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By-Wiley, W. Deane; Bishop, Lloyd K.

The Basic Case for Variable Class Scheduling.

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Although the master schedule is the foundation of the secondary school, very few administrators have had any background in its construction. Scheduling is a complex task even for the traditional equal-time-for-each-subject scheduling. Scheduling should take into account the methodology and learning process of the school. The prime scheduling variables--time, teachers, students, facilities, and curriculum--each have peculiar sets of circumstances and limitations surrounding them and must fit into a complex but complete picture for a proper scheduling rationale to be developed. The allotment of instructional time should vary according to the individual subject. Teachers should be given more preparation time during the school day. Students should be given more responsibility for their own education, especially in the area of free time. Facilities should be more fully used by keeping classrooms in constant use and by providing teachers with individual offices. Curricula 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. It is the principal's role to see that changes are made. (HW)

THE FLEXIBLY SCHEDULED HIGH SCHOOL

Wiley and Bishop

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By W. Deane Wiley and Lloyd K. Bishop

Parker

THE FLEXIBLY SCHEDULED HIGH SCHOOL

W. Deane Wiley
Associate Professor of Education
New York University

Lloyd K. Bishop
Principal
Claremont High School

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THE FLEXIBLY SCHEDULED HIGH SCHOOL

by **W. DEANE WILEY**
and **LLOYD K. BISHOP**

Today, more and more high schools are using computers to set up a more flexible and efficient master schedule. This book, written by two specialists in the field, explains how your high school, whether large or small, can use a *practical, budget-minded* program for implementing computerized scheduling.

This book is the latest, most comprehensive report on flexible high school scheduling by computer. In easy-to-read, quick-paced chapters, it gives you all the charts, illustrations, and step-by-step procedures necessary for a thorough understanding of the use and benefits of computerized flexible scheduling on the secondary school level.

You'll see how a computer, at relatively low cost, can prepare your school's master schedule better and faster than any manual method could ever possibly do. All you do is supply the necessary information—the computer does the rest. Not only will you and your staff save hours of tedious work, but you'll also have the best possible master schedule . . . a master schedule that can:

- Save hours of wasted teacher time per week
- Induce students to shoulder more of the responsibility for their education
- Derive maximum efficiency from all the school's facilities
- Tailor each student's program to suit his individual needs
- Offer much greater flexibility in course offerings
- Give teachers more free time during the week without hurting the budget
- Satisfy both teacher and student time preferences much better than manually designed schedules could ever do
- Provide dynamic new methods for scheduling such subjects as art, music, speech, creative writing, drama, homemaking, journalism, and industrial arts

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- End the annual headaches which usually accompany the master schedule

With the practical pointers and clear-cut guidelines presented here, you'll know for certain whether or not your school should implement computerized scheduling. And what's more, you'll have all the techniques, forms, and procedures necessary to make such an implementation a smooth, trouble-free process.

ABOUT THE AUTHORS

Both Dr. Wiley and Dr. Bishop are writing from firsthand experience, for both men were the key figures in Claremont High School's changeover to computerized scheduling. Both men pooled their talents in setting up the system, ironing out its wrinkles, and making it work to produce one of the most dynamic and effective master schedules in the nation.

W. Deane Wiley, Ph.D., now is Associate Professor of Educational Administration at New York University, New York, where he is also the Director of the Administrative Intern Program, as well as the Deputy Head of the Division of Administration and Supervision. He writes with special insight into administrative and educational problems and has been involved in scheduling as a counselor, vice-principal, and principal.

Lloyd K. Bishop, Ph.D., the principal of Claremont High School, Claremont, California, has taught on all levels of education from junior high through graduate school. He has been a lecturer at the University of Toronto, Canada, and an instructor in Education at Claremont Graduate School, Claremont, Calif., as well as the co-director of the Scheduling Workshop at New York University, New York. Dr. Bishop has also served as an advisor to the California State Colleges of San Diego, Hayward, and San Fernando. His dynamic administrative techniques have been used widely in numerous school districts throughout California.

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FOREWORD

This book will appeal to administrators and teachers because it deals with a practical problem in school administration, the secondary school schedule. Moreover, it deals with that problem in a way—a how-to-do-it way—which practicing schoolmen have needed for a long time. However, the theoretically oriented student of educational administration, particularly if he is concerned with educational innovation and change, should not neglect this book or the educational engineering contribution it makes to school administration and curriculum change. *The Flexibly Scheduled High School* is important and rare because it meets a real need in education while so many books identify a need but go no further.

