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ABSTRACT

This report is an up-to-date and comprehensive review of the literature and research findings related to the rescheduled school year with the aim of presenting information and research data about the major extended school year designs and the impact of these designs on a school system. The first chapter considers the reasons why extended school year designs have been proposed and implemented in the past and why they are once again being examined by educators. The second chapter outlines the various schemes for extending the school year, indicating the strengths and weaknesses of each design. In each section, the organization of the plan is discussed, the costs are considered, and the advantages and disadvantages of the plan are presented. The third chapter considers the impact of the extended school year on a school system, primarily the economic and educational implications. The fourth chapter outlines the progress and findings of a local school district that has seriously considered an extended school year. Figures illustrate the text and a 186-item bibliography is provided. (A related document is EA 004 080.) (Author)

Educational Research Institute of B.C.

The Extended School Year

by Torsten H. Schmid

STUDIES & REPORTS

1

REPORT NO. 11

THE EXTENDED SCHOOL YEAR

A Summary of Information Regarding Extended School Year Projects

A Report Prepared for the Directors of
Project "Four-In-One" Vancouver

by

Torsten H. Schmid

June 11, 1971

"Today, with... educators seemingly caught between the upper and nether millstones of vastly increasing student needs, and relatively decreasing school resources, more and more professional and lay school men have turned to a consideration of an all year or extended year elementary and secondary school as a possible means of adjusting supply to demand."

(Schoenfield & Schmitz,p.9)

TERMS OF REFERENCE

The following report on the "Year-Round" and "Extended School Year" was undertaken on the behalf of the Directors of "Project Four-In-One", Vancouver. The report consists of an up to date and comprehensive overview of the literature and research findings related to the rescheduled school year.

The report is not intended to be a "guide" for re-scheduling the school year, nor does it suggest that any one plan be considered fon implementation in Vancouver. Rather, it aims at presenting as much information and research data as possible about the major extended school year designs, and the impact of these designs on a school system.

The first chapter considers the reasons why extended school year designs have been proposed and implemented in the past, and why they are once again being examined by educators.

The second chapter outlines the various schemes for extending the school year, indicating the strengths and weaknesses of each design. In each section, the organization of the plan is discussed, the costs are considered, and the advantages and disadvantages of the plan are presented. Wherever results and conclusions based on experimentation, pilot projects, or actual full-time implementation of a plan, are available, they are cited.

The third chapter considers the impact of the extended school year designs on a school system. This chapter focuses primarily on the economic and educational implications held by the implementation of an extended school year.

Chapter four outlines the progress and findings of the one other local school district that has seriously considered an extended school year. A second district is preparing to undertake a similar study to this report. However, that study will not commence before the end of the present school year.

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INTRODUCTION

The rescheduling of the school year has been discussed for a variety of reasons for many years. The present arrangement of a nine to ten months school year followed by two to three months vacation has been frequently criticized as a wasteful use of school facilities and personnel. The increasing educational needs of students and rising enrollments coupled with the publics' reluctance to provide ever increasing resources, provide strong incentives to re-examine the present school schedules and organization to obtain both better as well as more economic returns on a huge, and yet essential investment.

The need to provide additional education was recognized in the early part of this century. Schools began to provide recreational activities during the long summer vacations. Later, these summer-schools offered academic courses. Today summer-school provides both recreational and academic courses, all directed at providing more and better educational opportunities for all pupils.

Also during the early years of this century economic objectives became important due to growing enrollments and rising construction costs, and resulted in a number of year-round schools. During this period the rotating four-quarter plan which divides the school year into four twelve week quarters came into prominence and was used in a number of districts in the United States. Between 1924 and 1931, and

again 1947 to 1953 some thirteen school systems were reported as using this plan. More recently a number of districts, most notably Atlanta, Georgia, considered and adopted a variation of this plan.

The most recent plans for rescheduling the school year combine both economy and educational objectives. These plans, referred to as 'extended school year' plans, (ESY), extend the school year to provide 210 to 225 school days, and can save pupils one year out of their thirteen K - 12 school years. When pupils accelerate by one year, tctal school enrollments decrease thus providing considerable economies as both fewer staff and facilities are required.

The more recent plans for rescheduling the school year are also motivated by an interest to increase the professional status of the teacher as well as a genuine desire to improve, enrich and broaden educational opportunities for all pupils.

This paper briefly outlines the major reasons for considering a rescheduled school year and then examines in some detail the various year-round and extended school year plans in order to outline their operation, their economic implications, as well as their advantages and disadvantages. Wherever possible, reference is made to the findings of schools that have been, or are presently experimenting with rescheduled school year plans. The paper concludes with an examination of the effects that implementation of a re-scheduled school year will have on a school system.

CHAPTER ONE

REASONS FOR CONSIDERING AN EXTENDED OR YEAR-ROUND SCHEDULE

Plans for an extended school year or year-round operation of the school have been considered for a variety of reasons. The actual plans proposed or studied have generally been determined by the very specific circumstances in the community and the goals to be achieved.

In the early years of this century interest in the year-round schools was motivated primarily by economic reasons, or pressures. At that time a lack of adequate facilities and funds to construct more schools were the only reasons for considering a rescheduled school year. Although the economic motive is still present in modern schemes for rescheduling the school year, a variety of educational needs have appeared in the picture and present plans attempt to provide both more and better education as well as money savings.

There are a number of standard reasons cited by proponents of plans for rescheduling the school year. These reasons, or arguments, center around economy, teacher status, improved education, and pupil acceleration.

The economy objective has probably been the most important catalyst to year-round utilization of school plants. Proponents argue that most communities could realize considerable savings by better, or fully utilizing existing facil-

ities rather than building new ones to meet rising school enrollments. It is also reasoned that considerable economies can be realized on debt service, on the cost of fuel, light, power, maintenance and insurance costs. Furthermore, fewer teachers would be required to staff new schools and money saved from not having to hire additional teachers would more than offset the raised salaries of year-round teachers.

Improvement in teacher status is another argument cited in support of rescheduled, longer school years. Proponents claim that full year contracts would eliminate the need for teachers to "moonlight" and/or find other summer employment. In addition, several of the proposed rescheduled school year plans provide teachers with more time to work on curriculum revision, to aid individual students, and to prepare for teaching. It is reasoned that teachers' professional status and morale would benefit.

A desire to improve and enrich education for all pupils is another motive. Proponents argue that most of the extended school year plans and several variations of the rotating four-quarter plan can provide a better basic education, besides time for remediation and enrichment, by providing more in-class time, more opportunities for short make-up sessions, and by enabling curriculum revision. It is also argued that the increasing knowledge required, and the broader demands our society makes on today's youth require a longer school year.

The need for pupil acceleration is also debated in

conjunction with economic advantages and the earlier maturation of todays youth. The debate centers around the question of how desirable it is to provide pupils with the opportunity to graduate one year earlier than they would do under the present school schedules.

A final argument for a longer school schedule, or year-round operation of the schools is the need to keep students off the streets during the long summer vacations, and to help youth make productive use of otherwise 'wasted' time. Proponents argue that summer attendance in school, or a decrease in the length of the present summer vacation, would substantially reduce juvenile delinquency.

A significant trend regarding the desirability of a rescheduled school year in the attitudes of high school administrators can be seen when one compares two''Opinion Polls'* conducted by Nation's Schools in 1964 and 1969.

The 1964 poll elicited a 67 per cent "No" and a 33 per cent "Yes" response to the question, "Would you favour an all year school program...?" The most common objections voiced by opponents had to do with the impact of the re-scheduled year on teachers and students.

> "...teachers need a breather... for advanced study, for travel, for relaxation... from the intensive classroom routine."
>
> "Let the kids enjoy being kids. They need the long summer break."

---

* Based on a 4 per cent proportional sampling of 16,000 school administrators in 49 U.S. States.

The supporters of a rescheduled school year based their approval primarily on the economic motive:

> "The historical basis for summer lay-offs no longer exists. Shutting down multi-million dollars worth of plant facilities and laying off highly trained professional staffs nation-wide just does not make sense in this day. Year-round schools would be an overnight answer to classroom shortages at relatively little expense."
>
> (Nation's Schools, March '64, p.84)

A dramatic reversal of opinion became evident after an identical 'Opinion Poll' in 1969. The results of this poll show that 80 per cent of the administrators polled indicated that a rescheduled longer or year-round school calendar is essential now, or will be in the very near future.

> "Keeping schools open longer during the year may not be a panacea for certain ailments plaguing education today, but the majority of administrators either regard this step essential now, or feel that the extended school year will be necessary in the future."
>
> (March '69, p. 101)

Equally as significant as the reversal in opinion is the fact that the economic motive is but one of four reasons proposed by the supporters of the rescheduled year. The proponents in 1969 recognize that:

a) Buildings are too expensive to remain idle for extended time periods.

b) With a longer year better instruction could be provided.

c) Students may require added or more concentrated school time to reach acceptable academic levels.

d) Continued salary increases cannot be justified without additional service.

The dramatic reversal in high school administrators attitudes and priorities as documented by the two opinion polls, indicates that the arguments proposed for an extension of the school year, or year-round operation of the school do have merit, and can solve some of the more pressing problems faced by educators today.

CHAPTER TWO

PROPOSED SCHEMES FOR YEAR-ROUND AND EXTENDED SCHOOL YEARS

As a result of the enormous collection of literature on school organizational patterns educators considering an extended school year can select from a smorgasboard collection. Unfortunately, there is little consistency in the terminology used, and often the 'coined' names for a specific plan of rescheduling the school year do little to indicate what impact the plan will have on a school system.

It is possible to eliminate much of the confusion which exists by grouping the many plans into the following categories.

1. The Term Rotation Plans
2. The Student Acceleration Plans
3. The Summer-School Plans
4. The Multiple Trails - Time Equalization Plans.

Figure 1 shows the variety of lengthened school year plans available under the four categories.

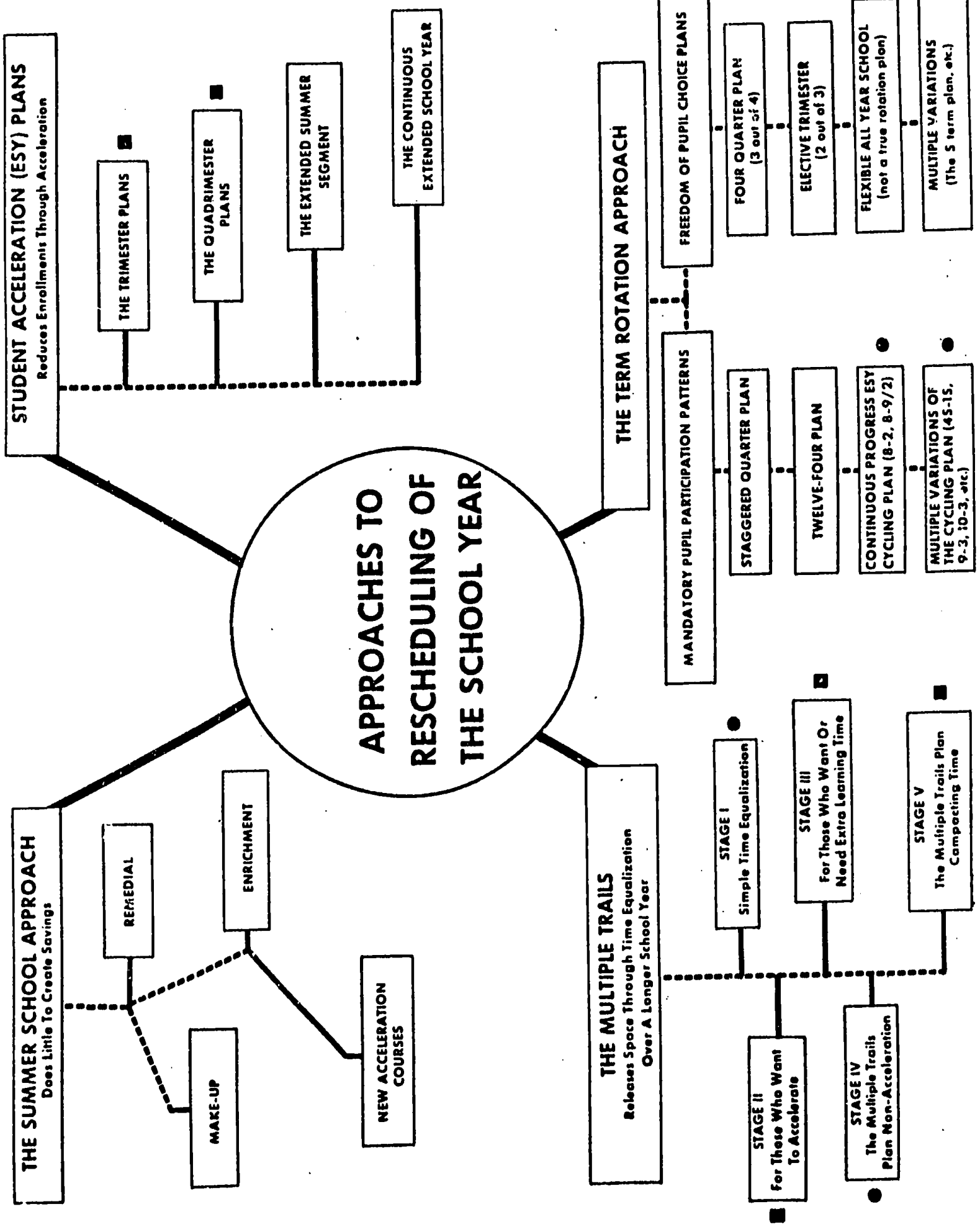
1. The Term Rotation Plans. These plans provide year-round utilization of both school facilities and personnel. The rotating four-quarter plan mandating attendance for three consecutive quarters and one quarter vacation, and the voluntary three out of four quarter plan, are the most publicized of the ''term rotation plans.
2. The Student Acceleration Plans. These plans,

including the quadrimester, trimester, modified summer segment, and extended continuous school year, aim at providing better education and economies. This is done by lengthening the time that a student spends in school each year, but shortening the number of years of schooling required for graduation by one out of thirteen. It is reasoned that the extra time spent in school each year more than compensates for the one year earlier graduation both economically and educationally.

3. The Summer-School Plans. These plans do little to provide economies but still provide remedial, make-up, and enrichment courses. More recently the 'modified summer-school plan' allows students to take new full year courses during a more intensive summer session.

4. The Multiple Trails - Time Equalization Plans. These plans provide extra space and teacher time through time equalization over a longer school year. The plans can provide immediate economies both in space and teacher time without any student acceleration. Yet should acceleration be desired, the plans readily facilitate it. This plan, although the most difficult to understand and implement, is claimed to be the most promising of all the rescheduled school year plans.

Figure 1


APPROACHES TO RESCHEDULING OF THE SCHOOL YEAR
STUDENT ACCELERATION (ESY) PLANS
Reduces Enrollments Through Acceleration
THE TRIMESTER PLANS
THE QUADRIMESTER PLANS
THE EXTENDED SUMMER SEGMENT
THE CONTINUOUS EXTENDED SCHOOL YEAR
THE SUMMER SCHOOL APPROACH
Does Little To Create Savings
REMEDIAL
ENRICHMENT
MAKE-UP
NEW ACCELERATION COURSES
THE MULTIPLE TRAILS
Releases Space Through Time Equalization Over A Longer School Year
STAGE I
Simple Time Equalization
STAGE II
For Those Who Want To Accelerate
STAGE III
For Those Who Want Or Need Extra Learning Time
STAGE IV
The Multiple Trails Plan Non-Acceleration
STAGE V
The Multiple Trails Plan Computing Time
THE TERM ROTATION APPROACH
FREEDOM OF PUPIL CHOICE PLANS
FOUR QUARTER PLAN (3 out of 4)
ELECTIVE TRIMESTER (2 out of 3)
FLEXIBLE ALL YEAR SCHOOL (not a true rotation plan)
MULTIPLE VARIATIONS (The 5 term plan, etc.)
MANDATORY PUPIL PARTICIPATION PATTERNS
STAGGERED QUARTER PLAN
TWELVE-FOUR PLAN
CONTINUOUS PROGRESS ESY CYCLING PLAN (8-2, 8-9/2)
MULTIPLE VARIATIONS OF THE CYCLING PLAN (45-15, 9-3, 10-3, etc.)
● Recommended for immediate dollar savings plus educational values.
■ Recommended for educational purposes with potential dollar savings in the near future.

The four major types of plans briefly outlined above can be classified as either year-round, or extended school year plans. As the term implies, the year-round plan attempts to utilize school facilities and personnel throughout the whole year with no extended vacation period for staff, or idle time for buildings.

The extended school year, attempts only to lengthen the school year. It still provides the traditional Christmas and Easter, as well as a major summer vacation.

2.1 The Year-Round School.

The year-round school plans have been, and still are largely the result of economic pressures in times of growing enrollments and rising school construction costs. These plans, most notably the four-quarter plan, aim at obtaining the maximum use from buildings and personnel. Basic to these plans is the argument that it is an enormous waste to leave expensive school plants idle for two or more months each year and at the same time have to build expensive new schools to cope with rising enrollments. Only recently has this argument been reinforced by the additional argument that the year-round plans would "... permit the curriculum to more effectively meet the needs of individualized teaching instruction." (Bauman, '67, p.69) The most prominent of the year-round plans is the rotating or staggered four-quarter plan. The following section will examine the rotating four-quarter

plan, indicating its advantages and disadvantages.

a.) The Rotating Four-Quarter Plan.

This plan divides the academic year into four equal quarters of approximately 12 weeks each. Each pupil attends for three consecutive quarters and vacations in the fourth. The school is in operation year-round. Student vacation periods are staggered throughout the year so that at any one time three-quarters of the student population is in school and the remaining one-quarter is on vacation. Figure 2 illustrates the operation of the plan.

Figure 2

Operation of the Rotating Four Quarter Plan.

Pupil Group	Attendance Quarters			
	Fall	Winter	Spring	Summer
Group A	Vacation	School	School	School
B	School	Vacation	School	School
C	School	School	Vacation	School
D	School	School	School	Vacation

The most commonly recommended plan has quarters of twelve school weeks and one week of vacation between quarters. There are numerous variations of this plan. The original plan allows pupil to attend only three of

the four quarters, while teachers teach all four. The vacation quarter for pupils is mandated. A significant variation of this rotation concept is to make the vacation quarter optional. Students may attend any three of the quarters and vacation in the season of their choice.

Proponents of the rotating four-quarter plan generally stress the economy objective. (Adams,'68) Theoretically, by fully utilizing existing facilities, 25 per cent of capital outlay for new buildings, debt service, salaries of administrative and custodial staff, librarians, etc. could be saved. Furthermore, a reduction of 25 percent in the required teaching force would also create savings. At the same time however, the salaries of teachers employed for the four terms would increase by approximately 20 percent.

It must be realized though, that there are numerous problems inherent in any rotating four-quarter plan. The Florida State Department of Education (1957) provides a thorough analysis of these difficulties. The Department stresses the fact that under a rotating four-quarter system each school actually operates as four individual schools, each with a different starting date, and hence each grade within the school operates as four sections. This means that a school must have a minimum enrollment if it is to use the plan. If, for example, it is assumed that an elementary school enrolling grades 1 - 6 now employs 12 teachers, or two teachers per grade, and all teachers have 30 pupils,

there are 360 pupils in the school. Under the rotating four-quarter plan the school would be divided into four smaller schools, each with 3 teachers and 90 pupils, or 15 pupils per grade. To retain a pupil teacher ratio of 30-1, each teacher would be required to teach two grades in one classroom.

An alternative to the above situation would be for each teacher to have two sections of pupils in the same grade - but at different stages of their school years - in each class. With a view to individualizing instruction, and a desire to eliminate combination classes, this alternative may be undesirable.

Thus, if it is deemed desirable to maintain one teacher per grade section, and to maintain a pupil-teacher ratio of 30-1, an elementary school must enroll 720 pupils, with an equal number of students enrolled in each grade level, and must employ 24 teachers. The school size increases in a direct proportion to this minimum number of pupils and teachers. For the Canadian situation of grades 1 - 7, the minimum size of school would be 840 students and 28 staff.

A partial solution to this minimum school enrollment problem is achieved when school attendance quarters are assigned by grade level to ensure that all pupils in the same grade would be in school during the same three quarters. This would eliminate the need to schedule several sections of one grade, or combination classes. However, it would disallow the assignment of siblings to the same attendance

quarters, thus splitting families.

As indicated above there are several advantages and some considerable disadvantages inherent in the proposed rotating four-quarter plan. These may be summarized as follows:

(1) Advantages:

1. The school plant, equipment and personnel are not idle for one quarter of the year.

2. Fewer school buildings are required, thus effecting economies in school construction, debt service, and insurance premiums.

3. Theoretically, the same school plant, staffed by the same number of personnel, provides for the education of 25 per cent more pupils.

4. The plan eliminates the need for double, or extended day sessions in overcrowded school systems,

5. Fewer books, less equipment and the like, are required at any one time.

6. The pupils' work is evaluated more often.

7. A pupil who has failed need repeat only the quarter failed, not the entire semester or year.

8. The pupil who has been absent for an extended time may re-enroll in the quarter or quarters missed, instead of the entire semester or year.

9. Teacher status is raised.

10. Teachers receive more pay if they work in all four quarters and need not seek employment outside the school system.

11. Fewer pupils seek permanent or temporary employment at any one time.

12. More pupils may be able to participate in extra-curricular activities.

(ii) Disadvantages:

1. Studies have shown that the cost of operating a rotating four-quarter system is greater than the cost of operating a traditional ten month school.

2. In many areas summer attendance would require air-conditioned schools, thus adding to costs.

3. Maintenance of the school plant without disturbing school sessions is difficult because schools are constantly in session. Major cleaning and repair of buildings may have to be done at night or at weekends thus requiring overtime pay. This could add to costs.

4. Maintenance costs necessarily increase because the plant is in steady use.

5. Accelerated replacement of text books and other instructional material would offset any savings resulting from a decrease in the number in use at any one time.

6. The burden on administration and supervision is greatly increased. Additional staff may be required to handle quarterly enrollments, scheduling, graduation and the like.

7. Extended vacations for such key staff as principals might be difficult to arrange.

8. A minimum school enrollment must be assured and maintained so each class has a teacher and class size remains uniform.

9. Before the plan becomes self-sustaining, one fourth of the students would have to attend school continuously for 18 months.

10. Pupil transfers to and from traditional nine and ten month schools are fairly difficult.

11. Coordinating and planning for extra-curricular activities which are geared to seasons are difficult. The quality of performance in these fields may decrease.

12. Because school buses are used year-round their overhaul might become a problem.

13. Teachers' mental and physical health may not withstand the pressure of year-round employment.

14. Summer study and travel for teachers would be eliminated.

15. Parents generally object to their children taking vacations during non-summer months. Family vacation patterns may be disrupted.

16. A full three month vacation during the winter will be a difficult thing to mandate.

17. Truancy and delinquency may increase since one-fourth of the pupils on vacation might influence those in school to skip classes.

18. Community agencies which 'gear up' for summer programs and services would have to maintain their programs year-round, thus adding to their costs.

(Based on: Baumann, 1967; Cincinnatti, 1958; Florida State, 1966; Kimbrough, 1970; Lombardi,1962; Lucas, 1967; May, 1961; Sequoia, 1960)

b.) Studies of the Four-Quarter Plan.

Of a number of studies conducted to investigate the economic implications of the four-quarter system, only one concluded that there would be a saving. The Fairfield, Connecticut group, (1957, p. 84) reported that a required $ 5,000,000 building program would cost taxpayers $ 368,750 per year for interest, amortization, operation and maintenance of new buildings. The cost of operating the schools on the rotating four-quarter plan inclusive of air-conditioning was estimated at $ 81,900 per year, a savings of $ 286, 850 a year during the period the building program costs were being repaid.

The findings of the Atlanta group (1957, p. 82) however directly contradict the Fairfield conclusion. This

group estimated that implementation and operation of the plan would cost $ 8,804,000 compared to $ 7,617,000 if the traditional school year were continued and new construction were undertaken. To add credence to their study, the Atlanta group cited the findings of two other areas which had conducted cost analyses. Fulton County, Georgia, estimated that the traditional year would cost $ 2,098,000 against $ 2,772,500 for the 12 month plan; DeKalb County, Georgia, estimated $ 1,714,000 against $ 2,280,000 for the 12 month plan.

Los Angeles also investigated the feasibility of the four-quarter plan, conducting an extensive study in 1954. The conclusions of that committee were that the all year school was too costly, met with too much public resistance, and created too many administrative problems to make adoption desirable. (Imhoff & Young, 1959; L.A. Board of Education, 1954; McPherson, 1955; Lombardi, 1962. For more detail see Appendix A, page 118)

The Florida State Department of Education (1957) concluded that the theoretical economies of the rotating four-quarter plan would not obtain and that the plan would create the following new expenditures:

1. The quadrupled number of registrations, promotions, graduations and examinations would require more staff members and at least double the administrative costs of the large schools.
2. The inevitable reduction in pupil-teacher ratios would increase school costs.

3. The decreased density of pupils transported by bus would lead to increased per pupil transport costs.
4. The need for air conditioning would result in increased capital outlay and operating costs.

Other non-economic problems recognized were:

1. The lack of time for building repairs and thorough bus overhaul.
2. Split family vacations.
3. Lack of time for teachers to attend summer school except where evening university classes are available.
4. Lack of time for teacher pre and post school planning.

In 1966, the Florida State Education Research and Development Council estimated that the rotating four-quarter plan would result in a 25.21 per cent increase in net expenditure for Polk County.

The Citizens Committee of Sequoia Union High School District, California, (1960) also found that the rotating four quarter plan would increase costs. The increased costs were projected in the following areas:

1. Administration: 8 per cent increase to compensate for additional staff to cover recent vacation allowances.
2. Salaries of certified personnel: 33 per cent increase to allow for additional teaching staff for

28 per cent more pupils plus 5 per cent allowance for an increased number of teachers required to staff small classes.

