two groups. The experimental group which had the independent study performed slightly better than the control group. However, the difference was not statistically significant. 67 Miller found that students having large-group and small-group instruction and team teaching in biology and physical science performed as well or better than the control group. 68

A paper by Welch evaluates the small group as a component of a variable modular schedule to determine the effectiveness of small student learning groups and to identify factors that contribute to small group learning. The findings of an evaluation of ninety-one small groups using variable modular schedules indicate that small groups are likely to be effective when they indicate high cohesiveness, satisfaction, goal direction, and democracy, while at the same time possessing the characteristics of low friction, cliqueness, and organization. 69

66 William Inskeep, The Effectiveness of a Multiple Media Approach in Teaching Certain Concepts in High School Chemistry, Dissertation Abstracts, 29, 619A.


James Hicken found that students and teachers approved of large and small-group study but that more attention to the small-group design for in-depth discussion and personal reaction is needed. In Johnson and Gondek's evaluation of a variable modular scheduling program, they found that both students and staff viewed small group instruction and independent study as more valuable than large group instruction.

**Importance of an In-Service Process**

Since the adoption and use of a variable modular scheduling format represents a change in the present organizational structure of the school, the change agents (teachers and principals) must understand certain aspects of the process for the planned change to be effective. These aspects are (1) The process of planned change itself, (2) The motivations of people involved in change, and (3) The basic assumptions which underlie any planned strategy, design or framework for the implementation of change.

In most efforts at implementation of change, four general resources are necessary. The first is the communicating of ideas. Teachers and principals will have ample opportunity to use that resource here. The second resource is personnel. Reference here is to persons who are able to turn the power generated by an effort on change into channels that cause things to happen. Most if not all the staff will be involved. Thirdly, goodwill is an essential resource. Without an attempt at goodwill, change will be hindered.

---

70 James Hicken, p. 4.

The last essential resource is loyalty...which includes the members of the group supporting the change, and the others who enter at a different stage or for different reasons. In the case of variable modular scheduling, this will include students, parents and community.

The Process of Planned Change

There have been countless efforts to break the process down into a series of steps. Kurt Lewin formulated one of the simplest and most influential ones. He wrote that a successful effort at change in either group or individual performance consists of three steps.

1. Unfreeze the present situation.
2. Move to a new level.
3. Freeze the group life at the new level.

A decade later Ronald Lippitt and others expanded Lewin's concept into a five-phase process built around the role of the change agent. This begins with the unfreezing of the present situation as the need for change is perceived, moves to the establishment of a relationship built around change, the effort to change the situation, the "freezing" of the new set of circumstances, and the termination of the relationship of the change agent to the situation.

Lippitt and his colleagues suggested that the third step in the process which Lewin termed "moving to a new level" could be divided into three phases. These consist of the definition of the problem, review of alternative courses of action, and the transformation of

---

72 Kurt Lewin, "Frontiers in Group Dynamics", Human Relations, No. 1, 1947, p. 34.

the goals into actual accomplishment.\textsuperscript{74}

Seifert and Clinebell, as they focused on the role of the indigenous church leader as an agent of change in contrast to Lippitt's approach which emphasized the role of the outsider or consultant, have suggested a five-step process. This consists of (1) motivation and preparation, (2) diagnosis of the problem and consideration of alternative courses of action, (3) the formulation of a strategy and of day-to-day tactics, (4) carrying out the plan of action, and finally, (5) review, evaluation, and the stabilization of change.\textsuperscript{75}

Many of the ideas and findings from the "diffusion" of many kinds of innovations have been applied to the study and analysis of change in educational institutions.\textsuperscript{76}

Havelock identifies six stages of the innovation process as follows: (1) Building a relationship, (2) Diagnosing the problem (3) Acquiring relevant resources, (4) Choosing the solution, (5) Gaining acceptance, and (6) Stabilizing the innovation.\textsuperscript{77}

Havelock's extensive reviews on the literature on change, and his writings in the field elaborate on the position taken by such social psychologists as Lippitt, Bennis,

\textsuperscript{74}Ibid, pp. 136-140.


Much of the change research in education has been of the case-study nature. Application of change research findings to practice has been spotty due to problems inherent in the change process as well as statistical limitations of generalizing from case studies. The recent development and spread of organization development type training experiences and the emphasis on the "innovation free" change agent have contributed new insights into how to aid teachers and administrators in identifying system problems and in generating solutions to the identified problems. In all too many instances, however, it appears that principals and teachers are left on their own to implement and effectively use the selected solution.

The burden of innovation must invariably fall on the teacher. The teacher must implement the innovation and learn the new skills that are required. Innovation can only be realized through the changing work skills of the teaching work force. The individual perspective

---


80 R. G. Havelock, p. 3.

and role of the teacher who is involved in the change process will influence both his perception of the process and his evaluation of the usefulness of the various models. The need for "new strategies that will aid schools in producing improved environments, and situations that will evoke different patterns of behavior" was stressed by Hoke.

Teachers involved in the in-service process as the author presents it are at the third step of Lippitt's five-phase process (the effort to change the situation) and following Roger's advice to "create an educational structure to facilitate change" are using Seifert and Clinebell's third step: the formulation of a strategy and of day-to-day tactics.

Motivational Factors and the Process of Planned Change

Lippitt writes that adoption of new social practices requires significant changes in the values, attitudes and skills of the practitioner. He cautions

---


84 Ronald Lippitt, p. 130.


86 Harvey Seifert and Howard J. Clinebell, Jr., p. 93.
that educational innovations require new patterns of behavior in a new social context. Consequently, "there must be significant features of adaptation in each new adoption."  

Organizational change is a deliberate effort to improve the effectiveness of an organization by planned intervention in the behavior patterns of the total system. Organizational development is designed to improve the health of an organization and to increase the capability of the organization to achieve its goals. This means goals rather than roles, collaboration rather than competition, and ideas rather than personalities are emphasized in the decision-making process.  

The teacher involved in the exploration-trial-implementation process for variable modular scheduling, (including the major components necessary for successful implementation), requires competencies different from those needed by the teacher in a classroom where all the activities are teacher-directed and dominated. What kind of in-service can be provided for these teachers who have expressed the willingness to change? How can teachers be helped to internalize new values and carry on the new practices in their classrooms?  

When designing any in-service efforts for teachers already in the classroom, several factors must be considered. Etzione makes it clear that the only way change can occur is voluntarily.  

The teacher must want to change.  

---

89 Amitai Etzione, "Human Beings are Not Easy to Change After All", Saturday Review, June 3, 1972.
Another aspect to in-service design and teacher change is commented on by Brown:

There is some basis for believing that educational programs could become more effective influences on changing educational practices if they would concentrate on the development of logically consistent relationships between theory and practice and less on propagandizing for or against certain specific practices themselves. Preaching the cause of certain "do's" and "don'ts" in absence of theoretical considerations leads only to a meaningless bag of tricks on the parts of teachers. Even though they may perform such tricks well, teachers so trained never quite understand what they are doing and why. Given avenues on which to move intelligently back and forth from beliefs to logically connected practices, change is able to move in knowable directions rather than drift or skitter willy-nilly. The teachers and prospective teachers I have worked with seem reluctant to change for change's sake. But show them how to move toward the things they believe are important to achieve, and they change with breath-taking swiftness.90

But what about change? Can a teacher change from an authoritarian role to a facilitating role? Most teachers attended schools where their teachers directed the classroom activities. Is it possible to change when generations have perceived and experienced the teacher role as authoritarian?

Assistance is required in changing. According to Combs, Avila, and Purkey:

In order to produce a change in a person's behavior, it will be necessary to effect some change in his perceptual field, his personal field of meanings.

And further:

For effective change in behavior, it is necessary

that learners have continuous opportunities to observe the consequences of their acts...without feedback, new meanings are unlikely to be further stimulated.91

Other authorities see change as the natural function of the human being. Rokeach relates change to the open and closed mind:

The more closed a person's everyday system, the more difficulty he should encounter in solving problems within a new system. Or, to put it the other way around, the more difficulty a person has in switching over to a new system, the more closed must be the organization of his present system.92

But Rokeach also suggests that change can occur without changing the individual:

Thus, our theory about the organization of belief systems is relatively optimistic regarding the possibilities of social change with respect to intergroup relations because it is predicated on the doctrine that deep changes in personality and motivation are essential.93

Once a teacher has accepted change in a belief or value, (in this instance, the idea of modular scheduling), when does he make that belief part of his automatic behavior? When does it become "internalized"?

---


93 Rokeach, p. 163.
Bloom and Krathwohl have established taxonomies of educational objectives for the cognitive and affective domains, respectively, which can be related to a teacher's acceptance of a change in scheduling and teaching behavior. As teachers go through the self-directed exploration-trial-implementation process described in this paper, they are achieving the Bloom cognitive objectives of Analysis, Synthesis, and Evaluation. The objective goal is to grow to Valuing and Organization in Krathwohl's hierarchy of affective objectives. (See figures on the following pages for the cognitive and affective hierarchies.) It is important to remember, however, that a process sensitive to a teacher's individual needs and growth may not necessarily proceed in the orderly steps as listed. There will be much spiralling among the steps of the process and teachers will reach objectives at different times, as teachers have different levels of readiness.

---


**Figure 1**

**Taxonomy of Educational Objectives**

**Cognitive Domain**

<table>
<thead>
<tr>
<th>Phase I</th>
<th>1.00 Knowledge</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.10 Knowledge of Specifics</td>
<td></td>
</tr>
<tr>
<td>1.11 Knowledge of Terminology</td>
<td></td>
</tr>
<tr>
<td>1.12 Knowledge of Specific Facts</td>
<td></td>
</tr>
<tr>
<td>1.20 Knowledge of Ways and Means of Dealing with Specifics</td>
<td></td>
</tr>
<tr>
<td>1.21 Knowledge of Conventions</td>
<td></td>
</tr>
<tr>
<td>1.22 Knowledge of Trends and Sequences</td>
<td></td>
</tr>
<tr>
<td>1.23 Knowledge of Classifications and Categories</td>
<td></td>
</tr>
<tr>
<td>1.24 Knowledge of Criteria</td>
<td></td>
</tr>
<tr>
<td>1.25 Knowledge of Methodology</td>
<td></td>
</tr>
<tr>
<td>1.30 Knowledge of the Universals and Abstractions in a Field</td>
<td></td>
</tr>
<tr>
<td>1.31 Knowledge of Principles and Generalizations</td>
<td></td>
</tr>
<tr>
<td>1.32 Knowledge of Theories and Structures</td>
<td></td>
</tr>
</tbody>
</table>

**Intellectual Abilities and Skills**

<table>
<thead>
<tr>
<th>Phase II</th>
<th>2.00 Comprehension</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.10 Translation</td>
<td></td>
</tr>
<tr>
<td>2.20 Interpretation</td>
<td></td>
</tr>
<tr>
<td>2.30 Extrapolation</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Phase III</th>
<th>4.00 Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.10 Analysis of Elements</td>
<td></td>
</tr>
<tr>
<td>4.20 Analysis of Relationships</td>
<td></td>
</tr>
<tr>
<td>4.30 Analysis of Organizational Principles</td>
<td></td>
</tr>
</tbody>
</table>

(continued)
Figure 1

Taxonomy of Educational Objectives

Cognitive Domain

<table>
<thead>
<tr>
<th>Phase III</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>(concluded)</td>
<td>5.00</td>
<td>Synthesis</td>
</tr>
<tr>
<td></td>
<td>5.10</td>
<td>Production of a Unique Communication</td>
</tr>
<tr>
<td></td>
<td>5.20</td>
<td>Production of a Plan, or Proposed Set of Operations</td>
</tr>
<tr>
<td></td>
<td>5.30</td>
<td>Derivation of a Set of Abstract Relations</td>
</tr>
<tr>
<td>6.00</td>
<td>Evaluation</td>
<td></td>
</tr>
<tr>
<td></td>
<td>6.10</td>
<td>Judgments in Terms of Intellectual Evidence</td>
</tr>
<tr>
<td></td>
<td>6.20</td>
<td>Judgments in Terms of External Criteria</td>
</tr>
</tbody>
</table>

(Bloom, 1963, p. 201-207)
Figure 2

Taxonomy of Educational Objectives

Affective Domain

<table>
<thead>
<tr>
<th>Phase</th>
<th>1.0 Receiving (Attending)</th>
<th>2.0 Responding</th>
<th>3.0 Valuing</th>
<th>4.0 Organization</th>
<th>5.0 Characterization by a value or a value complex</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>1.1 Awareness</td>
<td>2.1 Acquiescence in responding</td>
<td>4.1 Conceptualization of a value</td>
<td>5.1 Generalized set</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.2 Willingness to receive</td>
<td>2.2 Willingness to respond</td>
<td>4.2 Organization of a value system</td>
<td>5.2 Characterization</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.3 Controlled or selected attention</td>
<td>2.3 Satisfaction in response</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(Krathwohl, 1964, p.95)
Teachers who internalize the practice and theory of variable modular scheduling value it, and in Krathwohl's terms, their behavior "is not motivated by the desire to comply or obey, but by the individual's commitment to the underlying value guiding the behavior."\(^{96}\)

Thus in the Taxonomy, internalization is viewed as the process through which there is at first an incomplete and tentative adoption of only overt manifestations of the desired behavior (Phase I and II) and later, a more complete adoption. (Phase III).

At the lowest levels of the internalization continuum there is little emotion in the behavior. At this end the individual is mainly just perceiving the phenomenon. At the middle levels, emotional response is a recognized and critical part of the behavior as the individual actively responds. As the behavior becomes more internalized and routine, this emotion decreases and is not a regular part of most responses.

Another aspect of the growth is the extent to which external control by the environment yields to inner control as one ascends the continuum. Thus at the lowest end of the continuum, inner control produces appropriate responses, but only at the bidding of an external authority. At still higher levels, inner control produces the appropriate response even in the absence of an external authority. Indeed, at still higher levels, these responses are produced consistently despite obstacles and barriers.\(^{97}\)

While Krathwohl's and Bloom's taxonomies seem to offer the most practical guide for developing an in-service process for teachers, one must note Krathwohl's statement that the "internalization continuum is multi-dimensional".\(^{98}\)

\(^{96}\) Krathwohl, Bloom and Masia, 1956, p. 181

\(^{97}\) Ibid, p. 29-50.

\(^{98}\) Ibid, p. 31.
A look at what other authorities say is in order. Kelley speaks of the "fully functioning self", like Maslow and Combs, Kelley describes the self as unique to the individual and as moving, changing. Combs describes the following characteristics of the fully functioning personality:

The fully functioning personality thinks well of himself. He thinks well of others. He therefore sees his stake in others. He sees himself as a part of the world in movement, in process of becoming. He knows no other way to live except in keeping with his values.

Combs speaks of the fully functioning teacher as a "facilitator, a helping person rather than a driver, pusher." Rogers' term for the fully functioning personality is the person "becoming". Characteristics of the person becoming, according to Rogers, are an increasing openness to experience, trust in his own organism, integration, creativity and trustworthiness of human nature.

Maslow's term for the person who has internalized a value is the self-actualizing person. "Self-actualization", he says, "is defined in various ways, but a solid


100 Arthur W. Combs, Perceiving, Becoming: A New Focus For Education, p. 19.

101 Combs, p. 95.

core of agreement is perceptible." All definitions agree or imply; (a) Acceptance and expression of the inner core or self, i.e. actualization of these capacities and potentialities, "fully functioning", availability of the human and personal essence; and (b) Minimal presence of ill health, neurosis, psychosis, of loss or diminuition of the basic human and personal capacities.\textsuperscript{103}

Maslow's hierarchy of needs has been identified with teacher needs by Feichtner.\textsuperscript{104} In her study, "Supervision for Self-Actualization", Feichtner presents a list of tasks "designed to facilitate the satisfaction of teacher needs which parallel the individual needs as hypothesized by Maslow".