The school problems dealt with by Wiley and Bishop are like so many educational dilemmas of our day, products of previous solutions to major educational confrontations of an earlier period. The sociologist has long understood that the introduction of a new social structure to solve an organizational problem often carries with it unanticipated consequences. These frequently have a dysfunctional effect upon the organization. The Carnegie Unit, and the conventional secondary schedule it produced, illustrate the process. Bound to the Carnegie Unit, most high schools find themselves imprisoned by the conventional schedule with its "sacred" forty-five minute, five-day-a-week straitjacket. However meritorious, all subsequent curricular innovations and adaptations, whether intended

to reflect the society's needs or the individual's predictions, have led to major confrontations with the conventional schedule. The structure and form rather than the content and meaning of the educational innovation frequently dominate the outcome.

For two generations students of education, ranging from the philosopher to the curriculum worker, including advocates of the extreme positions of life adjustment or basic education, have known that the conventional secondary schedule, regardless of its virtues as a system of educational bookkeeping, is learning nonsense. The need to break out of the straitjacket has been expressed by people in education for a long time. As is often the case in education, however, the difference between knowing what is needed and knowing how to implement change resulted in pleas to adapt, innovate, and break the old mold; but most schools continue business as usual. In the case of change in conventional schedule, the engineering job needed between the idea and the act was not accomplished until recently. Perhaps it could never have been realistically accomplished until the computer age. In any case, it has now been effected and field-tested in a number of schools.

Wiley and Bishop report the story of how it was done in one school. They are admirably suited to write this book because they are reporting firsthand experience. Moreover, they are both trained in observation and descriptive reporting. They realize that the flexible or modular schedule will not of itself make incompetent teachers into competent ones, poor programs into good curricula, or a weak administration into a strong one. They do believe, however, that it will provide a practical means toward eliminating one rigid barrier which now stands in the way of making schools more able to successfully fulfill their function in a free society.

The injection here of a personal note may not be amiss. I was privileged to know both of these authors as students, and I lived through part of the changes they write about, as a parent in the Claremont School District. Until that experience I had always taken the position that changes in school programs and schedules were rather meaningless. In the ferment for educa-

tional innovation, however, the modular schedule in the high school, coupled as it was with the careful process of administrative teams, could become a vital tool toward educational improvement. Even after becoming convinced of this, I watched with fear and trepidation the reactions of the community and teaching staff.

The initial shakedown took less time than I feared. Most of the community and pupils adjusted quickly and well to these developments. More exciting from my point of view was the effect on the staff, some of whom I encountered as graduate students. Their work seemed to make more sense to them than is usually found with experienced, too often jaded teachers. If breaking out of conventional secondary schedule did nothing more, it would be worthwhile. But it does more. It offers a hard-headed, realistic opportunity for putting educational innovations in curriculum and new knowledge in teaching to work.

To date, this book provides the best operational report and suggestions to that end. The Claremont School District, with its Board, administrative and teaching staff, and its pupils, together with these authors, has made what will be a valuable contribution to schoolmen struggling with the artificial restrictions of the past.

LAURENCE IANNACCONE

Professor of Educational Administration
and Supervision
New York University
School of Education

COMPUTERIZED FLEXIBLE SCHEDULING: WHAT IT'S ALL ABOUT

Although this book has been written primarily for high school principals, it will also be of interest and value to all administrators concerned with secondary education, as well as teachers with professional curiosity, school board members, and serious students of secondary education desiring general information on computerized flexible scheduling. It does not delve deeply into the theoretical aspects of scheduling,[1] although this omission should in no way cause the reader to overlook an inherent theoretical approach.

The chapters that follow will describe Claremont (California) High School's experience with computerized attempts to build a flexible-modular class schedule. These attempts were made to meet a five-point objective:

1. To expand and develop curriculum.
2. To permit use of flexible time patterns.
3. To further the professionalization of the teachers.
4. To implement new instructional methods.

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[1] For those readers interested in a more theoretical explication of the computerized scheduling process, the authors would refer them to an unpublished paper by R. V. Oakford, D. W. Allen, L. A. Chatterton, "School Scheduling Theory and the Stanford School Scheduling System." Obtainable from the School of Education, Stanford University.

5. To inculcate upon the students some degree of responsibility for their own education.

After four years, we believe our experience has put us a long way toward meeting these objectives, and will continue to assist us in the years ahead. While no two high schools in the country have the same situations or problems that faced Claremont, the Claremont experience should be valuable to all, since few schools would quarrel with its objectives.

The success of the program described in this book is not limited by geography or school size. In Appendix A is a list of high schools using the program. The list extends from coast to coast (plus two schools in Japan) and covers schools with as few as 110 students and as many as 2700.