3. Cost of materials: 28 per cent increase to provide 28 per cent more pupils with ihstructional materials. Although the quantity of instructional materials used at any given time may be less, the accelerated rate of replacement will offset any savings.
4. Auxiliary services: 8 per cent increase. (same as 1)
5. Operation and maintenance: 8 per cent increase to cover in increase in custodial work, repairs and maintenance and more overtime and contract work during weekends and holidays.
6. Fixed charges: 20 per cent increase to cover increased cost of staff retirement contributions for an increased staff. (items 2,3,4.) However, it was recognized that other fixed charges such as insurance would not be materially increased.
7. Transportation: 50 per cent increase because of the 28 per cent more pupils to transport and since pupils will be residing at greater distances from school. 22 per cent increase to compensate for smaller bus loads and providing a bus service for an additional one-quarter year.

The only saving reported was the per pupil cost of new construction which under the four-quarter plan would

be 77 per cent of the present cost.

Thomas (1970) writing about the rotating four-quarter plan states:

> "This extended school year plan has received more than its share of publicity. All too often the staggered four-quarter plan has been identified as the only approach to the rescheduled school year. ...Supporters of the plan fail to realize the fact that it provides minimal education. It is virtually impossible to guarantee students a school year of 180 days if holidays, conference days, and bad weather days are included. More important is that most children cannot afford a three month break in the learning process. The regression which occurs over a three month vacation is not good for children. Supporters of a continuous program philosophy of education reject this plan."
>
> (pp. 114 - 115)

If such a plan should be implemented in Canada, it must be recognized that students will receive less schooling per year - approximately 180 days or less - than they do now, and all students would have one long three months vacation. Furthermore, as this plan does not provide any extended summer vacation for all students, parents would be most reluctant to support such a schedule. This is especially true in areas where only summer provides warm vacation weather.

c.) Variations of the Four-Quarter Plan.

Due to the disadvantages of the rotating four-quarter plan, several districts, most notably Valley View, Illinois,

and Atlanta, Georgia, have developed promising school year schedules. Although they are based on the four-quarter concept, these schedules overcome several of the more serious disadvantages inherent in the rotating four-quarter plan.

The Valley View plan, consisting of a 45 school days on, 15 school days off, variation aims primarily at obtaining increased utilization of facilities. It is based on the mandated term rotation approach.

The Atlanta plan, a voluntary three out of four quarters variation, aims primarily at providing a better education for its pupils. The economy objective is not important.

Although there are no cost analyses available for Atlanta, the Board hopes that increasing summer quarter attendances will ultimately provide dollar savings. The Valley View Board documents the cost savings their plan has already achieved.

(1) The Valley View 45-15 Plan.

The Valley View year-round plan resulted from the need to acquire additional classrooms in a rapidly growing district that had reached the legal limit of its bonding power for the construction of new schools. The problem reached crisis proportions when a state law was passed mandating elementary schools to offer Kindergarten. This necessitated the enrollment of an additional 1700 students for the 1970 - 1971 school year. The District refused to consider double shifting and extended days due to previous

disappointing experiences with this alternative.

The 45-15 plan is a variation of the rotating four-quarter plan. Every student attends school for 45 class days (nine weeks) and then has a 15 class day (three week) vacation. This continues all year long in rotating shifts. The entire district composed of 7000 pupils in five elementary and one junior high schools is divided into four groups. Three groups are in class, while the fourth is on vacation. Thus at any one time 5250 pupils are in class, without overtaxing the facilities, and 1750 pupils stay at home.

The plan began June 30, 1970 with group 1 in attendance. Fifteen classdays later group 2 started; group 3 began after another fifteen class days. On August 31, group 1 began its vacation as group 4 began school taking group 1's place. After another fifteen days group 2 went home and group 1 started its second 45 day term; and so on through the year.

Weekends, holidays, and traditional Christmas and Easter vacations are enjoyed by all students at the same time. In addition there is a twelve day holiday from June 24th to July 6th to allow for maintenance work on the schools and busses. In its present form the plan provides 180 days of instruction.

Valley View solved the problem of families having their children scheduled for different 45-15 groups by arranging for all the children of one neighbourhood to attend school and vacation together. This also reduced the geographical area covered by school busses by about 25 per cent and thus

prevented an increase in transportation costs.

The main advantages this plan holds over other variations of the four-quarter plan are:

1. The short vacations of three weeks compared to the usual four quarter plan three months, decrease the problem of extensive review and reestablishing study habits once the pupils return to school. Beckwith, (1970) claims that children thrive on being kept mentally, physically and morally strong and active. He claims that at the end of three weeks most children are sufficiently rested and parents sufficiently frustrated that going back to school becomes a breath of fresh air. (p. 21)
2. There are three times each year when no students are in the school buildings thus allowing for major maintenance of buildings and buses during those times.

The greatest disadvantages this plan holds are:

1. It only provides 180 or less days of instruction.
2. There is a minimum enrollment required.
3. Attendance terms are not voluntary.

(ii) The Atlanta Collegiate Four-Quarter Plan.

In 1967 Atlanta re-examined the four-quarter plan of school operation in order to:

1. Determine the feasibility of organizing the high

school calendar so that year-round educational opportunities could be provided, and

2. Realize a more flexible schedule and viable educational program.

The Atlanta Public Schools (1970) write about the reasons why a rescheduled school year was re-considered:

> "The need for a more relevant and up to date curriculum was evident. More than nine years had passed since completion of the last major curriculum revision. In the meantime, major changes had occurred in social conditions, the student body, and the teaching staff. There was a need for the curriculum to be examined carefully and redesigned so that it would provide for each child educational opportunities which would be difficult enough to be challenging but appropriately adjusted to him so that he could experience considerable success without becoming either bored or discouraged.
>
> Another factor which had to be considered was that for the past number of years, approximately 25 per cent of the high school pupils had participated in a regular summer school program for which they paid a tuition. Of this number, approximately 75 per cent enrolled in advanced, accelerated or enrichment work. Summer school attendance had long since ceased to be a place for failures or for making up work."
>
> (p. 4)

The four-quarter plan of operation was selected as the most desirable plan. However, after a thorough study of the traditional, economy oriented four-quarter plan, the Atlanta area school system decided to make sweeping changes in the administration of the design. (Martin, 1968) The group decided to adopt a plan which is similar to those used by a college or university operating on a four quarter basis.

Figure 3 shows the school calendars adopted for

1968 - 69 and 1969 - 70.

Figure 3

School Year 1968-69

Quarter begins		Quarter ends	
1st:	September 3, 1968	November 26,	1968
2nd:	December 2, 1968	March 5,	1969
3rd:	March 6, 1969	May 30,	1969
4th:	June 4, 1969	August 15,	1969

Teacher planning days when students are free:

August 16 - 30, 1968; November 27, 1968; March 7, 1969; June 5, 6, 1969.

School Year 1969-70

Quarter begins		Quarter ends	
1st:	September 2, 1969	November 24,	1969
2nd:	November 25, 1969	March 4,	1970
3rd:	March 5, 1970	June 1,	1970
4th:	June 8, 1970	August 19,	1970

Teacher planning days when students are free:

August 25 - 29, 1969; November 26, 1969; March 6, 13, 1970; April 3, 1970; June 3 - 10, 1970.

(Atlanta Public Schools, p.48)

It was necessary to revise the entire curriculum

to accomodate the above four quarter plan. "Curriculum committees worked periodically throughout the 1967-68 school year and continuously for five weeks during the following summer." (p.9) These committees developed their own curriculum approach to revision. The members classified pupil characteristics into numerous and various groupings on the basis of chronology, achievement, reading ability, mobility, and other ways that would provide a better understanding of the pupils' learning styles. These characteristics were then grouped into the more common classifications. As part of the process, the list of concepts in each subject area appropriate for a high school pupil to learn continued to grow. Grouping these concepts into courses resulted in 860 quarter courses. The course outline resulting from this effort has behavioral objectives written in wherever possible, and from this course guides for teachers were developed.

Much attention was paid to designing non-sequential courses so that the program would have greater flexibility. It was felt necessary that the new curriculum provide opportunities for pupils to schedule during any quarter any of the many courses deemed desirable both for and by him. The tremendous flexibility and number of courses offered can be seen in the science flow charts, Figures 4 and 5.

> "An examination of the science flow chart shows that a pupil might start with course number 111. He could follow this with courses 112, 113 and 114 taken in any order, then enroll in any course numbers 211 through 214, and/or numbers 221 through 223. Another way a pupil might enroll in the above mentionned 200 series courses would be by

> completing course number 101. Following that he could complete courses 102, 103 and 104 taken in any order, and then move into the 200 series courses." (p. 9)

The above sequence indicates that no single or specific course is mandatory for any given pupil unless his future goals and objectives demand a certain course content. If one accepts this reasoning it becomes apparent that there would be no repeating courses failed. The Atlanta committees posit that if pupils are adequately placed in the beginning, there should be few failures in any case.

Only in special areas such as foreign languages and mathematics is a student required to take prerequisite courses. Thus the student may excercise great flexibility in chosing the courses and time of attendance. (During the first year of the plan however, all students were required to attend the first three quarters with the fourth quarter remaining voluntary.

After the initial year of the program, a student may chose any of the four quarters for vacation or attendance, providing he attends three quarters each calendar year. The student may also take all four quarters in the year.

After two years of operation, the Atlanta group reports that there is no noticable trend of pupils taking their vacations during any but the summer quarter and that 39 per cent of the enrollment during any one of the preceding quarters enrolled in one or more of the completely tuition

Figure 4

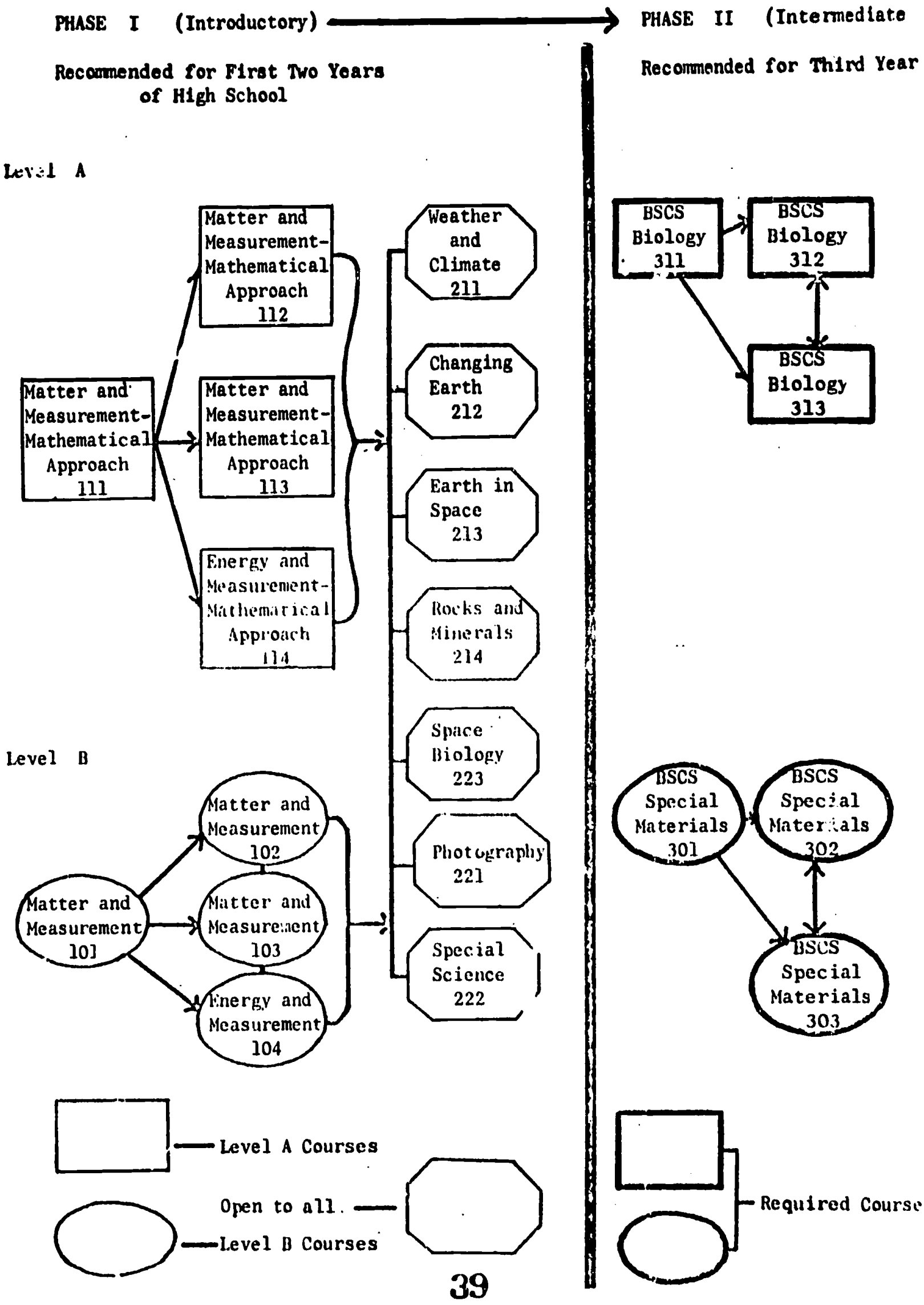
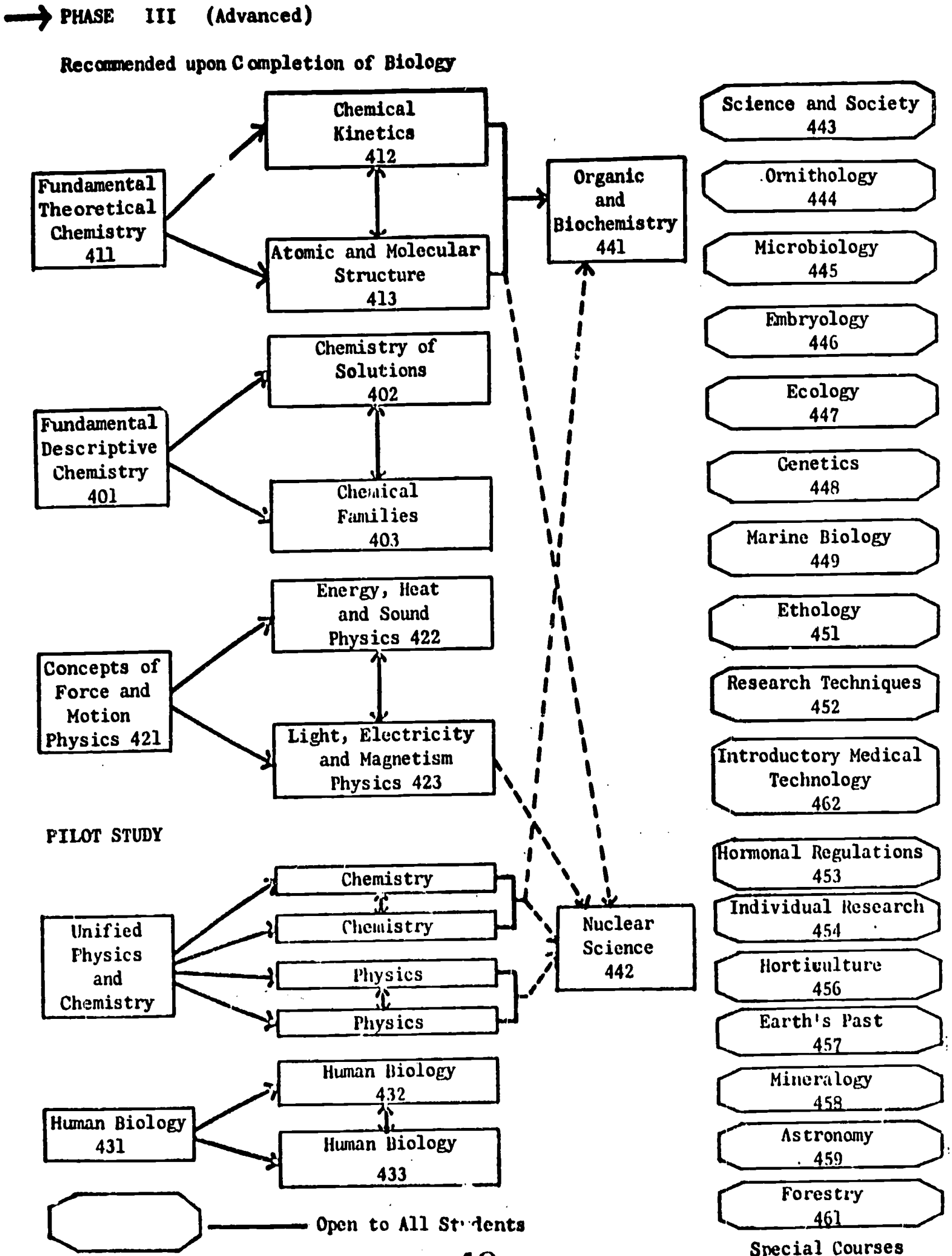

PHASE I (Introductory)
Recommended for First Two Years of High School
PHASE II (Intermediate
Recommended for Third Year
Level A
Matter and Measurement-Mathematical Approach 111
Matter and Measurement-Mathematical Approach 112
Matter and Measurement-Mathematical Approach 113
Energy and Measurement-Mathematical Approach 114
Weather and Climate 211
Changing Earth 212
Earth in Space 213
Rocks and Minerals 214
Space Biology 223
Photography 221
Special Science 222
BSCS Biology 311
BSCS Biology 312
BSCS Biology 313
Level B
Matter and Measurement 101
Matter and Measurement 102
Matter and Measurement 103
Energy and Measurement 104
BSCS Special Materials 301
BSCS Special Materials 302
BSCS Special Materials 303
Level A Courses
Level B Courses
Open to all
Required Course

Figure 5


PHASE III (Advanced)
Recommended upon Completion of Biology
Fundamental Theoretical Chemistry 411
Chemical Kinetics 412
Atomic and Molecular Structure 413
Fundamental Descriptive Chemistry 401
Chemistry of Solutions 402
Chemical Families 403
Concepts of Force and Motion Physics 421
Energy, Heat and Sound Physics 422
Light, Electricity and Magnetism Physics 423
PILOT STUDY
Unified Physics and Chemistry
Chemistry
Chemistry
Physics
Physics
Human Biology 431
Human Biology 432
Human Biology 433
Organic and Biochemistry 441
Nuclear Science 442
Science and Society 443
Ornithology 444
Microbiology 445
Embryology 446
Ecology 447
Genetics 448
Marine Biology 449
Ethology 451
Research Techniques 452
Introductory Medical Technology 462
Hormonal Regulations 453
Individual Research 454
Horticulture 456
Earth's Past 457
Mineralogy 458
Astronomy 459
Forestry 461
Special Courses
Open to All Students

free summer courses.

It is reported furthermore that each school had a full staff including principals, counselors, librarians, nurses and teachers to provide the requested courses. Of the pupils enrolled, 75 per cent took advanced courses, while the remainder took remedial work. (p. 17)

Although there is insufficient data at present to indicate whether a significant increase in early pupil graduation will occur, the Atlanta Schools are hopeful that the new program will provide students with the opportunity to accelerate.

2.2 The Extended School Year Plans.

The extended school year plans aim not only at better utilization of school facilities and personnel, or at pupil enrichment, but can combine all these goals with pupil acceleration.

Although the various plans differ considerably in operating procedures, they have several common features. See Figures 6 and 7

1. Extended school year plans are based on a lengthened school year of 210 or more days.
2. Designs for the extended school year do not eliminate the traditional summer vacation, although they do shorten it.

Figure 6

CHARACTERISTIC	CONTINUOUS SCHOOL YEAR PLAN	MULTIPLE TRAILS PLAN	TWO SEMESTERS PLUS MODIFIED SUMMER-SCHOOL PLAN
BRIEF DESCRIPTIDN DF PLAN	Based on a 21D-day school year, this plan calls for the completion of the regular year's work in 180 days, with the remaining days spent on the next grade's work. By the end of the sixth year, or learning level, seven regular grades' work will have been completed. This plan is based on the philosophy that continuous progress will become a reality.	May be implemented in four stages and be economically or educationally oriented. Through use of multiple time modules and extended year, classes meet less often, for varying lengths of time. Releases classroom space, teacher and pupil time immediately, if limited to Stage One. In Stage Two, some of the extra pupil time may be used for acceleration. Stages Three and Four use extra space and time for educational objectives. In Stage Three space and time reserves may be used for remediation, enrichment, etc. Stage Four calls for a program of continuous progress. Schedules may be compacted for acceleration.	This plan deliberately accelerates pupils through secondary school by allowing them to take new academic subjects during the summer. A pupil may complete to one and one-half courses during a seven or eight-week summer session.
LENGTH OF EXTENDED SCHOOL YEAR	203 days to save 1 year in 8 210 days to save 1 year in 7 216 days to save 1 year in 6	210 days	Regular 180 days plus 35- to 40-day summer segment (215-220 days)
LENGTH OF SCHOOL DAY	Normal hours, September-June 4 to 4½ hours, July or August	Normal hours	Normal hours, September-June 4 to 4½ hours, July or August
DIVISIONS IN SCHOOL YEAR	None	None	Two 9D-day semesters plus 35- to 40-day summer segment
GRADE LEVELS INCLUDED	K-6 1-6 1-8	7-12 8-12 9-12	7-12 8-12 9-12, or possibly 1-8
TIME REQUIRED TO EFFECT SAVINGS IN CLASSROOMS, TEACHERS, AND DOLLARS	In 6-year plan, 5 years In 7-year plan, 6 years for average pupils, less for bright pupils	Stage 1--none, occurs immediately Stage 2--for grades 6-12, 6 years Stage 3--for grades 7-12, 5 years for grades 8-12, 4 years for grades 9-12, 3 years Stage 4--depends on students and needs	For grades 7-12, 5 years For grades 8-12, 4 years For grades 9-12, 3 years
TIME REQUIRED TO BE SELF-SUSTAINING	5 to 6 years	Immediately, if limited to Stage 1	For grades 7-12, 5 years
VACATIONS BEYOND NORMAL CHRISTMAS AND SPRING BREAKS	6 to 7 weeks	4 weeks	4 weeks
NUMBER OF "E" OR EXTRA TERMS PUPILS MAY USE FOR REMEDIAL INSTRUCTION, ADDITIONAL OR ENRICHMENT COURSES, WORK EXPERIENCE, ETC.	No "E" term equivalent 23 to 36 days a year gained	No "E" term equivalent Extra time in daily achedule	None
ADVANTAGES	Saves one elementary-school year in 6 or 7, without divisions in school year. Pupils have fewer teacher changes. Pupils have more time in formative years to master skills and concepts required for later success.	May be implemented in various stages to meet economic or educational objectives. Long transition period before economies can be realized not necessary. Pupil acceleration not necessary to realize economies. Releases classroom space, pupil time, and teacher time, which may be used for a variety of purposes.	Enables pupil acceleration without upsetting status quo in administration, curriculum, etc. The voluntary nature of the plan pleases parents. Program may be fairly inexpensive and may be financed by fees, etc. Teachers may choose their own summer activities. Programs are more than remedial. Summer segment integrated with regular school year; pupils able to take advanced courses during regular school year. Gives more continuity to the entire school program.
DISADVANTAGES	Curriculum must be reorganized. The concept of continuous progress should be adopted and implemented. This requires much preparation and continuous effort.	Implementation of this plan, with its multiple time modules, requirea curriculum revision and revision of teaching procedures. The continuous progress concept of Stage Four requires much preparation and continuous effort.	The cost will exceed that of the traditional summer school. The voluntary nature of the plan makes prediction of its effect on capital outlay and debt service difficult.

Figure 7

TRIMESTER PLAN	QUADRIMESTER PLAN	EXTENDED K-12 PLAN
This plan involves a longer school year divided into three terms. With a slight increase in the length of the daily class period, a pupil can complete two semesters' work in two trimesters. The plan enables pupil acceleration through secondary school, but also includes a varying number of "E" terms, which may be used for a variety of purposes.	Primarily for the secondary school, but lending itself to the elementary school, this plan divides a 204- to 220-day year into four quadrimesters of 51 to 55 days each. Through lengthened class periods, average or above average pupils can complete a regular 180-day course in three quadrimesters. The plan enables pupil acceleration through the secondary school, but also includes a varying number of "E" terms, which may be used for a variety of purposes.	This plan, a composite of other extended school year designs, may have several variations. One typical variation involves a 204- to 225-day school year, with grades K-6 using the extra days for mastering fundamentals and broadening and enriching backgrounds, and grades 7-12 on a trimester or quadrimester plan. Projected economic savings are based on the elimination of one year of schooling out of 13.
204 to 225 days	204 to 220 days	204 to 225 days
Normal hours, September-June 4 to 4½ hours, July or August Class periods lengthened	Normal hours, September-June 4 to 4½ hours, July or August Class periods lengthened	Normal hours
Three 68-to 75-day trimesters	Four continuous quadrimesters of 51 to 55 days	None at elementary level; 3 or 4 at secondary level
7-12 8-12 9-12	7-12 8-12 9-12, or possibly K-6	K-12
One and one-third years	2½ years	May become self-sustaining in second year depending on secondary plan adopted.
During second year	In 3-and 4-year plans, 1 year In 5-year plan, 2 years	May become self-sustaining in second year
4 to 7 weeks	4 to 7 weeks	4 to 7 weeks
For plan including grades 7-12, 3 years For plan including grades 8-12, 2 years For plan including grades 9-12, 1 year	For plan including grades 7-12, 2 years For plan including grades 8-12, 1 year For plan including grades 9-12, none	Depends on plan adopted at secondary level If trimester plan adopted, up to three "E" terms If quadrimester plan adopted, up to two "E" terms Elementary pupils will accumulate the equivalent of 24 to 45 extra school days a year
Classrooms, special areas, and teachers are released in 1-1/3 years. Depending on grade levels included, 1 year of schooling in 4, 5, or 6 is saved. Pupils have up to three "E" terms, which may be used for additional or enrichment courses, work experience, or early college entry at a time other than September. May reduce dropout rate. Pupils have more educational experience before they reach legal dropout age.	Classrooms, special areas, and teachers are released in 2½ years. Depending on grade levels included, 1 year of schooling in 4, 5, or 6 years is saved. Pupils have up to two "E" terms, which may be used for additional or enrichment courses, work experience, or early college entry at time other than September. May reduce dropout rate. Pupils have more educational experience before they reach legal dropout age.	Saves 1 year of schooling in 13. Releases secondary classrooms, special areas, and teachers in 1-1/3 to 2½ years depending on secondary plan adopted. Provides elementary pupils with extra learning time. Secondary pupils may have up to three "E" terms, depending on plan adopted. Keeps all pupils, K-12, on same school calendar. May reduce dropout rate. Pupils have more educational experience before they reach legal dropout age.
Year divided into three terms. To equalize time, daily class periods may need to be lengthened.	School year divided into four terms. To equalize time, daily class periods may need to be lengthened.	Daily class periods may need to be lengthened. Because some pupils will elect to enrich and broaden backgrounds or will need to spend extra time mastering fundamentals instead of accelerating, classroom and staff requirements and financial saving predictions may be difficult.