The hierarchy of teacher needs used in the study are:

1. Mastery of teaching tool skills
2. Acceptance of responsibility for teaching behavior
3. Acceptance of pupil's perceptions of classroom environment
4. Objective evaluation of cause and effect relationships in the classroom and,
5. Choice of direction as a teacher

It would seem that numbers 4 and 5 in Feichtner's hierarchy would be needs met by teachers when they complete the process for use in preparing for modular scheduling.

Raths, Harmin and Simon assert that a value must


All the authorities agree that teachers who internalize a value and who become self-actualizing adults operate from inner controls rather than from outer controls. The process of valuing has significance for the design and methodology of in-service. An in-service process for teachers growing toward acceptance of the value of variable modular scheduling, and the design and development of their own workshop activities to implement that education must be cognizant of and give consideration to:

The Teachers: Their acceptance of a value, belief and degree of inner control in maintaining that belief.

The Environment: Its structure and complexity.

The Support Staff: Their acceptance of change and degree of support.

Delano conducted an in-service program to help

teachers "internalize" the theory and practice of open education. At the end of the study, she found that the majority of the participants rated themselves at the internalization level of Krathwohl's and Bloom's hierarchy. After going through the in-service program, they felt they had internalized the idea of open education.

Basic Assumptions Underlying Selected Major Components of In-Service Design

Organizational development is a response to change. It includes a strategy for planned change and the primary focus is on the human side of the enterprise. There are four dimensions to organizational development that may be overlooked by change agents. The first is to understand the functioning and the dynamics of the organization. The second caution is that every organization is part of a larger system and all must change. The third dimension is the general principle that an increase in complexity creates a general demand for democracy, and often makes possible a greater degree of democracy than many people perceive. Finally, many organizations have tried to alter their direction with only a partial approach to change.

The CASEA monograph from the University of Oregon contains much of the change research in education and is of the case study nature. These researchers were


guided by such theoretical conceptions as (a) a process view of change, that early events shape and constrain the course of succeeding events; (b) a systematic view of organizations, that alterations in functions of one component have discernible (and often surprising) effects on other components; and (c) a behavioral view of educational programs, that structural changes in schools are insufficient for defining innovation if they are not accompanied by appropriate changes in role behavior and interpersonal relationships. The researchers concentrated on the implementation phase of innovation. Earlier studies (Smith and Keith, 109 and Gross, Giacquinta and Bernstein, 110) were not informative on the implementation phase. The issues were often one of adoptive failure rather than substantive failure. The educational planners sometimes acted as though all that was needed for implementation of major innovations was serious intentions and a few summer workshops.

The design of the thirty-six week in-service process is predicated on certain underlying assumptions about teacher goals and motivation. It is assumed from the literature on motivation, internalization and values that teachers are going through steps of change which are facilitated by the in-service process. A closer look at


some of the major components of the in-service process and their related assumptions will indicate the relationship between the components and the goal of successful implementation.

**Component 1.** The necessity for a simultaneous planning and integration of the six building blocks into the design for a variable modular schedule.

**Assumption 1.** Successful installation of a variable modular scheduling format lies in the simultaneous planning and implementation of multiple, and far-reaching goals.

The interrelatedness of the instructional modes, (or building blocks) the staff, and the organizational structure (or school schedule) has been advocated by Trump, Brown, and Allen. As Brown noted, many school systems are equating independent study (only one of the variables) with modular scheduling and rejecting them both.\(^{111}\)

One of the things noted by Reynolds when reporting on teacher adaptation to planned change was the interdependence of goals as an important element in accounting for the success or failure of a program.\(^{112}\) In this case decisions were made for the implementation of one goal without anticipating their effect on other proposed objectives. Without sufficient pre-planning and in-service for the teachers, the staff tended to define the proposed changes in their organization in terms of patterns. The initial changes created new roles and patterns of interaction which were unanticipated in their implications.

---


Thus, the implementation process became trapped in a vicious circle in which the pursuit of certain goals prevented the attainment of others.

The change agents involved in this in-service process will not face the vicious circle described by Reynolds. The successful implementation of a variable modular schedule involved an understanding of the simultaneous planning and integration of the six support systems into the design. These support systems, or building blocks, will be described in Chapter III. It will be noted that these building blocks must be integrated by the individual teacher into his or her course design.

It has been recommended that a high school attempting to develop a more individualized human program, using the tool of variable modular scheduling, allow students approximately forty percent of the school day unscheduled. If scheduled class meetings are to be decreased by forty percent, then teachers will have to re-examine what is to be done in the remaining sixty percent of scheduled class time. Usually, they will find they are spending considerable amount of time repeating the same information to different classes. Thus is born the need for large-group instruction to compensate for the lost class time. The introduction of large-group instruction requires a change in the master schedule which will allow for one hundred or four hundred students to meet with a teacher or teachers at a particular time.

With the advent of large-group instruction there is usually an increased interest in small-group instruction. This will require students and teachers to meet in groups of ten or fifteen. This type arrangement will immediately free up other students who will then need to have something to do.
Since a teacher cannot be constantly with those students during their forty percent of unscheduled time, the need for behavioral objectives becomes apparent. This will permit teachers to provide some test or measure of accomplishment, as contrasted with simple observance of the presence of a student in the class.

The accomplishment of the behavioral objectives will require resources both human and material. These resources will need to be somewhat specialized, in terms of the subject matter areas. The resource people will have to be available in conjunction with the resource materials, and in a somewhat organized fashion. Thus, the concept of a resource center is developed. However, without independent study, neither students nor teachers will be available to work in a resource center.

The role of the teacher-counselor implies the availability of time for both the teacher-counselor to work with the student, and also time for the student to be available to meet with the counselor. The concept of independent study thus becomes essential to the role of the teacher-counselor.

In short, the building blocks of the variable modular schedule all hinge on the availability of enough time for independent study. Cawelti in a study of twenty-two high schools reported that many schools adopt a variable modular schedule and initiate the innovative features which that type of scheduling permits; but the basic approach to teaching remains unchanged. Essentially, the same types of activities are done in different lengths of time. He says"........most schools have made a mere start in developing the self-instructive curriculum materials needed when one suddenly turns students loose."113

113 Gordon Cawelti, p. 62.
Without sufficient time devoted to independent study, the whole implementation of a variable modular schedule will collapse. It is the lack of understanding of the need for simultaneous planning and integration of the building blocks that has led to the dissatisfaction with the implementation of variable modular scheduling in many schools.

Component #2 - The necessity for the faculty to break into study committees, and for those committees to research, teach, demonstrate and monitor the implementation of a particular building block.

Assumption #2 - Human beings, even when participants in planning, are not likely to suggest distinctly new types of working patterns for themselves without a strong motivation.

The focus of the NIE-funded Procedures for Adopting Educational Innovations Project (PAEI) is on researching the highly personal experiences and phenomena encountered by educators in schools and colleges as they adopt the selected educational innovations. The conceptual basis of their model drew upon the work of Francis Fuller and associates in their study of the concerns of teachers. Fuller found that the innovation users' first concerns about use of an innovation are somewhat egocentric. Users initially have questions about what use of the innovation will entail and how it will affect them personally. Following these self-concerns, users become more concerned

---

114 PAEI, Research and Development Center for Teacher Education, University of Texas at Austin, 1975.

about the tasks related to using the innovation. After these concerns are resolved, users become more concerned about the effects of use of the innovation on pupils.

Hall and Rutherford measured "concerns" of a stratified sample of teachers about the use of teaming. They found pre-use concerns were both self-oriented and innovation-oriented. These teachers were concerned more about learning more of a substantive nature about the innovation, the demands of use of the innovation, and the potential effects of its use on them. Their findings support the legitimacy of having self concerns, but not resolving them is likely to be detrimental to developing high-level use of the innovation.

The motivation of teachers to participate in a change process was discussed earlier in this chapter. This process applies the following criteria relating to teacher receptivity to change:

(1) Each teacher will choose freely to participate in a workshop where he/she will design his/her own program. (Feichtner, Maslow, Rogers)

(2) Each teacher will actively engage in his/her own learning process. (Feichtner, Maslow, Rogers.)

(3) Each teacher will perform objective evaluation of his/her own growth. (Combs, Avila, Purkey, Feichtner, Maslow)

(4) Each teacher will receive feedback on his/her activities. (Combs, Avila, Purkey)

(5) Each teacher will repeat activities and processes. (Krathwohl, Bloom and Masia, Maslow, Rogers)

---

(6) Each teacher will choose from among alternatives. (Raths, Harmin, and Simon)

(7) Each teacher is a facilitator, a helping person, rather than a driver, pusher. (Combs, Avila, and Purkey.)

An informal and unofficial study of ESEA Title III Projects in Michigan dispelled the commonly held notion that materials, equipment and organizational patterns are the key factors in program development. "From the data available it is apparent that teachers and administrators... look upon human factors as more crucial to curriculum change than nonhuman or material factors."\(^{117}\) Working effectively with people appears to be the key to successful innovation and change. Other significant factors in working effectively with the human element in educational change include adequate planning and development time prior to actual operation of new projects, and meaningful in-service education for professional staff members.\(^{118}\)

Arendt, in relation to foreign language instruction, discusses variable modular scheduling; large-group instruction; and individual and independent study.\(^{119}\) The purpose of Arendt's work is to define the situation as it exists, (modular scheduling in the schools) and to offer guidance to language teachers so they may get the most benefit from it. Arendt takes the position that variable modular schedul-


\(^{118}\)Miller, p. 340.

ing is a "given" situation and that foreign language educators must adjust to it. Speaking of the need for better in-service education, she states:

In education, we frequently see major changes planned with no more than token re-education of the staff members involved. In variable modular scheduling, the teacher must be re-oriented to an entirely new philosophy of education. The local planning may include various 'innovations' such as individualized instruction, non-grading, differentiated staffing, large-group instruction, small-group instruction, student contracts, or a combination of several of these.120

Thus, the institution of variable modular scheduling calls for more than a series of general orientation meetings. In addition, subject area people must have detailed and specific instructions regarding the conversion of their existing objectives and teaching techniques to the new administrative format. A school year plus two summers might well be devoted to the process before the program is converted to the new scheduling pattern.

It is essential that teachers be intimately involved in determining what kinds of help they need in order to successfully implement variable modular scheduling. Rems found that teachers felt a need to develop skills in the areas of large-group instructional techniques, small-group instructional techniques, writing behavioral objectives, team teaching organizations and techniques, and dealing with independent study. Staffs venturing into flexible scheduling have found it to be of value to actually experience the use of these new instructional techniques prior to the beginning of the program.121

120 Arendt, p. 3.

121 Dennis Rems, Teacher In-Service Education and Flexible Modular Scheduling, Iowa City, Iowa, Westinghouse Learning Corporation Monograph, Vol., III No. 3 n. p.
Component #3 - The construction of an individual course design makes use of the building blocks, with the consequent individual and group decision-making and consensus which is necessary to build a workable school schedule.

Assumption #3 - When variable modular scheduling is implemented, involving new relationships between teachers and students, few teachers have the time, knowledge, managerial skills, or motivation necessary to successfully perform these tasks. A division of the labor involved makes this task possible, and provides a common bond and investment in the outcomes of the process.

No one teacher can comprehend the magnitude of the total program or the complexity of the master schedule. The schedule has major components so that people can deal with it. Some of the knowledge teachers require is most easily obtained by interacting with others in a group situation. Groups of teachers, engaged in a mutual and open analysis of functions, represent an effective instrument of professional growth. 122

Ronald Lippitt and Robert Fox remind us that the peer group has a strong influence on the individual's behavior. 123 They suggest that the teacher should participate in identifying the growth experiences which will be most useful, and also that group activities should assist the teacher to develop his own capacity for self-direction. When teachers are involved in the initiation and organization of training activities, conditions are enhanced for peer


123 Ronald Lippitt and Robert Fox, in Improving In-Service Education, p. 167.
support, shared effort, and eventual utilization of new insights and skills. They agree with Bush that much is gained when co-workers collaborate on programs.\textsuperscript{124}

Comparing teachers in "open space" schools (no room partitions) with those in conventional schools, Cohen found that the formal awards available to teachers do not change, but the opportunity of seeing each other teach results in new interaction patterns.\textsuperscript{125} Interaction in a team of equal-status workers makes teachers feel more influential, provides more chances for rewards from peers, and increases job satisfaction. Teachers provide reward and support to each other.

"Whether an innovation represents a variation on existing programs or a complete reorientation, all changes are initiated and established within the organization as a consequence of the strong involvement of individuals."\textsuperscript{126} Individuals are confronted with the need to learn new skills and retire old ones. Roles change, individual beliefs and values can be in conflict with the innovation and/or the institution's value system. Implicit and explicit assumptions may be in conflict. It is a period of rethinking and of clarifying.\textsuperscript{127} Communication with all channels

\textsuperscript{124}Robert N. Bush, in \textit{Improving In-Service Education}, p. 57-70.


\textsuperscript{126}Ernest R. House, \textit{The Politics of Educational Innovation}, p. 77.

\textsuperscript{127}Gene E. Hall, Richard C. Wallace, William F. Dossett, "A Developmental Conceptualization of the Adoption Process Within Educational Institutions" Research and Development Center for Teacher Education, The University of Texas at Austin, September, 1973. (mimeo)
open is a must, as well as reaching out and involving others.  

Component #4 - The necessity for a coordinating committee to monitor, and direct the entire thirty-six week process.

Assumption #4 - A faculty will find it very difficult to develop a decision-making process involving consensus and integrating group decisions with the individual decisions relating to course design.

The researchers in the Charters report found that the proposal for that project was describing a program with phrases such as "infusing the arts into the curriculum" "cooperative teaching and planning", and "involving teachers in the decision-making process", whose meanings were sufficiently ambiguous to permit widely varying interpretations.  

In reality, the project became bogged down from lack of a clear line of decision making, and teacher resentment of outside interference by specialists, the funding agency, and lack of direction. For example, curriculum development depended on the emergence of viable instructional teams that would serve as centers for teachers and art specialists to work together in planning their goals. Such instructional teams did not emerge during the year.

In the variable modular scheduling format, the interrelatedness of the six building blocks, the construction of course designs, the complexity of the master schedule, the need for individual and group decision making, and the components of the thirty-six week process all point to the need for a committee to oversee, monitor, encourage, and in general, direct the flow of events. Teachers in

---

128 Matthew B. Miles, op cit.

the Charters report frequently championed the quality of interpersonal relations among unit members as the key to implementation.\textsuperscript{13}

For many, collaboration was associated with personal gain. As the teachers go through the process as described here, they are moving from "self-concern" as expressed by Fuller to becoming concerned about the impact they are making on others and strive to optimize their efforts for everyone's benefit.\textsuperscript{131} The coordinating committee interacts with the various individuals within the system, and is able to catalog expressed concerns. At the same time, the committee is cognizant of the demonstrated level of the use of the innovation. Since this committee is within the system itself and made up of users of the innovation, it has a vested interest in the individuals and the outcome of the process.

The coordinating committee must be able to keep the total adoption process in perspective. It must be aware of distant, ideal outcomes, and at the same time have a realistic awareness of the movement of individuals along the developmental sequence toward more effective use of this innovation. Members of the committee must be concerned with changes in the individuals, and in the innovation itself that will lead to attainment and continuance of a high level of use of the innovation.

\textsuperscript{130}Ibid, p. 114.