The discussion in the book includes the implications for, and involvement of, the administration, teaching staff, parents, students, and school facilities in this innovative program.

Educators interested in computerizing a master schedule will find value in the presentation in this text of problems which they may be able to avoid. They will also be able to prepare themselves with the language of computerized scheduling, the most difficult of all the bridges which must be built between space age technology and today's education. However, a "how to" book may be a perilous adventure for the reader. He should be cautioned that there is always the danger that to attempt exact replication will frequently preclude success for the duplicator.

The authors were not merely spectators of computer programs. Mr. Wiley was appointed to the principalship of Claremont High School in August of 1963 and continued in that position throughout the inceptional phases of the computerized scheduling described in the present text. Mr. Bishop came to Claremont High School as Administrative Assistant to the Principal with the inception of this program in July 1964. He was appointed Principal of Claremont High School in July 1966 when Mr. Wiley accepted an invitation to join the staff at New York University.

The authors, then, candidly present the techniques and methods employed by a particular school to achieve a flexible class schedule using a general computer program (The Stanford School Scheduling System—SSSS). This computer system is readily available, regardless of geographic location, to any school system desirous of breaking the six-period conventional school schedule and striking out for new educational horizons.

W. Deane Wiley
Lloyd K. Bishop

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THE BASIC CASE FOR VARIABLE CLASS SCHEDULING

The master schedule is the foundation of the secondary school. As goes the master schedule, so goes the school, and hence, the enhancement or the lessening of the effectiveness of the educational program. As the blueprint of the school, the master schedule provides a vast amount of information about the school. A glance at a master schedule will reveal a school district's rationale concerning grouping, class size, and the breadth and depth of the curriculum. It spotlights the favored teachers, reveals a philosophy of student government, and can, with other documents in hand, tell much about the question of where a particular district places its greatest financial emphasis. Whether it be well drawn or poorly drawn, no high school operates without a master schedule. In sum, the master schedule represents the school principal's best effort at bringing teachers, physical facilities, students, time, and materials together for the greatest possible effectiveness in providing an educational program.

Relatively little emphasis has been placed on the construction of the master schedule by superintendents or boards of education. Rarely is there any indication in employment interviews that the master schedule is of vital importance. College programs for training administrators do no more than give passing reference to the master schedule in course work, and it is a rare college classroom where the actual construction of a master schedule is taught. The ability to build a viable master

schedule seems to be an expected "given" in the requirements of most secondary principalships. Somewhere along the promotion line from classroom teacher to principal, the skill is assumed to have been acquired. A vice-principal is often delegated the function of building the master schedule, or at the very least will be expected to participate in its construction. The net result of passing on from generation to generation the skills and knowledges necessary for building an acceptable schedule has resulted in several pernicious consequences. Not the least of these is the attitude that building the schedule is a drudge to be passed on to one's own vice-principal as quickly as possible. This attitude admits that there is little, if anything, that can be done about the master schedule.

Scheduling Complexities

Prior to 1950 schedule-building was paid little heed as an area where creativity and innovation could be applied. With the overt challenge for change in the educational programs of the high school brought on by the demands of mathematics, science, and foreign language, the static position of the high school master schedule caught the full glare of the national spotlight. These challenges for change were often met with one answer, "it's an excellent idea, it would probably be better for learning, but it cannot be scheduled." Some principals were not satisfied with this answer. In the early '50's a few principals organized teams of schedulers and pored over their colored bits and pieces of paper devoting literally thousands of hours in attempts at breaking out of the conventional schedule toward greater variability. This investment of labor paid off in a rare number of cases by providing master schedules that could accommodate many of the features demanded by new curricular approaches and different grouping practices. The necessity for such a large investment of time and labor did not augur well for the approach to long continue unchallenged.

Few laymen, including boards of education, have the background to conceive the enormous complexities involved in

even the simplest master schedule. After all, they reason, "what is such a big deal about getting 30 students together to meet in a given room at a given time with a given teacher?" This seems reasonable if seen only in the context of one teacher, one room, one group of students, and one given period of time. It is the increase from one to hundreds or thousands of each, coupled with highly individualized student program selection, where the complexities of scheduling become more obvious. To explain these complexities to the laity becomes one of the major tasks of the administrator who decides to involve his school in a "different" kind of master schedule and call on computer programmers and their machines for help.

While each administrator will approach scheduling explanations in a different manner, suffice it to say that those who work with computers have compared the complexity of building a variable class schedule for a school of 1500 students with putting all of the airplanes in the United States in the air at the same time and then keeping track of them in order to avoid collision.