3. There is no staggering of attendance periods, and the pupils are not cycled through the school year.
4. The school day need not be lengthened. (for the B.C. schools, with several of these plans a very slight change in the school day may be necessary.)
5. All pupils attend school every day.

(School Management, Feb. 66
pp. 90-91)

Basic to the extended school year plans is the acceptance of a different philosophy of education, school administration and the patterns of community and home life. Furthermore, the extended school year plans also require some major changes in the curriculum. Fundamental to several of the plans is the concept of continuous progress. Others require revision of course outlines and presentation sequences to fit into trimester or quadrimester time blocks.

The New York State Department of Education spent considerable time and effort on the construction and refinement of the six extended school year organizational plans. The main features of these plans as briefly outlined in Figures 5 and 6 were examined and tested as thoroughly as possible both in actual pilot projects as well as tests of specific features of the plans in major cities, suburban communities and small town or cental school districts.

It was recognized at the outset of examining the extended school year that the implementation of any plan would require much more than the mere addition of hours and days to any presently existing school schedule.

> "Each extended school year plan of organization contains specific features which can change the nature of a school or school system. For example, the trimester plan provides a number of 'E' terms (extra or enrichment terms) which, while offering educational advantages require a mandatory acceptance of something more than shortened vacation periods in order to guarantee constant or fixed enrollment flow patterns.
>
> Extended school year plans include features which require fundamental changes, not only in educational philosophy, curriculum and school administration, but in family and community patterns of living."
>
> (Thomas 1968, p. 4)

The following sections discuss the nature of the proposed extended school year designs, indicate the advantages and disadvantages inherent in each and discuss the general findings of schools and districts in which these plans were, or still are being tried.

a.) Bimester and Summer School.

Under the heading of summer school two main plans exist. The first, the 'Traditional Summer-School Plan' generally has four main purposes. These are recreation, make-up, remediation and enrichment. The plan is completely voluntary for both students and teachers. The second plan, 'The Modified Summer-School Plan,' is either wholly or partially mandated and aims primarily at pupil acceleration.

(i) The Traditional Summer-School Plan.

This plan is the one most widely used by schools attempting to provide some kind of formal educational

experience for pupils during the summer vacation. The plan consists of the regular school year plus a summer segment ranging from 20 to 30 school days held during July and August.

1. Purpose: The traditional summer segment aims at providing the following four programs.

Summer recreation programs offer activities such as individual and group sports, crafts and the like, and are designed to help children use their leisure time better.

Make-up programs enable students to repeat courses they have failed during the regular school year.

Remedial programs designed to provide assistance to pupils who have difficulty in specific areas, such as reading, so that the pupils can progress through subsequent courses more smoothly.

Enrichment programs enable pupils to take courses that are not normally offered during the regular school year, or will not fit into their regular schocl year schedule.

Most of the traditional summer programs are voluntary, but it has been suggested that attendance be mandated for pupils who have failed grades, or courses, and for those requiring remedial assistance. The session may be financed by the school district, by tuition or fees, or by a combination of both.

Although the objectives of this type of summer program are mainly educational, it has been suggested that some

economies will be obtained if the remedial programmes result in fewer pupil failures. Furthermore, economies will also result if failing students make-up courses during the shorter summer period. (Florida Education Research and Development Council, p. 71)

2. Costs.

Estimates for operating a summer program indicate that an additional 4 to 18 percent of the annual budget is required.

> "The added costs of course are concrete. The Superintendent at Rochester estimated that about four or five percent of a $3,000,000 annual budget was used for the summer program, and in Lexington the superintendent reported that 17 to 18 percent of the annual budget is spent on summer operations."
>
> (Schoenfield & Schmitz, p. 16)

A study conducted in Florida to investigate the feasibility of implementing a summer school program in Polk County, (Florida Education Research and Development Council, p.44) indicated that a completely voluntary, seven week summer session offering make-up, enrichment, and acceleration courses without cost to pupils, would result in a 5.5 percent increase in net expenditures. The identical program, with mandated attendence for non-promoted pupils and voluntary for all others, would result in an extimated 5.7 percent increase in net expenditures.

The Florida Council recommended a summer school plan as the best alternative for extending the school year "...if the

school board wished to make better use of the school plant and school personnel without making major changes in curriculum and administrative organization." (p. 63)

3. Advantages.

An analysis of the summer school approach to the year round use of school facilities shows the following advantages.

(1) The plan offers increased educational opportunities without requiring major changes in the curriculum and school organization.

(2) Retarded pupils have an opportunity for special assistance and training. This will aid their further development and may decrease pupil grade failure, there saving the cost of reteaching non-promoted pupils.

(3) All pupils may have the benefit of guided leisure time.

(4) All pupils may benefit from having an opportunity to take courses not normally offered during the regular school year, or courses which might not fit into their regular school year schedules.

(5) Teachers may be employed on a year-round basis, thus utilizing their resources for professional work throughout the year and also improving their economic status.

(6) There is little difficulty in maintaining the school physical plant, since the entire plant is not required for summer classes.

(7) In most instances, participation in summer school is voluntary, and does not interfere with family summer vacations.

4. Disadvantages.

The following disadvantages are found in the traditional summer school plan.

(1) The voluntary summer session increases total educational costs.

(2) In most cases the program is optional and only a very small percentage of the school enrollment may chose to participate. Thus the return on the added investment may be too small to make the program financially feasible.

(3) Financing the completely voluntary program may be difficult.

(4) If student fees are required for summer courses, the gap between disadvantaged and non disadvantaged pupils increases.

(ii) The Modified Summer School Plan.

This plan differs from the traditional summer-school plan only in that it deliberately attempts to accelerate pupils by providing full credit courses and by partially mandating student attendance. A summer segment would call for the completion of at least one full year course during it's 6 to 7 weeks duration. Advanced courses could be completed by average learners attending classes 3½ to 4 hours per day for six or seven weeks. (210 minutes per day x 35 school days = 7,350 minutes or 120 hours) Thus the

instructional time available in the modified summer program exceeds that of the regular summer school, and is about equal to that of the regular school year for one subject.

1. Purpose

Thomas states that this plan, "...is an attempt to deliberately accelerate pupils through secondary school, by offering more than remedial, make-up or so called enrichment courses. Students who take part in the proposed programs do so with the understanding that they will take new academic subjects. The courses selected at this time will be designed for the purpose of allowing them ultimately to do 4 to 6 years work in the calendar year less." (1966, p. 67)

2. Cost

The New York State Department of Education estimates that when this plan is based upon the progress of average ability pupils in grades 7 - 12, it will be five to six years before a reduction in student enrollment will justify the release of classrooms and teachers.

Preliminary reports indicate that the cost of a modified summer school program would exceed that of the traditional summer school program because pupils will be exposed to a fuller program than is customary for summer school. However, the program cost per pupil still remains substantially lower than that of a regular year program.

(Thomas, 1966, pp. 65 - 67)

3. Advantages

The Modified summer segment has all the advantages listed for the traditional summer program plus the advantage that pupils can accelerate by one calendar year while still completing the work prescribed for grades 8 through 12.

4. Disadvantages

(1) Unless attendance is mandated, it is impossible to predict the number of classrooms and teachers, and hence the economies, this program will provide.

(2) The issue of compulsory attendance is a difficult one to sell to the public. However, the present voluntary summer school programs tend to widen the gap between disadvantaged and non-disadvantaged groups since the former may not be motivated to attend summer school without pressure.

(iii) Experimentation Syosset, N.Y.

1. The Plan

The Syosset modified summer school plan was adopted September 1964 and begun during the summer of 1965 for students who had just completed seventh grade. (Thomas, 1966, p. 26-32 and Scala, 1970, pp. 79-89)

Participating students were separated into three groups: (a) Fast learners and academically talented students who by enrolling in three summer sessions might complete their

secondary school education in five years rather than six.
(b) average ability pupils who could possibly accelerate after four sessions of summer school.
(c) average or above average non suceeding pupils and slow learners who might be expected to require more than four years to complete high school.

Three control sub-groups were chosen from the same grade seven class. They were matched with the experimental groups in age, I.Q., sex, achievement test scores, teacher works, tracking recommendations - but did not participate in the extended school year.

Three other sub-groups, also matched with the experimental sub-groups, but one grade ahead of them and not participating in the extended school year project, were termed comparison groups.

During each of the six week modified summer school sessions, experimental sub-groups 1 and 2 took one full-year academic course for the first time, plus a one-half year enrichment course. The underachieving and, slow learning pupils used the time as a third term in which to complete basic courses, and also took an enrichment or vocational course.

2. General Findings:

Achievement of Average and Above Average Pupils

Achievement was measured by standardized tests, teacher grades and Regents examination scores. Test score analysis

indicated that "...upon completion of the six week, first time full year courses in eighth grade social studies, ninth grade English, tenth grade maths and tenth grade earth sciences, the pupils scored as well as, or better than, their respective control groups. For example, the average grade equivalent score on the Standford Achievement test of those experimental pupils taking eighth grade social studies during the summer was 11.3, while the comparable score of the control group was 10.8. The comparison group average score was 11.1." (NEA Research Bulletin, 1968, p.23)

Students completing full time academic courses in the summer, took the next higher level course with older students. Thomas (1966) reports that the extended school year pupils "...received equivalent or better grades than upper classmen." (p.29)

Attendance

It was reported that the attendance of the experimental group was very good during the summer, and was considerably better than the attendance of the comparison group, and slightly better than the control group.

Educational Implications

Conclusions drawn from the experiment were largely favourable. Comparisons of teacher grades, Regents Examination scores, and standardized achievement test scores revealed that the experimental group was doing as well as,

or better than their peers, the control group and older students. The acceleration of the experimental group into advanced level courses in the regular school year after completion of summer school did not create any academic, social or emotional problems. It was also reported that completion of regular academic courses in six weeks instead of ten months did not adversely affect depth of pupil learning.

A survey of the units earned at the end of the third summer session indicated that 75 per cent of the experimental student group could graduate one year early. One fourth of the control group could graduate early and only one tenth of the comparison group could accelerate graduation.

It was concluded that, "Average and bright students can complete six years of secondary school work in five years with approximately the same level of achievement as other students." (Thomas, 1968, p.31)

Cost analyses indicated that the full unit courses offered during summer session cost less than similar courses offered during the regular school year.

Parental Reactions

In the first summer 80 per cent of parents responding felt their child had benefitted educationally; 5 per cent felt that their child not benefitted from the program and 13 per cent felt that the childs' participation in the program had interfered with summer plans.

In the second summer, 85 per cent of parents noted that their children showed positive signs of growth and development over the summer; only 18 per cent noted any negative developments. The most frequently encountered problems by students were heat, fatigue and distractions.

Writing about the Syosset summer school program in 1970, Thomas states:

> "The Syosset Extended Summer Segment repeatedly showed the feasibility of compacting full year courses into shorter time blocks. The ...program helped set the stage for the institution of other extended school year patterns such as the accelerating trimester, the split trimester, the quadrimester, the Multiple Trails Plan, and several cycling plans. While it was demonstrated that secondary school students can be accelerated without too much difficulty administratively, and at no harm to the pupils, the summer segment design is not recommended as an approach to realize specific economic objectives through a completely voluntary student participation program.
>
> Initially students volunteered to work through a 4 to 5 year extended school year program, but many failed to complete the basic pattern due to variables not considered in advance. A partially mandatory regulation would have increased the holding power. Again, the program was too limited to provide for the varying needs of many students." (p. 79)

In conlusion Thomas argues that although many educators feel that the summer segment is a safe and secure approach to rescheduling the school year, the experiences do not validate this line of thinking. If there are any economic objectives, the students must be encouraged

to accelerate, and hence scheduled into new grade patterns. If a large number of students are involved, the entire school course sequence and the scheduling process will be definitely and dramatically more difficult. He warns that if the regular school year pattern of organization remains the same one can only conclude that the extended school year program is ineffective, and does not meet educational or economic goals.

(iv) Experimentation, Vancouver, B.C.

A credit summer school program was undertaken in Vancouver during the summer of 1969. The program, held at Eric Hamber Secondary School during the period July 7 to August 8, was reported to have been a successful experiment. (Ellis, 1970)

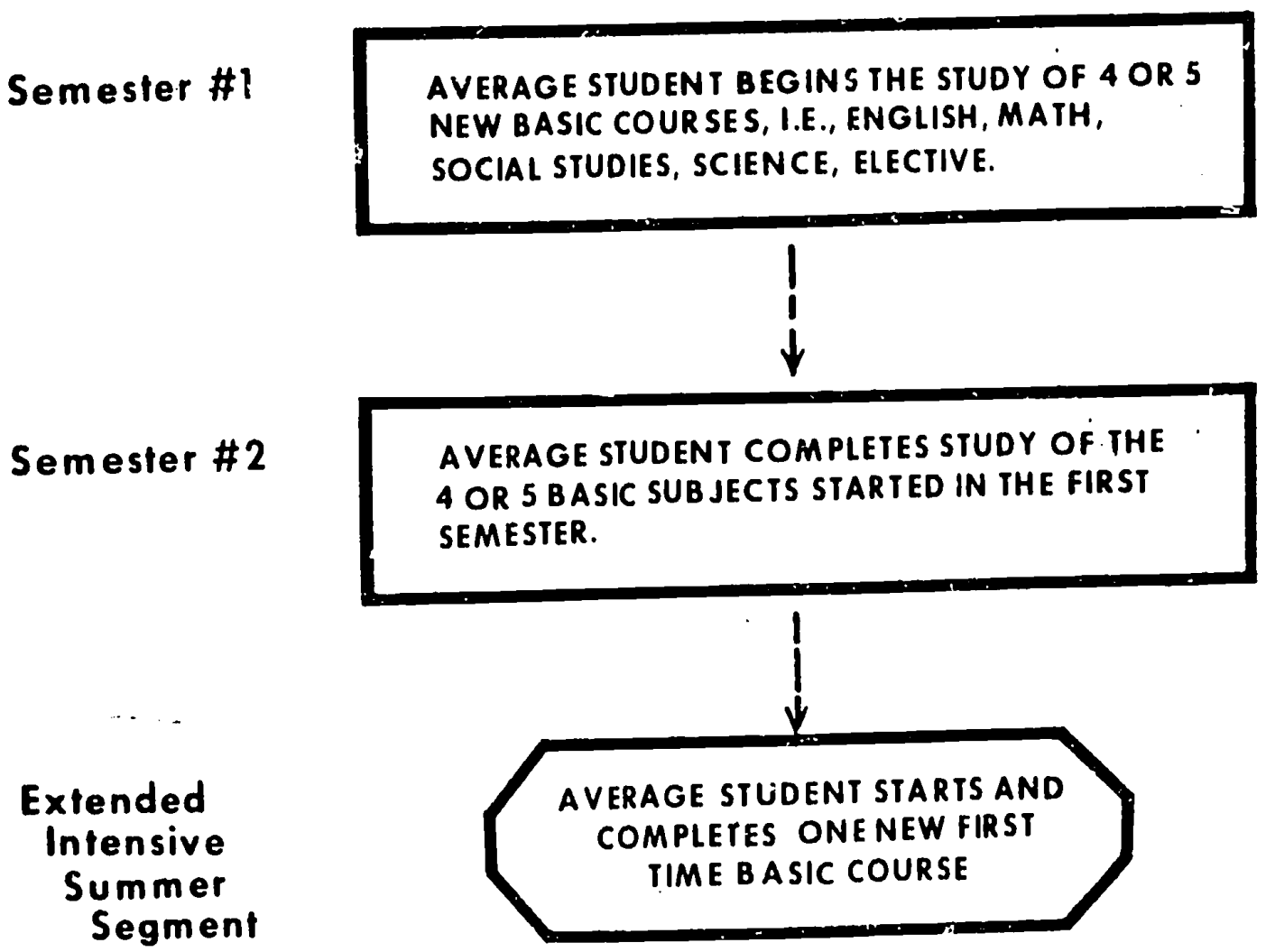
After a thorough analysis of all aspects of the program, it is reported that;

> "Participating students received on the average slightly (but significantly) lower grades in the following January than they have received in the prerequisite courses completed in the previous June...
>
> ...Reactions of students, teachers and parents... were generally favourable..."
>
> (Ellis, p.17)

Figure 8

The First Year of a Lengthened School Year

Showing the Extended Summer Segment



b) The Trimester Plan.

There are numerous variations to this plan which essentially calls for three semesters during an extended school year. Recommended plans provide a short vacation of up to one week after the first and second semester, and a substantial summer vacation. All students attend all scheduled class days.

A trimester calendar providing 222 days of school during the 1971 - 1972 academic year might look as follows.

Figure 9

A Trimester Calendar for Vancouver Schools 1971-72

Trimester begins	Trimester ends	No. of school days.
1st: September 9	December 23	74
2nd: January 3	April 13	74
3rd: April 24	August 4	74
	Total	222

Vacations: All statutory holidays plus December 24 to January 2, April 14 to 23, and August 5 to September 4.

Each trimester would provide 74 days of instruction and students would have vacations during the traditional Christmas, spring and summer periods.

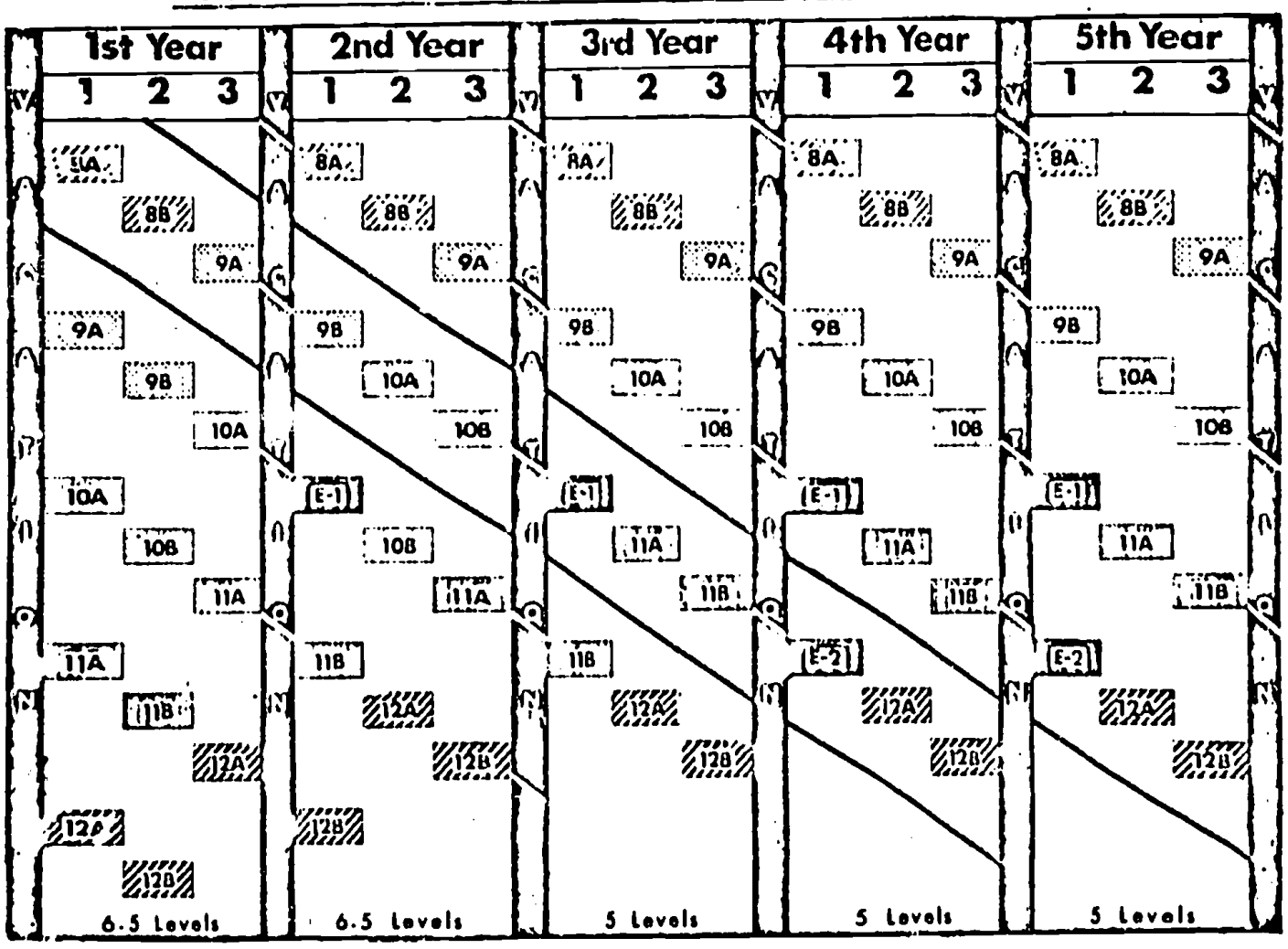
(1) The New York Plan.

The New York State Department of Education developed a series of trimester plans which, based on the acceleration approach, save one year out of six, five or four calendar school years in the secondary schools. Of these plans, the four year plan resulting in one years' saving in five is the one most suited to the Vancouver composite high school.

The four year trimester plan resulting in the saving of one year in five involves grades 8 to 12. It begins with five grades and reduces to four levels after the fourth term of operation. Figure 10 illustrates the flow pattern.

Figure 10

Student Flow in a Four Year Trimester Plan



(Thomas 1966, p.28)

Each trimester can be as long as a school system wishes to make it, however, the deciding factors are the length of the school year and the length of the class periods required to satisfy course time requirements.

If acceleration is to be accomplished a student must be able to complete the traditional 195 day calendar in two of the three trimesters, or 144 days. This is essential so that higher grade or level work may be taken during the third term. With the present course requirements in B.C. for high school graduation, the implementation of the trimester plan would require a substantial time addition to the present school day.* The only alternative to a longer school day would be to reduce the number of courses required for graduation.

The four year trimester plan provides for two extra or 'E' terms. The primary purpose of these 'E' terms is to stabilize enrollment flow, but it is possible for students to spend their extra time or Trimesters at many worthwhile educational activities such as enrichment, broadening, intensive remediation or make-up, school directed or non-school directed work experiences, or vacation. Some pupils could lighten their class loads. Some courses may be offered as three term courses. The use of 'E'terms for further acceleration is not recommended.

---

* 120 hours per year, or 60 hours per semester per course are presently provided in 195 or 97 days. The same 60 hours would have to be provided in 74 days thus necessitating a daily time adjustment.

1. Purpose.

As indicated above, the plan aims at pupil acceleration by saving one year out of five calendar years.

2. Costs.

After the initial transition period of four trimesters one class of the traditional secondary schoolflow would be eliminated, and savings of space and teachers would begin to accrue.

Estimates for New York indicate that the grades 8 to 12 program would increase the budget by 2.3 per cent during the transition year, while decreasing it by 3.6 per cent after the transition period. (Thomas, 1966, pp.40-41)

For a detailed analysis of the cost savings, and the potential economic impact of the trimester plans on New York State, see Appendix B, pp. 124 - 133.

The Florida Education Research and Development Council (1966) describes and analyses the cost of a trimester plan for the schools of Polk County, Florida. The plan providing 225 school days with the traditional vacation periods left intact except for a shorter summer vacation, would have decreased total net expenditures by 4.23 per cent after a ten year transition period. (pp. 15 - 39)

3. Advantages.

The following major advantages inhere in the trimester plan.

(1) Classrooms, special areas and teachers are

released after the fourth trimester.

(2) A pupil can graduate one year early.

(3) Pupils have two extra terms which can be used for additional or enrichment courses, work experience, or vacation.

(4) The plan can reduce drop out rates, and pupils who do drop out have more educational experience before they can legally leave school.

4. Disadvantages.

(1) Time equalization requires an extended school day or a decreased course requirement for graduation. This is essential if students are to complete 60 hours of instruction in one trimester.

(ii) Experimentation: Nova High School, Florida.

D. Fitzpatrick, principal of the school reported in 1966 that since opening in 1963, Nova High had experimented with three different school years. (p. 30)

The first variation of the school year operated for two years. It was a 220 day trimester plan operating from September through July. There were five daily class periods of 70 minutes each, and an optional early morning period for club and other extra curricular activities.

The school program was changed to a non-graded one thus allowing pupils to progress at their own rates through

a series of gradually rising achievement levels in each subject area. The absence of steep achievement levels allowed the students to move smoothly during the school year from one achievement level to the next, with major regroupings coming at the end of each trimester. Under this program a beginning grade 10 student could complete high school in two and one-third years.

This program and schedule were discontinued in 1965 because:

1. The extended school year caused a strain on teachers and students, primarily because of the lack of a vacation in the long term from Easter to the end of July.

2. There appeared to be a tremendous psychological let down on the part of the Nova students when other school students were dismissed from school seven weeks before the Nova term would end.

3. More students vacationed in July than any other month. Since students were not legally required to remain in school more than 180 days, parents exerted great pressure on the school to have youngsters released for family vacations.

In 1965 the length of the school year was decreased to 193 days so that the end of the school year would more closely coincide with that of other schools having a traditional calendar. A special voluntary summer program was instituted with emphasis on leisure and enrichment activities.

Fitzpatrick did not report on the success of this program although the fact that Nova only used the program

for one year indicates dissatisfaction with it.

In 1966 a 210 day, 70 day trimester program was implemented, and a special 'July' program incorporated in the design. The school year begins August 15th, and with the July program, the school uses its facilities for almost twelve months. Teachers are employed for the entire year. The new academic year begins for teachers on August 1, although no students are in school during the first two weeks of August. The program is reported to be a successful one.