\textsuperscript{131}Francis F. Fuller, p. 209.
Summary

This chapter gives a review of the literature justifying the need for the program. The literature focused on two major areas - variable modular scheduling and the in-service process. Under variable modular scheduling, a review of the early programs in the schools and an evaluation of their effectiveness is included. The in-service process literature covered the areas of planned change, the motivation of teachers involved in planned change and the implications for in-service programs.
CHAPTER III

THE FRAMEWORK OF A VARIABLE MODULAR SCHEDULE

"BUILDING BLOCKS"

Introduction

Variable Modular Scheduling is a tool, which if used effectively by a school staff, can enable them to reach their educational goals. If the goal of the school is to provide an individualized instructional program for its students, then variable modular scheduling is an organizational framework for the scheduling of students for instruction. It is not being presented here as the tool for every high school. The fact that so many schools have adopted it, only to have it fail, is the best evidence that it is a program to be attempted by a school faculty after some study and preparation. The literature reflected the need for such preparation. Many administrators and teachers have jumped on the bandwagon of educational change, only to find that they had adopted an innovation that did not produce the expected results. They failed to understand that they needed to study the innovation itself and prepare for its implementation in their particular school. In the secondary schools today, many innovations cannot succeed without the support of other innovations.

If the staff of a school elects to implement a variable modular schedule, then certain "building blocks' are a necessary part of the framework of that schedule. These building blocks are:

- Large-group Instruction
- Small-group Instruction
- Independent Study
- Resource Centers
- Behavioral Objectives
- Role of the Teacher-Counselor
It is necessary for the staff to get a clear understanding of what each building block entails, the interrelatedness of these building blocks, and the support given by each to the total variable modular schedule. In order to make these building blocks effective, the teacher uses a mode of instruction which varies from the traditional lecture approach. The teacher also must integrate these building blocks into the construction of his or her course design. As the individual course design is developed by the teacher, it becomes apparent that the implementation of this variable modular schedule represents modifications in educational objectives, major organizational change in the school, and variations in the way both teachers and students utilize their time and energy. (See Figure 3 for a visual representation of the in-service process.)

**Building Blocks** - It takes about thirty-six weeks or more of preparation for a faculty to prepare to implement a variable modular schedule. After implementation, it takes an additional three years to get the program operating efficiently. From the beginning it requires adequate support systems in the form of these six building blocks.

**Large Group Instruction** - Not all teachers should use large group instruction. In fact most teachers in high schools make use of large group instruction, but do it in a most inefficient manner. In a variable modular schedule, those teachers who are using or wish to use large group instruction, must learn to use it more efficiently. "Large group instruction is used to present concepts and principles which apply in common to all of the students in a course."\(^ {132} \)

It is teacher-dominated because the group

\(^ {132}\)Dr. Atilano A. Valencia, "Large Group Instruction", Flexible-Modular Scheduling and Related Instructional Strategies. Stanford University. 1968.
Figure 3
PREPARING TO CHANGE TO VARIABLE MODULAR SCHEDULING
In-Service Process

Initial Decision To Change to V.M.S.

Staff Assessment

STAFF EXPLORATION

Weekly Timetable

STAFF TRIAL

Committees On Instructional Modes

Teach

Evaluate

Choose

Individual Course Design

Framework For V.M.S.

Instructional Mode

STAFF IMPLEMENTATION

Master Schedule Using ICD's

Evaluation and Revision

Begin V.M.S. Following September
size makes interaction virtually impossible. Therefore the teacher role necessarily becomes directive. Consequently, the teacher should provide the chief stimulus in this instructional setting.

Now when one compares the above description of large group instruction it doesn't sound much different from what goes on in most classrooms in "conventional" high schools throughout the country. By "conventional" is meant a high school where most classes meet five times a week, for the same length of time daily, and with the same number of teachers and students. Most teachers in conventional classrooms use large group instruction daily. That is, they talk at students for a good percentage of each class period. The inefficient aspect of this is found in their repetition of the instruction to different classes during the day. To the extent that a teacher lectures and repeats the same lecture more than once, that teacher should be doing large group instruction. Teachers will complain that they cannot answer questions well in a large group, nor can they ask questions easily. There is no argument with the premise that the ability to ask and answer questions from individual students is a good thing. But questions should be handled at another time, in another place, and in an individualized manner, because it is an individual learning activity. The large group instruction itself can still be done with a large group of students. In terms of size, the largest number of students should be present for the large group instruction, as can benefit from what is being taught.

The length of time for large group instruction is critical also. The value of any large group instruction that exceeds thirty minutes in length is questionable. David Beggs related that lecture periods used by teachers in Decatur-Lakeview School worked out best when no longer
than thirty minutes.  Gaynor Petrequin, in his book specified forty minutes to be maximum. The difficulty with the time of large group is that teachers object to shortened lengths of time because they feel they need more time to cover the material. Their concern for covering material outweighs the practical problem of students being unable to absorb most lectures of more than thirty minutes in length.

Large group instruction should be one way. Questions and individual responses should take place at another time during the day. Usually, large group might be held one or perhaps two times a week. When instructors start to request large group more than twice a week, one should look carefully at just what is being done in those classes. Probably some other modes of instruction are being introduced.

Three objectives are sought in large group instruction. The presentation should be:

- a) Motivational - that is, it should arouse student interest in learning more about the subject.
- b) Informational - it provides points of view, ideas and facts that are not otherwise readily available to students.
- c) Directional - suggests activities for students to do following the presentations.


Most teachers who are inexperienced with large group instruction tend to emphasize the informational and directional aspect of large group instruction, and are not concerned with the motivational aspect. As a teacher becomes more aware of and interested in the individualizing aspect of each course, he or she will be more concerned with the general motivational efforts in large group instruction, and then allow for more individualized direction to emerge elsewhere for the students.

**Small Group Instruction** - Small group instruction is the second building block in a variable modular schedule. It represents a serious change in a mode of instruction being used by the teacher. Small group instruction may be at one and the same time, one of the most easily accepted innovations today in schools, as well as the most misunderstood one.

Conversations with others help all of us to clarify our own ideas and stimulate further inquiry. We are also enabled to persuade others to our own beliefs. We need and get to know new people in these meetings. Education in schools also requires discussions in small groups.

The simple splitting of a class of thirty students into two small groups often results in a loss of the very atmosphere that is desired. The teacher is unable to be physically present full time to assist each group. The group has to remain fairly constant also, and numbers tend to be the controlling factor, rather than educational need. It is important that the students in small-group discussion classes be changed as the need arises. Also some students have more need for this type of activity than do others.

The oral quizzing, sometimes described as classroom discussion, that takes place almost without end
in conventional classrooms has to be dropped by teachers and students if small-group discussion is to fulfill its purpose. Large group instruction might even be used to describe and illustrate the various roles played by small-group members: initiates, questions, opposes, blocks, amuses, condenses or summarizes, evaluates, seeks consensus, ignores, etc.

Group size should range from about six to fifteen. This is about the maximum number that could become actively involved in a discussion. Many teachers find that their discussions are most effective when they last from thirty to fifty minutes.

When teachers become less concerned about the so-called problem of covering the subject matter, they frequently find that one small group discussion a week is adequate. This may seem like very little time, but one should recall that the goals of small group instruction include the development of values, attitudes, and skills in discussion and in group relationships. Since these goals would usually be shared in common with all small group activities in the various subject matter areas of the school, and small groups would likely be scheduled in all subjects, a given subject may operate with fewer meetings.

The selection of a student leader for the small group discussion is one that frequently elicits great concern on the part of the teacher. Too often, the teacher assumes this role, after first assigning a student and then finding that a poor job is done. It would make more sense to have the teacher assume the leadership role for the first few group meetings in order to provide a model, and also provide some training on the responsibilities of the student leaders. The first task of the group leader is to help the group decide on the issues it wishes to discuss, to clarify the issues, and then also to call upon
other key people in the group. Besides a group leader, it is also important to have other roles such as the observer, the recorder, and the consultant. The recorder notes the areas of agreement and disagreement, and reports back to the group as desired by the group. He also may summarize at the end of the session. The observer does not participate, which allows him to concentrate on the activity taking place in the group. He records participation and the quality of that participation in terms of helpful, negative, or of a type that neither helps or hinders. Finally, a consultant to the group may bring specific information and experience that others may not possess.

As a teacher begins to work with small group techniques, he should meet with the group leader, recorder, and observer and help them to analyze their activities in the group. This will help to improve the quality of the small-group discussions. If the process taking place in small group work is not continually studied and improved, it makes little sense to go to the trouble of organizing classes of fifteen or fewer students.

After a teacher begins to understand and use the basic small group instruction skills identified above, he can begin to emphasize the different types of instruction in small groups.

These include the task group, the didactic or informational group, the tutorial small group which usually is more of a remedial nature, the discursive group in which there is a free and uninhibited discussion of students of a single topic of primary importance to them. The brainstorming group, while free and uninhibited, is more of a problem solving

---

group, and the heuristic group where inquiry and discovery are emphasized, and the teacher becomes what Suchman calls a responsive environment. Finally, we have the Socratic group, where the teacher becomes the Socratic questioner and responder.¹³⁶

Independent Study - When we are concerned with the topic of independent study, the definition is important, as the term itself connotes many things to different people. Since independent study is perhaps the most important single building block in a variable modular schedule in a high school, it must be clearly understood.

Independent study has been interpreted broadly as "the activities in which pupils engage when their teachers stop talking."¹³⁷ This means what the student does regarding both the learning that the school requires, and also those elective educational experiences that appeal to his unique interests and creative talents. Many teachers feel that independent study means to be totally independent of the teacher and the school. On the contrary, these personal learning activities, individually-centered and group-centered, required and elective, visual and audio, self-directed and school directed, all constitute independent study which becomes the central function of education.

It should be stated here that independent study should be both self-directed and other-directed learning activity. The school-directed aspect of independent study tells the student how to go about learning and what is to be learned, and alternative procedures for learning it. The school directed type of learning usually takes place


during scheduled class meetings with a pre-determined number of students and teachers being present together a certain number of times per week.

Independent study is appropriate for all subjects. Although most conventional schools provide more independent study time in physical education, fine arts, and practical arts, or science courses, that should not be considered reason for not allowing a similar degree of independent study in the more academic subjects. Although some teachers feel that in the academic area, independent study should be more in the nature of "depth studies" or "projects" it should in reality be viewed as an integral part of the total process of learning in all fields of human endeavor.

When considering various aspects of independent study, it is important to look beyond the confines of the school building itself. Rather, one should develop a more total environmental concept. This means that the independent study program may occur in a variety of settings both in the school and apart from it. A basic consideration is which environment, in the school or outside, provides the best opportunities for learning. Work experience in an actual business may be more valuable than a simulated setting in the business education department of the school. The total environment concept of independent study does more to bridge the gap between the school and the community than the usual field trips or infrequent visits that are organized in the conventional school.

It should be recognized in planning an independent study program that students possess entirely different interests and purposes. Some will have relatively little interest in a given field, and will want to do only what is absolutely required of them in that area. Therefore, it is imperative that the school needs to separate that
content which is required of all students from the content which may be interesting to other students in accordance with their talents and concerns.

In terms of facilities wherein independent study may be accomplished, a number of options need to be available. These would include resource centers for each subject field, the general library, relaxation space, conference areas, and intensive care area or assigned study hall.

While it is recommended that when the master schedule is constructed, each course allow for about forty percent independent study, this amount will vary for both course and students in particular courses. Ideally, each student should have an individualized schedule. It might include a large group instruction session in each course, and one or two small group sessions, with the remainder of the time devoted to independent study.

It follows from the above that evaluation of a student's learning will now be on an individualized basis also. Students will no longer fail; they will simply make less progress in the learning sequence. An educational dossier may be accumulated with an appraisal of persistence, use of resources, creativity, quality instead of the usual grading system.

Needless to say, the critical factor in the successful implementation of the above program evolves around teacher training. The necessity for a changed role of the teacher in a variable modular schedule allowing for forty percent of each course to be devoted to independent study is obvious.

Independent study then, "emphasizes the individual's role in learning. It implies that students who react favorably to this environment possess potentialities for self-instruction, self-discipline and self-
evaluation." Perhaps the most fundamental objective of this type of program is to bring the student to a realization that he can learn something almost anytime and nearly anywhere with or without the school.

Likewise, it may be said that the "heart of the school is independent study for here is where students learn how to learn and develop personal responsibility for learning. The goal of the teacher in his relationships with students is to become 'dispensable' as quickly and as completely as possible." Resource Centers — In order to make the concept of independent study practical, it is necessary to make use of resource centers in a high school committed to a variable modular scheduling format.

There are three essential ingredients to a successful resource center. They are teachers, students, and materials. The resource center "serves a precisely defined group of courses, typically within one department, and is under the control of the teachers who offer the courses which the resource center serves." The resource center may be made use of freely by students at their discretion. It is usually program oriented and differs from the school library which is usually more oriented towards materials.

The resource center functions as an integral part of the instructional program and provides a working

---


area for students and teachers. It may also be used as a diagnostic center by teachers to provide initial placement, reassignment, and remediation.

**Behavioral Objectives** - The development of behavioral objectives is of utmost importance in any high school attempting to implement a variable modular schedule. As Robert Mager puts it, "An objective is an intent communicated by a statement describing a proposed change in a learner - a statement of what the learner is to be like when he has successfully completed a learning experience."\(^{141}\)

The general conception of instruction that is being advocated is that instructional improvement is facilitated by clear definition of desired outcomes and the subsequent measurement of post-instruction, learner attainment of those outcomes.\(^{142}\)

Therefore, while it is acknowledged that it is difficult to write behavior objectives for some aspects of learning, this difficulty has often been used as an excuse for no writing of objectives at all. Or, on the other hand, the objectives are written in terms of what the teacher will 'cover' rather than what the student will learn, and how he will demonstrate that in fact, he has learned it. Some educators are greatly concerned about this state of affairs, according to Robert L. Ebal in his article on behavioral objectives, and see limited value in behavioral objectives and some potential danger in making behavior, rather than cognitive processes, the target of


educational efforts. Every course in the school should have behavioral objectives prepared for each unit. It should be recognized that this constitutes an immense task and one which will take at least one year to complete. In most schools the teachers will do this work during the school year itself, and often on a day to day basis, staying one unit ahead of the students.

In order to assure that the task gets completed at all, a basic format or structure should be agreed upon by the faculty, and then the same format should be used for all courses. This is not to say that a control is being placed on the individual teacher as to what the objectives might be. Rather a control is placed on the teacher to place whatever objectives that may be developed, into a commonly accepted format so that any other teacher or student will know exactly where to look for a particular item. This format will include the identifiable characteristics of good behavioral objectives, and teachers will simply fill in the appropriate objectives on the format.

It is also necessary for the administrator to either assume the responsibility, or assign a person to monitor this work throughout the year.

The practical purpose behind insisting on behavioral objectives for every course is to have teachers define precisely what it is that is to be learned in their courses, and how said learning is to be demonstrated. Accomplishing this exercise, the teacher acquires the security of knowing that he or she may evaluate in terms of results obtained by the student, rather than time spent...

---

in class. A teacher can also be less concerned about shortened amounts of scheduled class time, as the results expected from each student will have been more clearly defined.

Behavioral objectives also clarify for both student and teacher that learning can take place outside the scheduled classroom activities. Teachers and students then place less reliance on classroom activities and more on independent study accomplished in the completion of the behavioral objectives.

It can be argued, and correctly so, that the use of behavioral objectives militates against development of an individualized instructional program because all students are given sets of behavioral objectives that define the same activities for all. On the contrary, the writing of the objectives enables a teacher to define what it is that every student in the course must accomplish as a member of the group. Then in the writing of the objectives, the teacher should also leave latitude for the accomplishment of individual objectives that may be developed for each student in cooperation with the teacher. Thus the teacher knows that a minimal amount of work of common value is being accomplished by every student, and still there is the possibility of development of individualized learning objectives for particular students. For the first year of writing, the average teacher will do well to even define clearly what it is that all students have to do in the course, and then to perhaps get a start on the individual alternatives.