Although it took a revolution on a national scale to expose the scheduling problem to a point where greater resources were devoted to solving the problem, many principals and superintendents have for years decried the assumptions underlying the conventional schedule in terms of what is known about learning processes and in terms of educational priorities within the total curriculum. Living with these assumptions has not been without some gnashing of teeth at the frustration caused by the "it cannot be scheduled" syndrome. It is impossible to apply the how of learning to a conventional master schedule without causing some immediate inconsistencies to appear. For example: How long does it take to learn a formula? How long does it take for a biology dissection? How long does it take to write an English assignment? How long does it take to do research? How long does it take to discuss a concept? How long does it take to think? How long does it take to think conceptually?

These questions are important because at present the

typical school schedule assumes that it takes the same amount of time to do all instructional tasks. Operating on 50 and 60 minute periods of time, the student is expected to condense or expand his efficiency to master the job at hand whether it be music or mathematics, electronics or English. The layman may well question what purpose is served by asking these questions. Based on personal experience (the operating base for most laymen) one is likely to hear that "what was good enough for me is good enough for mine." Nothing could be further from the truth. In the first place it probably was not good enough for him. He might well have done a good deal better and with much less struggle if some attention had been paid to the master schedule in which he was forced to learn. Secondly, the world for which his child must be educated is almost beyond conception. With the knowledge that every youngster entering kindergarten in 1968 will spend the majority of his life in the next century, the best that can be done is to prepare him with the broadest base possible to take advantage of future educational demands. To those who would have the high school concentrate only on reading, writing, and arithmetic, it can be demonstrated that even as limited an education as this can be enhanced by massive changes in the preparation of the master schedule.

Scheduling Variables

A change in the master schedule that takes into account only the methodology and learning process of the school would probably suffice as sufficient rationale for change. There are, however, several other variables of scheduling that are vital to consider in building such a rationale. Each variable involved in building the master schedule must be inspected in terms of what happens to that variable when a computerized schedule is put into effect. While the list of prime variables is not long, i.e., time, teachers, students, facilities, and curriculum, each has a peculiar set of circumstances and limitations surrounding it, and each must fit into a complex but complete picture for a proper rationale to be developed.

Instructional Time

Whence came the notion that all subjects are equally important in terms of time? If offered a choice in importance would schoolmen and parents equate music with mathematics? Art with English? Physical education with United States History? Creative writing with science? What hierarchy of values can and should be applied to the various subjects found in today's high schools? The conventional schedule assumes no hierarchy. It claims all subjects offered not only of equal value, but it also assumes that the learning process involved in each subject is identical. Because it holds *TIME* as a constant element, the conventional schedule is a vehicle which has served its purpose in the past but which has not undergone the kind of change that allows the high school to keep pace with necessity.

The present concept of time inherent in master schedules grew out of attempts in the early 1900's to make some sense out of high school practices of those early years. One high school would offer English for one hour a day five days a week; another would offer the same subject one hour three days per week; and still another would offer a different pattern. Students from high schools would come together at the college level with such variation in learning experience or exposure that the Carnegie Unit was used as a method of standardization. The assumption was that if a specific unit of time was applied equally by all high schools some order would grow out of the chaos with which the colleges were faced. Thus, a five unit course would equal one hour per day each day of the week for a semester. To get full credit for a course it has become typical to use the Carnegie yardstick for all subjects from science to driver training. Under the Carnegie system each subject tends to be awarded the exact number of hours of instruction each semester. Because of this the criterion for credit earned is *the amount of time* spent in a class rather than individual educational achievement.

The past ten years has witnessed increasing dissatisfaction with a system which forces standardized learning and stan-

dardized time limits upon subject matter. This was appropriate for a beginning educational system, but not for an established, sophisticated system of high school education. Furthermore, entrance into college has increasingly become a matter of mastery of content and measurable achievement rather than of credits earned.

Recent curriculum writing suggests that each subject encompasses a sovereign framework of underlying generalizations and relationships which lend insight into that subject. With each subject encompassing a unique structure, it then follows that there may be unique methods of best teaching that individual subject. That is, as subjects differ best ways of teaching them and learning them must differ. The time schedule for a course would thus be determined by the best method of teaching each subject for optimum learning rather than requiring all subjects to fit one mold of 50 or 60 minutes. Such variability is illustrated by the differences between the teaching of science and the teaching of foreign languages

The modern science curricula, PSSC physics, BSCS biology, and CBA chemistry, stress the laboratory or discovery approach to teaching. Inherent in this approach is the requirement of long blocks of time to conduct and meticulously observe worth-while experiments. One period of 100 or 120 minutes is preferable to a shorter period of time. This allows ample opportunity for setting up the laboratory, conducting the experiment, and recording the results. The conventional schedule supports a "look but don't touch" approach to science. The teacher has a demonstration table in the front of the room and that is exactly his function—to demonstrate. Few students are ever involved personally in the intricacies of actually carrying out their own personal experiment under the guidance of the teacher. While science makes a particularly strong argument for a break from the conventional schedule, it does not stand alone in the curriculum.