(iii) The Split Trimester.

This plan is a compromise between the regular trimester program and the traditional summer school . The plan differs from the regular trimester plan in that it introduces voluntary student participation during part of the third trimester.

The extended school year is divided into three equal segments varying from 72 to 80 days in length. The first two trimesters are attended by all students. The third trimester is divided into Session A and B. Each of these sessions is half the length of the regular trimester. Figure 11 shows a split trimester plan for Vancouver for 1971-72.

A student electing to finish the year at trimester 3A must be allowed to start new course in the middle of trimesters 2 and 3. This flexibility in course offering becomes a prerequisite where the concept of completely

voluntary participation in a split trimester is considered.

Figure 11

A Split Trimester Calendar for Vancouver Schools 1971-72

Trimester begins	Trimester ends	No. of school days.
1st: September 9	December 23	74
2nd: January 3	April 13	74
3 A: April 24	June 14	37
3 B: June 19	August 8	37
	Total	222*

Vacations: All statutory holidays plus December 24 to January 2, April 14 to 23, June 15 to 18, and August 9 to September 4.

If the plan is completely voluntary, the students are not pressured or encouraged to attend beyond the 3 A term. This plan still could provide savings through acceleration if sufficiently large numbers of students elected to take the 3 B term.

1. Purpose.

This plan gives more flexibility to the trimester

Note that the plan only provides 181 days of school if students elect not to take the 3 B term.

design, and can lead into the standard trimester design.

2. Costs.

Any program which gives pupils the option of atteding, or not attending school for a portion of the year creates problems for those attempting to project either costs or savings. Furthermore, as the plan compromises the acceleration concept, it is questionable whether or not any savings in space or personnel can be realized. Only if attendance in the 3 B term is mandated for a significant number of pupils will the program become self supportive rather than an add-on-cost one.

3. Advantages.

The New York State Department of Education envisages the following advantages in a program where partially mandated attendance is used.

(1) New courses may be introduced with a guaranteed minimum enrollment.

(2) The school can offer a fuller program of courses in the second half of the third trimester.

(3) Organization for the third (B) term becomes easier with a guaranteed minimum enrollment.

(4) The plan can be used to lead into a proper trimester schedule.

4. Disadvantages.

(1) This plan provides little acceleration and hence no cost savings.

(2) The plan adds to operating expenses

(3) The students who do not attend term 3 B only receive 181 days of instruction.

(4) The fact that the third trimester is divided requires course time block and perhaps sequence adjustment.

(5) Flexible scheduling of classes is required to overcome the splitting of courses in the middle of trimesters 1 and 2.

c) The Quadrimester Plan.

Variations of this plan are based upon the division of a longer school year into four equal quarters. The quadrimester design differs from four-quarter plans in that pupils are not given a choice of working through three quarters and then having one extended vacation, but rather, are expected to continue through the entire extended year of from 204 to 225 scheduled class days. The plan thus provides for continued education during an extended school year. Recommended plans provide for a short break between terms as well as the traditional Christmas and Easter vacation period, and a four week

summer vacation. Figure 12 shows a quadrimester calendar for Vancouver for the year 1971-72. The calendar provides 220 days of school over four terms of 55 school days each.

Figure 12

A Quadrimester Calendar for Vancouver Schools 1971-72

Quadrimester begins	Quadrimester ends	No. of school days
1st: August 30	November 17	55
2nd: November 24	February 16	55
3rd: February 24	May 11	55
4th: May 18	August 2	55
	Total	220

Vacations: All statutory holidays plus November 18 to 23, December 24 to January 2, February 17 to 23, May 12 to 17, August 3 to 31.

1. Purpose.

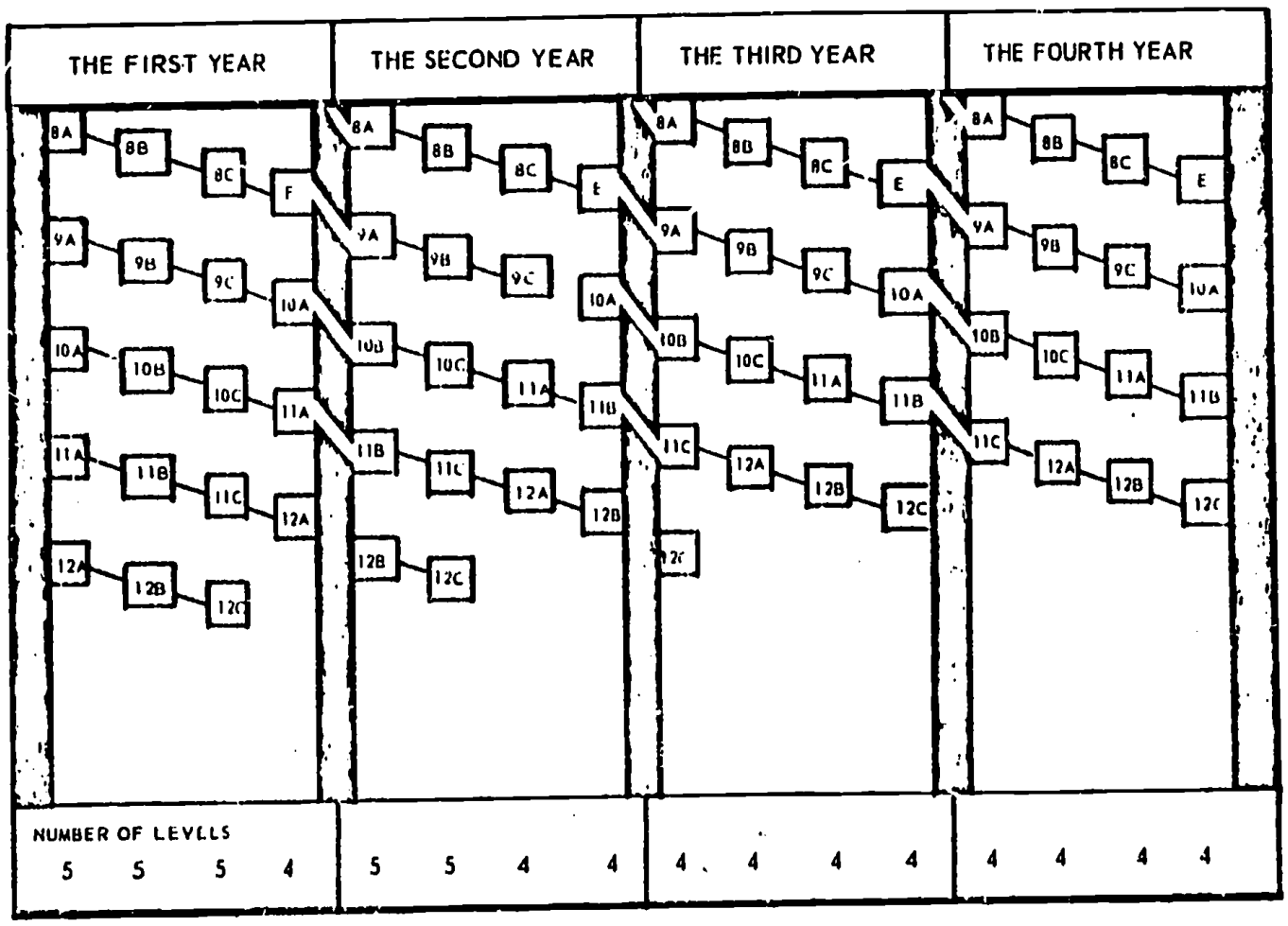
The four year quadrimester design is one of the variations of the basic design which enables average or better than average students to complete five years of school in four lengthened school years.

The progress of a beginning grade eight class can be followed in the flow chart, Figure 13. The pupils in the 8A class move diagonally across the chart until they

graduate 12C at the end of the fourth extended school year. They complete five full years of secondary school courses in four calendar years and have the advantage of one extra 'E' term to help pace their progress, or to use in any educational or non-educational manner as they see fit.

Figure 13

The Four Year Quadrimester Flow Pattern.



(Thomas, 1966, p.58)

A reduction in school enrollment takes place at the end of the ninth (9th) quadrimester. At this time the new flow pattern takes on permanence and the five levels of classes reduce to four.

2. Costs.

The New York State Education Department estimates that an increase of from 2 to 3 per cent in the current expense budget can be expected for the first adjustment year. This increase is seen due largely because of additional teacher salary and pension costs for an 11th month service.

Thomas (1966) indicates that the increase may be calculated in two ways:

> "a) One calendar has the third quadrimester ending on April 9th*, with school resuming for a reduced enrollment on April 19th. If the full teaching staff is not employed for the fourth quadrimester, there will be a decrease in salary costs. This will help defray the extra salary costs for the 11th month's service on the part of the remaining teachers.
>
> b) Small school systems may elect to employ the entire staff for the full 10 months. The extra teachers can be used as relief teachers, or they can work on curriculum and other specific projects for five to six weeks. These teachers are not employed beyond their normal 10 month contract year. Extra current expense costs, therefore, are based on compensation and fringe benefits paid out for the teachers who have extended their year to 11 months. This approach is slightly more expensive than the preceding one. It is therefore used to calculate quadrimester

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* Note; based on the extension of the 180 day US school year. With the proposed calendar of Figure 12, the third quadrimester would end May 11th, or after 165 total days of school. It is questionable whether many teachers would be prepared to work for only 165 days.

> and trimester costs because it provides some leeway for unexpected costs, or costs not listed." (p.62)

It is reported that second year adjustment costs will be somewhat lower than those for the first year due to an earlier temporary reduction in student enrollment. Preliminary cost studies of the plan indicate that the second year costs will approach the break even point. In many school systems the four year quadrimester design can be considered as self sustaining after the first adjustment year.

During the third year of quadrimester operations, a saving in current expenses can be expected. However, the cost of operating the program will be higher than that of a regular two semester program. This difference in cost is due largely to the need to provide extra teacher coverage for one grade for approximately two months.

After the transition period, the current expense costs for the quadrimester program are lower than those for the traditional year. It is estimated that the current expenditures for a quadrimester plan are between 10 to 12 per cent lower than for the five year two semester program that the four year quadrimester design replaces. Furthermore, savings will be realized in capital outlay, debt service, and operating costs.

How long will the school system have to wait to obtain released classrooms? The four year design will leas to a permanent reduction in pupil enrollment by the

end of the ninth term after implementation. Consequently, a reduction in both the numbers of teachers and classrooms can be counted on in two and one-quarter years.

Should space be badly needed, the graduation of the first 10th grade can be accelerated so that most of this class graduate at the end of the second adjustment year. If this is done, classrooms will be released permanently at the end of one and one-half extended school years.

3. Advantages.

(1) The quadrimester plan is the most easily adapted extended school year plan and has all the advantages of the trimester plan.

(2) The smaller terms reduce failure cost as a student need only repeat one term rather than a somewhat longer trimester term, or the semester or whole year.

(3) A lesser time equalization is required than for the trimester plan.

(4) Curriculum can be revised into smaller sections.

4. Disadvantages.

(1) The only disadvantage of this plan is that the transition period is somwhat longer than that of the trimester plan.

(11) The Quadrimester and Rotating Four-Quarter Plans Compared.

The two plans are quite dissimilar.

QUADRIMESTER	ROTATING FOUR-QUARTER
All pupils attend school every day.	Pupils attend three out of four quarters. Only three fourths of the total student enrollment is in school at any one time.
All students have a summer vacation taken at the same time.	One fourths of the pupils are taking a three month vacation at any one time. Vacations may be in fall, winter, spring or summer.
Pupils are deliberately accelerated by one year.	No attempt at pupil acceleration is made.
Pupils have at least one 'E' term for enrichment, remedial work, or make-up.	Has no 'E' term.
Schools are open for four weeks during summer for major maintenance or repair work.	Schools are operated year-round leaving little opportunity for day time cleaning and repair during the week.
No minimum schod enrollment is required to make the plan feasible.	A minimum enrollment is required to make the plan feasible.

d.) The Continuous Progress Plan.

This plan is the easiest to understand and administer. It proposes an extended school year in which pupils complete one years work in the traditional time period and then spend the remaining time of the extended school year on next years work. Pupils work through sequential phases of the curriculum without excessive time breaks. The length of the extended year depends upon the number of grades incorporated into the design, and the corresponding number of years over which one year of schooling is to be saved. An increase in the number of grades included in the plan will decrease the number of school days required to equalize time.

Figure 14 illustrates how the present eight years K - 7 could be reduced to seven years without any loss in instructional time.

The calendar for the continuous school year plan provides a summer vacation as well as the traditional Christmas and Easter vacations.

It must be recognized though that if acceleration is desired at the elementary school level, the secondary schools must also be involved in the rescheduling. This is because although the school system at the elementary level will benefit by the release of additional classrooms at the end of the seven year adjustment period the secondary school(s) will have to house an additional

Figure 14

Time and Grade Concepts in Regular and Continuous School Year Plans

Regular School Year Plan		Continuous School Year Plan		
Year	No. of days	Learning Level	No. of days	
Kindergarten	190	Level 1	190	
			27	(217)
1st Grade	190	Level 2	190	
			27	
2nd Grade	190	Level 3	190	(217)
			27	
3rd Grade	190	Level 4	190	(217)
			27	
4th Grade	190	Level 5	190	(217)
			27	
5th Grade	190	Level 6	190	(217)
			27	
6th Grade	190	Level 7	190	(217)
			27	
7th Grade	190			
Total number of days	1,520	Total number of days	1,519	

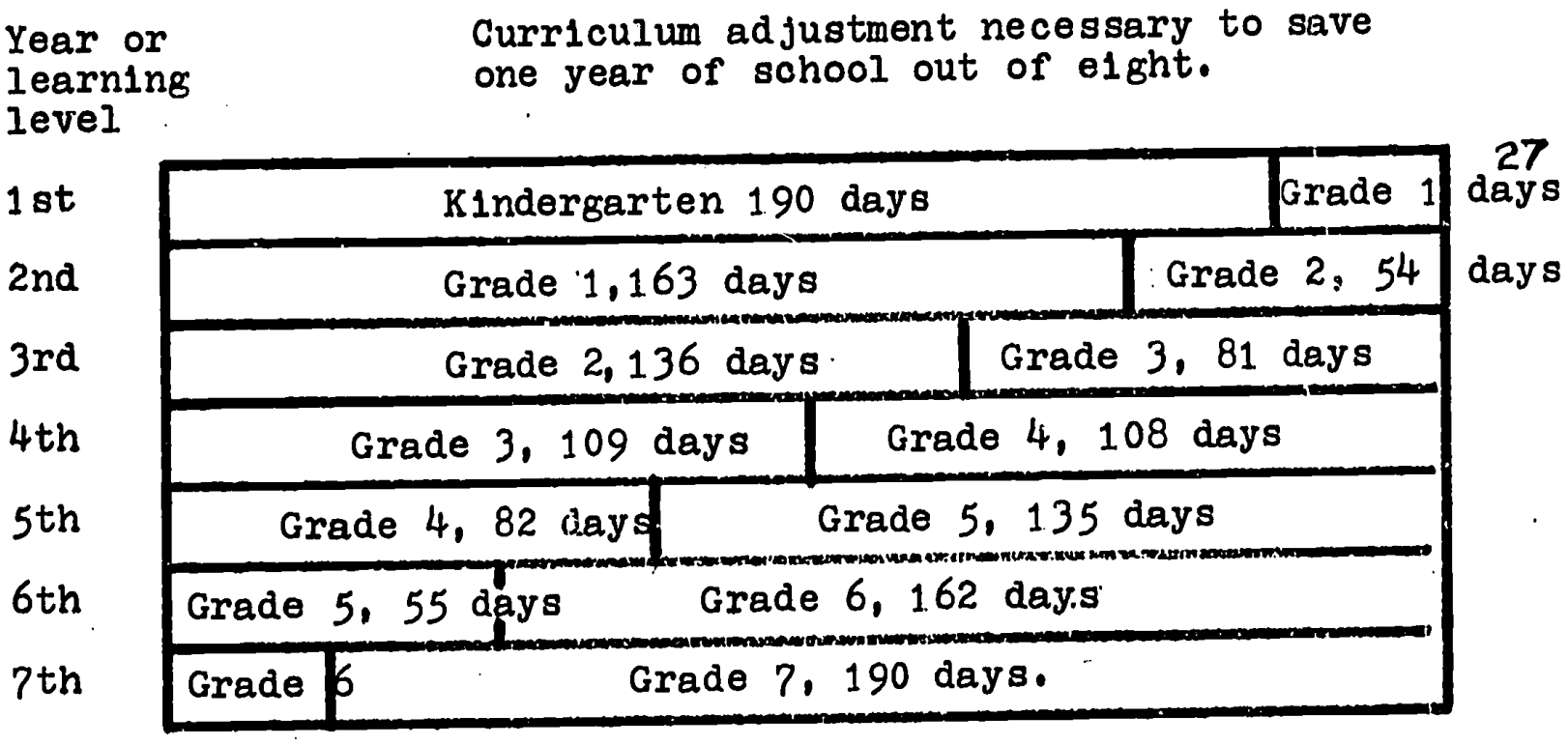
(adapted from Thomas, 1966, p.18)

number of students equivalent to the extra grade or class coming out of the elementary schools for a period of six years. Thus if elementary schools go on an extended school year program, such as the continuous progress plan, the secondary schools must be;

1. Prepared to adopt an extended school year at least temporarily, or
2. Have sufficient facilities and staff to cope with the extra stream of students leaving the elementary schools during the adjustment periods.

Figure 15

Operation of the Continuous School Year Plan for Rescheduling the School year.



2. Costs.

The New York State Department of Education calculated that the initial transition period costs, and the costs when the program is self sustaining after the transition period would be a 3.6 per cent increase and a 6 per cent decrease respectively as compared to the traditional program. (1966, p.23)

3. Advantages.

(1) The plan saves one year elementary school in the years K - 7.

(2) There are no divisions in the school year.

(3) Pupils have fewer teacher changes.

(4) Pupils have as much time as under present school schedules to master skills and concepts required for later success.

4. Disadvantages.

(1) Extensive curriculum revision and reorganization are necessary.

(2) Continuous progress must be adopted and implemented. This requires individualized instruction and by the teacher much preparation and continuous effort.

(3) The plan requires a lengthy transition period.

(4) Only acceleration provides economies.

(5) The secondary schools must make provisions for one extra stream of extended school year elementary graduates.

(11) Experimentation, Commack, New York.

A modified continuous progress extended school year program was implemented in the Grace L. Hubbs Elementary School, Commack, New York in August 1964. The program ran for three years and provided for 210 days instruction each year beginning the third week in August and ending in the second week of July.

The purpose of the program was to demonstrate that a school district can save one year at the elementary level. The results of the program indicated that this was indeed possible. It is reported that the extended school year pupils:

1. Scored higher than their control groups on all seven subtests of the Metropolitan Achievement Test.
2. Scored greater mean and median gains in reading comprehension and word knowledge than did control groups of pupils. (Thomas, 1968, pp.11-19)

Bendickson, (1965) reported that summer attendance of the extended school year group averaged 95 per cent, while the regular school year attendance of all pupils averaged 92 per cent.

It was also reported that parents expressed satisfaction with the program, and furthermore that the majority of parents had their children enrolled in the program to provide them with a better education. (p.6)

e) The Extended K to 12 Plan.

(1) The Plan

This plan combines the features of several of the other extended school year plans. It also aims to save one year out of the thirteen K-12 years while at the same time providing a better education for all students. In the elementary school, pupils would use the extra days of an extended school year to master fundamentals and to participate in broadening and enriching activities.

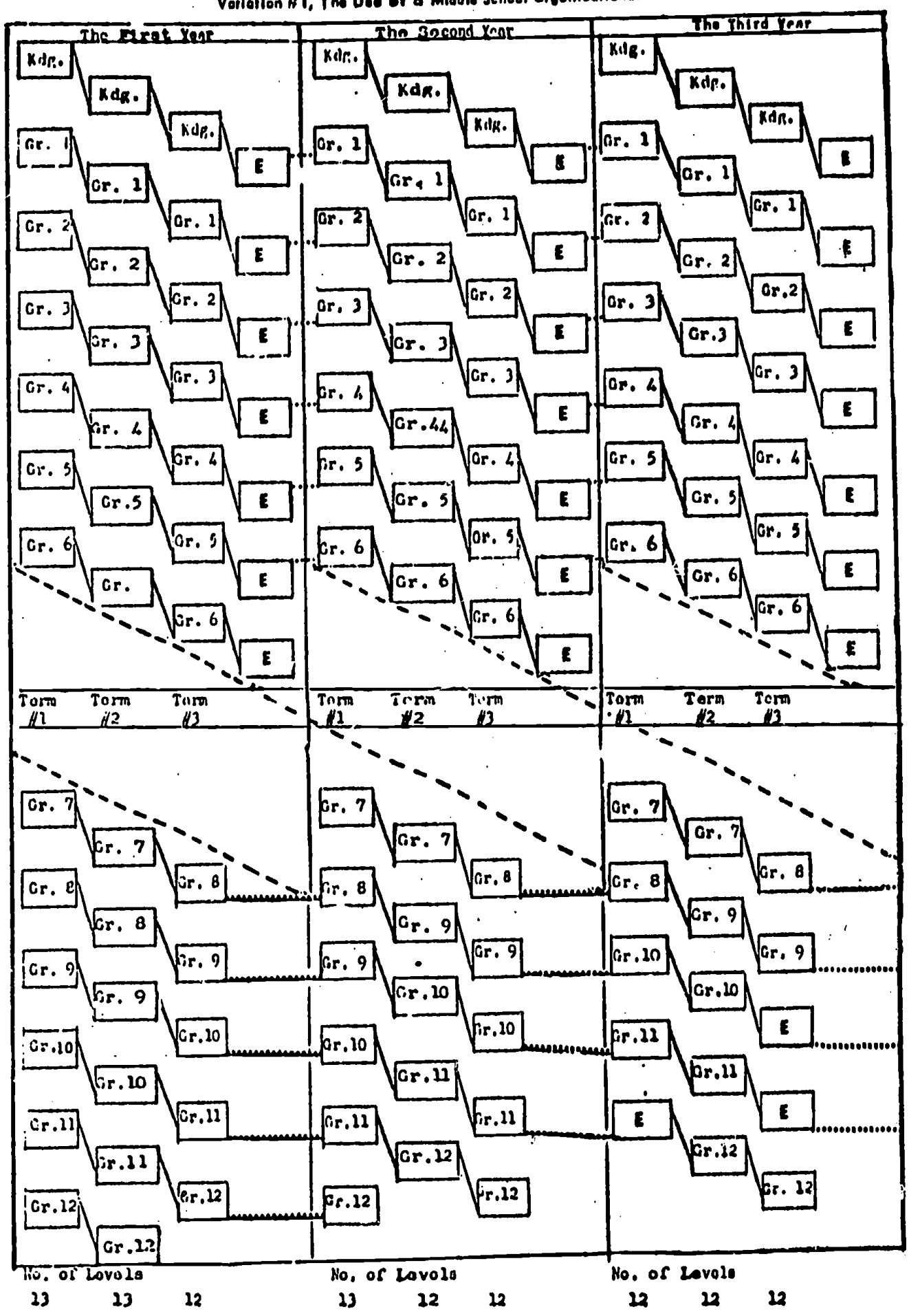
At the secondary level, one year of schooling would be saved by the implementation of one of the other student acceleration plans such as the tri or quadrimester plans. However, with the implementation of the Multiple Trails plan at secondary school, the extended K to 12 plan can still release classroom space and teachers without requiring pupil acceleration to achieve the desired goals.

There are six variations of this plan. The first two use the K - 6 and 7 - 12 organization. Elementary pupils work through seven lengthened school years using their 'E' time to perfect fundamental skills in a broadened and enriched curriculum. With the implementation of the trimester or the quadrimester plans at the secondary level one year in thirteen is saved. The flow chart, Figure 16 illustrates this.

The other variations, 3 to 6, use a middle school organizational plan. Again the pupils in the lower and

Figure 16

STUDENT FLOW PATTERN IN AN EXTENDED K to 12 PROGRAM SAVING ONE YEAR OUT OF THIRTEEN
Variation #1, The Use of a Middle School Organizational Plan



middle school use their 'E' time for mastering, enrichment, and broadening, while one year is saved in upper school.

1. Purpose.

The New York State Department of Education calculates that by the implementation of this plan all students will be able to engage in a broader program of studies for seven to eight years. Furthermore, because of the additional 25 to 30 or more instructional days each year, students can gain one year in thirteen without detriment, while at the same time reserving the right to stay a full thirteen years. Figure 17 illustrates what the year by year accumulation of additional instructional days can mean to a student.

The Department (1966) states that:

> "All pupils can derive educational benefits from the extra year or more attainable from the Extended K to 12 Program, but the advantage to a potential dropout is especially noteworthy. Figure (17) illustrates how the potential dropout can be at least one step higher when he reaches a legal leaving age. Many young men and women who would ordinarily have been classified as dropouts will graduate under the new program, and others may be so close to graduation that they may elect to remain in school to complete a program of study." (p. 82)

2. Costs.

On the basis of several preliminary cost analyses it is estimated that the plan will result in a 6 to 7 per cent increase in school budget due to the increasing teacher salaries during the first adjustment year. After that point, the plan could be a self supporting one.