It is often said by teachers that a particular course does not lend itself to the development of behavioral objectives. How can one define appreciation for poetry, for example? While that is a valid observation, far more about learning could be written in terms of behavioral
objectives than most teachers do at present. Also, defining clearly that which can be defined, will also help to clarify what cannot be directly written into behavioral objectives.

The Role of Teacher-Counselor - The sixth building block which contributes to the success of the variable modular schedule in a high school is the role of the teacher-counselor.

The teacher-counselor program in the school includes an arrangement where each student in the school is known as a total human being by at least one faculty member. The faculty member and student enter into a search together, meeting bi- or tri-weekly and attempt to uncover the student's abilities, talents and interests. The teacher-counselor also tries to provide opportunities for the student to experience as many different types of learning activities as feasible.

The teacher-counselor aids the student as he makes his independent study "self-schedule" or plan for the use of his unscheduled time. The emphasis here is on helping the student to shoulder the responsibility for making decisions with the use of his time, and to feel the responsibility for his own learning.

The teacher-counselor is also in frequent contact with the student's subject matter teachers and gathers feedback from them as to the progress being made by the counselee.

The purpose of the teacher-counselor arrangement, according to Dr. J. Lloyd Trump, "is that each student is known by one teacher, and that teacher is a teacher-counselor. This may well be the most significant aspect in the human school."144

The teacher-counselor also serves as the liaison person between the school, the parents, the college officer and the employer or other outside agent who is significant in the student's schooling.

For an effective teacher-counselor role, the following functions should be implemented:

a) Relationship - one to one, with a mutual trust and understanding.

b) Scheduled meetings should occur every ten to twelve days.

c) Evaluation - both student and teacher should enter into this aspect, with student making actual evaluation of himself.

d) Referral Procedures - when the scope of the problem indicates the need of more specialized assistance.

e) Relationship - to parents, employing agents, college and continuing educational placement.

f) In-Service Training - so that the teachers in this position are both updated in counseling techniques, and also so that they are supervised in a methodical way.

Interrelatedness of the Building Blocks and the Support Given by Each to the Total Variable Modular Schedule

The necessity of large group instruction as a building block for a variable modular schedule is most clearly demonstrated in terms of economy in the use of time. Teachers are very reluctant to give up scheduled instruction time with students. If they can be shown that large group instruction gives them an opportunity to do the same amount of lecture but in less total time due to lack of repetition, they are more likely to accept it. This helps to allay the fear that somehow the instructional
program will suffer if they spend less time with groups of students.

It is also the savings of time allowed by large group instruction that enables a teacher to consider making use of some other educational alternatives such as small group instruction. Small group instruction that provides an arena where students can come in contact and deal with the viewpoints of others, where they can verbalize their understanding of particular concepts, and where they can practice interpersonal communications fills a decided need in any instructional program.\textsuperscript{145}

For true independent study to take place, it is necessary for a school faculty and administration to do more than pay lip service to the idea of independent study. For the practical implementation of a program which will allow students to have self-directed learning activities, approximately forty percent of the school day or week needs to be available for independent study activities.

In most high schools, the courses will meet five days a week for approximately fifty minutes per day. Some courses such as laboratory related courses, may have double sessions of one hundred minutes one or two times a week, and meet fewer days per week. To implement a variable modular schedule in a high school which will allow for independent study, approximately forty percent of the course meeting time needs to be eliminated. For example, a course meeting fifty minutes per day for five times a week, would be cut to three meeting times per week. The important thing here is not the cutting of days, or any particular day in the week. Rather it is the cutting back on scheduled class time that is important to assure time for independent study.

\textsuperscript{145} Dennis E. Reams, "Small Group Instruction" Westinghouse Learning Corporation Monograph, IV, 2.
To say that all classes should have forty percent of scheduled class time eliminated is not as radical as it sounds. Students have a degree of independent study time when teachers in conventional classrooms stop talking, and give students a chance to do supervised study. Also independent study occurs when homework is assigned or a student is scheduled into a study hall. Independent study can occur in any school regardless of the organization of the staff. However, for an independent study program to be really effective, the time allocated must be a usable amount of time. For example, a fifteen minute time for supervised study at the end of a class frequently permits a student no other alternative than to study the textbook or do homework for the class he is presently attending. Likewise, an assigned study hall does not allow the use of any other resources than what a student carries into the study hall with him. Therefore independent study must be integrated into the educational program by teachers. Only by positing a significant forty percent independent study into the schedule will teachers be encouraged to make the independent study an integral part of their courses.

While the amount of time which students devote to independent study may vary, some students should spend perhaps eighty percent of the school time in independent study, and others spend considerably less than forty. The decision regarding how much time should be based on personal counseling of each student, with consideration being given to his demonstrated ability or potential to handle the time made available to him by the school. While a variety of places for independent study need to be made available, the selection of these places and the utilization of time needs to be under adult supervision.

Teachers and administrators frequently cite age
as the determining factor in deciding whether a student can be given independent study. They indicate that only older students should be given independent study. In reality, most conventional schools provide more independent study time and facilities in the kindergarten and first grade than in any other years. Children in these first two years typically spend two-thirds of their time in situations where they are not forced to listen to the talk of their teacher. After the first two or three years, when one would suppose a higher degree of maturity would be expected, teachers demand more group attention on the part of students, leaving less time for independent study. Thus most conventional schools, including colleges, seem to give less independent study time as the student matures, rather than increasing the amount of available independent study time. While it is true that students differ in the degree of self-direction, creativity, and performance that each attains, all can profit from a greater degree of independent study than most conventional classrooms allow.

A frequent objection to the idea of independent study revolves around the necessity of learning aids, visuals, and an increased amount of learning materials. Although most schools adopting a variable modular schedule allowing for larger amounts of independent study find they need a substantially increased amount of learning materials, this is not a prohibitive factor. Rather, it can be frequently handled by a reallocation of expenditures in the budget. For example, instead of purchasing 120 identical textbooks for 120 students enrolled in a particular course, why not purchase twenty identical textbooks, one copy each of thirty related books, and the remaining money be used for a variety of visuals, and appropriate learning materials. Also use should be made here of the resources for learning that are available in the community. If teachers were
convinced that independent study was an integral part of their course, they would make more effort to set up worthwhile learning opportunities for students in the community itself.

Two purposes frequently served by a resource center are to provide areas for independent study and to make equipment and materials accessible, whether the library's 'anatomy' is centralized, with self-contained 'departmental' units in one central facility, or decentralized, with satellites next to the subject department offices.\(^{146}\)

The choice to be made on the above would depend on the teaching concepts decided on by the administrators and faculty. Generally speaking the resource centers should be decentralized throughout the school according to subject areas. Likewise, it is my belief that subject department offices should be eliminated, and the teacher's office, if any, should be located in the resource center itself.

The resource centers may frequently be divided into two areas; the first area allows space for students to read, listen, view, think, write, and perhaps converse informally. The second area would be where the tools of the trade are present, and usually teachers are working on an individualized basis with students in the second area. The noise level may vary substantially between these two areas. It may happen that these two areas are sharply divided in some schools. It is perhaps sufficient to be aware that different types of space requirements are sometimes needed for different types of learning in the resource centers.

In the conventional high school, the library staff frequently experience difficulty in redefining the roles of the library personnel in terms of implementation of the resource centers. The Knapp School Libraries Project advisory committee offered these guidelines:

Factors such as size of school, staff, architecture, and patterns of organization determine whether additional points of access, such as auxiliary resource centers are needed. Philosophically and administratively, such additional points of access are branches of the central library service with respect to staffing, collection (selection, bibliographic control, and utilization) and services.\textsuperscript{147}

One might argue that philosophically and administratively, the resource centers should be part of the central library in terms of accounting purposes, and that members of the central library staff might well be assigned to various resource centers to assist where possible. The selection of materials should not be solely the role of the central library staff, but rather that of the individual teachers in the subject area. Teachers are far more inclined to use materials with students that are on the shelves next to their desks than elsewhere in the building in a central library.

The advantage of a departmental resource center lies in the easy access to materials by both students and teachers. The availability in one area of specialized teachers, specialized learning materials, and students interested in that area of specialization is an obvious advantage.

A disadvantage is that the staffing of the resource center will differ from that of the regular school library. Dr. Trump suggests that the resource centers be "supervised by instructional assistants, advanced undergraduate students,

housewives, retired teachers - carefully selected adults who
are knowledgeable in the subject area to the degree of
having completed two years of college work in it."\textsuperscript{148} His
view is frequently disputed by librarians.

A final criticism of Dr. Trump's proposal to
decentralize the materials is that this method
contradicts the idea that all knowledge is
interrelated. It lessens the chance of serendipity
which occurs when the student stumbles on something
better than what he started out to find....independent
learning is not encouraged by decentralization.\textsuperscript{149}

Perhaps what should be considered here is that we
are looking for a realistic solution to the problem. While
it may be desirable that the school librarians handle the
individual resource centers, it is not practical, nor are
they necessarily willing to do so. Trump, in his reply to
the above criticisms by Marjorie Miller, stated that he
would prefer to have the library and separate resource
centers under the librarian's supervision, but that poor
practices he had observed on the part of librarians made
other organizational patterns necessary.

Librarians frequently suggest that the use of
learning resource centers can be handled through the central
library staff.

Two new high schools, Kentridge and Hazen, in
the Kent and Renton school districts, respectively,
in Washington, have similar physical facilities
(called in Kentridge the Library-learning center
complex) which are departmentalized, but well
staffed. Departmental resource study and

\textsuperscript{148}J. Lloyd Trump, "Independent Study Centers;
Their Relation to the Central Library." Bulletin of NASSP,

\textsuperscript{149}Marjorie Miller, Letter to Dr. J. Lloyd Trump,
reference areas adjoin the traditional library reading room on two sides, separated only by low bookcases. They permit librarians, who direct the independent study facilities, to become part of the teaching team, and teachers, who are encouraged to assist students in independent study and supervise the general reading room, to become part of the library team. Facilities, staff, equipment, and materials needed for subject resource centers must be decided by each school in terms of its own needs and physical facilities. But the staffing, collections, and services should be administered by a central library complex, which is the key to effective use of all materials centers in the schools, no matter where they are, in one huge library center or in adjoining or dispersed auxiliary centers.150

The above quote indicates fairly well that the emphasis on the central library concept is an emphasis on materials, not on students and not on programs. In a decentralized resource center, the teacher working individually with a particular student can assist with the selection of the particular learning materials. In other words, the use of the materials, not the organization of the materials is what is more important.

In a school of 1,000 students, the equivalent of about two regular sized classrooms should be allocated to use as a resource center for each department. In a school of 500 students, it will generally be necessary to combine resource centers. For example, the English-Social Studies resource center, or the Science-Mathematics resource center might be set up. The primary reason for this combination is not space requirements, but staffing needs. In a small school of 500 the number of teachers in any one

department would not be large enough, even with forty percent of the teachers' time unscheduled, for the teachers in one department to staff their resource center throughout the entire day.

It will be argued at once, that in a school of 1,000 students, with eight departments, that sixteen classrooms will be needed for resource centers. However, it needs to be pointed out that in the case of most schools, the science labs, home economics labs, language labs, typing and business practice rooms, fine arts, and Industrial Arts programs will serve as the resource centers for these departments, and no additional space will be needed. The school will need to generate space for the English, Social Studies, and Mathematics resource centers in most schools. In each of these departments, if each teacher cuts back forty percent of his or her scheduled class time, then the appropriate number of classrooms will be freed up for conversion to resource centers. Those teachers arguing that they have to teach classes in the Science labs, and therefore can't use them for resource centers will also need to cut back forty percent of scheduled class time, as well as using open lab techniques in the operation of their special facilities.

The teacher must become a very important part in the planning of the resource center. Two foremost concerns will be the adjustment of the teacher to his/her role as a guide or counselor, and of the students to this new and different approach to learning. Indoctrination of both groups is necessary. The role of teacher-counselor helps to meet this need.

---

No justification for the need for behavioral objectives when constructing course designs is necessary. As with all modes of instruction, be it large group, small group, independent study, or resource center, the setting of a behavioral objective is an essential first step. Any definition of any of these supporting systems included this objective. For example, in small-group instruction it may refer to a content, or cognitive, objective, or it may refer to a process objective, such as the development of a student's ability to express his ideas and interact with the expressed ideas of others in the group. It is important to note that students may formulate their objectives as they are involved in the process. In fact, the success of any mode of instruction depends on the goals and objectives set by the group.

**Individual Course Designs by Teachers**

The "Building Block" concept provides for a different organizational structure in the school. Teachers in the school will have the opportunity to put together a course design which embodies all of the building blocks to a greater or lesser degree.

The individual course designs by teachers involve a matching up by the teacher of the most appropriate modes of instruction for his or her particular course with the building blocks which utilize those modes of instruction. This represents an opportunity for the individual teacher which will generally be new in his or her teaching experience. It will be an opportunity for which there has likely been no preparation given by any methods course in education, or even in the student teaching program.

In considering a program using these different modes of instruction, a basic way to plan would be to study
the curriculum, develop the behavioral objectives, and answer these three questions:

1. What can students learn best from an explanation by others?
2. Which goals can best be achieved through personal interaction among students and teachers, or among students and students?
3. What can students learn largely by themselves, with teachers serving as one among many resources?

The answers to these questions determine the instructional mode to put into use. To question one, it is large group instruction; to question two, it is small group instruction, and the goals of number three can best be achieved through independent study and/or the use of the resource center.

Thus, a teacher who may have been teaching a particular course fifty minutes a day five days a week will now have to decide whether that structure is really the best or not. Some courses may be more appropriately taught with one combination of the building blocks, while another course may use the building blocks in a different way, or may use only one or two of them.

A social studies teacher may want one large group instruction of two twenty minute modules per week, two small group discussions of three twenty minute modules per week, and the rest of the time working in the Social Studies Resource Center with individual students. A chemistry teacher may want two large group instruction sessions per week and the rest of the time unstructured and students can work in open lab in the chemistry lab on an unscheduled basis. An English teacher may not want large group at all, but just have three small group discussion sessions per week and the rest of the time in the English Resource Center.
It becomes obvious that a lot of individual decision making is necessary on the part of the individual teachers. Likewise, the teachers in each department need to work together in order to combine their large group instruction sessions when several teachers are teaching the same course. Also the teachers in a department need to figure out how they will be able to staff their particular resource centers during the day. Individual decisions may then have to be modified to fit more closely with some group decisions.

Likewise, the entire schedule that results from the individual teacher choices may have to be modified in order to get a workable program. Frequently, all teachers will tend to request a large group instruction period at 9:00 A.M. Monday morning as they will want to start out the week with a large group, and they perhaps have frequently equated units of instruction with weeks of time. The thinking will have to be adjusted so that large group instruction is spread out over the five days of the week, and takes place at different times during the day, or else the facilities will not be able to handle the load.

Effect of a Variable Modular Schedule on Objectives, Organization and Utilization of Time and Energy by Teachers and Students

Of vital importance to the consideration of adopting a variable modular schedule in a high school, is the realization that the critical changes in the school program will take place in the way that teachers use their time. The failure of teachers to reallocate the use of their own time seems to be the paramount reason for failure in the adoption of variable modular scheduling in high schools.

It is far too common for teachers to view variable
modular scheduling as simply another program for students. They feel that students will be doing some different things, but do not realize that the real change has to come from the teachers. In schools where variable modular scheduling has failed, it has failed primarily because teachers have not in fact, changed their behavior.