Foreign language instruction using audio-lingual methodology cannot be carried on with its true intent in the 50 minute period. Optimal approaches have indicated the need for perhaps 40 minutes (at a maximum) for classroom work, com-

bined with longer or shorter times to be spent with laboratory equipment depending on the individual student. The discipline of history is not well represented by a 50 minute lecture, five days a week, although this is the methodology and the time allotment designed for most of the history that is taught in the high schools of the United States. There is evidence that if the schedule could be manipulated so that differing time blocks within the scheduling cycle could be provided for the history classroom, they would be utilized in some manner quite different from the "I've got it, you don't have it, shut up and listen and take good notes" approach.

Each subject in the curriculum can be included in the present discussion with strong evidence pointing to the fact that there is no magic, single block of time which is amenable to either the methodology or the learning processes involved in organizing any of the curriculum of the high school. While the effect of a variable class schedule on the curriculum is an appropriate subject for a separate book, immediate effects will be discussed in later chapters of this book as the rationale for assigning time to various subjects is discussed.

Teachers

In most high schools on a conventional schedule the teacher teaches fewer than the total number of periods offered to students each day. In a five by six conventional schedule the teacher normally meets with students for five of the six periods. In a five by seven schedule, while some schools will assign the teacher to six out of the seven periods, most will only assign five of the seven. (The option here is not always financial. In some cases the assignment represents the board of education or the superintendent's philosophy and values concerning teachers.) The residual time, the period or periods of time when the teacher is not assigned to formal classroom instruction, is usually referred to by administrators as the preparation period, unassigned period, or the work period; and by teachers as their free period. In its infancy the preparation period concept was not awarded to every teacher in a school. This is

still the case in some schools. English teachers were among the first to win this period of time. It seemed reasonable that because of the expected writing assignments they would give if they were doing their job properly that they needed time to read and correct these assignments. As other teachers made a case for overloading, the preparation period was awarded on a broader basis until it extends today, not only to the so-called academic areas of the curriculum (defined by some as those areas where heavy homework assignments can be expected), but to the non-academic areas as well, e.g., driver training, physical education, music, and art.

Without attacking or defending the preparation period in detail, the authors submit that this period does not serve the purpose for which it was devised, and it makes little sense when compared with time arrangements possible under a variable class schedule.

The American public, through its school boards and supported by some administrators, has never really reached a viable or rational concept of the teacher's working day. It is the rarest exception for a school district to study time usage and then to make adjustments in its treatment of the teaching staff based on the findings. Rather, the little awareness brought home to the public concerning the teacher's day has generally occurred as a result of upheaval brought about by increased teacher militancy. The layman generally perceives the teacher as a pretty lucky fellow who is in a classroom about five hours a day working with young people. The teacher is a person who has an inordinate number of vacations; and to top it all off, a person who has three months of the year free each year when he may do what he wishes. No picture could be more distorted when applied to the majority of individuals who make up today's teaching corps.

If there is anything that the teacher needs most, it is time. Not during July and August, or at Christmas vacation, but time during each working week, *on the job, in the school*, when the student is also close at hand. This time is simply not available to the majority of teachers. There is not time for him to meet with a student as an individual or with small groups of stu-

dents in his classroom. A 40 to 50 minute preparation period is not sufficient time to meet the prime needs of the teacher within the school day. This period has become the free period because that is generally all that it is used for or all that it can be used for. Students cannot be counseled with nor seen for individual help because they are in some other teacher's class during the preparation period. Of course the teacher may always keep a student after school. He may that is, unless the school bus is honking its horn, or the student happens to be in the school operetta, or participating in one of the myriad athletic squads to which the secondary school finds itself leashed. Asking a student to remain after school is a penalty imposed upon both the teacher and the student, and it is generally deplored as a time when constructive learning can take place.

Despite the great need for time, little attention has been given to schemes providing anything like the time that is needed to carry out an educational program of individual help for the student. Superintendents are constantly faced with rising budgets, no small part of which is the annual increase in teacher costs. The public is generally skeptical concerning the time that they believe the teacher already has, and teachers seem loathe to ask for meaningful time in light of their continued demands to achieve a wage scale above the poverty level.