Figure 17

The Extended K to 12 School Year Provides More Instructional Days For Average, Bright, and Slow-Learning Children

Grade	Median age of entry into grade	Cumulative number of days of schooling possible in regular school year	Cumulative number of days of schooling possible in extended school year			Cumulative gain in days		
		180 days	205 days	210 days	215 days	205	210	215
K	5-3	180	205	210	215	25	30	35
1	6-3	360	410	420	430	50	60	70
2	7-3	540	615	630	645	75	90	105
3	8-3	720	820	840	860	100	120	140
4	9-3	900	1025	1050	1075	125	150	175
5	10-3	1080	1230	1260	1290	150	180	210
6	11-3	1260	1435	1470	1505	175	210	245
7	12-3	1440	1640	1680	1720	200	240	280
8	13-3	1620	1845	1890	1935	225	270	315
9	14-3	1800	2050	2100	2150	250	300	350
10	15-3	1980	2255	2310	2365	275	330	385
11	16-3	2160	2460	2520	2580	300	360	420
12	17-3	2340	2665	2730	2795	325	390	455
13	18-3	2520	2870	2940	3010	350	420	490

Number of Instructional Days Available in Regular and Extended School Year Plans

Extended year programs starting with kindergarten will allow pupils to enter new grades or schools with more instructional days behind them. This should result in their being at higher educational levels than peermates working in regular school year programs. Thus:

1. New fourth graders will have had 100 to 140 extra days of schooling.
2. New sixth graders will have had 150 to 210 extra days of schooling.
3. New eighth graders will have had 200 to 280 extra days of schooling.
4. Potential dropouts electing to leave at age 16 will have had 275 to 385 extra days of schooling.

3. Advantages.

(1) The plan saves one year of schooling in thirteen.

(2) The plan releases secondary classroomms, special areas, and teachers in one and one-third to two and one-quarter.

(3) The plan provides elementary pupils with extra learning time.

(4) Secondary pupils will have up to three 'E' terms depending on the scheme adopted.

(5) All pupils from K - 12 are kept on the same school year calendar.

(6) Drop out rates may be decreased. Pupils have more formal education before they reach legal drop out age.

4. Disadvantages.

(1) Daily class periods may have to be lengthened.

(2) Classroom, staff requirements and financial savings are almost impossible to predict with accuracy.

f) The Multiple Trails Plan.

This plan introduces a new approach to the reorganization of secondary schools to achieve both educational and economy objectives. At least five variations of the plan have been developed. Some of these eliminate the need for the adjustment or transition period thus making the programs self sustaining in their first year of operation. The plans also lend themselves to be structured with or without chronological age acceleration of students.

Savings in space are related to the number of available classrooms and the length of the school day instead of the enrollment of a particular class. The new multiple trails approach provides an immediate release of 25 per cent of the available classroom space at the secondary school level. Figure 18 shows four stages or variations of the plan which can be adopted with a rescheduling of the school day and a longer school year.

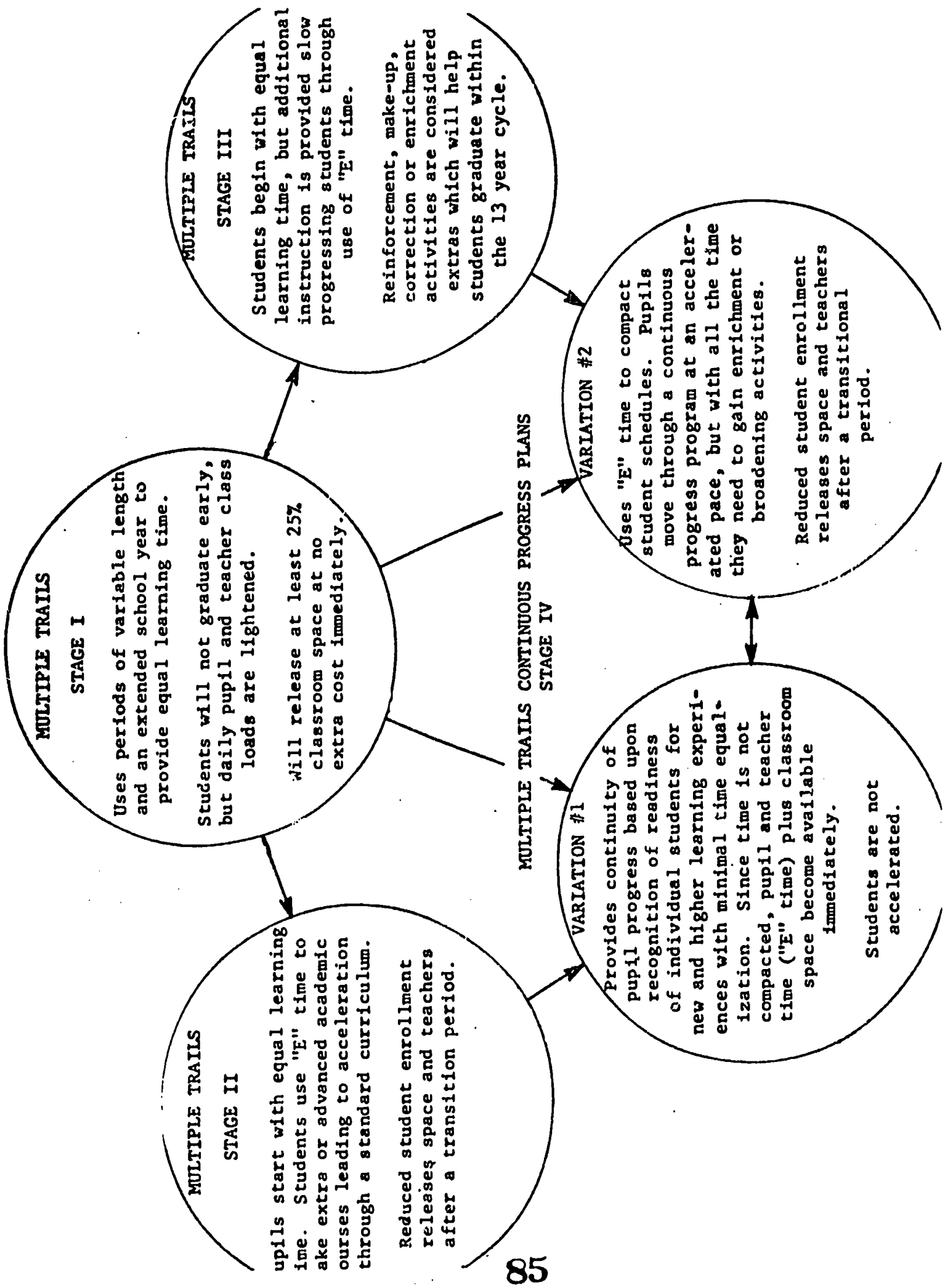
The new school year is eleven months long, with the traditional winter, spring and most of the summer vacations remaining intact. The summer vacation is shortened to provide the additional school time. The student day however, is rescheduled in terms of multiple time modules.

All the variations of this plan begin with the formation of an 'Educational Reserve Bank'. This is accomplished with the adoption of stage 1 which leads to a release of:

(a) learning time (pupil time)

Figure 18

The Main Variations of the Multiple Trails.



(b) instructional time (teacher time)

(c) learning facilities (classroom space)

These are shown in Figure 19.

Stage I of the Multiple Trails Plan.

This transition stage should be considered as a base line or reference point because it indicates how classroom space and teacher time become assets in the first year of operation. It provides the basis for reorganizing the school to a 210 or more school day calendar.

To move from the regular school year to the Multiple Trails Plan it is necessary to equate current instructional time allotments for a given subject in terms of 42 or more weeks (210 or more days) of schooling. Stage I necessitates the rescheduling of the school day and week through the use of multiple time modules which provide less instructional time per week per subject, but as much in a year as students receive with current schedules.

The Release of Pupil Time. The time equalization process has an immediate impact upon the student day. Figure 20 (a) shows a typical junior high school schedule under a regular school year calendar. It show a lack of free time, yet the student is expected to demonstrate competence in research activities calling for the use of encyclopedias and reference materials only available in school libraries or a resource center. With such a rigid schedule he has no

Figure 19

The Educational Reserve Bank.

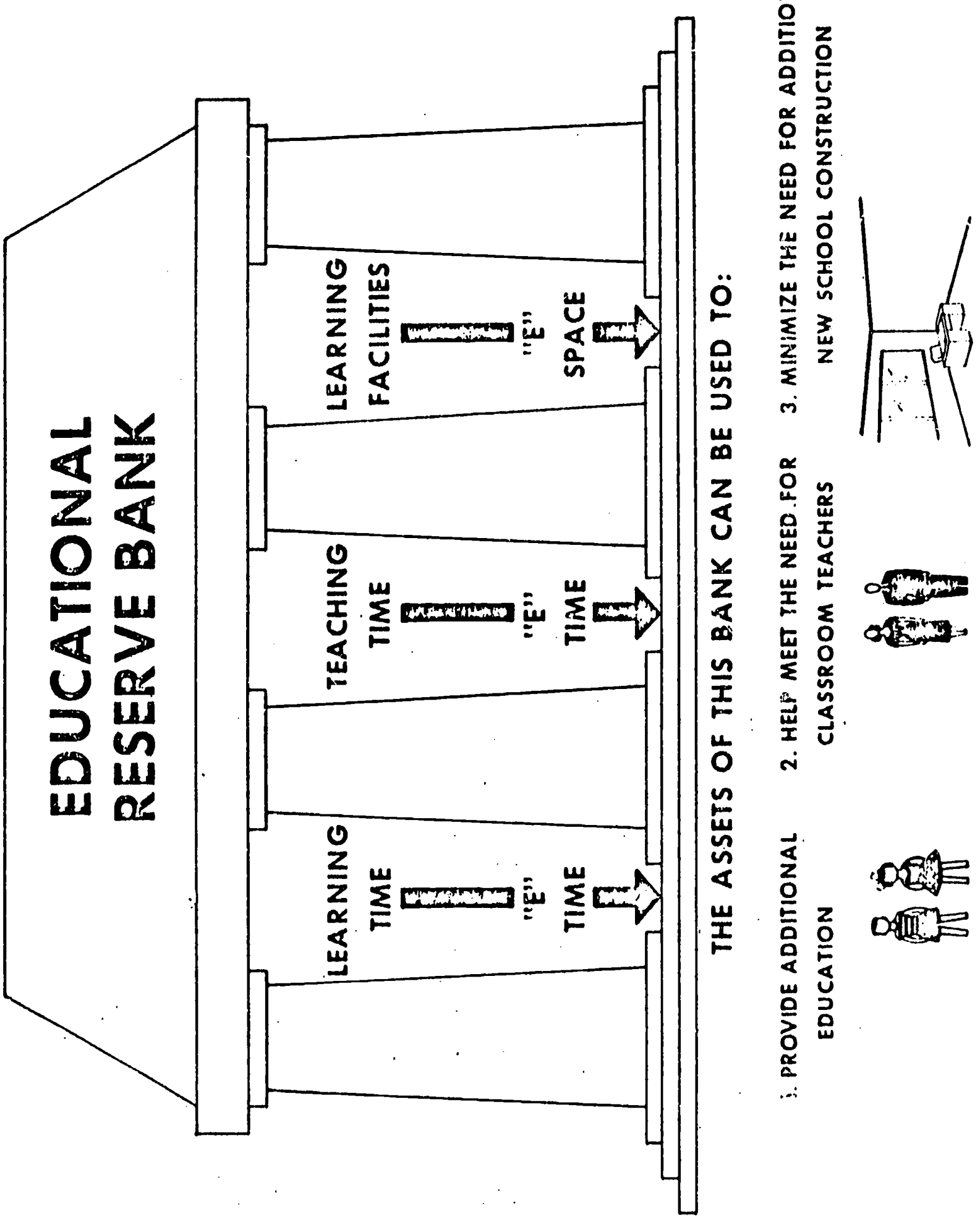


Figure 20
(a)

A Daily Pupil Program With a Rescheduling of the School Year; The Present Pupil Schedule, Grade 8.

Module	Monday	Tuesday	Wednesday	Thursday	Friday	Time
1 2 3	English 8	English 8	English 8	English 8	English 8	8:45 - (Depends upon time of each module. Can be 15, 16 17 or 18 minutes each.
4 5 6	Soc.St. 8	Soc.St. 8	Soc.St. 8	Soc.St. 8	Soc.St. 8	
7 8 9	Math. 8	Math. 8	Math. 8	Math. 8	Math. 8	
10 11 12	Science 8	Science 8	Science 8	Science 8	Science 8	
13 14	Lunch	Lunch	Lunch	Lunch	Lunch	
15 16 17	Reading 8	Reading 8	Reading 8	Reading 8	Reading 8	
18 19 20	Phys. Ed. 8	Music	Phys.Ed./ Music	Music	Phys. Ed. 8	
21 22 23	Art Ind.A. HomeEc	Art Ind.A. HomeEc.	Art Ind.A. HomeEc.	Art Ind.A. HomeEc	Art Ind.A. HomeEc.	
24 25 26 27 28 29						
No. of Subjects per day.	6 + PE	7	7	7	6 + PE	

Number of free modules per week 0

time to demonstrate his ability to work independently or with higher level materials than a single text book.

The Multi-Modular schedules in Figures 20 (b) and 21 show one pattern of schooling which can be developed. While the student continues to receive the same amount of instructional time, the new schedule reduces the number of daily teacher contacts per day and week and releases what may be described as 'E' time. In Figures 20 (a) and (b) the student goes form zero modules of 'E' time to 21 modules of 'E' time. In Figure 21 the student has 31 modules of 'E' time.

In Stage I 'E' time should be thought of in terms of providing more effective learning experiences in conjunction with the scheduled time for designated subjects.

The Release of Classroom Space. Adoption of Stage I leads to an immediate release of classroom space. Figure 22 shows what can be done with an art room currently being used eight periods each day. At present it is not used for ten modules a week. Without adding to the length of the school day, but with a rescheduling of student time in terms of a lengthened school year, the same classroom can be free for 36 modules per week. Since the time equalization for Stage I calls for twelve modules of instruction per week for each art class, three additional classes (Art E-1,

Figure 20
(b)

A Daily Pupil Program With a Rescheduling of the School Year; The Proposed Pupil Schedule, Grade 8.

Module	Monday	Tuesday	Wednesday	Thursday	Friday	Time
1	E Time	E Time	E Time	E Time	E Time	8:45 - (Depends upon time of each module. Can be 15, 16 17 or 18 minutes each.
2						
3						
4						
5	Music		Art I.A. Home. Ec.	Art I.A. Home Ec.	Art I.A. Home Ec.	
6						
7		Music				
8						
9	Reading	Reading	Phys.Ed.		Phys.Ed.	
10				Reading		
11			Science			
12	Lunch				Lunch	
13		Lunch				
14			Lunch	Lunch		
15					Science	
16	Math	Science				
17			Math	Math		
18						
19					Soc.St.	
20						
21	English	Soc.St.	English	Soc.St.		
22						
23						
24						
25						
26						
27						
28						
29						
No. of subjects per day.	4	4	4 + P.E.	4	4 + P.E.	

Number of free modules per week 21

Figure 21

The Nature Of A Students Day With Time Equalization For A 55 Minute Period Through A 15 Minute Module.

MODULE	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	TIME
1						8:15 - 8:30
2						8:30 - 8:45
3	ENGLISH	ENGLISH	SOC.ST.	SOC.ST.	ENGLISH	8:45 - 9:00
4						9:00 - 9:15
5						9:15 - 9:30
6						9:30 - 9:45
7	SOC.ST.	MATH	MATH	MATH		9:45 - 10:00
8						10:00 - 10:15
9					FOR.LANG.	10:15 - 10:30
10						10:30 - 10:45
11						10:45 - 11:00
12	PHYS.ED.	"E" TIME	PHYS.ED.	PHYS.ED.	PHYS.ED.	11:00 - 11:15
13						11:15 - 11:30
14						11:30 - 11:45
15			LUNCH	LUNCH		11:45 - 12:00
16	LUNCH	LUNCH			LUNCH	12:00 - 12:15
17						12:15 - 12:30
18						12:30 - 12:45
19						12:45 - 1:00
20	"E" TIME	"E" TIME	"E" TIME	"E" TIME	"E" TIME	1:00 - 1:15
21						1:15 - 1:30
22						1:30 - 1:45
23						1:45 - 2:00
24						2:00 - 2:15
25						2:15 - 2:30
26						2:30 - 2:45
27	FOR.LANG.	SCIENCE	FOR.LANG.	SCIENCE	SCIENCE	2:45 - 3:00
28						3:00 - 3:15
29						3:15 - 3:30

No. of Free Modules 39

*Based upon 16 modules per class.

Present use of the Art room.

MODULE	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
1	STUDIO IN ART (A) 9-10	STUDIO IN ART (A)	STUDIO IN ART (A)	STUDIO IN ART (A)	STUDIO IN ART (A)
2					
3					
4	DRAWING & PAINT. (A) 10-11	DRAWING & PAINTING (A)	DRAWING & PAINTING (A)	DRAWING & PAINTING (A)	DRAWING & PAINTING (A)
5					
6					
7	STUDIO IN ART (B) 9-10	STUDIO IN ART (B)	STUDIO IN ART (B)	STUDIO IN ART (B)	STUDIO IN ART (B)
8					
9					
10	DRAWING & PAINT. (B) 10-11	DRAWING & PAINTING (B)	DRAWING & PAINTING (B)	DRAWING & PAINTING (B)	DRAWING & PAINTING (B)
11					
12					
13	"E"	"E"	"E"	"E"	"E"
14					
15	ADVERT. & DESIGN GR. 12	ADVERT. & DESIGN	ADVERT. & DESIGN	ADVERT. & DESIGN	ADVERT. & DESIGN
16					
17					
18					
19	GRAPHIC ARTS 11-12	GRAPHIC ARTS	GRAPHIC ARTS	GRAPHIC ARTS	GRAPHIC ARTS
20					
21					
22	DRAWING & PAINT. C 10-11	DRAWING & PAINTING (C)	DRAWING & PAINTING (C)	DRAWING & PAINTING (C)	DRAWING & PAINTING (C)
23					
24					
25	STUDIO IN ART (C)	STUDIO IN ART (C)	STUDIO IN ART (C)	STUDIO IN ART (C)	STUDIO IN ART (C)
26					
27					
No. of classes	8	8	8	8	8

Proposed use of the Art room - Stage 1.

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
STUDIO IN ART (A) GR.9-10	STUDIO IN ART (A) GR.9-10	DRAWING & PAINT. (A) GR. 10-11	STUDIO IN ART (A) GR.9-10	DRAWING & PAINT. (A) GR.10-11
DRAWING & PAINT. (A)	STUDIO IN ART (B)	STUDIO IN ART (B)	DRAWING & PAINT.(B)	STUDIO IN ART (B)
DRAWING & PAINT. (B)	ADVERT. & DESIGN GR. 12	DRAWING & PAINT. (B) GR.10-11	ADVERT. & DESIGN GR. 12	ADVERT. & DESIGN GR.12
ART "E" 1	ART "E" 1	ART "E" 1	ART "E" 3	ART "E" 3
ART "E" 3	ART "E" 3	ART "E" 2	ART "E" 2	ART "E" 2
GRAPHIC ARTS GR.11-12	GRAPHIC ARTS GR.11-12	ADVERT.& DESIGN GR. 12	GRAPHIC ARTS GR.11-12	DRAWING & PAINT. (C) GR.10-11
DRAWING & PAINT. (C)	STUDIO IN ART (C)	DRAWING & PAINT. (C)	STUDIO IN ART (C)	STUDIO IN ART (C)
5	5	5	5	5

Figure 22

Possible Release Of Classroom Space With Adoption Of Stage 1.

Art E-2, and Art E-3) can now be scheduled per week in the classroom.

Figures 23 show a typing room currently in use seven periods a day. With the adoption of Stage I 31 modules of 'E' time become available for use. The 'E' time can be used to provide space for two additional typing classes, i.e., typing 'E' 3-A and 'E' 3-B. Other variations in different school districts have shown the release in classroom space can be realized for all classes where a new time equalization factor is introduced. Essentially, they show:

1. A 25 percent increase in space for classrooms used eight periods a day.
2. A 37½ percent increase in space with a small adjustment in the length of the school day.
3. A 29 percent increase in space for the classroom used seven periods a day.

The Release of Teacher Time. The rescheduling of the schoolday through the useof multiple time modules changes the nature of a teacher's day and week. Figures 24 show what can happen to a teacher schedule requiring five special assignments in addition to the teaching of five classes per day, five days per week. The adoption of Stage I would reduce daily pupil contacts to three classes and the weekly work load would require only fifteen academic preparations. In the illustration the time equalization

Figure 23
(a)

Classroom Space Released With A Rescheduling Of The School Year; Current Room Usage - 44 Minute Periods.

Module	Monday	Tuesday	Wednesday	Thursday	Friday	Time
1	Typing 1A	Typing 1A	Typing 1A	Typing 1A	Typing 1A	8:45 - (Depends upon time of each module. Can be 15, 16 17 or 18 minutes each.
2						
3						
4	1B	1B	1B	1B	1B	
5						
6						
7	1C	1C	1C	1C	1C	
8						
9						
10	1D	1D	1D	1D	1D	
11						
12	E Time	E Time	E Time	E Time	E Time	
13						
14						
15	2A	2A	2A	2A	2A	
16						
17						
18	2B	2B	2B	2B	2B	
19						
20						
21	2C	2C	2C	2C	2C	
22						
23						
24						
25						
26						
27						
28						
29						
No. of Subjects per day.	7	7	7	7	7	

Number of free modules per week - 0

Figure 23
(b)

Classroom Space Released With A Rescheduling Of The School Year; Proposed Room Usage (17 Minute Modules.)

Module	Monday	Tuesday	Wednesday	Thursday	Friday	Time
1	Typing	Typing	Typing	Typing	Typing	8:45 - (Depends upon time of each module. Can be 15, 16 17 or 18 minutes each.
2	1A	1A	1A	1A	1B	
3						
4						
5	1C	1C	1C	1D	1C	
6						
7						
8	1D	2A	1D	2A	1D	
9						
10						
11	2C	2C	2A	2B	2A	
12						
13	E Time	E Time	E Time	E Time	E Time	
14						
15						
16						
17						
18						
19	1B	1B	1B	E Time	E Time	
20						
21						
22	2B	2B	2B	2C	2C	
23						
24						
25						
26						
27						
28						
29						
	6	6	6	5	5	

Number of free modules per week 31

Figure 24
(a)

Present Teacher Schedule

Module	Monday	Tuesday	Wednesday	Thursday	Friday	Time
1	Science 7A	Science 7A	Science 7A	Science 7A	Science 7A	8:45 - (Depends upon time of each module. Can be 15, 16 17 or 18 minutes each.
2						
3						
4	Teacher Activity	Free	Teacher Activity	Free	Teacher Activity	
5						
6						
7	Science 7B	Science 7B	Science 7B	Science 7B	Science 7B	
8						
9						
10	Science 7C	Science 7C	Science 7C	Science 7C	Science 7C	
11						
12						
13	Lunch	Lunch	Lunch	Lunch	Lunch	
14						
15	Free	Teacher Activity	Free	Teacher Activity	Free	
16						
17						
18	Science 8A	Science 8A	Science 8A	Science 8A	Science 8A	
19						
20						
21	Science 8B	Science 8B	Science 8B	Science 8B	Science 8B	
22						
23						
24						
25						
26						
27						
28						
29						
No. of Subjects per day.	5	5	5	5	5	

Number of free modules per week - 15

Figure 24
(b)

Proposed Teacher Schedule.

Module	Monday	Tuesday	Wednesday	Thursday	Friday	Time
1						8:45 - (Depends upon time of each module. Can be 15, 16 17 or 18 minutes each.
2	Science 7A	Science 7A	Science 7A	Science 7B	Science 7B	
3						
4						
5	Science 7B	Teacher Activity	Science 7C	Teacher Activity	Science 7C	
6						
7						
8						
9						
10		Science 7C	Teacher Activity	Scien 8B		
11						
12						
13	Lunch	Lunch	Lunch	Lunch	Lunch	
14						
15						
16						
17						
18						
19						
20						
21	Science 8A	Science 8A	Science 8B	Science 8A	Science 8B	
22						
23						
24						
25						
26						
27						
28						
29						
No. of Subjects per day.	3	3	3	3	3	

Number of free modules per week - 33

process releases sufficient 'E' time to provide the 33 free modules instead of the current 15.

How this 'E' time is to be used poses a problem. Will school boards continue to support drives for higher teacher salaries in the face of what appears to be a very light teaching load? One approach which has appeared acceptable to several professional teacher organizations calls for the teaching of six classes over eleven months instead of the five classes over ten months. The new proposed teacher schedule shown in Figures 25 gives the teacher eighteen classes a week plus a limited number of special activity periods. This requires fewer preparations and still guarantees the teacher 22 free modules a week instead of the original 15.

With all of the 'E' time it is possible to restructure a teacher's day to free large blocks of time for special work in curriculum, counseling, field trip work, research, etc. Figures 26 show two teacher schedule variations. One schedule provides a completely free day once a week by compacting teacher assignments on the other four days. Surprisingly enough, this initial schedule has been rejected by a large number of teachers in favour of the second variation providing two free afternoons, or better yet, one which provides two free morning schedules.

Stage II of the Multiple Trails Plan.

In this stage 'E' time is used by the average and

Figure 25
(a)

A Modified Teacher Day With A Rescheduled School Year:
Proposed Teacher Schedule 1.

Module	Monday	Tuesday	Wednesday	Thursday	Friday	Time
1 2 3 4	Science 7A	Science 7A	Science 7A	Science 7B	Science 7B	8:45 - (Depends upon time of each module. Can be 15, 16 17 or 18 minutes each.
5 6 7 8	Science 7B	Teacher Activity	Science 7C	Teacher Activity	Science 7C	
9 10 11 12		Science 7C	Teacher Activity	Science 8B		
13 14	Lunch	Lunch	Lunch	Lunch	Lunch	
15 16 17 18 19						
20 21 22	Science 8A	Science 8A	Science 8B	Science 8A	Science 8B	
23 24 25 26 27 28 29						
No. of Subjects per day.	3	3	3	3	3	

Number of free modules per week - 33

Figure 25
(b)

A Modified Teacher Day With A Rescheduled School Year:
Proposed Teacher Schedule 2.