There are changes in teacher roles. They are given more opportunities to participate in curriculum development since a greater degree of professional commitment and cooperative planning is required than usually exists in the isolated classroom teaching situation. Teachers make decisions about the length and frequency of learning activities. The variable modular schedule allows the teacher greater opportunity to work with individual students in enrichment and remedial activities. Most attractive is the elimination of the "routineness of teaching."152

The major obstacle in achieving good small group activities is encountered in changing the role of the teacher. Teachers and students may worry excessively about covering pre-determined bodies of subject matter. Teachers need to view themselves in the role of listener, advisor, and as co-participant with the students.

It should be said again at this point that the role of the teacher must change. Many educators are disposed to search for the new, the different, the flashy, the radical or the revolutionary. While frequently, these educators are quick to assimilate these new ideas into the cognitive and operational framework, they often distort the original conception. This means that "the educator has taken on the verbal, superficial abstraction of a new

idea without going through a concomitant personal reorientation of attitude and behavior." While it is true that vocabulary and rhetoric are easily changed, basic beliefs and institutions are all too often little affected. If independent study is to succeed in schools, rhetoric and good intentions will not suffice.

The difficulty with the resource center operation in most high schools is that teachers are not available in the resource centers to work on an individualized basis with students. Again, we are faced with the need for changing the role of the teachers in the high school. While this requires extensive in-service to do this, some obvious implications occur. It should be a matter of school policy that any time a teacher is not meeting with a scheduled class, he or she is expected to be available in the departmental resource center working individually with students. This should have the immediate effect of making each teacher available directly to individual students for forty percent of the school day. To facilitate the above interaction, a resource center should be operational for each department or similar grouping in the school.

The fact that space is made available for resource centers by a reallocation of the present school facilities, does not insure their proper use as such. In fact, the reallocation of teacher time and student time, by cutting back forty percent on scheduled time in class only makes both teacher and student available for individualized work in the resource center. Assigning the teacher to the resource center during unscheduled time does not guarantee

---

that the students will come in and work on an individualized basis with that teacher. In fact, if the method by which the teacher conducts the course does not change, the students will have no practical need for the resource center, but can simply do their assigned group paced homework without making use of the resource center or the teacher. It is at this point that the need for a change in the mode of instruction on the part of the teacher becomes most evident, as well as the need for the development of behavior objectives for each course.

When the faculty of a high school fails to take the time and effort to develop behavioral objectives for the course that they teach under a variable modular scheduling format, the program soon fails, and the school is returned to a more traditional schedule. Teachers will complain that students have been irresponsible in the use of their independent study time. But having failed to develop behavioral objectives for students to follow during the independent study time, teachers have depended solely on the structured class time for the learning experience. Thus, the independent study time has been poorly utilized by most students, simply because the emphasis was not placed on independent study time by the teacher.

Another common problem is that most teachers are used to preparing lesson plans for their classes. Lesson plans frequently tend to emphasize what the teacher is going to teach, while behavioral objectives are more likely to define what it is that a student is going to learn, and how he or she is going to demonstrate that in fact, it has been learned. Lesson plans tend to contribute to teacher dominated scheduled class meetings, while behavioral objectives allow for independent study where the major effort is initiated by the student.
When a high school using a variable modular scheduling format, allows students forty or more percent of independent study time, and cuts down on the amount of scheduled class time, to allow that independent study, then there should be a way of verifying that it is being used in a productive manner.

When teachers meet students for fifty minutes per day, five days a week, then give them the same group-paced assignment, they are able to monitor the learning activities by observing the student in class, and by checking the homework turned in, and by giving the same tests to all students. But if nearly half of a student's time is devoted to independent study, and the work has been individualized to the extent that not all students do the same activities, then new methods of monitoring the learning process need to be found.

Also while the variable schedule allows for increased efforts toward individualized learning, if we begin to treat the student as an individual, then it seems obvious that we need to make efforts towards providing a more humanized environment for the student in the school. One of the ways of achieving this goal is the use of the teacher-counselor. For ideal operation in a school, each faculty member who volunteers to serve as a teacher-counselor should have between ten and twenty counselees assigned to him. Any more load than this makes it impossible to perform the function adequately. It should not be assumed that all teachers are automatically qualified to serve in this role simply because there are teachers on the staff who will not wish to develop the type of relationship that is called for in this role. Likewise, because a teacher volunteers, it does not follow that she is qualified for this role.
It is important for teachers serving in the role of teacher-counselor to be aware that their qualifications are generally in the academic area and that they provide a person to whom a student may relate. They must also be willing and alert to make appropriate referrals when the needs of the student dictate.

**Summary**

This chapter contains a definition of each building block that is part of the framework of a Variable Modular Schedule. Six building blocks are identified: Large Group Instruction; Small Group Instruction; Independent Study; Resource Centers; Behavioral Objectives and Role of the Teacher-Counselor.

Each building block is identified, defined and described in the chapter. The interrelatedness of the building blocks is discussed and the support given by each to the total variable modular schedule is covered.
CHAPTER IV

TIME-TABLE FOR THE EXPLORATION-TRIAL-IMPLEMENTATION PROCESS

Overview of the Thirty-Six Weeks

It takes about thirty-six weeks or more of preparation for a faculty to implement a variable modular schedule. A thirty-six week in-service process coincides with the normal thirty-six week school year in a secondary school. Taking one academic school year time schedule to emphasize both the exploration-trial phase and the implementation aspects gives a sense of a definite beginning for the following September. Too often a faculty studies the educational innovation without a real understanding as to when the actual implementation will take place. It is also true that, once the school year gets underway, and unforeseen events arise, it is the in-service plan that many schools put off for a future date. With this time-table, the staff can see their progress, and will be aware if they are not keeping pace with the schedule of tasks and responsibilities necessary to make it a total staff commitment.

The in-service process in this time-table includes the following significant components:

A time-table for the exploration-trial-implementation plan.

Organizational procedures specifying six committees, with each committee studying one of the six building blocks.

A coordinating committee responsible for directing the in-service process, adjusting the time-table as necessary, facilitating the resolution of problems and conflicts, and maintaining the progress of the staff through the process.

The teaching of the theory underlying each building block to the entire staff by members of each committee.
The demonstration to the staff of the modes of instruction appropriate to each building block by committee members.

The participation of parent representatives on each committee, and their involvement in the study, teaching and demonstration aspects of each committee.

The participation of student representatives in the entire activities of each committee.

Individual teacher construction of appropriate course designs integrating usage of the building blocks.

Individual and group attempts to experiment with and gain experience in new course designs incorporating the use of various building blocks during the thirty-six week process.

The monitoring and reporting to the faculty by each committee of the progress being made in implementing the building blocks in each department, and the degree to which the proper use is being or not being made of the building block.

Practice in arriving at some group decisions through a consensus process, and within parameters set by the administration and the coordinating committee.

Practice in dealing with discord created by differing philosophies and varying degrees of acceptance of the concepts inherent in the building blocks.
Weekly Time-Table

First Week

1. Introduction and distribution of thirty-six week in-service time-table to the faculty.

2. Identification by principal of the areas of study, the goals, and the responsibilities of each of the six building block exploration-trial-implementation teams.

3. Notice by principal to faculty that they will be expected to sign up to work on one of the six building block exploration-trial-implementation teams during the second week.

4. Explanation of the role of the coordinating group, and its method of selection from membership of the six individual exploration-trial-implementation teams.

5. Notice by principal concerning amount of time to be expended, location of meetings, and days of week on which the faculty will have in-service activities.

6. Explanation by principal on the importance of the project, the priority of the project relative to other school week end activities, and the necessity to maintain the weekly schedule if the project is to be accomplished.

7. Explanation of role of principal in relationship to coordinating committee, faculty, students, parents, with emphasis on the process of decision making.

8. Principal reads to faculty letter to be sent to parents requesting volunteers for work on the six building block teams.

9. Principal gives notice to faculty of student assembly during second week to explain program and recruit student volunteers for six building block teams.
Second Week

1. Sign-up lists are posted for each of six building block exploration-trial-implementation teams.

2. Each faculty member signs up for one study area. (When there are less than twenty-five faculty members, it may be necessary for some to sign up for more than one group.)

3. Announcement to faculty by principal that in the third week, one member of each study team will be selected by each team to constitute the coordinating committee.

4. Hold student assembly in which principal explains project and recruits student volunteers for the six building block teams. Distribute sign-up forms to student body.

5. Explanation by principal to faculty of the specific tasks to be performed by the members of each team.
   a. Review and assimilate current research relative to the use of the six building blocks in a school with a variable modular schedule.
   b. Prepare a written definition of the building block.
   c. Identify in writing specific characteristics of the building block when it is being used appropriately in a variable modular schedule.
   d. Recruit students from various segments of student body to participate in all aspects of the work of the group, including research and presentation.
   e. Recruit parents of students to participate in all aspects of the work of the group, including research and presentations.
Second Week (continued)

f. Prepare a twenty-five question multiple choice pre-test for the faculty concerning the building block which contains the major points to be learned by the faculty.

g. Using teachers, parents, and students, present to faculty a complete explanation of the theory behind the building block studied by the group.

h. Using teachers, parents, and students present a demonstration to the faculty of the building block studied.

i. Prepare and present recommendations as to how teachers in different disciplines could build the appropriate use of the particular building block into the course structure.

j. Assist other faculty members in their planning to integrate the use of the building block into the construction of their course.

k. Post-test faculty as to both comprehension and acceptance of the ideas expressed in the presentation of the building block.

l. Monitor, in accord with directives from the principal and coordinating group the following items:

1. The percentage of the faculty who attempted to make use of the building block

2. The degree to which that usage conforms with the operational theory for that particular building block.
Second Week (concluded)

3. Assist the faculty in resolving philosophical conflicts dispelling ignorance or misunderstanding resulting in the building block being used differently than intended.

4. Formulate recommendations to the principal, coordinating committee, and faculty as to corrective steps the faculty can take to improve utilization of the building block.
Third Week

1. The six exploration-trial-implementation teams meet to organize and assign work to team members.

2. Students who have been recruited are assigned tasks along with other members of the team.

3. Parents who have been recruited for the team are assigned tasks along with other members of the team.

4. One member of each team is selected by the group as chairperson. That chairperson will also be a member of the coordinating committee.

5. Research on the building block is begun by the members of each of the six teams.

6. Six building block teams submit list of student volunteers and parent volunteers to coordinating committee.

7. Principal takes appropriate action to obtain more volunteers if there is a shortage or to balance volunteers among teams.
Fourth Week

1. Coordinating committee meets and selects chairperson.

2. Coordinating committee organizes week, and assigns tasks.

3. Administrator in charge of scheduling contacts scheduling personnel of schools using variable modular scheduling and arranges for visitations.

4. Administrator in charge of scheduling coordinates master time-table for construction of master schedule with coordinating committee. Affirms necessary dates for receiving initial input, revisions, and final course requests from faculty.

5. Selection of a total of two parents and two students from the volunteer makeup of the six teams. These four people will serve as members of the coordinating committee.
Fifth Week

1. Individual teams continue research and prepare presentations.
2. Individual teams prepare draft of pre-test.
3. Coordinating committee meets and evaluates progress being made by each of the teams.
4. First draft of pre-test to be turned in to coordinating committee from each team.
5. Preliminary plans for demonstration of building block are prepared by each team.
Sixth Week

1. Final draft of pre-test is submitted to coordinating committee by each team.

2. Teams prepare first draft of results of research on building block.

3. Teams prepare drafts of definition statements.
Seventh Week

1. First draft of recommendations for specific procedures in utilizing building block by different academic disciplines or departments.

2. Trial run of presentation of information on building block to team members only.

3. Team chairperson monitors every phase of work of the team to ascertain that parents and students are actively involved.
Eighth Week

1. Pre-test on large-group instruction administered to faculty.

2. Large-group instruction team makes presentation to faculty.

3. Pre-test corrected by team members and results made available to faculty before ninth week.

4. Distribution to faculty of written definition of large-group instruction.
Ninth Week

1. Large-group instruction team provides demonstration of mode of large group instruction to faculty.

2. Departmental assemblies are held to facilitate demonstration of large group instruction mode.

3. Demonstration techniques include use of overhead projector, microphone, two or more teachers, team teaching, one-way presentation, etc.

4. Administration of post-test on theory and faculty acceptance of large group instruction.

5. Correction of post-test by team and results distributed to faculty prior to tenth week.

6. Large-group team recommends number and types of large-group instruction to be used by different departments or disciplines.
Tenth Week

1. Administration of pre-test on small group discussion to faculty.

2. Presentation of the theory of small group discussion to faculty.

3. Correction of pre-test by team and return of results to faculty before eleventh week.

4. Distribution to faculty of information relating to various types of small group discussion.

5. Distribution of definition statement.
Eleventh Week

1. Demonstration of small group discussion techniques to faculty.

2. A minimum of four different types of small group discussion will be demonstrated making use of students.

3. Post-test on small group discussion theory and acceptance administered to faculty.

4. Results of post-test distributed to faculty prior to twelfth week.

5. Small group teams recommend amount of small group discussion to be used by each department or discipline.
Twelfth Week

1. Pre-test on independent study administered to faculty.
2. Presentation of theory of independent study to faculty.
3. Correction of pre-test by independent study team and results returned to faculty prior to thirteenth week.
4. Information sheet to faculty listing appropriate examples of independent study activities.
5. Distribution of definition statement on independent study to faculty by team.
Thirteenth Week

1. Demonstration to faculty of a minimum of six types of independent study making use of students as part of demonstration.

2. Administration of post-test on theory of independent study and acceptance by faculty.

3. Correction of post-test on independent study by team and results distributed to faculty prior to the fourteenth week.

4. Independent study team recommends use of specific types of independent study activities felt appropriate for each department.
Fourteenth Week

1. Administration of pre-test on resource centers.
2. Presentation to faculty of theory of operation of resource center.
3. Distribution to faculty of definition statement and information relating to use of resource centers.
4. Correction of pre-test by resource center team and distribution of results of faculty prior to the fifteenth week.
5. Distribution of lists of sample appropriate activities to be conducted in resource center.
6. Distribution to faculty of school floor plan containing names and location of recommended resource center areas for the school.
7. Correction of pre-test by resource center team and distribution of results to faculty prior to fifteenth week.
8. Distribution of sample staffing arrangement for an English Resource Center.
Fifteenth Week

1. Demonstration to faculty using students, teachers, and parents, or activities appropriate for resource centers.
2. Staff visits another school utilizing the resource center.
3. Administration of post-test on theory of resource center and acceptance by faculty.
4. Correction of post-test by resource center team, with results to faculty prior to the sixteenth week.
5. Explanation of floor plan and recommendations for specific resource centers for each department or discipline.
Sixteenth Week

1. Pre-test faculty on knowledge of theory and writing of behavioral objectives for courses.
2. Presentation to faculty of the theory of behavioral objectives.
3. Distribution of samples of team prepared behavioral objectives.
4. Distribution to faculty of recommended standardized forms and procedures for developing behavioral objectives in the school for each academic area.
5. Pre-test corrected by behavioral objectives team and results distributed to faculty prior to seventeenth week.
6. Distribution of definition statement on behavioral objectives.
Seventeenth Week

1. Demonstration to faculty on techniques of writing behavioral objectives.

2. Presentation to faculty of a method for writing behavioral objectives for an entire course over a period of one year.

3. Administration of post-test on knowledge of behavioral objectives and acceptance by faculty.

4. Correction of post-test on behavioral objectives and distribution to faculty prior to eighteenth week.

5. Demonstration of use of standardized procedure sheets for writing of objectives.

6. Faculty provides feedback to behavioral objectives team on revisions of standardized procedure sheets.
Eighteenth Week

1. Administer pre-test on the role of teacher-counselor to faculty.

2. Presentation to faculty of the role of the teacher-counselor.

3. Distribution to faculty of definition statement on role of teacher-counselor.

4. Distribution to faculty of proposed plan for organization of teacher-counselor in the school and recommended procedures for recruiting teachers and assigning students to teacher.