If time is money to the superintendent and the teacher, then an organizational scheme that proposes to give teachers more time in more usable ways should be of high interest if this scheme would cost little more than what is presently being spent. *This possibility is present when a variable class schedule is employed.* It is not to the credit of some schools operating on variable class schedules that they have generally achieved the time increase for the teaching staff and then absorbed it with additional assignments. The major proposal here is that increased teacher preparation time can be achieved without a direct dollar increase in cost to a school district. This is a viable development with the use of Variable Class Scheduling and will be discussed at length in the following chapters.

Students

In the conventional schedule the student reports to school for the first period of the day and, if all goes as planned, is rarely seen again outside the environs of his classrooms except as he times a bell from one period to the next. At least one major purpose of these schedules is control and order as seen in the most conventional sense. There was a time when one of the major routes to the school principalship was through the physical education department, thence to a coaching position, on to the vice-principalship-dean of boys positions, and finally, after long and arduous service in discipline, to the principalship. This route, while having little to recommend in terms of curriculum leadership, did give a good deal of assurance that the incumbent was a man who understood boys, or who got along well with boys, or who certainly knew how to discipline boys. This principal generally could be depended on to run a tight ship, a no-nonsense school.

If a major factor of the conventional schedule is control of students, then to move from this to concepts of individual responsibility for the use of their time is certainly a major break, a break designed to cause a principal many second thoughts as his mind conjures up the things that students might do if not well-controlled at all times.

The American society spends a good deal of its waking hours protecting its offspring from too much reality. The child of the public school is pretty well looked after from birth to kindergarten at which time the school takes over in as real a fashion as possible. The child's personality is studied by a variety of school specialists to make sure that it is in balance with some mysterious standard of alikeness. Children who are not liked by others are considered prime targets for the school psychologist and the school counselor. Children who do not like others as they should are reported to parents who were fearful all along that they were raising an atypical child. The pattern for conformity is set early and society attempts to perpetuate itself with a socialization process that leaves little

to the individual child for decision. This pattern continues through the upper elementary grades, and through intermediate or junior high school. Somewhere in this process the child learns that he really does not have to worry about anything. His parents worry, his counselor worries, his teachers worry, so why should he worry? This simple direct logic seldom allows the child to grow into that which is given the greatest lip service—a student. Rather, what is referred to as a student is often a young person whose greatest concern is the grade on the report card. This concern leads to the search for the proper number of Carnegie credits to graduate from high school. High school counselors throughout the nation both perpetuate and fight the often-asked question, "Do I have to take that? I have enough credits to graduate." Or, "Why should I take that, I have all the credits I need."

Since many youngsters have been overly protected throughout the school system, it is not too remarkable that approximately 50 percent of the students fail the college of their choice during the freshman year and return home to attend less-publicized community colleges or drift away from further educational pursuits. When this failure occurs parents want to blame the high school, and well they may, but certainly not for the reasons they generally use. With an increasing percentage of high school graduates attending some kind of college after high school, the high school must look to the reasons for such a large drop-out during the freshman year of college. Is it subject matter incompetency? In a small number of cases certainly. The largest single reason, however, is the inability of the student to properly handle free time. This should come as no surprise. At what point in most schools is a student ever given any training in the use of his time? Seldom if ever. The student is watched, kept track of, herded from class to class, and accounted for during each minute of the school day with the most intricate attendance accounting systems. In most respects he is exposed to subject matter that assumes little capacity on his part to take any responsibility for his education.

The variable class schedule proposes to lead students

through a program of expanding responsibility for their learning activities to the point where most students have as much as 30 percent of their school time unscheduled. The authors have found from the Claremont experience, and from observation of other schools on variable scheduling, that students grow in their ability to use unscheduled time. Contrary to those who would apply a grade level designation to this ability, experience forces the conclusion that this is a highly personalized variable with each student. It appears to be related almost exclusively to the students' background and environment outside the scope of school control. The third year of the Claremont program saw the gradual evolvement of the Independent Study Program described in Chapter 7. This program necessitates the study of each student to the extent that judgments are made concerning a readiness for independent study. This kind of student appraisal is consistent with the theme of individualization found throughout variable class scheduling.

The variable class schedule proposes that the students are capable of assuming some share of the responsibility for their own education. This schedule assumes that most students (as high as 95 percent in most schools) will attend school without overt institutional coercion. As they attend a school that clothes them with the dignity of making choices concerning their educational future and expects them to live with these choices, they will waken to the meaning of education and help prepare themselves for their future rather than leaving it up to someone else.