Module	Monday	Tuesday	Wednesday	Thursday	Friday	Time
1						8:45 - (Depends upon time of each module. Can be 15, 16 17 or 18 minutes each.
2	Science 7A	Science 7A	Science 7A	Science 7B	Science 7B	
3						
4						
5		Teacher		Teacher		
6	7B	Activity	7C	Activity	7C	
7						
8						
9						
10	8C	7C	8C	8B	8C	
11						
12						
13	Lunch	Lunch	Lunch	Lunch	Lunch	
14						
15						
16						
17			Teacher			
18			Activity			
19						
20						
21	8A	8A	8B	8A	8B	
22						
23						
24						
25						
26						
27						
28						
29						
No. of Subjects per day.	4	3	4	3	4	

Number of free modules per week - 22

Figure 26
(a)

Modified Teacher Schedules Structured To Free Individual Teachers For A Large Block Of Time To Work On Special Assignments: Proposed Teacher Schedule 3.
(Freeing Two Mornings)

Module	Monday	Tuesday	Wednesday	Thursday	Friday	Time
1	Math 10A	Math 10A	Reserved for Special Assignments such as Curriculum development, Planning, Field Trips, Conferences etc.	Reserved for Special Assignments.	Math 10A	8:45 - (Depends upon time of each module. Can be 15, 16 17 or 18 minutes each.
2						
3						
4						
5	Math 10B	Math 10B			Math 10B	
6						
7						
8						
9	Math 10C	Math 10C			Math 10C	
10						
11						
12						
13	Lunch	Lunch	Lunch or Free	Lunch or Free	Lunch	
14						
15	Free	Free			Free	
16			Math 11A			
17				Math 11A		
18		Math 11A			Math 11B	
19						
20						
21	Math 11B	Math 11B	Math 11C	Math 11C	Math 11C	
22						
23						
24						
25						
26						
27						
28						
29						
No. of Subjects per day.	4	5	2	2	5	

Number of free modules per week - 35

Figure 26
(b)

Modified Teacher Schedules Structured To Free Individual Teachers For A Large Block Of Time To Work On Special Assignments: Proposed Teacher Schedule 4.
(Freeing One Whole Day)

Module	Monday	Tuesday	Wednesday	Thursday	Friday	Time
1	Math 10A	Math 10A		Math 10B	Math 10B	8:45 - (Depends upon time of each module. Can be 15, 16 17 or 18 minutes each.
2						
3						
4						
5	Math 10B	Math 10B		Math 10C	Math 10C	
6						
7						
8						
9	Math 10C	Math 11A	Reserved for special activities.	Math 11A	Math 11A	
10						
11						
12						
13	Lunch	Lunch		Lunch	Lunch	
14						
15	Free	Free		Free	Free	
16						
17						
18				Math 11B	Math 11B	
19						
20						
21	Math 11C	Math 11B		Math 11C	Math 11C	
22						
23						
24						
25						
26						
27						
28						
29						
No. of Subjects per day.	4	4		5	5	

Number of free modules per week - 40

fast learning students to take extra courses leading to acceleration. By taking additional new or higher level courses, students reduce their years of schooling. The selection of extra courses creates a drain on the 'Educational Reserve Bank' assets, but as the ultimate result of this drain is a reduced school enrollment due to acceleration, these assets are later returned to the "Bank".

Since few school boards are willing to pay teachers an extra months salary for the light teaching load shown in Stage I, teacher 'E' time is used with Stage II to balance out their weekly and daily teaching loads.

Stage III of the Multiple Trails Plan.

In this stage 'E' time is used to provide for special student needs. Chronological acceleration is deferred to remedial and corrective assistance, or programs providing enrichment or broadening experiences.

> "Work experience programs, for example, may be instituted for the academic as well as the terminal or vocational orientated pupils. Stage III can help potential drop outs earn diplomas and a chance to find a place for themselves in a world which has little place for the unskilled or illiterate. In Stage III the assets released in Stage I are put to use with no expectation of an immediate financial return. However, if a more enlightened or better trained citizen is a result of the enriched and broadened program, society will be amply repaid.
>
> (Thomas, undated, p.12)

In Stage III teacher 'E' time is diverted from the extra subject concept to that of increasing student learning time in a subject. Thus slow learning students may have classes more frequently, or the number of modules per class can be increased vertically as well as horizontally to provide 15 to 18 modules of instruction per week through a full extended school year. Other teachers may use 'E' time for special remediation, corrective teaching, small group activities or conferences.

Stage IV of the Multiple Trails Plan.

This stage calls for a program of continuous progress at the secondary school level. In a school which adopts this stage, grade lines will have no special significance, and there will be none of the traditional tracking of students because each pupil will move along a single trail (math., social studies, English, science, or other) at his own rate of speed. Terms such as failure and acceleration will have no meaning.

1. Purpose.

This plan aims at providing a greater degree of flexibility in a school while at the same time releasing classroom space and dollars. Student acceleration is not necessary to obtain this flexibility and economy, but may be incorporated in the design.

2. Costs.

There are no figures availavle for this plan.

However, the immediate release of classroom space and teacher time after implementation of Stage I leads the New York State Education Department to state that dollar savings will result from this plan. (1970, pp.63-64) Savings will occur primarily because of a decreased demand for new buildings, and hence also staffing costs.

3. Advantages.

(1) The plan may be implemented in various stages to meet either or both educational and economic objectives.

(2) There is an immediate release in classroom space of at least 25 per cent.

(3) There is no transition period before economies can be realized.

(4) Pupil acceleration is not necessary to achieve economies.

(5) The released classroom space, as well as pupil and teacher time can be used for a variety of educational, or economic purposes.

4. Disadvantages.

(1) This plan is a complex one and requires considerable detailed planning.

(2) The use of multiple time modules requires revision of curriculum and teaching procedures.

(3) Stage IV with its continuous progress concept requires much preparation and continuous effort.

(4) Thomas(1970) recommends that this plan should not be considered until classroom teachers and school administrators have received sufficient in service training to warrant adopting a flexible school organization. (p. 35)

CHAPTER THREE

THE EFFECT OF EXTENDED SCHOOL YEAR PROGRAMS

3.1 The Economic Implications.

The various designs for rescheduling the school year can provide for savings in numerous areas of the school budget.

a) Savings in Capital Expenditures.

(i) The School Plant: By rescheduling the school year through an extended year program, classroom space is released. However, if extra spce is to be obtained, the plan must:

(1) ensure that students are able to save one year out of 12 or 13.

(2) ensure that a fixed number of students are on vacation so that others can take their place.

(3) ensure that a time equalization plan frees student and teacher time as well as classroom space through the redistribution of existing time requirements.

Each of the three approaches depends upon a reduced need for classroom space to obtain potential dollar savings. The actual amount of space released depends upon the nature of the extended school year plan adopted.

(1) The Acceleration Approach. A school district which adopts one of the acceleration plans should be able to count on the saving of 1/13 or 7.7 per cent of the space requirements.

The accelerated trimester design will provide released space due to reduced student enrollments after 1 1/3 lengthened school years.

The accelerated quadrimester design releases space at the end of 2 1/4 extended school years.

The elementary continuous progress acceleration plan releases space at the end of six years.

(2) The Term Rotation Approach. This approach releases classroom space immediately. There is no transition or waiting period. The continuous learning year cycling plan releases 25 to 30 per cent of space. Other plans such as the 45 - 15 plan, release 25 to 33 per cent of current classroom capacity.

For example, a school with space for 1,800 pupils and requiring space for 2,250 students, could house those extra pupils without additional classrooms, higher pupil-teacher ratios, makeshift facilities, swing shifts, or extended days by adopting a rotating plan such as the 45 - 15.

(3) The Time Equalization Approach. The time equalization principle of the multiple trails plan leads to an immediate release of 25 to 33 per

cent of the classroom space in a secondary school.

b) The Use of the Extra Classroom Space.

The release of classroom space is badly needed in rapidly growing school districts such as Vancouver. The extended school year plans lead to dollar savings as they can reduce the size of existing school construction projects, or defer the need for new schools. There is thus a saving in both capital and debt service charges. Writing about the legal and financial questions related to the extended school year plans in 1970, Thomas states:

> "Capital outlay for new schools can be decreased by eliminating the need for additional school facilities or by reducing the need for additional, projected construction costs. Thus the increase in existing school plant capacity by the equivalent of 60 classrooms may be worth a potential $ 4 to $ 6 million. Additional savings will accrue to the taxpayer when the school board builds an 800 pupil school which can house with cycling, a potential 1,000 to 1,100 students." (Compact,p.11)

Writing about savings which can be obtained in decreased debt service, Thomas states:

> "While some school administrators will claim that debt service charges are insignificant, the fact remains that debt service charges can easily eat up 8 to 13 per cent of a school budget. Any reduction in the need for new schools carries with it a reduction in debt service charges. When capital costs and interests are combined, the possibility of saving, or reducing, them becomes significant." (Compact, p.11)

Although the local school budget may not show the full savings, when the province assumes a large proportion of the capital construction costs, the savings are real and go to the people of the province.

c) Savings in School Operating Costs.

(i) Reduced Need for Schools. It is estimated that an extended school year program will add seven to ten per cent to the maintenance cost of the district. (Sessions, 1962) However, this cost increase will be more than balanced by the fact that the extended school year program has reduced the number of classrooms required by 20 to 33 per cent, or alternatively provides space for 20 to 33 per cent more pupils.

(ii) Savings in Reduced Loss of Taxable Property. New schools require land that can be very expensive, particularly in densely populated urban areas. If the board owns the land, it could be used profitably for other purposes.

(iii) Savings in Transportation Costs. (Capital) In districts which transport a large proportion of the school population, school bus needs may be reduced by 7 to 25 per cent. Where the school population is growing, the existing fleet can serve up to 25 per cent more pupils. (Note: No savings can be anticipated with the multiple trails plan.)

(iv) Savings in Transportation. (Other) By requiring

fewer buses, for example 40 instead of 50, savings in several areas will offset the 11th or 12th month operating costs.

It is possible to pay the existing 40 drivers an additional ten or twenty per cent in salaries and fringe benefits from the reduced need for 10 drivers and other supporting staff.

The savings accruing from insurance, garage space, annual repairs, and actual operating costs for the 10 buses not in service will balance the cost of operating the 40 buses an extra one or two months per year.

d) Savings in Instruction. (Personnel Services)

The various projected enrollment decreases of from 7.7 to 33.3 per cent, will carry with them reductions in the number of staff required as pupil-teacher ratios should remain constant.

In rapidly growing districts fewer new positions need be created, however, in slow growth areas, the teaching staff will have to be reduced.

It is essential that the pupil-teacher ratios remain the same as at present for cost analyses purposes. Staff requirements for the extended school year program must be calculated very carefully.

The New York State Education Department, (1970) estimates that the following savings will accrue:

(1) The accelerated trimester can save approximately one teacher out of every four employed for grades 9 - 12.

(2) The continuous extended school year cycling plan can show a 20 per cent saving if there are variable teacher contracts of 12, 11, 10 or fewer months per year. However, if all teachers are employed for 10 months no savings occur.

(3) The multiple trails plan immediately releases one teacher out of six for each grade incorporated into the design.

(pp. 72-73)

3.2 The Educational Implications.

a) Can children take an extended school year ?

The research studies of New York State, (1968,1970), Atlanta,(1969) and Florida, (1966) repeatedly indicate that all children can benefit from their involvement in a lengthened school year program without any psychological, physical, social, or academic harm.

Similar findings are provided by Thompson and Meyer as they investigated the effects of acceleration upon students. (p.302)

A study of the length of the school year in foreign countries also indicates that the school years of Canada and the United States are amongst the shortest in the world. (Thomas, 1968, p.9) For a comparison of school year lengths in selected countries of the world see figure 27.

Figure 27

Comparative Length of the School Year in Representative Countries of the World.

Name of Country	Number of days Elementary.	Number of days Secondary.
China	252	240
Austria	240	240
Czechoslovakia	240	240
Denmark	240	240
Venezuela	236	236
USSR	234	234
West Germany	233	233
Netherlands	200 - 240	233
Norway	228	228
Poland	220	220
Rumania	216	222
Sweden	214	214
Australia	213	213
Japan	210	210
Greece	210	195
India	200	205
Finland	200	185
Canada	190	195
France	185	185
USA	180	180
Ecuador	170	165
Italy	154	154

One might argue that as children in other countries attend school for longer periods without detriment, Canadian children could do likewise.

b) What benefits are there for pupils?

On the assumption that a rescheduled longer school year includes a revised curriculum, the various plans would enable the pupils to master fundamental skills and take remedial work, to take additional or enrichment courses, or to lighten class loads, to complete advanced level programs, or to study special vocational subjects. (Allen & Woolatt, p.148)

The extended school year would decrease the pressures on pupils because they have extra time in elementary school to master fundamentals, while in secondary schools they can use the extra time for remedial work, or for reducing their class loads. Furthermore, the division of curriculum into smaller blocks or learning levels combined with individualized instruction, as well as continuous learning, reduces the long term aspects of failure.

c) What are the implications of acceleration ?

Acceleration poses many questions. Are pupils mature enough to graduate early ? Will the pupils be able to find jobs or enter college? What do pupils do when they graduate in the middle of the year? How is pupil achievement affected?

(i) Are pupils mature enough to graduate one year early?

The New York State officials answer this question affirmatively, but recommend that a pupil accelerate no

more than one year. (1968, p.99)

Turbeville asserts that an extended school year plan speeding up the educational progress would enable youths to start earning their way earlier in life. He points out that this acceleration would parallel basic human needs, especially as emotional maturity usually comes with experience and increased responsibility, rather than after a certain number of years have been spent in school. (1964, pp. 182-186)

Thomas (1968) suggests that pupils today are more physically, sexually, and academically mature than those of a generation ago and consequently acceleration may be advantageous. (pp. 97-98)

Woolatt and Allen both hold that maturity is not necessarily related to the number of years spent in school. Furthermore, the difference in emotional and physical maturity is slight between the ages of 17 and 18 at which ages most pupils would graduate. (p.150)

(ii) Will the pupils be able to find jobs or enter colleges?

There should be no difficulty in the younger graduate entering college providing he can qualify for entrance. (NEA, 1968, p.33)

Findings by Shannon (1957) suggest that the younger university student is generally more active

and obtains greater distinctions than the older student.

Woolatt suggests that the accelerated, non-college bound student will have an opportunity to continue vocational education programs in technical schools or colleges for a year or two before taking a job. (p. 150)

Although the argument that early graduation will glut the labour market is a valid one, Allen suggests that the extended school year would contribute workers who are better educated and vocationally qualified for available jobs. (p. 150)

It would appear furthermore that the argument "Lets keep kids in school because there are no jobs" is one the puplic will not recognize or support.

(iii) What do pupils do when they graduate in the middle of the school year?

The universities are operating on a trimester or bimester and summer school schedule. Students can enroll for courses three times each year.

The non-college bound student might find early graduation a blessing as he does not have to compete with the traditional spring and early summer student exodus into the working world.

(iv) How is pupil achievement affected?

Considerable empirical evidence is available to provide answers to this question. Even as early as 1931,

Brinkerhoff, comparing the year-round pupil with his ten month counterpart writes:

> "...the pupils in the all-year schools are further advanced educationally than they would be if they had attended a traditional school instead. Furthermore, the more pupils in the all year schools have taken advantage of the opportunities offered by the all-year schools, the greater their superiority over comparable traditional pupils." (p.209)

Possibly the most comprehensive and detailed evidence comes from the New York State Education Department (1970). It is based upon pilot projects involving pupils in extended year programs whose achievement was compared to control groups of identical as well as one year older pupils.

The evidence documented by the Department indicates that in all cases the extended school year groups achieved at least as well as control group pupils, and that in most cases the extended school year pupils' achievement exceeded that of the control pupils at a significant level. (For a detailed report refer to Appendix C, pp. 134-48.)

The extended school year pupils in the pilot project at Commack were compared to control and comparison pupils. The results indicated that:

> "The slow learner extended school year pupils made greater academic gains over its control than average and high ability groups...
>
> The high ability groups made greater academic gains over its control than average ability groups, but less than low ability groups made over their controls...

> Academic gains made by average ability extended school year children were not significantly higher than those made by the average ability control groups. They were lower than those made by both the low and the high ability groups over their respective controls."
>
> (p. 99)

The achievement of the extended school year pupils in the Cato-Meridian program was higher than their control groups. This comparison was significant at the 1 per cent level. The extended school year pupils made their greatest gains in work study skills such as map-reading, reading of graphs and tables plus knowledge and use of reference materials.

On the basis of the Iowa Basic Tests, the same extended school year pupils showed academic gains which were significant at the 10 per cent level.

In the Syosset experimental program,"...students taking tests on the completion of a six week, first time, full year course ... showed that they had learned as much or more than matched students taking equivalent courses in the regular school year." (N.Y. State E.D. 1970, p. 102)

The answer to the question of how pupil achievement is affected by extended school year programs would appear to be a positive one, as pupils achieve at least as well, and usually better, than control, non-extended school year pupils.

d) What are the effects of the extended school year on curriculum?

Unless the curriculum is subjected to change and improvements, a longer school year will be just that, and have no educational value. The educational value of the extended school year programs lies in what is done with the additional time.

Allen suggests that school districts may wish to revise the entire school program, adopting new curricula, new grouping patterns, new teaching techniques, as well as materials and equipment.

> "What actually happens to the curriculum in any given district is up to the school board and the administration. This will depend to a large extent on the particular type of extended year plan involved. But one thing that any district will have to do, regardless of which plan it elects, is to break the courses of study into new time blocks to correspond to the new calendar. This may require considerable adjustment. Many districts may want to revise the whole school program, starting from scratch... The extended school year... provides a new framework for a stronger structure... The possibilities for retooling the curriculum are unlimited."
>
> (Woolatt & Allen, p. 148)

Obviously the curriculum must be revised in accordance with the extended school year plan adopted. Courses of study must be broken into new time blocks, and in some cases sequences, to correspond with the new school year calendar. As an integral part of the

continuous school year, the quadrimester, and stage IV of the multiple trails plans, continuous progress requires much advanced planning and continuous teacher evaluation. The modified summer school plan requires that a full semesters work be compacted into a five to six week period. The split trimester plan requires that pupils be able to begin a new subject in the middle of a semester. Revising or replanning the curriculum to fit the specific rescheduled school year may be a problem, but as such, it can be overcome and should not be the justification for rejecting an extended school year plan.

Extended school year plans furthermore provide the opportunity to develop new courses or expand current ones. A subject that requires the mastering of many skills and concepts might be extended to three trimesters, or four quadrimesters. With pupils having extra terms for a variety of elected activities, new courses may be developed to provide enrichment and broadening.

The Atlanta four quarter plan may be a guide to educators interested in developing a more flexible curriculum. (see pp. 24-31 above)

e) What effect does the extended school year have on teachers?

After four years of studies of the effects of ESY plans on teachers, the New York State Education Department,

(1968) states that:

> "Teaching efficiency is not impaired by an extension of the school year. This is supported by the achievement of students taught by teachers who had worked through the equivalent of an eleven month school year." (p. 91)

However, the Department stresses that teachers should receive in service training to become fully orientated to the goals of the particular school year plan and the steps required to implementit. In service training is especially important because teachers will have to adapt themselves to the new use of time involving a lengthened school year, compacted class periods, mixed length time blocks, as well as accept new procedures based upon team teaching, individualized teaching, cross-grade or age grouping, non-grade grouping, continuous progress, and programmed learning.

Teachers will have an opportunity to be employed for eleven or twelve months each year thus adding to their income as well as professional status. It is desirable to employ teachers through the full lengthened school year to provide maximum continuity of learning experiences.

Should the employment of teachers be year-round, provisions must be made to provide extended vacations to enable them to attend universities for further training. These long vacations should occur at least once every

three to four years. Furthermore, teachers should receive at least three to four weeks vacation each year, as do other professional people.

Previous experience indicates that teachers who worked through an extended school year did so without any detriment to their teaching abilities. Furthermore, all districts who have, or are presently employing teachers under extended school year or year-round contracts report that they are over subscribed with applications for teaching positions, and that their rate of turnover is lower than previously.

CHAPTER FOUR

RELATED STUDIES.

Of the school districts located in the lower mainland and Vancouver Island, only two reported to be active in examining the school year for the purpose of operating year-round, or on an extended school year schedule. These two districts are Victoria and Delta. Victoria is just beginning its work, while Delta has progressed considerably towards implementing a year-round school calendar.

4.1 The Victoria Project.

The Victoria School Board has relieved the principal of a secondary school of his duties for a period of two years commencing September 1971. The principal is to review the literature on the extended school year and then to study the feasibility of implementing one of the plans in a Victoria school. There have been no reports or findings to this date.

The motives behind this project are both educational and economic. The Board wishes to explore the possibility of effecting dollar savings while at the same time providing a sound educational program.

4.2 The Delta Project.

The Delta School Board is the only other local group actively considering the implementation of an extended school year. The Delta interest in rescheduling the school year was prompted by economic reasons. The area is a rapidly growing residential district and is faced with a $ 14,000,000 school building program over the next four years. This building program will go before the public in a referendum shortly.

In June 1969 a committee was formed by the Superintendent. It was charged with the following:

1. To investigate the feasibility of rescheduling the Delta school year in order to obtain better utilization of buildings and personnel.

2. To select a design for rescheduling the school year and to study its implementation, and impact on the district.

The first working meeting of the committee was held in November of 1969. The committee did not engage in an extensive review of all the various plans for rescheduling the school year. Rather, they adopted the 45 - 15 plan as this plan was being perfected by Valley View, Illinois, (see pages 22 - 24 above) a rapid growth residential district with problems very similar to those of Delta. In 1969-70 considerable information was published about the Valley View plan in the education literature, thus providing the Delta committee with a "ready-made" plan. The committee corresponded with Valley View to obtain

Detailed information about the intricacies of the plan, and in 1970 planned to send a Delta team to Valley View to observe the plan on site in operation.

The decision to send the team was subsequently postponed for one term. In spring 1971 it was decided to postpone all work on the rescheduled school year. This decision was taken because the present Superintendent is retiring, and Delta is waiting to see what steps the new Superintendent will take.

a) The Findings to Date.

The Delta Committee decided very early that the major changes would occur at the elementary level, and that the secondary schools would require fewer changes as they had already adopted the semester system.

From December 1970 through to March 1971 the committee initiated action to ascertain the opinions of teachers, parents, the Education Department, and the community recreation department.

(i) Teacher Reaction.

The reaction of teachers was polled during the period December 14-21, 1970. It is reported that 77 per cent of the teachers favour continued research of the plan. 50 per cent indicated that they would not object to teaching under such a scheme.

(ii) Parental Reaction.

In February 1971, Delta polled the parents of Grade 5

pupils to obtain their reactions to the 45-15 scheme.

It is reported that approximately 33 per cent of the families polled have both parents working and that 66 per cent of parents have a choice of holiday periods. The Delta committee reasons therefore that 33 per cent of the families would have problems of day time supervision during holiday periods.

The results indicate also that:

1. 85 per cent of parents feel that the schools should be more fully used than they are at present.

2. 75 per cent feel an extended school year plan offers a reasonable means for fuller use of school facilities.

3. 72 per cent recommend further studies of the extended school year plan.

(iii) Department of Education Reaction.

The Delta Committee was supplied with the following information on December 4, 1970.

> "The School Act is at present being re-written and it is understood that provision will be made to accomodate such plans as the continuous school year plan."

(iv) Community Recreation Department Reaction.

The administrative personnel of recreation in Delta are reported to be definitely in favour of a continuous school year plan and its effects on their program. The Director of Recreation estimates that the implementation of continuous school year in Delta would require a

quadrupling of present recreation staff and budget requirements if they were to offer a program 40 to 45 weeks in length rather than the present 7 to 9.

W. Kushnir reports:

> "The Director and the Assistant Directors of Recreation in Delta are definitely in favour of a continuous program. It would result in a closer liason between the school and the community, not to mention the much more extensive and varied program that could be offered to the youth of the community."
>
> (CSY Committee report, Jan.1971)

b) Estimated Capital Cost Savings for Delta 1971-89.

The Secretary Treasurer of Delta estimates that the capital cost savings under the 45-15 plan between 1971 and 1989 would be a total of $ 31,600,000, almost exactly equal to the Capital Costs of the entire present Delta school system. He states:

> "...the elementary classroom saving would be equal to ... 13 schools the size of Ladner Elementary in 1971.
>
> The Junior Secondary saving would be equal to 3 schools the size of Tsawassen Junior Secondary."

He emphasises that these are conservative estimates, and do not take into account the inflation factor which could dramatically increase the savings.

APPENDIX A

Los Angeles City School Districts:

12 - Month School Study Revealed.

January 14, 1955.

LOS ANGELES CITY SCHOOL DISTRICTS

Plans for the opening of schools the year round, tried unsuccessfully in many cities throughout the nation, will not solve the housing problems in the Los Angeles City Schools and might create other problems, the Board of Education and the public learned yesterday.

A report with charts and supporting data was presented to the Board of Education for consideration after a special committee spent several months studying the advantages and disadvantages of keeping schools open twelve months a year. The meeting was attended by several hundred interested citizens, businessmen, and visiting educators.

Headed by Dr. John Lombardi, dean of instruction for Los Angeles City College, the committee was composed of a cross-section of school administrators and Parent-Teacher association representatives. The study was initiated at the request of Dr. Alexander J. Stoddard, former superintendent of schools, following numerous suggestions that schools be kept open on an all-year basis to eliminate half-day sessions and the need for additional new plants.

Although two plans were considered in the report, one consisting of three semesters and the other of four quarters, the former failed to meet state legal requirements. Under the latter program, a student would be required to attend three of the four quarters consecutively with vacations coming at different times of the year.

In pursuing the four-quarter plan, the committee reported that schools and classes would have to be reorganized four times a year instead of two. One of the problems in the all-year program, the committee reported, would be enrolling students by age. If a family has several children in school, vacation periods conceivably

could come at separate times. Should a family have children in all three levels--elementary, junior and senior high--it would be difficult to arrange all three programs to coincide.

Although the trend in business and industry may be towards vacations during the fall and winter months, nevertheless most workers still have vacations during the summer and educators can foresee great pressures in the direction of making exceptions at the request of parents, the committee said.

This problem also would present itself when students desire seasonal employment, the survey pointed out. Because one pupil in every four enters or leaves a Los Angeles junior high school during the school year and one in every three enters or leaves the senior high schools, this problem of shifting school population would have to be considered in any all-year plan.

Unless all school districts followed the same all-year plan, pupils transferring from one district to another could be confronted with the following problems:

(1) evaluation of credits,

(2) interruption of education for a period of weeks until they could be enrolled,

(3) placement so as to provide uninterrupted sequences of instruction in such subjects as foreign language, mathematics and science.