5. Distribution to faculty of recommended teacher-student ratios for teacher-counselor program.

6. Correction of pre-test by teacher-counselor team and return of results to faculty prior to nineteenth week.

7. Explanation of time commitments expected of faculty members desiring to be teacher-counselors.

8. Behavioral objectives team works on revision of standardized forms for writing of behavioral objectives.
Nineteenth Week

1. Demonstration of a minimum of four types of teacher-counselor interviews.

2. Administration to faculty of post-tests on the knowledge and faculty acceptance of the role of the teacher-counselor.

3. Correction of post-tests by teacher-counselor team and return to the faculty prior to the twentieth week.

4. Demonstration of suggested record system for insuring fulfillment of responsibilities as a teacher-counselor.
Twentieth Week

1. Large group team recommends to faculty proposed course constructions for each discipline utilizing large group instruction.

2. Faculty discussion concerning appropriateness of large-group instruction in any particular discipline.

3. Individual faculty members develop preliminary plans for the extent to which they will make use of large-group instruction as part of their particular course.

4. Large group team consults with and advises faculty members on how to utilize large-group instruction as part of their course structure.

5. Large group team recommends suggested allocation of time patterns throughout the week to insure availability of auditoriums and other large-group instruction areas.

6. Large group team presents to faculty lists of appropriate large-group instruction areas and related available equipment in the school.
Twenty-first Week

1. Small-group instruction team reviews list of recommendations to faculty presented in eleventh week concerning suggested uses of small group by various academic disciplines.

2. Small group team conducts discussion with entire faculty as to time patterns, length and frequency of recommended small group meetings for each academic discipline.

3. Teachers in each discipline attempt to work out weekly course schedules utilizing small group instruction as appropriate in that discipline.
Twenty-second Week

1. Independent study team reviews recommendations made in the thirteenth week to faculty for suggested independent study patterns to be utilized in each course.

2. Independent study group recommends approximate percentage of independent study time appropriate to courses in each academic discipline.

3. Teachers build individual model weekly course schedules with appropriate amounts of independent study for each course.

4. Independent study team submits to faculty series of policy statements and rules and regulations governing the operation of the independent study program in the school.

5. Faculty reviews and discusses independent study policy and rules and regulations.
23rd Week

1. Resource center team recommends to faculty suggested course patterns for utilizing resource center time.

2. Resource center team reviews with faculty suggested procedure sheets distributed in the fifteenth week for allocating teacher time to staffing of resource centers.

3. Teachers combine into departmental teams and attempt to build model schedule for departmental staffing of a resource center, utilizing all teachers in a department.

4. Resource center group provides complete list of suggested location of resource centers and combinations of academic discipline teams necessary to staff resource center if so required.

5. Resource center team provides recommendations as to procedures for equipping resource centers throughout building.

6. Resource center team provides recommendations for utilization of library and library materials in conjunction with resource centers.

7. Resource center team discusses with faculty distinction between general library materials to be kept in the library, and specialized resource center materials for storage and utilization in the resource centers.
Twenty-fourth Week

1. Recommendations to faculty on behavioral objective procedures to be followed for writing of behavioral objectives for each course.

2. Review with faculty the standardized procedure sheet for preparing of behavioral objectives distributed during the sixteenth week. This standardization will permit faculty members working in the same resource center, but teaching other courses, to be able to understand quickly the behavioral objectives written by a teacher in a different course.

3. Recommendations by behavioral objectives team giving percentages of behavioral objectives to be required of all students in a course, and percentage of individual behavioral objectives to be developed with each student. In the initial year approximately 80% of behavioral objectives will be the same for all students in a particular course and 20% will be individualized for each student.
Twenty-fifth Week

1. Teacher-counselor team recommends student-teacher ratio for each teacher, and compares with number of students to be served.

2. Recommendations given to the faculty on procedures for organizing teacher-counselor program.

3. Recommended sign-up sheet for selection of teacher-counselor or assignment procedure sheet will be submitted to faculty for consideration.

4. Allocation of time for role of teacher-counselor will be built into the schedule recommendations by teacher-counselor team.

5. Each teacher attempts to build into his or her weekly schedule of course meetings, the appropriate number of teacher-counselor interviews.
Twenty-sixth Week

1. Administrator in charge of scheduling explains to faculty parameters and constraints of the master scheduling process.

2. Administrator in charge of scheduling explains to faculty procedures for making out course-meeting patterns, requests.

3. Administrator in charge of scheduling distributes form sheets for submitting course-meeting schedule requests.

4. Each faculty member using appropriate forms submits the requested schedule of type of class meeting utilizing the six building blocks for each course taught.

5. Each faculty member will prepare first draft of his or her own schedule for entire week, showing utilization of time and allowing for inclusion of each of six building blocks and showing scheduled class meetings for all courses taught.
Twenty-seventh Week

1. Refinement of requested total week's schedule by individual faculty members as a result of putting together the total number of hours required by each of six building blocks.

2. Representatives of each building block team assist faculty members in redesigning their course construction so as to give them a workable schedule.

3. Faculty members compromise on desired course time allocations in order to work out scheduling difficulties caused by lack of student and teacher availability.
Twenty-eighth Week

1. First draft of master schedule is constructed by administrator in charge of scheduling, from schedule sheets of course requests submitted by faculty.

2. Each faculty member, or faculty team, attempts to schedule a minimum of one large-group instruction experience with students during this week.

3. Each faculty member, or teaching team schedules a minimum of two small-group discussion experiences with students for at least one course.
Twenty-ninth Week

1. Continuation of construction of first draft of master schedule by administration.

2. Each faculty member or teaching team plans a series of independent study experiences for his or her students during the week.

3. Faculty member of each department or discipline will plan the week's schedule so that each department member will be assigned to certain hours for staffing of the resource center, and the resulting schedule will permit the resource center to be opened all week to students. This plan will be implemented in the thirtieth week.
Thirtieth Week

1. Presentation to faculty by administration of first run of master schedule.

2. Review of master schedule by each building block team to determine degree of faculty utilization of building block as compared with their recommendations.

3. Each faculty member will prepare and utilize behavioral objectives calling for one-week completion date in at least one course with all students. Objectives will be given to students for completion during the thirty-first week.

4. Behavioral objectives prepared by faculty will consist of 80% required objectives for every student enrolled in course, and 20% individually negotiated objectives for each student.

5. Each faculty member will attempt to see individually a minimum of one half of the normal projected teacher advisory load during the space of one week. The teacher council work will be done in conjunction with the working with students on their achievement of behavioral objectives.

6. Resource centers will be staffed this week as planned by individual departments during the twenty-ninth week.
Thirty-first Week

1. Report to entire faculty by each building block team as to projected utilization of building block by faculty as evidenced by the schedule.

2. Recommendations by each building block team as to needed revisions in master schedule in order to utilize effectively the building block.

3. Faculty discussion concerning recommendations of revisions of schedule to accommodate building blocks.

4. Individual faculty members modify course requests to coordinate staffing of resource centers.

5. Faculty consensus and necessary decision making involving compromises are made to get a workable schedule.
Thirty-second Week

1. Each faculty member continues process of revision of his or her course construction requests and makes necessary adjustments to enable construction of a master schedule.

2. Scheduling administrator meets with individual faculty members and details compromises necessary to get workable schedule.

3. Department chairmen or team leaders again check and verify that revised teacher course constructions will still allow for full-time coverage of resource centers.
Thirty-third Week

1. Administrators construct revised master schedule.

2. Final resolving of philosophical and scheduling conflicts with view to getting workable schedule for the coming year.

3. Each building block team develops set of faculty regulations to insure smooth operation of building block.

4. Each building block team develops set of student regulations to insure smooth operation of building block.
Thirty-fourth Week

1. Trial run of entire master schedule for coming year for a minimum of two days and a maximum of five days during this week.

2. Faculty lists practical difficulties experienced during the week.

3. Faculty reviews proposed faculty and student regulations for the operation of the building blocks and makes suggestions to each team.

4. Each building block team makes final revisions of faculty and student regulations.
Thirty-fifth Week

1. Faculty reviews results of trial run of master schedule.

2. Faculty reviews faculty and student regulations and recommends revisions to appropriate teams.

3. Final draft prepared of policy statements and operating procedures and regulations for program.
Thirty-sixth Week

1. Organization of monitoring system whereby building block teams will provide a continual assessment during the coming year of utilization of each building block.

2. Formulation of a policy committee. Membership will consist of one member from each of the building block teams. Purpose of policy committee is to evaluate any new regulations that occur during the coming year as a result of discipline and other problems, to see that these regulations are still consistent with the philosophy of the building blocks as previously defined.

3. Distribution of faculty manual to faculty containing all the philosophy, plans, and documentation provided by each of the building block committees.
Summary

In this chapter, an overview of the thirty-six week process listed some of the significant components of the process. These components included organizational procedures, building block committees, teaching theory, demonstrating modes of instruction, participation of student representatives, teacher course designs, and participation of parent representatives. This overview was followed by a week by week time-table of responsibilities to be carried out by the participants in the in-service process.
CHAPTER V

ANALYSIS OF THE WORK OF THE COORDINATING COMMITTEE

Introduction

The thirty-six week exploration-trial-implementation process leading to the adoption of a variable modular scheduling format is a long and difficult one. The process is a many-faceted one and involves the simultaneous pursuit of a number of goals. Most educational innovations when implemented, occur in only part of the school or with a few of the faculty members. They may affect the entire faculty for one or more periods a day. The adoption of a variable schedule will affect the entire faculty, student body, and will require a major rescheduling of the time components making up the school day. The interrelatedness of the building block support systems require the simultaneous introduction and implementation of the six building blocks into the program.

The purpose of the coordinating committee is essentially to assure that the work of the building block exploration-trial-implementation teams is effectively accomplished, and integrated at the appropriate time in order to assure that the master schedule can be constructed and the program be ready for full implementation the following September.

Composition of the Coordinating Committee

Few factors are more critical in assuring the success of the thirty-six week in-service process than the composition of the coordinating committee. The committee is to be made up of the six chairpersons of the various building block teams. The principal and the administrator charged with the responsibility of building the master
schedule should also be ex-officio members of the committee and attend all meetings. Likewise, there will be two members from the parent volunteer group and two members from the student volunteer groups.

The teacher members of the coordinating committee will be those people who have been selected as chairpersons by their respective building block teams. The parent volunteer members of the group will be selected by the total membership of parent volunteers working with all six building block teams. The two student members of the coordinating committee will be selected by the sum total of student volunteers on the six building block teams.

The six teacher members of the coordinating committee, the two parent volunteer members, and the two student volunteer members will by vote select the chairperson of the coordinating committee. The principal and the administrator in charge of scheduling are not eligible for chairperson of the coordinating committee.

Authority of the Coordinating Committee

The coordinating committee has no authority in itself. All of its work, its directions and its decisions are made under the authority vested in the principal. The principal carries the authority and responsibility for everything in the school, and therefore has to be concerned about all aspects of the school operation. The coordinating committee has the specific responsibility to see that the work of the six building block committees and the exploration-trial-implementation process is carried through successfully to completion within the thirty-six week span. The principal will rely on this committee to see that specific responsibility is carried out and any executive decisions required by the principal at any point will be immediately placed before him or her by the coordinating committee.
Few people will need to be reminded that the essential operation during a given school year is for the faculty of teachers to provide an instructional program for a group of students. Besides the instructional program there will be the usual student activities, social events, field trips, report cards, graduation, and the many other events characterizing the school year. All of these events or activities have to take place and can seldom be delayed. On the other hand, in-service is nearly always an item which can be delayed for a week, or a month, or a year. It is always something that can be done later after more pressing demands have been met. It is for just this reason that the coordinating committee exists to provide what is essentially an advocacy position for the in-service process. It is the role of the expediting committee to see that the thirty-six week in-service process proceeds on schedule and without delay. Delay of even two or three weeks in the process will likely result in being unable to start the program during the coming September. The in-service process will require both a considerable and intensive amount of work on the part of each faculty member. It would be devastating to the morale of the faculty to find that after several months' work it will not be possible to start the program in the following September. The strict adherence to a schedule prevents that difficulty from occurring.

The complexity of the exploration-trial-implementation process may frequently appear overwhelming to individuals or to the faculty as a group. The recognition by all concerned that, if they follow the schedule they will arrive with a completed process, will be reassuring to all and give a sense of confidence to the group, in spite of the fact that the work itself may be overwhelming at times.

Relationship to Faculty and Building Block Teams

The coordinating team is made up essentially of
faculty members. They have been elected by their peers and should be looked upon as such. Any authority they have is only exercised through the principal. Their essential work is to monitor and facilitate the thirty-six week in-service process. Many people on the faculty will be working very hard and will be making great personal sacrifice in achieving the goals set for the various building block teams. These faculty members will find reassurance that their work will not be done for naught, because they will be aware that the coordinating committee will be monitoring the work of the entire faculty. They know that the coordinating committee will make known immediately to the principal and to the rest of the faculty any major difficulties being encountered anywhere in the process that will have the possibility of aborting the entire process.

Relationship to Administrator in Charge of Scheduling

In the final analysis, the construction of the master schedule will most clearly reflect the degree of success that the faculty has achieved by their exploration-trial-implementation efforts. All of the study and generation of ideas that has taken place will be of little avail if the scheduling coordinator is not able to translate these desires into a workable master schedule. If the person in charge of constructing the master schedule continues to think in terms of students meeting in groups of twenty-five or thirty, five times a week for the same amount of time each day, then he or she will view the ideas generated by the building block teams as a type of foreign language which is incomprehensible and impractical in terms of building the master schedule. It is most important that the scheduling coordinator be quite aware of all the thinking and steps being taken as the process evolves. It would
be the easier thing to say that each building block team should keep in touch with the scheduling coordinator to make sure that the scheduling coordinator will be able to practically schedule all their desires. If the thinking of the scheduling coordinator does not change, the answer will almost always be "no". Rather, it is more realistic to say that it is important that the scheduling coordinator continues to change his or her thinking about how a master schedule is constructed in accord with the new ideas being generated by the building block teams. As the year proceeds, it is essential that the scheduling coordinator visits other schools implementing this type of program and learns how to schedule it. If scheduling for the school is being done by computer, the coordinator needs to make sure that the computer facility has the capability of building a variable modular schedule.

Leadership Role of the Coordinating Committee

The role of the coordinating committee is not one that is normally found in the traditional faculty committees that spring up in every school. This fact may lead to a calling forth of previously unused and unrecognized leadership ability among the members of the faculty. For example, a faculty member may be really intrigued with the idea of being able to work on an individual basis with students in a resource center. Therefore, he or she may emerge in a strong leadership role on the resource center team, even though he or she may have shown a lack lustre performance in previous years on the usual curriculum committees. The functions of the coordinating committee call for much interaction with other faculty members. The interchange of ideas, the constant discussion of philosophical viewpoints, the changing of individual beliefs as new ideas are learned and assimilated, all of these things
provide new avenues for emerging leadership roles on the part of individual faculty members.

Inevitably, conflicts will arise. The conflicts can be philosophical as when two people disagree on an educational theory. They can also be practical. For example, one teacher has accepted the principles involved in independent study. He or she may find it impossible to find students available to work with because they are scheduled five days a week into other teachers' classes. The continuous compromise and adjustments necessary to ultimately arrive at a working master schedule often tend to bring out the leadership abilities inherent in members of the coordinating committee.