Facilities

It is too typical in many schools for a classroom to belong to a particular teacher. When there was not much growth in the student population and school plant needed little if any additional space to accommodate this slow rate of growth, little attention was paid to such proprietary interest. However, the rapid expansion in the number of students and the demand

for school dollars to go further demands closer scrutiny of facility use. It is still a common practice for the teacher's room to be vacant of students during the preparation period discussed in a previous section. This scheduling practice has essentially given to the high school teacher an office that was specifically built for teaching 25 to 30 pupils. Furthermore, it has been an office where the conveniences of a regular office are generally not present for it must be cleared for the teaching function after the preparation period is over. Such an arrangement of space has worked to the benefit of no one. There is little, financially or educationally speaking, to recommend that the teacher have a room that belongs to him if this room is simply an attempt to have the classroom serve a dual function. There is, in fact, little to recommend that any classroom belong to any teacher or to any specific learning area all of the time. A good argument can be made that classroom activities should go on in a room most suited for the particular instructional task desired at any one time. Further, that along with the cafeteria, auditorium, library, and gymnasium, every classroom space in a school is a highly specialized area at any given time depending upon what course is scheduled into it.

Given a variety of methodology and grouping, many different things can and should go on in any given facility from day to day and week to week. In addition to the proper educational use of the facility, it is proposed that giving up a room in which a teacher works during his preparation time cannot be supported by the financial mathematics faced by school districts today. In a school with 30 academic classrooms, the equivalent of five complete classrooms is educationally wasted in the practice discussed.

The variable class schedule proposes a facility as a meeting place for teacher, student, and curriculum for a specified purpose. As a meeting place, a given facility may, even in the same day and certainly in a five day week, have several different kinds of groups meeting with several different teachers covering several educational tasks. The variable schedule also proposes that offices be constructed or created for each member of the teaching staff distinct from the teaching facilities

available on the campus. Such offices need not be elaborate or expensive. A space for a small desk, bookcase, filing cabinet, and a modicum of privacy is sufficient. A leading corporation in school building furniture recently designed and built for the authors a teacher office carrel that allowed the housing of 14 teachers in a space about the size of one standard classroom. The creation of this office complex freed 14 classrooms for uninterrupted use throughout the week.

Curriculum

What happens to the curriculum is of first importance in any contemplated change from a conventional schedule to a variable schedule. If all efforts of school personnel are honestly bent toward the continued provision of the best curriculum that can be provided within the limitations of a school district, then any contemplated change that will materially upset conventional approaches to building curriculum must be met with a rationale sufficient for justification.

The problems that beset the conventional schedule in terms of curriculum have become manifest in the past ten years. Prior to the increased national attention to education the curriculum of many high schools was rather sterile fare. English, foreign language, mathematics, science, history, and in many cases physical education or health education of some kind tended to be both minimum and maximum. It made little difference that science was called general science, biology, physics, and chemistry, or that mathematics was called general mathematics, algebra, geometry, and trigonometry. In truth, a simple listing of distinctly different courses in a school made up a very short list. The American high school has not yet been able, in most instances, to design a curriculum that deviates too much from that which was historically college oriented and which has been the mainstay of the high school since its birth.

The idea of the comprehensive high school (that school with a curriculum designed to meet all of the students of the community) has been in the literature for many years and is

talked about at most educational meetings. It too often means, however, that a basic discipline in the college preparatory program is either watered down both in name and content to match the supposed level of the non-college preparatory student, or track systems are developed that successfully insulate the non-college preparatory student from the old conventional curriculum. The non-college preparatory student takes courses called shop mathematics, business arithmetic, history for citizenship, or basic English with the balance of his schedule filled with as many hours of industrial arts classes or homemaking classes as possible.

The apparent inability of the high school to build a rational concept of democratic education in the curriculum when faced with a desire to individualize instructional programs has led to curricula which require large cadres of school counselors to interpret the various courses and levels of courses to both students and parents. The implementation of Variable Class Scheduling does not, in fact, make a drastic change in the curriculum evils which the high school has created over the years. It does, however, provide the opportunity to change the present curricula by providing a much more individualized approach to the programming of each student. The results stand in sharp contrast to schedules which work only with groups of poorly matched students rather humorously called homogeneous groups in the lexicon of education. The variable class schedule assumes that the only homogeneous group is made up of one student and one teacher, and provides the opportunity for this arrangement to take place with increasing frequency as both students and teachers learn to work in an individualized, face-to-face relationship.