These would be in addition to the problems already faced by transfers, such as: acceleration or retardation in grade placement; repetition or omission of significant areas of learning in the fields of mathematics, social studies (history, geography, civics), language, spelling, science, and literature; the meeting of specific graduation requirements; inability to continue subjects already begun because these subjects may not be offered or classes may be full; and a social adjustment in changing from one school to another.

(MORE)

12-Month School Study Revealed
3-3-3

The pupil attendance problems, as related to the all-year school, would be great in Los Angeles inasmuch as large numbers of children arrive each month from out-of-state. Families would want vacation periods at the same time and many families would not want to take vacations during the winter months.

In studying the utilization of school plants on a continuous basis, the committee learned that overcrowded schools would have less enrollment per quarter and less crowded schools would have vacant space. However, only a limited number of schools would be benefited because half-day sessions exist in only limited sections of the city where new facilities would still have to be built.

Although several of the business division sections predicted little change in their programs, the transportation and maintenance and operations branches predicted additional costs of nearly $2,000,000 yearly if schools went on a 12-month schedule. Because much work in maintenance is done during the summer months, it would be necessary under the four-quarter plan to do the work at night and on weekends at overtime rates. Morever, busses would be required to make more trips with fewer students.

Custodians at present are required to take vacations during school vacation periods. If schools were maintained on an all-year basis, school custodial services and additional relief help would be required all year, the report indicated.

Since all schools would be open for 12 months instead of the current 10 months, it would be necessary to supplement school personnel at additional cost of $1,000,000.

In summarizing the study the committee made no recommendations, but pointed out that while there were certain educational advantages, there were likewise certain disadvantages in a 12-month school plan.

"There is a public resistance to any break with tradition. Most particularly is this resistance felt in those instances of intimate connection such as between schools and parents. Controlled school attendance, which divides families at

vacation time, would be resisted, as would any pattern of school organization which produces discrimination in school attendance periods. Moreover, parents find it more of a task to care for the children during vacation periods than when school is in session.

"Should community agencies not be able to shift their activities to months other than during the summer, such problems could be heightened. Most community activities involving children are organized for maximum effectiveness during the summer months. It is not known whether organization budgets would permit the scheduling of such events for other periods. In any event, activities such as camping, swimming and life-saving training are relatively impractical at times other than during the summer. Thus, three-fourths of the children might not have the opportunity to participate in such activities.

"The fact that one-fourth of all children would always be on vacation has implications relative to their organization of unsupervised and unauthorized activities which would be attractive to and perhaps result in the truancy of children scheduled to attend school.

"One of the most serious obstacles to an adoption of an all-year plan is the inertia of the community--its resistance to such a drastic change involving, as it does, major adjustments for pupils, parents and teachers. If the schools were self-sufficient and independent of the community in which they exist, fewer problems would arise.

"The very fact that the schools are an integral part of the social, business and industrial community, means that they cannot deviate in their operation from the trends and practices established by the larger order. While business and industry have made some progress in the direction of allowing employee vacation periods at times other than during the summer, it is nevertheless true that business and industry in general find it expedient to allow most vacations during the summer months when production slackens.

12-Month School Study Revealed
5-5-5

"It is perhaps significant that the all-year plan most often cited as an example, that established in Aliquippa, Pennsylvania, was abandoned after a trial of several years.

"Other cities which have tried the 12-month programs and later abandoned them are Albuquerque, New Mexico; Amarillo, Texas; Ardmore and Tulsa, Oklahoma; Bayonne and Newark, New Jersey; Bluffton and Gary, Indiana; Elveleth, Minnesota; Mason City, Iowa; Minot, North Dakota; Nashville, Tennessee; and Omaha, Nebraska."

Members of the committee making the study were: Arthur G. Andresen, director of assignments, Division of Secondary Education; Mrs. Robert S. Beasley, director of education, 10th District P.T.A.; Howard A. Bowman, supervisor, Evaluation and Research Section; Donald D. Cunliff, maintenance and operations manager; Miss Eva Danielson, principal, Burnside Avenue Elementary School; Mrs. Grace Dreier, assistant superintendent, Division of Instructional Services; Mrs. Robert Hall, fifth vice-president and director of education, 31st District P.T.A.; Dr. Harry M. Howell, associate superintendent; Dr. John Kegler, supervisor of academic education, Adult Education Branch; Miss Anna Kolz, deputy budget director; Dwight E. Lyons, supervisor, Child Welfare and Attendance; G. Millage Montgomery, associate superintendent, Division of Secondary Education; Dr. Raymond E. Pollich, retired associate superintendent, Division of Elementary Education; Roy Raymond, principal, Mark Twain Junior High School; Virgil Volla, associate superintendent; and Dr. Lombardi.

# # #

1-14-55

APPENDIX B

The Costs and Economic Impact of the Trimester Plans on New York State.

(as reported in; "Extended School Year Designs," The State Education Department, New York, 1966, pp.42 - 52)

Because the three plans involve different enrollments, the costs of the adjustment year increase in proportion to the number of teachers required for the students in the additional grades included in the three, four, and five year trimester plans. If one assumes that each secondary school class has an equal number of teachers, say 10 per class, the adjustment year costs for extra teacher salary, teacher retirement charges, and other fringe benefits will be based on the following proportions:

1. The three year trimester design applied to the four present grades (9 to 12) will require some extra service from 75 percent (30) of the secondary school staff (40).

2. The four year trimester design applied to five present grades (8 to 12) will require extra service from 80 percent (40) of the total secondary school staff (50).

3. The five year trimester design applied to six present grades (7 to 12) will require extra service from 83 percent (50) of the secondary school staff (60).

Since there is considerable attrition in the average high school, graduating classes tend to be smaller than those entering. This inequality in the size of secondary school classes will result in slightly higher projected costs if there is a corresponding difference in the size of the seventh, eighth, and ninth grade classes.

Illustration: Comparative First Year Adjustment Costs for the Three Types of Trimester Programs in a Representative School System

In order to show comparative costs of the three trimester designs in different school systems, enrollment projections and flow charts were prepared. The findings in one school system illustrates the financial advantage of the three year trimester design over the four and five year designs.

1. Comparative 1965 secondary school enrollments under the regular two semester organizational pattern:

Grades 9-12	Grades 8-12	Grades 7-12
20,130 pupils	25,078 pupils	30,275 pupils

2. Comparative 1965 secondary school enrollments in the third trimester of the first adjustment year for the three trimester designs. A trimester program will show an enrollment decrease of 4,208 pupils at the end of the second trimester of the first year. As a result, the projected enrollments for the three trimester designs will be as follows:

Three Year Trimester	Four Year Trimester	Five Year Trimester
Grades 9-12	Grades 8-12	Grades 7-12
15,922 pupils	20,870 pupils	26,067 pupils

3. Comparative size teaching staffs required in the third trimester for the three trimester designs

Based on the school district's teacher-pupil ratio of 1 teacher for every 20.15 pupils, 204 fewer teachers are required in the third trimester than for the regular school year. The comparative number of teachers will be:

Three Year Trimester	Four Year Trimester	Five Year Trimester
777 teachers	1,019 teachers	1,273 teachers

4. Comparative first year adjustment year costs for the three trimester designs

Three Year Trimester	Four Year Trimester	Five Year Trimester
$578,013	$758,038	$946,990

The foregoing illustration shows how first year adjustment costs mount when more support teachers are added to a program. The five year trimester design requires payment of extra compensation and fringe benefits for the seventh and eighth grade teachers. There is no direct economic advantage in carrying these extra teachers, although there is an educational advantage which cannot be measured in terms of dollars and cents.

Based on the total operating expenditures of a previous year, the adjustment year costs of the three trimester programs would have led to the following approximate budgetary increases for the first adjustment year:

1. The 9 to 12 program would have increased the budget approximately 1.8 percent.

2. The 8 to 12 program would have increased the budget approximately 2.3 percent.

3. The 7 to 12 program would have increased the budget approximately 2.9 percent.

Potential Savings in Instructional Salaries After the First Adjustment Trimester Year

The three trimester plans become self-sustaining after the first year because fewer staff members are needed once the new trimester flow pattern goes into effect. Comparative salary costs of trimester and regular school programs show the five year trimester will cost approximately 6.0 percent less than the traditional program. The three year trimester will cost 17 percent less than the traditional program.

Illustration: Projecting Savings for a Representative School System for the Three Trimester Plans

Each of the the three trimester designs will show dollar savings in the instructional salary accruing after the first adjustment year. Since the permanent reduction in the school enrollments does not take place until the end of trimester four, the full impact of the reduction does not make itself evident until the third year. The projected dollar savings shown below are third year surplus figures.

The decrease of 4,516 in student enrollment and the saving of 172 classrooms and 220 teachers is identical in all three plans. The savings in salaries as a result of the reduction of these 220 teachers must help defray the salary costs and fringe benefits for teachers working the extra days in all the plans, with the varying numbers of teachers required. After these costs have been paid, the potential savings in current operating expenditures will be as follows:

Savings Grades 9-12	Savings Grades 8-12	Savings Grades 7-12
$1,163,562	$1,000,286	$771,237

Based on the total current expenditures of a previous year, the potential savings in total current expense costs to a school system, after paying teacher salary and pension costs, will be as follows:

1. The 9 to 12 program will result in a 3.6 percent savings.

2. The 8 to 12 program will result in a 3.1 percent savings.

3. The 7 to 12 program will result in a 2.4 percent savings.

In terms of dollars and cents, the adoption of a five year trimester program will decrease the projected savings by approximately 63.8 percent, whereas the four year trimester will decrease the potential savings by approximately 31.1 percent.

How Long Will a School System Have To Wait To Get More Use From Its Classrooms?

The trimester design results in a permanent reduction of pupil enrollments at the end of the fourth trimester or one and one-third years after the program has begun.

If space is required sooner, special adjustments can be made to accelerate the first 11th grade program through the adjustment trimesters. This can result in a release of the classrooms by the end of the second trimester of the first adjustment year.

How Many Classrooms Can a School System Count on Obtaining as a Result of the Trimester Program?

The school system can count on the release of all those classrooms and special facilities that are used by the students in the highest grade. Thus, if 10 12th grade classrooms are occupied by 260 students under the present two semester program, 10 classrooms will be released plus any other facilities used by the 12th grade pupils.

Figure 29 shows the flow pattern of an actual school system. Here, reduction of enrollments by 314 pupils results in a saving of 13 classroom. (Classroom ratio was 1 classroom for each 26 students.)

Reductions in the Number of Classrooms Required Will Be Reflected in Terms of a Potential Savings in Capital Outlay and Debt Service Charges

In many school districts, the release of classrooms due to the reduction in enrollments will eliminate the need to build additional school facilities. When this occurs, direct savings will be realized in capital outlay and debt service charges. A survey of New York State school construction costs shows the school districts spend $40,000 to $45,000 per classroom for new elementary school buildings and $50,000 to $55,00 per classroom for secondary school buildings. These figures may be even higher for school districts in the metropolitan New York City area due to high site acquisition costs and higher labor costs. On the basis of such costs, a school system that obtains the release of 10 classrooms through the adoption of a trimester plan of school organization would save the equivalent of $550,000 in capital outlay.*

In addition, the community would save the equivalent of $18,700 annually in debt service charges based on a 3.4 percent interest rate if it does not have to construct a new school or build an addition to older existing structures.

Such figures may not look impressive to school administrators who work with multimillion dollar school budgets, but the totals become significant when the cumulative dollar savings are shown for several school districts.

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*Since a high school contains many special instructional areas other than classrooms, school construction costs are frequently calculated on a per pupil basis. In this case, all projected capital outlay costs will be increased because the State average of $2,686.21 will result in higher total costs than shown. For example, per pupil cost calculations show a potential saving of $843,500 instead of $550,000.

Reductions in the Number of Classrooms Required Will Lead to Financial Savings Due to Reduced Operating Costs

People who study the impact of a lengthened school year program on the school budget frequently ignore or overlook the financial savings accruing to a community when it obtains badly needed classroom space without having to build new schools or additions to old ones. The difference in operating the present school plant or one with a reduced enrollment compared to the cost of operating an enlarged school plant can be substantial. The actual projected savings in operating costs may equal or exceed the savings in capital outlay and debt service.

Illustration: Categories Where Money Could Be Saved if the Reduction in School Enrollments Eliminates the Need to Build Additional School Facilities

Assumption #1 The adoption of an extended school year program in one school system will lead to a 1,200 pupil reduction in school enrollment. This frees 44 to 50 classrooms and other special facilities and eliminates the need to build a $3,000,000 school.*

Assumption #2 By not building a $3,000,000 school, the school district saves the costs of operating and maintaining facilities for 1,200 pupils. For example, it is no longer necessary to employ a new principal, an assistant principal, clerical workers, a nurse, extra custodians, cafeteria workers, and other professional and nonprofessional employees. Fixed costs such as insurance are not increased, nor is it necessary to provide for increased heat, light, power and telephone service. Provisions do not have to be made for daily care and long-range maintenance of an expanded school plant.

Assumption #3 The following items, based on present average pupil expenditure costs, may be considered as contributing to the savings effected through the adoption of an extended school year program.

*Based on a cost of approximately $2,600 per pupil.

More Property Can Be Kept on the Tax Rolls When a Reduction in Pupil Enrollments Leads to a Curtailment of School Expansion

The local community has a windfall when a school reorganization leads to a reduced school enrollment and the curtailment of school expansion. Modern schools require land for parking and recreation as well as for school plant itself. In rural areas where land costs are low, the retention of this acreage on the tax rolls may be inconsequential, but in a city where land costs are high, the savings can be significant.

The Potential Impact of an Extended School Year Program Upon the Secondary Schools of New York State

A study was made to show the potential impact of a trimester or quadrimester program upon the secondary schools of New York State. While the data used to calculate ratios and costs were derived from reports submitted by the local school districts, the projections should still be considered as subjective. This is especially true for the savings in classrooms since the pupil-classroom ratio is distorted by the number of secondary school plants which operated on a multiple session basis. Thus, the ratio of 26.4 pupils per classroom will show a lower savings in terms of space than the upstate average of 23.2. Again, a number of variables must be controlled before any final conclusions can be drawn. However, the projected enrollment for the extended school year and the regular school year sets the stage for future action.

A comparison of the number of students housed and educated under the present two semester system and under a trimester system shows a reduction in the total secondary school enrollment lies in the offing with new extended school year programs. This reduction becomes the basis for the release of classrooms and teachers that leads to projected savings.

1. The Reduction in Secondary School Enrollment

Year	Enrollments in gr. 7-12 under the two semester organizational plan	Enrollments in gr. 7-12 under the trimester organizational plan	Reduction in student enrollment
1st yr.	1,336,157	1,336,157 to 1,154,075	0 to 182,082
2nd yr.	1,375,490	1,180,967	194,523
3rd yr.	1,409,099	1,211,057	198,042

The estimated saving in classroom space is based on the use of 26.4 pupils per classroom. Since this ratio has been considered high, there is justification for the substitution of a lower figure. This would result in the potential release of additional classroom space and a corresponding increase in monetary saving.

2. Projected Savings in Secondary School Classrooms Based on a State Ratio of 26.4 Pupils to a Classroom

Year	Number of classrooms required under two semester system	Number of classrooms required under the trimester plan	Number of classrooms saved with trimester plan
1st yr.	50,612	50,612 to 43,715	0 to 6,907
2nd yr.	52,102	44,734	7,368
3rd yr.	53,375	45,873	7,502

Based on the average New York State secondary school construction costs of $2,686.21* per pupil the release of classroom space and other special facilities for approximately 200,000 pupils is equivalent to a reduction in capital outlay costs of $537,242,000. If these costs are spread over a 25 to 30 year period, the annual savings in capital outlay will approximate $18,000,000 to $21,500,000. At the same time state and local governing agencies will save $237,575,000 in interest charges in a 25 year period. This is equal to an annual saving of $9,500,000.

The reduction in secondary school enrollments should be reflected in a parallel reduction in the size of the secondary school teaching staff. The savings in salaries for these teachers will provide funds needed to compensate the reduced staff for its extra period of service. In addition to paying the salary increases and related pension and fringe benefit costs, there should be a potential surplus of approximately $40,000,000 annually (after the transition period) in the instructional salaries account.** This may help defray the cost of bringing new classes into the new lengthened school year program or to reduce class sizes once extra space is made available.

3. Projected Reduction in Teachers Based on a State Average of 19.4 Pupils Per Teacher

Year	Number of classroom teachers required under two semester system	Number of classroom teachers required under the trimester plan	Number of classroom teachers saved with the trimester plan
1st yr.	68,874	68,874 to 59,488	0 to 9,386
2nd yr.	70,902	60,875	10,027
3rd yr.	72,634	62,426	10,208

*Secondary school construction cost figures include incidental costs. They are based on figures released by the New York State Department of Labor.

**Since the average teacher costs local boards of education somewhat more than $10,000 a year, the potential reduction of 10,200 teachers will provide $100,000,000 or more to support the extra cost of a lengthened school year. (Average salary $8,000 + 18.4% for teacher retirement + $277.20 for social security, plus other fringe benefits.)

The potential release of approximately 10,200 secondary school teachers will have an impact upon the educational structure of the state which defies categorizing in terms of dollars and cents. At present, there is a shortage of qualified teachers, therefore the release of these teachers can go a long way towards reducing class size or the replacement of unqualified staff members. Educationally thousands of children should gain by the shift in teacher supply and demand.

On the assumption that new school facilities for some 200,000 pupils would not need to be built, it is possible to show a further saving of $44,000,000 in projected operating and maintenance costs. This figure can vary according to the nature of the categories included in the cost calculations. For example, it has been assumed that new schools will require additional principals, clerks, cafeteria workers, janitors, and many special professional and nonprofessional employees in addition to regular classroom teachers. The $44,000,000 figure provides for these extra employees with the exception of classroom teachers. Again, no allowance was made for increased pension or retirement costs for the new staff in anticipation that some leeway may be necessary to account for the failure of school systems to maintain the status quo.

A Summary of Potential Savings for New York State
Based on the Savings of One Year in Six*

Area of saving	Anticipated savings per year
1. Potential savings due to the release of teachers	
(a) Teacher salaries and retirement costs	$ 41,000,000
2. Potential savings based on release of classrooms and subsequent elimination of need for new school facilities	
(a) Capital expense and debt service	
(1) Interest on debt	9,500,000
(2) Payment on principal	21,500,000
(b) Related operating expense	44,000,000
(c) Return to taxpayers due to retention of land and property on the tax rolls	no figures available
Total potential savings	$116,000,000

*These figures can be refined to show a more exact total. However, it must be remembered that projected savings in capital outlay, debt service, and operating costs will not occur in school systems which cannot use the school facilities released due to the decreased pupil enrollment.

The summary showing projected savings for a trimester plan has been based on the assumption that most school systems would elect to reorganize their schools in an attempt to save one year out of six. This would mean that they would forego a portion of the dollar savings to gain the advantage of the three "E" terms. If, however, the school systems were to be reorganized in terms of design #1 that calls for a saving of one year out of four, the adjustment year costs would be less and the ultimate savings more. For example:

Potential savings in teacher salaries with Design #3	$41,000,000
Potential savings in teacher salaries with Design #1	66,500,000
Additional savings in teacher salaries with Design #1	$25,500,000

Both plans are based on a reduced need for approximately 10,200 teachers, but part of the difference in savings is due to the employment of more teachers for a longer school year with design #3 than with design #1.

In either case the projected savings due to the release of classrooms will remain the same. Therefore, the potential total savings for design #1 could approximate $140,400,000 annually instead of $116,000,000.

These projected dollar savings will go a long way towards providing more as well as better education for all children in the New York State without immediately creating new burdens for the taxpayer.

APPENDIX C

Student Achievement in the New York State Extended School Year Programs.

(as reported in; "The Impact of a Rescheduled School year," The State Education Department, New York, 1970, pp. 97 - 109)

Student Achievement in the New York State Extended School Year Programs

Achievement in the Commack Program

Reading Progress of Third Grade Students (November Metropolitan Reading Test). After 3.7 months of extra schooling the third grade ESY students showed a mean* gain of 6.5 months in reading comprehension and a 7.7 months gain in reading word knowledge over comparable students designated as the control group. The third grade ESY median* reading comprehension score was 8 months higher than that of the control group and 1 year above the national norm. The median word knowledge score was 6 months above the control and 9 months above the national norm.

Primary Grade Gain (May Metropolitan Achievement Test). The ESY primary grade attained higher achievement levels than its control on all seven Metropolitan Achievement Subtests. The mean gains ranged from 3.3 months in arithmetic problems to 6 months in reading and 9.8 months in spelling. These gains are considered significant since a computer analysis of ability factors indicated that the ESY group had a slightly lower potential than the control group. This conclusion is partly supported by the fact that the control group seemed to progress faster from November to May than the experimental group.

Achievement of Intermediate Grade Pupils, Grade 4, 5, 6 (May Metropolitan Achievement Test).

1. The mean ESY 4th grade composite or total test score was 4.2 months higher than that of the control group. In reading the ESY group exceeded the control by 3.1 months.

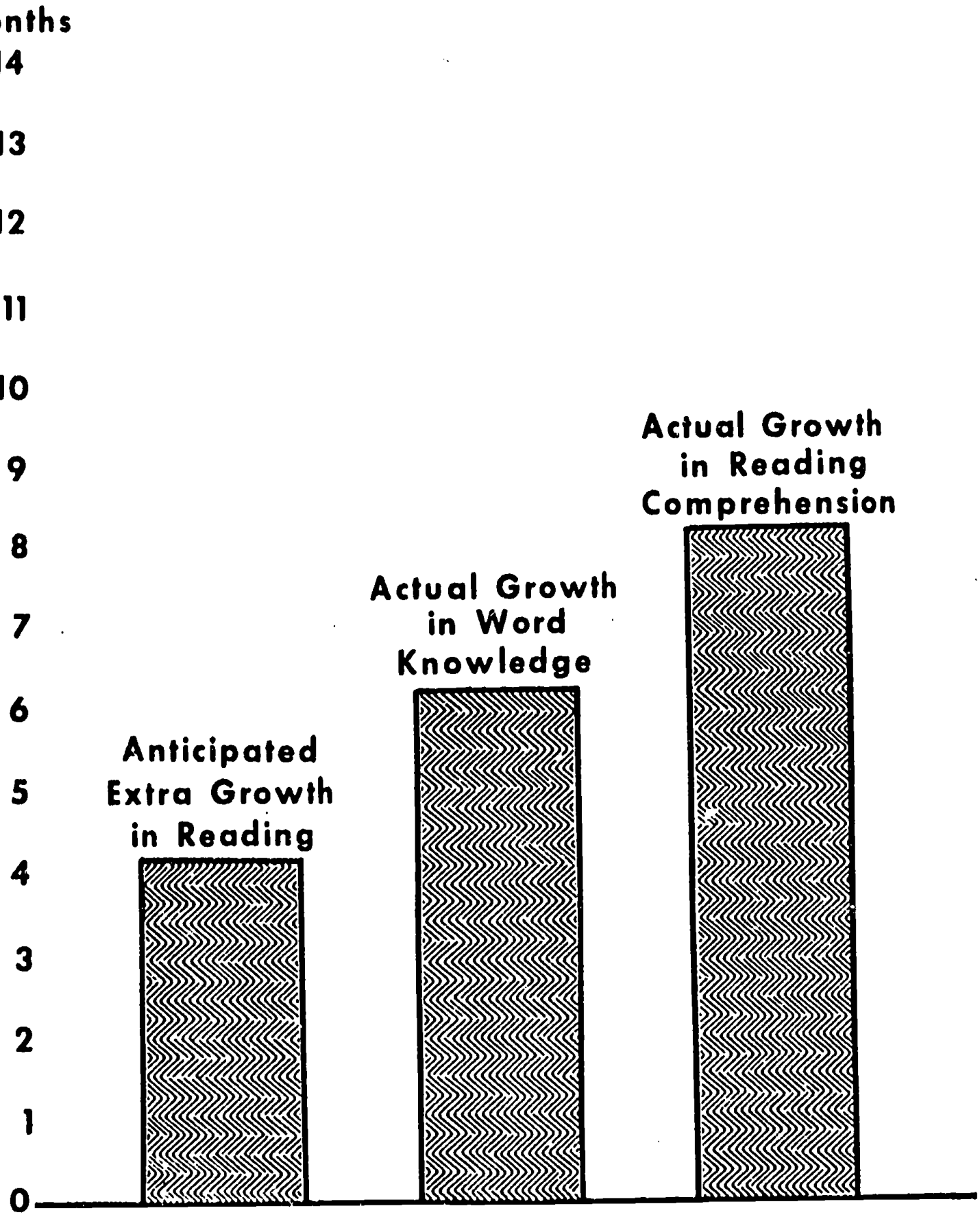
2. The mean ESY 5th grade composite test score was 3.8 months higher than that of the control. In reading the ESY group exceeded the control by 4.0 months.

3. The mean ESY 6th grade composite test score exceeded that of the control by 2.8 months. In reading the ESY score was about 1 month below that of the control group.

The 4th and 5th grade ESY gains were considered significant statistically at the 5 percent level. The 6th grade gain and loss cannot be considered significant.

*These mean and median gains were statistically significant at the 1 percent level which means they can not be attributed to chance.

READING PROGRESS OF CHILDREN IN COMMACK'S EXTENDED SCHOOL YEAR PROGRAM OVER AND ABOVE THAT OF PUPILS IN A CONTROL GROUP



*Based on Metropolitan Achievement Tests administered in November to third grade pupils who have been in the pilot project 25 months.

Academic Gains of Low, Average, and High Ability ESY Children (Metropolitan Achievement Test).

Lowest Ability Gains. The ESY third grade November reading test mean was 7.1 months higher in reading comprehension and 7.3 months higher in word knowledge than that of its control.

The ESY third grade May reading test mean was 10.2 months higher in word knowledge and 8.6 months higher in reading comprehension than that of its control

The ESY third grade May test mean average for five subtests other than reading was 7.4 months above that of its control.

The ESY intermediate grade May reading test mean average was 4.5 months above that of the control; 6.9 months for grade 4; 2.4 months for grade 5; and 4.4 months for grade 6.