The coordinating committee also provides a very important function for the faculty. The thirty-six week in-service process places substantial and continuous pressure on most, if not all, of the faculty. Teachers will work very hard to prepare presentations, and may frequently meet with failure in their initial efforts. The pain of this failure may be heightened by the fact that it is a failure in front of their professional colleagues, as well as parents and students. Frequently, members of the coordinating committee will be able to publicly recognize and affirm the work that has taken place and provide support and encouragement to members of the staff so that they will be able to continue and sustain their efforts. It will also be their role to promulgate the work and efforts of different faculty members. This is important because there will be many faculty members who feel that they are doing more work during this thirty-six week period than they have ever done before in their career as an educator. It will be important for them to realize that others are doing as much work as they are. The knowledge of the commitment and dedication of other
faculty members will encourage them to continue with their own efforts.

It should be recognized that there is a substantial degree of peer pressure built into the thirty-six week process. Teachers will be reporting the results of their research to their colleagues. There will be parent representatives working alongside them as they do their research. These parents will be well aware of the tremendous efforts they are putting in, and will also be equally aware of shortcomings and imperfections in their work. The student membership on each committee will provide a direct communication of what is happening to the rest of the student body. Other students throughout the school, hearing about the building blocks being studied and demonstrated, will be asking questions of the faculty as to when and how these things will be implemented in the program. All of these items will tend to increase the amount of pressure on faculty members to come up with tangible and demonstrated results at the end of the thirty-six week in-service process.

When a faculty undertakes a task of the magnitude being imposed by the thirty-six week in-service process, it is impossible that the process will be completed without a significant effect on the faculty itself. The effect can be a most positive one or an extremely damaging negative effect. The effect can be most positive and result in a more unified and cohesive faculty with greatly increased professional and personal ties. This result is likely to occur if the coordinating committee has provided a responsible, supportive, as well as a strong monitoring and directive type of leadership that gets the process achieved on time. The effect can be negative and damaging if the coordinating committee fails in its responsibility to keep the faculty on schedule and to maintain the quality of reporting and demonstrating necessary. The result in the subsequent input
into the construction of the master schedule will be of similar poor quality. It is also true that the coordinating committee can assume such an inflexible stance that they literally drive the faculty beyond normal endurance levels. The result is that while the faculty may complete the thirty-six week process, they become so debilitated, discouraged, and angry that they simply do not care. The resulting low morale serves to scuttle the program almost as effectively as lack of planning and organization.

Tasks of the Coordinating Committee

General

1. The first task of the coordinating committee is to ascertain that all six building-block teams have sufficient volunteers on them to enable them to do their work. It may be necessary for the coordinating committee to encourage some faculty members to move to other teams to get a good balance. Also, they should evaluate whether each building-block team has at least one or two strong leaders on it.

2. The committee needs to check and make sure that each building-block team is making real efforts to recruit both parents and students. The principal will need to provide strong support to see that this is done. Teachers are frequently reluctant to have parents too closely involved and in a position to observe their work. The coordinating committee will soon find some teachers complaining that they are unable to recruit volunteers and desire to drop the effort. It will be important that the committee insist that the principal does everything possible to bring in recruits. The difficulty will generally not be in getting recruits, but in holding them. This may occur because parents are quite willing to help if they feel their talents are really being used. If they feel that they
are just being kept around for appearance and are not really being involved in the work, they will soon quit.

3. The committee will need to observe the same caution in regard to the recruiting of students. Teams will tend to have students present as observers, but will not invite them to actively participate. Teams will also have the tendency to recruit students only from the academically talented classes or from the student council and recognized leadership groups. The coordinating committee should discourage that practice and encourage teachers to recruit students from all aspects of the student body. Building block committees will find student input to be very useful in determining the practicality of ideas. Student feedback will be quite helpful in bursting the balloons of faculty idealism. At least some non-academic students, students who are frequently disciplinary problems, and students who have trouble in attending school, should serve on these committees. These students will be helpful to the faculty in designing policies and regulations to cope with students who have experiences similar to their own.

4. Initially, the coordinating committee should work very closely with the large-group team. It is vital that the team making the first report on their research and the first demonstration do an excellent job. The quality of the remaining five presentations and demonstrations is unlikely to rise above that of the first one.

5. It is important to insist that the pre-test and post-test material be in writing and submitted to the coordinating committee one week in advance. This assures not only that it will be done, but also material that is committed to paper and distributed is likely to be better prepared than material that is simply disseminated orally.
6. **Instructions** should be given to the faculty that when any material is prepared for distribution approximately forty extra copies be duplicated. The complete set should be brought to the office and three holed punched before distribution to the faculty. Each faculty member should be given a binder at the first session of the thirty-six weeks. Ten extra sets should be made up for distribution to new faculty members that will be hired during the summer to replace numbers that are leaving. Another ten sets should be made up by the office secretary for distribution to the members of the School Board at the end of the thirty-six week process.

7. Each member of the coordinating committee should be assigned monitoring tasks that will need to be repeated for each of the six building-block teams. For example, one member of the committee will be assigned to collect and review the pre-test for each of the six building-block teams. Another member will be assigned to collect and review the research summary documents from each of the six building-block teams. It may be suggested by a committee member that each committee member can more easily perform all these tasks for his or her own building-block team. This should not occur. If an individual building-block team fails to do its job, the person checking would be the same person who has failed to provide that leadership in the first place. Therefore, it is unlikely that the rest of the faculty and administration will become aware that there has been a breakdown in the plan.

8. The committee should elect the chairperson at the first meeting. The chairperson should arrange for a regular weekly meeting of the coordinating committee prior to the weekly meeting of the entire faculty. It should be clear that the purpose of these meetings is to determine if the teams are on schedule, deal with problems, and to take
appropriate actions. The actual work of monitoring or working with the individual building-block teams is done elsewhere.

9. An important responsibility of the coordinating committee is to point out to the principal the needs of the faculty and recommend time for meetings, working sessions, reports, etc. The principal will then make the appropriate decisions and communicate them to the faculty or permit the coordinating committee to do so.

10. In evaluating the research done by each of the building-block teams, the committee must be careful to see that the building-block teams keep their research very closely related to variable modular scheduling format. For example, in a school operating with a capacity number of students, it is unrealistic to talk of installing resource centers in the building if teachers are unwilling to stop meeting classes five days a week for a full class period.

11. The coordinating committee should make sure that students and parents are actively involved in each demonstration by building-block teams.

Large Group

1. Make sure large group team understands that large group instruction is essentially one way. Teams who have not researched carefully will tend to mix this mode of instruction with others. Particularly, they may want to introduce questions from the students at the end of lectures, etc. This is reverting back to the self-contained classroom wherein teachers use all modes of instruction in one location within one class.

2. Efforts should be made to encourage team-type presentations and team teaching in large-group instruction.

3. Insist on two or three classes hopefully of at least one hundred students being scheduled into the large-group presentation.
4. When teachers begin to schedule large groups for their courses, they tend to try to schedule them all on Mondays and in the a.m. time slots. Remind them that large group does not have to start off a week and a large-group presentation can be just as effective on Thursday as Monday, and even in the afternoon as well as the morning.

5. Large-group presentations longer than twenty to thirty minutes are suspect.

6. Large groups should not meet more than once or twice a week.

Small Group Discussion

1. Small group size is ordinarily eight to twelve students.

2. Caution teachers against lecturing during small-group discussion or in excessive teacher talk.

3. Small groups should ordinarily meet two times a week.

4. Teachers when building their course schedule will tend to forget that when they split a class of thirty into two small groups they have doubled the amount of teacher instructional time. Therefore, they have to be careful about scheduling very many small groups, or they will not have sufficient time in the week to handle them.

5. Small-group exploration-trial-implementation teams tend to neglect to explain adequately the different types of small-group discussion. The result is that faculty members seldom learn more than one method of small-group discussion.

6. Most faculty members are convinced they already know how to conduct small group discussions. Therefore, they tend not to listen very carefully. Caution has to be taken to make sure that the pre-test is done well so that the faculty will realize they have much to learn on this topic.
7. If the school counselors are not sure what groups to sign up for, it is good to have at least one counselor as a member of the small-group discussion team.

**Independent Study**

1. Teachers are generally shocked at a recommendation that students should be allowed thirty to forty percent unscheduled time for independent study. It is important that the independent study team statistically determine the amount of unscheduled time in the school's present conventional schedule and convert that to a percentage. Generally this will average fifteen percent or above. With this knowledge the faculty is not so disturbed at going to thirty or forty percent unscheduled time.

2. It is important for faculty members to realize that independent study does not mean independence from supervision as to accomplishment. It simply means a choice of assignment or work which may be different from that of others and may take place without direct classroom supervision at the time the work is being actually done.

3. An extensive list of typical independent study activities should be prepared by the independent study team.

4. Faculty members will tend to suggest that for the first year relatively little, if any, independent study time be allocated until students can learn responsibility. Too little independent study is worse than none at all. Students need enough time for independent study so that they will find it worthwhile to go out and begin a project. If they only have fifteen minutes available at a time, they will be more likely to waste it, than if they had an hour in which they could start on a project.

5. Teachers need to remember that the school is here to teach. This is also the case with responsibility
in the case of independent study. Students cannot learn responsibility in the use of their time without having opportunities to make responsible use of time. This implies mistakes and time wasted as students learn.

**Resource Center**

1. Make sure resource center team identifies appropriate classrooms, etc. for conversion into resource centers.

2. Ordinarily in a school of one thousand students, two classrooms are needed for English, two for Social Studies, and two for Math. The Science Laboratories, the Home Economics Labs, the Industrial Arts Labs, serve as the resource centers in those areas. No classrooms need be converted for these purposes. The foreign language department needs one classroom. In smaller schools where the faculty is not large enough to staff the centers, the English and Social Studies Centers can be combined, Math and Science can be combined, Language can be put in the rear of the Language Lab.

3. There are three essential ingredients of resource centers; - teachers, students, and materials. Teachers will begin to talk about using aides rather than teachers in the resource center. Discourage this.

4. Teacher offices should probably be moved into the resource centers themselves except in certain situations. If teachers are allowed to work in private teacher offices, they will be unable to staff resource centers and to be available to students.

5. Teachers should have a desk and a filing cabinet in resource centers. It is quite likely that they would have to share a desk with at least one other teacher, since they will not be in the center throughout the entire day.
6. Resource centers must contain large quantities of materials. Specialized materials may be transferred from the library itself, but general reference material should be retained in the library.

7. Librarians should assist resource center teachers in preparing adequate methods of filing and keeping control over printed materials and books.

8. Insist that resource centers be available for use as resource centers the entire day and that no classes be scheduled into these centers. Centers that are also used as classrooms rarely succeed as resource centers.

9. Students should not be assigned to resource centers in groups.

10. Resource centers are not considered study halls or holding areas. Individual students may be assigned on a temporary basis for a particular project.

11. Students should be allowed to come and go in the resource centers and the length of stay determined by the length of their project and their own needs to do other work.

Behavioral Objectives

1. It is important that early in the year a commonly accepted format for the writing of behavioral objectives be adopted by the faculty. This format should then be reproduced in outline form. Then teachers can simply type in the actual behavioral objectives themselves.

2. It should be recognized that for the first year of implementation teachers should probably keep a week or month ahead of the students in preparation of behavioral objectives. They will be learning so much, and making so many revisions that it would be a waste of time to complete all objectives for an entire year in advance.

3. In writing behavioral objectives, faculty
members would probably find it helpful to split the course into units and then start off the units with a large-group instruction. With a maximum of thirty-six large-group instructions, they may want to make use of three or four large-group instructions per unit. The small-group activities, projects, and behavioral objectives would tend to fall in fairly quickly after the large-group determination is made.

4. Teachers developing behavioral objectives for the first time may tend to make long-term assignments, such as thirty-page themes. The difficulty encountered here is that they may tend not to do any checking until the project is completed. Students will wait until the last week to start the project. The solution is to require outline the first week, rough draft the second week, etc., etc.

5. When starting out most teachers should write eighty percent of behavioral objectives to be the same for all students in the course. This is similar to group homework assignments given in previous years. Variation there may be in that assignments are for a week instead of over-night, and can be handed in and checked individually. The remaining twenty percent could hopefully be individualized for different students and would form the basis for work that the teacher does with individual students in the resource centers.

**Teacher-Counselor Role**

1. It is critical that adequate time be allocated in the daily schedule for the teacher-counselor role.

2. Much of the work done in the resource center with individual students can be considered as part of the teacher-counselor function.

3. Teacher-counselors should see students a minimum of every two weeks. Teachers will suggest that
this is too often, but the program will likely be unsuccessful unless this procedure is followed.

4. The relationship with the student is the important aspect, and each student should have one adult who cares about what happens to him or her.

5. The relationship should be essentially a helping one, not a checking, monitoring one, except where necessary.

6. No teacher should have more than ten to fifteen students as part of this teacher-counselor role.

7. The school psychologists and counselors should screen teachers volunteering to serve in the role of teacher-counselor. Immature teachers, teachers with severe emotional problems of their own, teachers who "want to be one of the kids" should all be screened out from serving in the teacher-counselor role.

8. A list of teachers who are volunteering to serve in the teacher-counselor role should be posted on the bulletin boards or given to students for their selection. Students should be given a form in which they list their first, second, and third choice and then turn it in. They should be told that every effort will be made to give them the teacher-counselor of their choice, but that it will be impossible to accommodate all of their desires. The administration then goes over these requests later and gives as many first, second, and third choices as possible to the appropriate teachers. This procedure avoids making it obvious as to what teachers are popular or not. If certain teachers have no students at all requesting them, the psychologists and counselors would do well to re-evaluate their screening process.
Summary

In this chapter an in-depth description is given of one of the components of the thirty-six week process, namely, the coordinating committee. The purpose of the coordinating committee is to assure that the work of the building block exploration-trial-implementation teams is effectively accomplished, and integrated at the appropriate time. This will assure that the master schedule can be constructed and the program be ready for the following September.

The composition and authority of the coordinating committee, its relationship to the faculty and building block teams, its relationship to the administrator in charge of scheduling, and the leadership role of the committee is discussed. Finally, the tasks of the coordinating committee, in relation to the six building block teams, are listed.
CHAPTER VI

CONCLUSIONS

Potential Problems

The introduction of variable modular scheduling into a school is fraught with problems. It is probably true that if one could objectively evaluate all the schools that have attempted variable modular scheduling after a five-year period, one would find that the great majority of those schools have failed in their effort to implement the program and have returned to a more conventional program. Some general questions will be listed here in order to assist schools to avoid being trapped in difficulties that have beset other schools.

It has to be recognized that it is the nature of the human species to resist change. Administrators sometimes gloss over this by making comments that teachers are lazy and unwilling to try new things. The fact is that even the very best of teachers experience substantial difficulty in making changes. This is particularly true when what they have been doing appears to have been working reasonably well for them, and the new experience is as yet unproved, at least to them personally. It is anticipated that a major part of the concern and uneasiness connected with the change process will at least be partially allayed by the deep involvement in the change process and the decision making process by each teacher on the faculty. The reliance on a well-planned thirty-six week schedule of activities should bring much confidence to the faculty concerning a solid direction and an assurance of reaching the goal. Their control over the process itself by means of the expediting committee and the clearly defined building-block team should assist the faculty in feeling that they have
control over their own destiny. The team effort and realization of the work being done by other members of the faculty should also be a means of great support to each faculty member.

Another potential problem will be the sense of discouragement and frustration that will likely be experienced by the faculty as they begin to sense the entire magnitude of the task at hand. The greatest likelihood of occurrence of this particular event will be in January or February of the year. This slump, incidentally, will correspond with the similar slump experienced by faculties at this time of year when there has been a long period without holidays, and the weather is at one of its most depressing times of the year. The morale factor is capable of plunging even lower in a school going through the thirty-six week process because of the larger magnitude of the problems confronting the faculty.