Change and the Principalship

The general rationale that has been presented is available to any school that might contemplate a move from a conventional schedule to a variable class schedule. In addition to those arguments presented, each school will have other reasons

for attempting change. These reasons will be as varied as the specific problems that face hundreds of individual school districts every year. It is important to point out that when these reasons are proposed they be real and not fanciful. It is suggested that no radical change with its concomitant problems can carry through to successful conclusions if, when severe problems arise, the base upon which the change is built is a weak or shifting one. Change does not come easily or readily to the American high school. There is observable evidence that this institution is among the most conservative in our society. In such an institution, change becomes a highly precarious value and one that must have the strongest support to successfully persist. Variable Class Scheduling cannot be implemented on the whim of a single administrator or a small group of wishful individuals within the school district. The anatomy of such drastic change demands deep and continued commitment on the part of the vast majority of those involved. This includes the board of education, certainly the superintendent and the members of his staff, the local school staff, the parents, and the students.

Of all those involved, the school principal must have and retain a commitment that extends far and above all of the other groups. Much has been written in recent years concerning the leadership expectations of the school principal. While his office has been studied in some detail, explanations of his role, function and operation are still incomplete. The least that can be presented is that regardless of the desires, wishes, or commands of all other groups combined, little change will actually occur in a school without the support and commitment of the principal. In change of any kind, the principal is called upon to provide leadership for the continual implementation of that change. His technical and human skills are called into no greater display than are his physical endurance and moral qualifications.

No one individual, including the superintendent, places himself in a more compromising position in commitment to change than does the principal. The implementation of a vari-

able class schedule may well be the most difficult task concerned with change that the principal will ever face. This change affects not only the internal structure of the school but also the outward appearance. Internal change can generally go on within departments or be carried on by individuals and rarely involves the entire school in drastic or total change. The introduction of Variable Class Scheduling, on the other hand, calls for total involvement of all groups within the school (if not total commitment), and in addition it involves the external look of the school to the extent that involvement of the community is inevitable and highly desirable.

Probably no other change presently on the educational horizon allows the principal greater opportunity to involve, willingly, the entire community. Nor, do other changes offer such an opportunity for causing a community to inspect its educational values and beliefs. Such an inspection, while tending toward a good deal of turbulence, offers leadership opportunities that a principal should welcome assuming he is honestly and sincerely dedicated to the proposition that after the teacher, his is a most vital role in changing the face and structure of the American high school.

SUMMARY

This chapter maintains that change does not occur without reason. Even if one were to propose that much of what is done in high school education today is reasonless, it would still be incumbent upon the proposer to explain the why of the reasonless situation. If the reader finds reasonless and purposeless as improper adjectives to describe much of what is now called high school education, then he must be prepared to argue and defend proper *educational* answers to such questions as:

1. Why do most conventional schedules provide highest priority in scheduling to band, orchestra, and the sports program?

2. What is the educational basis for assigning the same amount of time to different educational tasks as those posed in the art program, history, English, science, or mathematics?
3. What is the basis for the present assumption that the learning processes in history are identical to those required in science and/or mathematics?
4. What is the basis for the continued emphasis on credit earned as a criteria for knowledge gained?
5. In what way does the conventional schedule promote an individualized approach to learning on the part of the student? The teacher?

This list of questions could be developed in great detail to include every event that occurs in a school as dictated by the limits of the master schedule. It is suggested for the purpose of refuting statements from those who refuse to approach change by proposing, "prove to me that it is better." Asking for such proof is nonsense in terms of the proponent's being in a position to adequately defend the conventional schedule and its inevitable byproducts.

There are many questions yet to be answered in terms of the total impact of a variable class schedule. Many of them are being answered quietly and tenaciously by well over 100 high schools scattered throughout the nation who are today attempting to sophisticate variable class schedules. It is suggested that these questions are no more difficult to answer than those which can be asked of the conventional schedule. It is further proposed that questions put forward by variable class scheduling will be of a more fundamental nature than those so easily raised by the conventional schedule. The present inability to answer all of these questions does not provide good argument to return to a schedule which, in over 100 years of use, fails to answer even the most elemental educational query.

THE FLEXIBLY SCHEDULED HIGH SCHOOL

by W. DEANE WILEY *and* LLOYD K. BISHOP

This outstanding book answers one of the biggest problems faced by educators today: how to make a schedule more flexible. In crystal-clear, step-by-step style, the authors show you how to reap the enormous benefits of computerized scheduling. The master schedule need never again be a nightmare—with this system, it can be a dream-come-true.

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