As the process proceeds, there will be moments or weeks of panic. This panic will hit the faculty as they begin to sense that they are moving through a process which will reach an inevitable end, and one which seems to keep going and which no one has the power to stop. At the same time, the communications of what is going on has been extended to parents, community, the Board, the administrators, and the students. All are watching and anticipating the program will be implemented. Increasingly, each faculty member feels tremendous outside pressure to succeed. Whereas other changes and innovations frequently only involved a few people or departments, this program involved the entire school and community. This type of panic may appear without warning and may reappear on occasion throughout the thirty-six weeks. The coordinating committee or principal will need to be sensitive to this problem and attempt to reassure
the people involved that they are doing well and fulfilling all expectations.

As the process moves along, it will become obvious that there will be a few teachers in the school who will be substantially opposed to the introduction of the variable modular schedule. It is essential that the feelings of these people are respected and they are treated in a professional and humane manner. Their differences may result from basic philosophical conflicts with the principles being espoused. It will be found that some of these people will be "converted" to the new way of thinking. It should also be recognized that some will not be "converted". It will be found that some of these people are succeeding quite well in their teaching through means of a very traditional format. It will be possible for the school to operate the new program as long as the percentage of teachers continuing in the conventional manner remains small. If a substantial number of the faculty refuse to accept the new program, that is much more than fifteen to twenty-five percent, then there is a serious problem. This problem will surface most directly as the teachers begin to prepare their personal course structures for the coming year and submit them to the scheduling coordinator. At that point the principal and coordinating committee need to look closely at what is happening and bring this to the attention of the faculty so that decisions can be made.

It will also be assumed that the major problem in implementing a program of this nature will be obtaining the cooperation of students. This generally translates into a faculty-expressed concern that students will be unable to accept the responsibility for the use of their unscheduled time. In reality, this approach fails to get at the source of the problem. The great majority of students will tend to do pretty much what is expected of
them in school. They have learned for years that success in schools, (that is, getting moved on to the next grade) is accomplished by doing whatever the teacher requires. That is, study certain chapters, learn certain material, pass certain tests, participate in class discussions, and avoid causing disorder in the classroom. When instituting a program of this nature, teachers frequently make the mistake of simply "telling" students that they should be responsible and should go and study or do projects during their independent study time, but fail to make the results of that study part of their grading system. Students will consider as important the same things that the teacher places emphasis on and considers as important. For example, if a teacher insists that individual work in the resource center on projects is important, then the student will see it is important and do what is required.

Critical Leadership Role of the Principal

Dr. J. Lloyd Trump, Associate Secretary for the National Association of Secondary School Principals, made the statement that the principal is the most important person in the school. Many people would be disturbed at this statement. Some would say that the child is the most important person in the school because the school exists for the education of the child. Others would say that the teacher is the most important because that person has direct contact with the child and provides the education. Dr. Trump feels that the principal is the most important person because the principal is the one person who can be more effective, or devastating as the case may be, in terms

154 Dr. J. Lloyd Trump, Address to Workshop on the Leadership Role of the Principal, February, 1968, University of Illinois, Urbana, Illinois.
of supporting or discouraging the good results that might be obtained by any teacher. Almost any school has a complement of excellent teachers, average teachers, and perhaps some mediocre ones. It is the principal who can be most effective in encouraging and removing roadblocks for the most effective teachers, in spurring on and assisting the average teachers, and stimulating any mediocre ones on the staff. If the principal fails in this responsibility, it leaves a void that is almost impossible for anyone else to fill.

A delicate balance has to be maintained by the principal in providing a leadership role to the faculty as the thirty-six week in-service process evolves. On the one hand, the principal must display a leadership style which allows for the evolution of strong leadership patterns on the part of individual faculty members and on the part of the coordinating committee. Once the program is in operation, its continued success will depend to a large extent on the commitment of the faculty and the exercise of responsible leadership on the part of individual faculty members. Therefore, during this thirty-six week in-service process, it is important that the leadership ability of those individual teachers is exercised and allowed to evolve.

On the other hand, if the principal stays too much in the background, the faculty will get the impression that he or she is not really interested or concerned. Likewise the principal will be unaware of what is taking place and when problems arise, the tendency will be to drop the program rather than to solve the problems. The principal, therefore, will need to be circulating constantly among the building-block teams. He or she will need to show interest and assist and encourage the teachers as they go through the process.

One of the most difficult tasks confronting the principal, and one which will require the greatest
leadership ability will be the task of resolving differences between faculty members. Specifically, faculty members or building-block teams will determine that they will want to make modifications to the recommended program as they develop different perspectives or philosophical concepts. The principal will need to study this carefully. He or she will need to differentiate between modifications that simply provide for better utilization of physical facilities, faculty talents, and recognize inherent difficulties proper to this particular school. This is a proper function for adjustment strategies on the part of the principal. He or she must, however, avoid allowing adjustments in the program that really represent a basic change in philosophy, or the dropping or substantial change in one of the six major building-block support systems. For example, if the principal were to agree that students would only be given five or ten percent independent study time during the first year, it would be impossible to free up teachers sufficiently to staff the resource centers. Students also would not have time available to work in the resource centers. Likewise, there would be no time for either teachers or students to participate in the role of the teacher-counselor. This then would represent a major change which would jeopardize the success of the entire program. The principal needs to be extremely alert to point out the implications to the faculty when modifications are presented.

The principal will show a strong leadership in providing good communication systems with the faculty, student body, and community. People feel much more at ease when they know what is going on and do not feel that things are being kept from them. By means of frequent faculty meetings, written communications to faculty and students, as well as parents, the principal will keep open the lines of communication.
A principal needs to provide strong personal support to the faculty. While this is true in any school, it is most critical during the thirty-six week exploration-trial-implementation process. The principal needs to recognize that for most, if not all, of the faculty, the effort involved in the thirty-six week period will represent the most significant professional effort that the individual teacher has known. Besides making this effort, the period will represent a somewhat traumatic period of adjustment in anticipation of one's use of time during the school day. The faculty member then will be spending much more time in all this preparation and also expending much more psychic energy in dealing with the preparation. The result is a substantial amount of fatigue and feeling of tremendous work involvement. The principal will need to reassure these people that such work is recognized and appreciated as well as being necessary and helpful in accomplishing the planned process.

Discipline, Policies, and Regulations

As the work of the building-block teams, the coordinating committees, and the administration draws to a close, it will become apparent that the school will be operating in an entirely different manner with the beginning of the September term. It will be important that the new philosophy be stated in printed form and be in the hands of all faculty members, parents, and administration. These educational philosophy statements will form the basis for the revision of the discipline, policies, and regulations. A minimum of six educational policy statements coming from the building-block teams will provide the initial input for the statement of policy. Additional policy statements will
be needed to be developed by the principal, administrators, and faculty to define clearly the new program.

It is essential that a complete review be made of existing disciplinary regulations. Frequently this is not done. Then one or two months into the new school year when students begin to act up, the principal and the staff quickly formulate regulations to bring about student control. These regulations frequently ignore the philosophical principles upon which the program was built. With some care it is quite possible to develop regulations which are effective in regulating student conduct, but which do not hinder the operation of the six building blocks of the variable modular schedule. For example, when it is noticed that there is noise caused by movement of students in halls, principals are quick to institute regulations allowing students to only move between rooms every hour. This effectively makes almost impossible the operation of the teacher-counselor program, and seriously limits the ability of students to move in and out of resource centers.

The problem of enforcement of school regulations also is a serious one. It has to be recognized that a small percentage, usually about five percent of the student body, will ignore regulations in either a conventional or a variable modular scheduled school. Administrators and teachers embarking on a variable modular schedule tend to forget this fact. They feel they can introduce regulations to control this five percent of the student body. Usually these regulations are put on the entire student body and have the effect of diminishing freedom of movement for the ninety-five percent who are not abusing it and the other five percent continue to ignore the new regulations. A penalty is then levied on the five percent who fail to observe the new regulation. It would have been better to simply not have the new regulation and penalize the five
percent who are disturbing the good order of the school. Students who ignore legitimate regulations should be penalized in a firm and efficient manner. Privileges should be removed.

When the regulations are fair, well explained to all concerned, and enforced in an even reasonable manner, the administration and faculty will frequently find that the student body itself will assist in the enforcement of regulations. The logic is simple. Students become quite aware that if other students abuse the privileges, they will lose these privileges as well as the students who abuse them. This psychology, if adeptly tuned in to by administrators and faculty, can be quite helpful in controlling difficult situations. There are also certain strategies that can be used to encourage student cooperation. One administrator indicated that all money saved from the amount budgeted for vandalism repairs would be used to equip a student lounge. The vandalism repair costs in that school dropped to fifteen percent of the cost the previous year.

Community Concerns

Parents and members of the community frequently see the school as a direct preparation for college. They become uneasy at the prospect of their children having independent study during the school day. They equate the freedom to make decisions about the use of one's own time with making poor decisions and totally wasting the time. Frequently, the time allowed for independent study in a variable modular scheduled school really represents time that many teachers allowed in the final third of the classroom period for students to begin working on their homework. No active instruction was given at that time. The only difference in this situation is a more controlled
supervision rather than a loss of instructional time. Students also are usually required to spend the remainder of the period working on the subject that has just been presented. They may well have a test the following period or other studies that are more pressing, but this is frequently ignored.

Many parents are concerned about the school providing opportunities for students to make choices about the use of their time. They are convinced that students will waste most of this time and feel that they should be required to stay in the classroom and be given direct instruction most of the time. At the same time, parents believe that schools should prepare children for life. The principal and staff need to present clearly to parents the fact that one of the major challenges in life is to be able to make appropriate decisions about the use of one's time. Many students each year enter college after going through a rigid elementary and secondary program of preparation. They have done well because they have always done pretty much what they have been told to do by teachers. When they hit college and find themselves with all sorts of free time and have to be responsible for the use of that time, they often find themselves totally unable to cope with this new freedom and subsequent responsibility. Parents should be helped to understand that the secondary school with the variable modular schedule assists the student by gradually giving him some of this freedom. At the same time, teachers and administrators in the teacher-counselor role will be close by to assist that student in learning how to make responsible choices in the use of that time. Parents, teachers, and administrators, as well as the community, need to recognize that students will make mistakes as they learn to accept this responsibility. Administrators
and teachers frequently panic when they see students failing to accept this responsibility and immediately are inclined to drop the entire program. They should realize that this merely is an indication of the great necessity for them to make more efforts in providing students with the opportunity to learn responsible decision making. Students simply have demonstrated that they need more controlled and supervised experience in decision making. The answer is not to close up the system and return to tight controls so that they have no opportunity to waste time. This approach postpones until later years the inevitable learning process that should be accomplished in the schools.

The school program should be opened to visitors. Parents and members of the community should have ready access to the school. However, the principal and teachers need to remember that difficulties will be encountered in the first year, and everything will not be happening in the way desired by the administration and faculty. Therefore, an orientation should be provided to school visitors when they first come into the building. An open explanation, perhaps by slide and tape presentation, should be given to the visitors explaining the philosophy of the school. It should be explained clearly that the school is in process and the program represents goals towards which the faculty, students, and administrators are working. Frank acknowledgement should be made of the shortcomings and the subsequent efforts to overcome the difficulties that are happening. If the community is going to support the school, the administration and staff have to be honest with them as to the problems that are occurring and attempt to keep them in the proper perspective.

Suggestions for Further Research

The process of change described in the thirty-six
week program is exhaustive. In each succeeding year, the faculty and administration will need to make continual revision and adjustment to the program. It would seem that in terms of further research a valuable contribution could be made by attempting to organize and plan an ongoing process that could be used on an annual basis. This process would be used to enable teachers and administrators to keep up to date and to make revisions as the need indicates. Our society is a continual state of change and fluctuation. We seem to have done little in the public schools of this country to develop an ongoing change mechanism or process for dealing with this constant situation.

Some academic institutions have dealt with this problem by saying that programs will be automatically phased out after a certain period of years unless justification is given for continuing them. The idea here is to continually inject new blood and new ideas. It would seem that a difficulty with this approach would be that some, if not many, people would spend a good part of their time preparing a defense for the continuation of their program rather than attempting to improve the program or to look seriously at other programs.

Another area in which further research would be beneficial would be individual studies of the effectiveness of each of the six building blocks. For example, a study could be instituted concerning usage and effectiveness of the teacher-counselor program. An evaluation by students would be most helpful in improving this program.

An additional area of research could be concerned with the relationship of the school library to the materials contained in the resource centers. This might help to avoid duplication of materials. Efforts could be made to provide more in-service for teachers to help them to handle
materials and to use them properly in the resource centers. The job descriptions of the school-wide librarian and aides might be revised to further support the use of the resource centers.


Allen, Dwight W., Teachers Are Not Interchangeable Parts, Stanford University.


Allen, Dwight W., Kessler, Robert E., A Differentiated Teaching Staff, Stanford University.


Baillargeon, Jarvis H. "Don't Be Inflexible About Flexible Scheduling." School Shop 29: 42; December, 1969.


Brammer, K. "How To Plan a Flexible Schedule." Industrial Arts and Vocational Education 57: 44-45; December 1968.


Cawelti, Gordon, "Special Study: How High Schools Innovate" Nation's Schools, April, 1967.


Dieterich, Daniel J. "NCTE/ERIC Summaries and Sources--The Mod. Mod. World of Flexible Modular Scheduling." English Journal 60: 1264-71; December 1971.


Dunlop, Richard S. "Toward Improved Professional Practice Under Flexible-Modular Scheduling." Journal of Teacher Education 19: 159-64; Summer 1968.


Dunn, Rita le Kenneth Dunn, Practical Approaches to Individualizing Instruction: West Nyack, N. Y. 1972.


Goodlad, John I., "Planning and Organizing for Teaching." National Education Association Project on the Instructional Program of the Public Schools.


Heathman, James E. and Nafziger, Alyce J., "Scheduling for Flexibility" Las Cruces, New Mexico. Educational Resources and Information Center and Clearinghouse on Rural Education and Small Schools. ERIC/CRESS (ED 056 820).


Inskeep, William, The Effectiveness of a Multiple Media Approach in Teaching Certain Concepts in High School Chemistry, Dissertation Abstracts, 29, 619A.


Kenney, James B. "What Can Computer Scheduling Programs Do?" Nation's Schools 82: 64-66; November 1968.


McQueen, Mildred, "Individualized Instruction," Education Digest, April, 1971.


Miller, Marjorie, Letter to Dr. J. Lloyd Trump, Bulletin of NASSP, September, 1966.

Miller, Peggy L. "Innovation and Change in Education." Educational Leadership, January, 1970.


PAEI, Research and Development Center for Teacher Education, University of Texas at Austin, 1975.


Roms, Dennis E. "Small Group Instruction" Westinghouse Learning Corporation Monograph, IV, 2.
Rems, Dennis, Teacher In-Service Education and Flexible Modular Scheduling, Iowa Coty, Iowa. Westinghouse Learning Corporation Monograph, Vol. III, No. 3.


Same: Industrial Arts and Vocational Education 56: 70-71; March, 1967.


Thomson, Scott D. "Beyond Modular Scheduling." Phi Delta Kappan 52: 484-87; April, 1971.


Vorlop, Frederic, and Sheridan, T. J., A Study to Determine Achievement Progress of Delavan-Darien High School Students During the 1968-69 School Year, Delavan, Wisconsin, 1969.


Williams, Homer, A Comparative Study of Two Patterns of Class Organization in the Teaching of High School Chemistry, Athens, Georgia, University of Georgia, 1966.