Average Ability Gains. The ESY third grade November reading test mean was 5.5 months higher in word knowledge and 6.6 months higher in reading comprehension than its control.

The ESY third grade May reading test mean was .8 months higher in word knowledge and .3 months higher in reading comprehension than its control.

The ESY third grade May mean test average for seven subtests was .5 months higher than the control group with negative gains being made in word discrimination and arithmetic computation.

The ESY intermediate grade reading achievement test means were only slightly higher for the fourth and fifth grades, 1.7 and 1.8 respectively, while the sixth grade was 5.5 months lower than that of the average ability group mean.

High Ability Gains. The ESY third grade November reading test mean was 8.3 months higher in word knowledge and 3.0 months higher in reading comprehension than its control.

The ESY third grade May reading test mean was 5.7 months higher in word knowledge and 6.1 months higher in reading comprehension than its control.

> The ESY third grade May achievement test composite mean gain in other than reading word knowledge and comprehension was 5 months higher than its control.
>
> The ESY intermediate grade reading achievement test means were higher than those of the high ability control group: 9.7 months in grade 4; 12.6 months in grade 5; and 7.3 months in grade 6.

Intermediate Grade Achievement--Iowa Test of Basic Skills (Fall Testing, 1967). The mean achievement of all intermediate grade ESY children is higher than the mean achievement of comparable students on a district-wide basis. The average mean 4th grade ESY achievement is 8.2 months higher than the district mean. The average mean 5th grade ESY achievement is 5.2 months higher than the district mean. The average mean 6th grade ESY achievement is 3.1 months higher than the district mean.

Statistical Analysis--General Observations. A computer analysis of the mental ability gives a slight edge to the control group. While categorized as having a lower potential for learning the ESY classes, with the exception of the sixth grade, constantly showed higher academic gains than children in the control category. A study of class achievement made in terms of ability subdivisions show:

> The slow learner group made greater academic gains over its control than average and high ability groups made in terms of their controls.
>
> The high ability group made greater academic gains over its control than average ability groups, but less than the low ability group made over its control.
>
> Academic gains made by average ability ESY children were not significantly higher than those made by the average ability control group. They were lower than those made by both the low and high ability groups over their respective controls.

Achievement in the Cato-Meridian Program

> The ESY students made their greatest gain in work study skills, i.e., map reading, reading of graphs and tables plus knowledge and use of reference materials. The gain was significant at the 1 percent level which means that the results could not have been attained through chance. Since the only known variable not controlled was the lengthened school year, the achievement in work study skills is attributed to the lengthened school year program

The experimental group (1964-1967) made larger academic gains than its control (1961-1964) on the total or composite of the Iowa Basic Tests. Statistically, the difference was not great, but it indicated a trend towards significance at the 10 percent level. The possibility of this achievement difference occurring by chance alone is one out of 10 times.

Progress on Stanford Achievement Tests. Stanford tests were used to compare achievement of students having 1 year of lengthened school year experience with students having no years. The experimental group exceeded its control but differences are not considered statistically significant.

Stanford tests were used to compare achievement of students having 2 years of lengthened school year experience with students having 1 year. Fifth grade experimental group achievement on the arithmetic computation subtest was higher than the achievement of its control. This difference was considered statistically significant at the 1 percent level. The experimental group made a greater gain than the control group on the following subtests: word meaning, paragraph meaning, spelling, language, and arithmetic concepts, but the gains were not high enough to be considered significant.

Stanford tests were used to compare achievement of students having 3 years of lengthened school year experience with students having 2 years. The achievement of the experimental 6th grade group was higher than its control on all subtests namely, spelling, language, arithmetic computation, and arithmetic concepts, but statistically the differences are not considered significant.

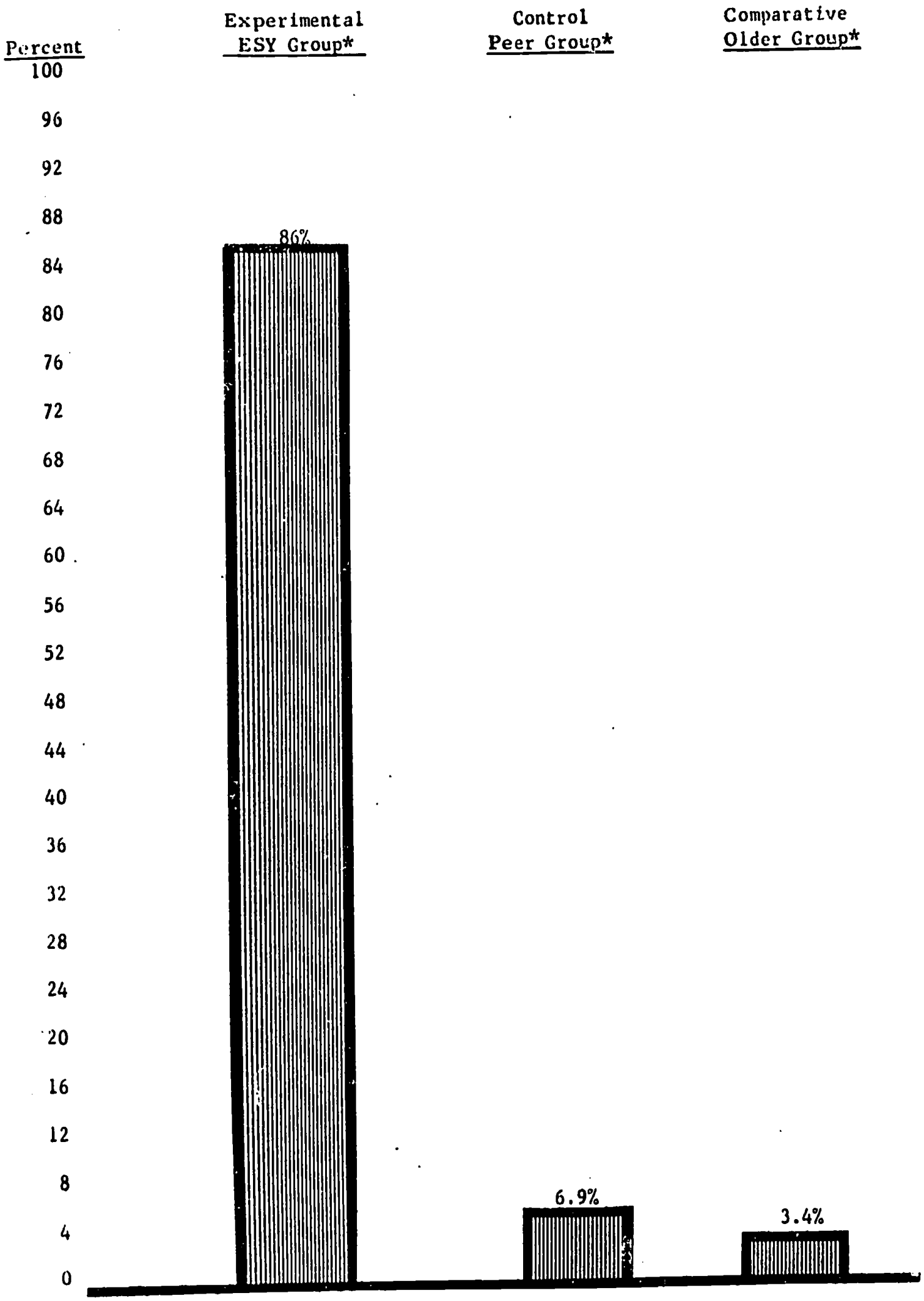
Progress of Experimental Students in Terms of High, Low or Average Ability (I.Q.). Experimental and control groups were divided into subgroups to show the impact of the extended school year on children classified as having high, average, or low ability.

One Year vs. None. The children in each of the three ability groups, high, low, and average, exceeded the gains of their controls on the Stanford Achievement Reading subtests. Gains were not considered significant.

Two Years vs. One Year. The low ability experimental group made a greater gain than its control on the Stanford Achievement subtests in paragraph meaning. This gain was considered significant at the 1 percent level. The low ability experimental students made a greater gain than control students in reading for word meaning, language, arithmetic comprehension, and arithmetic concepts. The differences in the comparative achievement were not significant.

Figure 23

COMPARATIVE NUMBER OF STUDENTS EARNING ENOUGH CARNEGIE UNITS TO BECOME ELIGIBLE FOR GRADUATION ONE YEAR EARLIER THAN USUAL



*Based on 86 students in subgroups 1 and 2.

The average and high ability experimental group exceeded the achievement of their controls on all subtests of the Stanford Achievement Tests, but the gains were not significant.

Three Years vs. Two Years. The low ability ESY group gained more than its control in reading for word meaning on the Stanford Achievement Test. This gain was beyond the 1 percent level and must be considered as a significant growth. The low ability group made greater gains than its control on all other subtests, but differences were not statistically significant.

The average ability ESY group made greater gains than its control in all subtests of the Stanford Achievement Test except arithmetic concepts. Gains were not statistically significant.

The high ability ESY group made greater gains than its control on all Stanford Achievement Test subtests. Gains were not statistically significant.

Specific Observations. Academic gains are not large enough to support the thesis that the lengthening of an elementary school day improves student achievement. There was no evidence that extra time provided was earmarked for a specific purpose; the assumption has been made that much of it was wasted. There is evidence that the lengthening of the school day at the intermediate level contributed to an expansion of the science and foreign language programs.

Students in the experimental program made academic gains, but statistical analysis failed to reveal sufficient gains to uphold the hypothesis that the Cato-Meridian Extended School Year Plan could ultimately reduce school costs.

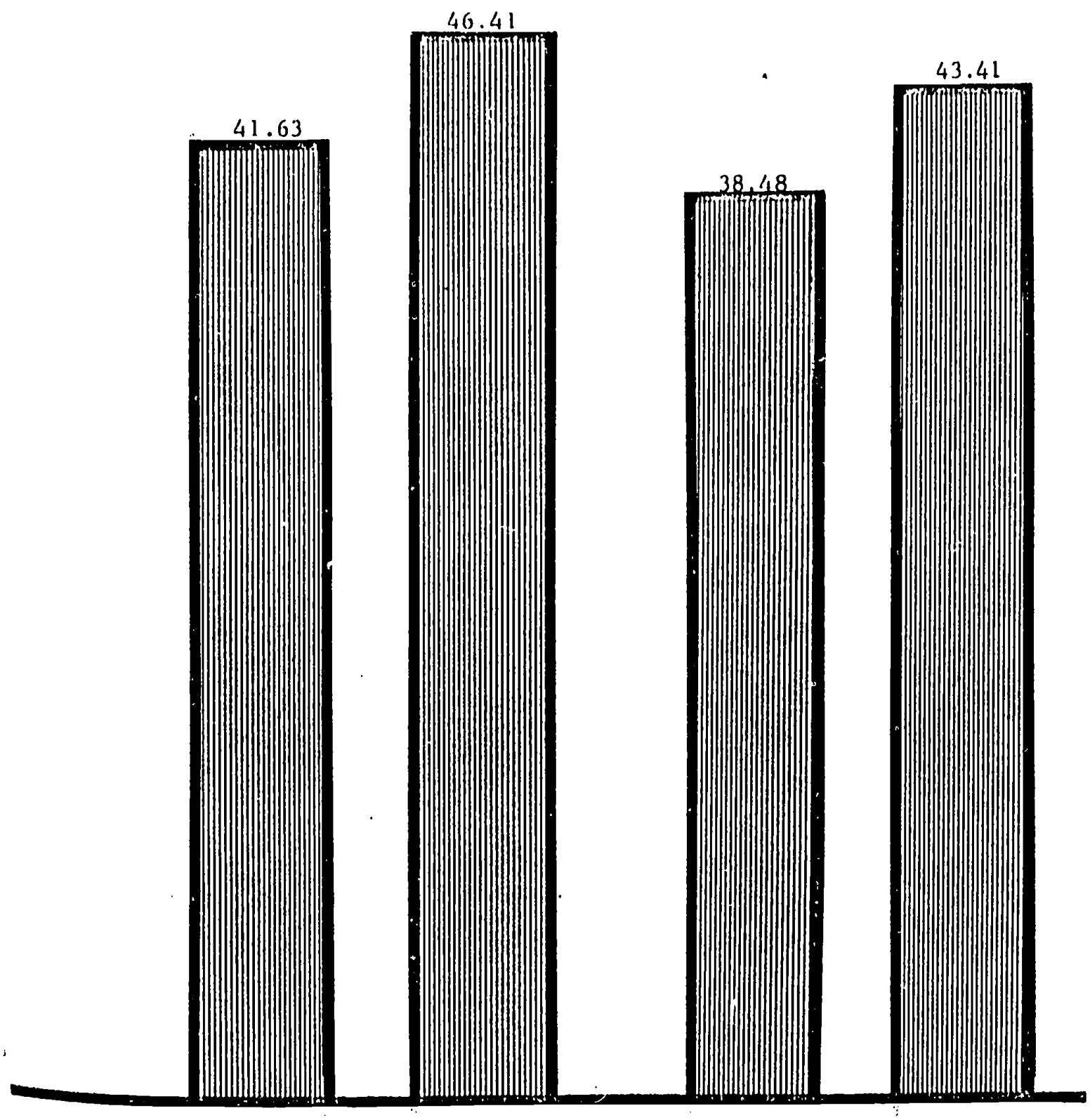
The most significant gains were made in the lowest ability (I.Q.) groups. This supports the findings in other extended school year programs that slow learners or disadvantaged children benefit educationally when placed in a well-structured extended school year program.

Achievement in the Syossett Program

Achievement of Average and Above Average Pupils. ESY students taking tests on completion of a 6 week, first time, full year course in 8th grade social studies, 9th grade English, 10th grade math and/or earth science, showed that they had learned as much or more than matched students taking equivalent courses in the regular school year.

Figure 24

MEAN PERFORMANCE OF 54 EXTENDED SCHOOL YEAR STUDENTS WHO TOOK AMERICAN HISTORY IN THE SUMMER COMPARED TO THE MEAN PERFORMANCE OF 54 REGULAR SCHOOL YEAR STUDENTS WHO COMPLETED THE COURSE IN THE 10 MONTHS



*Statistical analysis shows that the ESY students do as well, the mean differences are not statistically significant.

ESY students who completed social studies 8 in one summer received an average grade equivalent score of 11.3 on the Stanford Achievement Test. This was higher than the comparason group mean score of 11.1 and the control group's mean of 10.8 following completion of a similar course in the regular school year.

Students completing full time academic courses in the summer took the next sequence course in the fall with older students. They received equivalent or better grades than upper classmen. ESY students who took world history with older students received a median grade of 85 compared to the comparison group's 83. ESY students who took English 10 with older students received a median grade of 81 compared to the comparison group's 80.

ESY students completed English 9 in one summer. There was no significant difference between their grades and comparison and control group grades. The ESY students went on to take English with older students. There was no significant difference in their grades and those given to the comparison and control groups.

Final grade averages of ESY students in English, mathematics, science, and social studies, showed the experimental students were holding their own in terms of the comparison group. The ESY students had a median grade average of 83 and a mean grade average of 80 whereas the comparison group had a median grade average of 80 and a mean grade of 80.

Achievement of the Low Group. Syosset's low group cannot actually be described as a low ability group because it contained students with I.Q.'s ranging from 85 to 128.

Individual students in the low achieveing category made satisfactory growth while others did not. Lack of progress for some students did not stem from lack of ability, but rather from personal problems and/or factors outside the school's control.

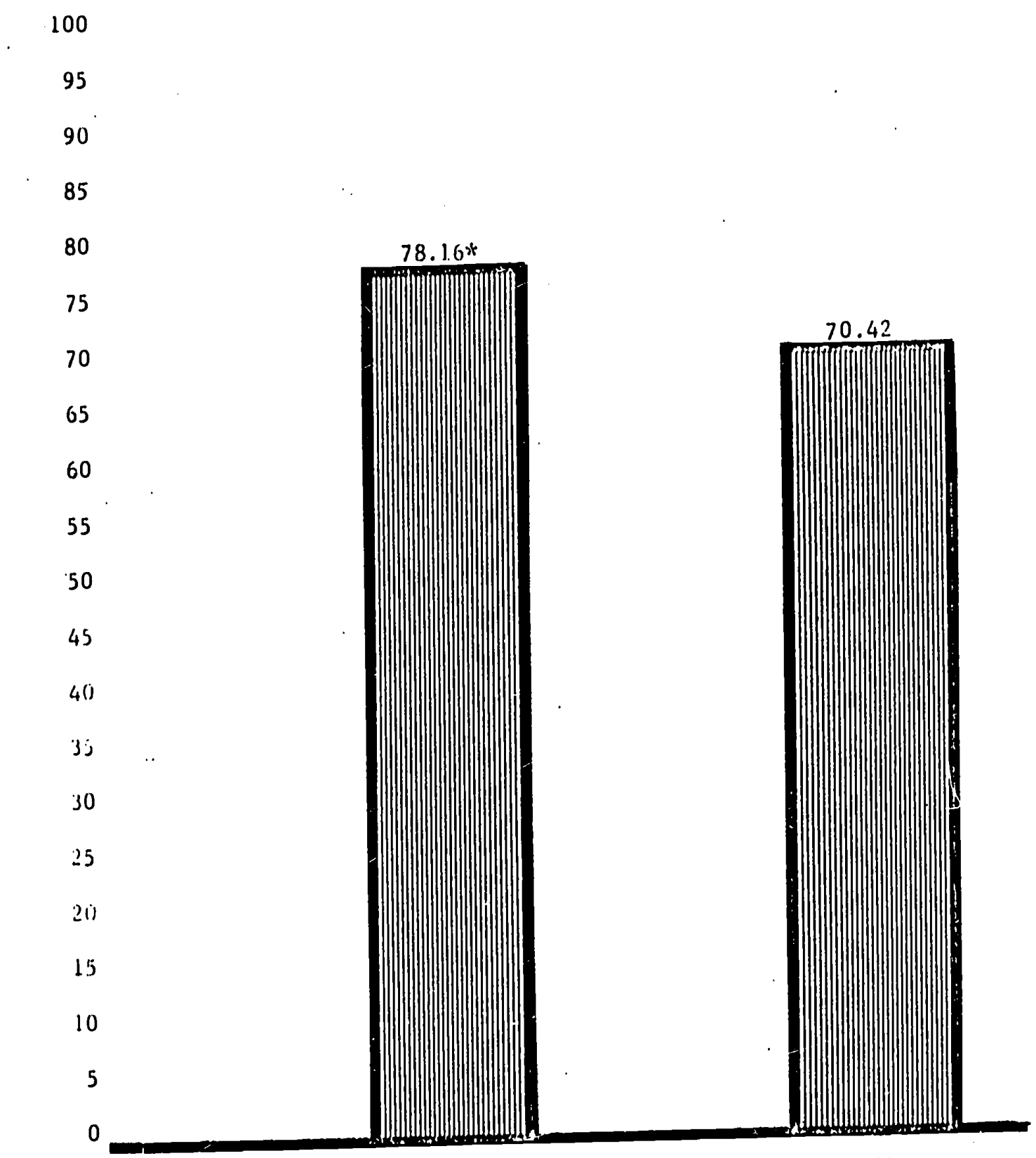
Achievement in Hornell's Modified Summer Segment

Academic Achievement. Students in the Modified Summer Segment program were not expected to out-perform students completing courses in 10 months. The objective was to demonstrate that they can do as well academically as other students do in the regular school year. This they did.

A comparison of the June and August Regents Examination scores showed consistently high performance had been made by students taking the compacted 7 week course.

Figure 25

COMPARATIVE BIOLOGY REGENTS EXAMINATION SCORES OBTAINED BY STUDENTS COMPLETING BIOLOGY IN 7 WEEKS COMPARED TO REGULAR SCHOOL YEAR STUDENTS COMPLETING COURSE IN 180 DAYS



*The mean score of 78.16 was significant at the 1 percent level.

Regents biology examination scores obtained by 61 students in the summers of 1965 and 1966 were compared with those obtained by 123 students who took biology during the regular school year.

The mean performance of the summer segment students was 78.16 compared to the mean performance of 70.42 for the regular students. A statistical analysis of the biology Regents test results reports the mean score of the modified summer segment group was significant at the 1 percent level. These results cannot be attributed to chance.

Other Regents examination comparisons showed the Extended School Year students did as well, if not better, than regular school year students.

Standardized tests were administered to all Extended School Year students in May following the completion of August programs. Statistical analysis of ESY students performance was made with that of control students just finishing comparable courses. The statistics repeatedly show that Extended School Year students did as well, if not better, than control students.

Fifty-eight ESY students who took the STEP tests 10 months after completing math 8 in a summer segment course showed a higher level of achievement had been reached than its control. The statistical analysis showed the gain was significant at the 1 percent level.

The achievement of 99 ESY students who took mathematics as a first time, new subject, was compared with that of 99 matched students taking similar math courses in the regular school year. Statistical analysis of the mean scores of the two groups showed the gain of the ESY students over the control group was significant at the 1 percent level.

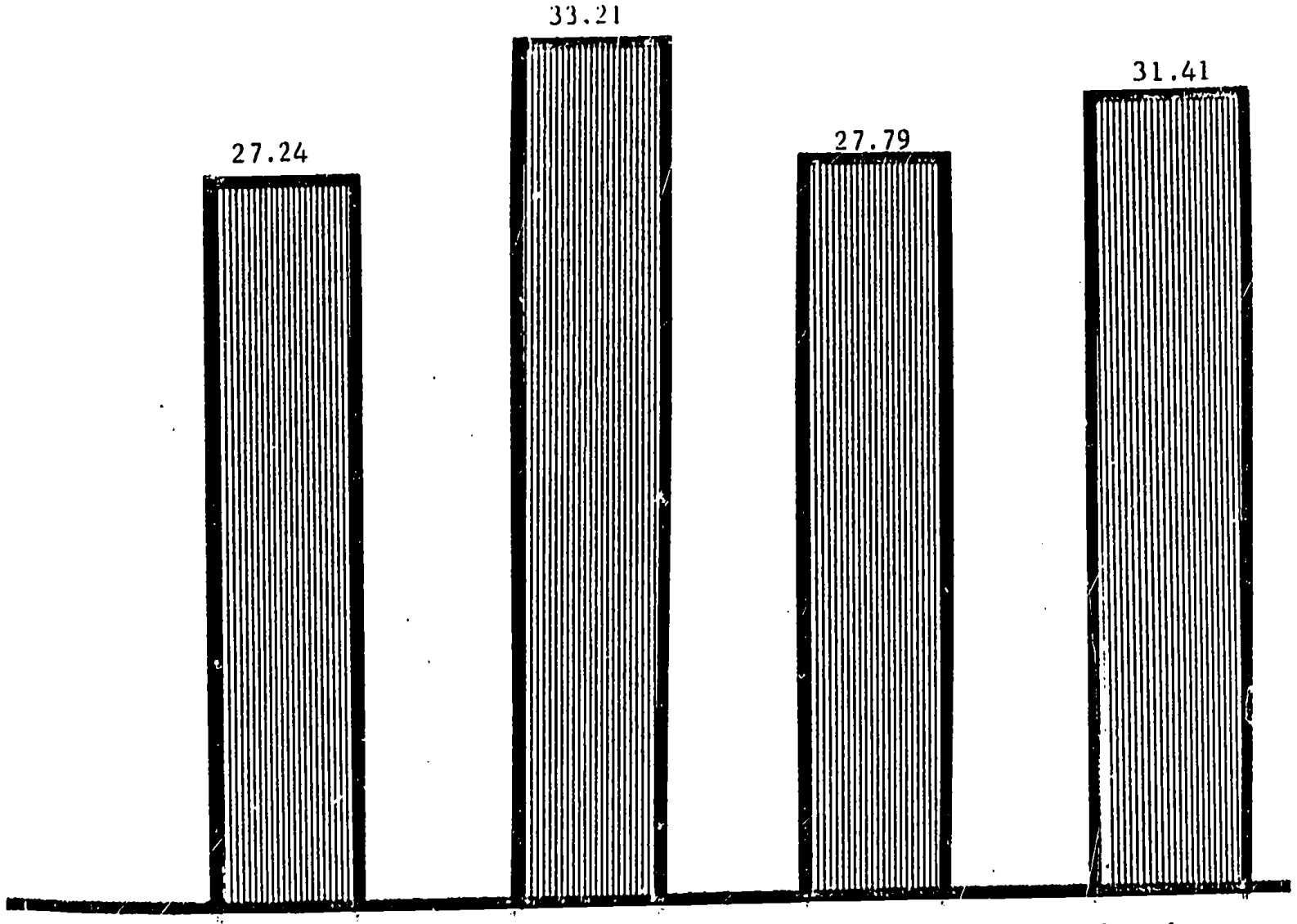
The achievement of 604 ESY students from grade 8, 9, 10, 11, and 12 was compared to that of a comparable or matched group of students taking the same courses in the regular school year. The ESY gain of 6.5 was compared to the 5.9 for the control. Statistically, the gain was not considered significant at the 1 percent level.

A comparison of mean scores of 61 ESY students who took biology in the summer was compared to that of 123 matched students who took biology in the regular school year. The ESY gain of 78.16 was compared to the 70.42 gain of the control. Statistically, the summer segment gain was considered significant at the 1 percent level.

Figure 26

MEAN PERFORMANCE OF 58 EXTENDED SCHOOL YEAR STUDENTS WHO TOOK MATH 8 IN THE SUMMER COMPARED TO THE MEAN PERFORMANCE OF 58 REGULAR SCHOOL YEAR STUDENTS WHO COMPLETED THE COURSE IN 10 MONTHS

MEAN FOR ESY STUDENTS*		MEAN FOR RSY STUDENTS*	
PRE-TEST	POST-TEST	PRE-TEST	POST-TEST



-th covariance F = 22.6. This is considered significant at the 1 percent level.

Similar comparisons were made of the achievement of the experimental group and its controls in American history, world history, and chemistry. The differences in achievement of the two groups was not significant at the 1 percent level. However, the results show that the achievement of the summer segment groups continues to be as high, if not higher, than that of the control groups taking comparable courses in the regular school year.

Academic Achievement at the School of Human Resources

Evaluation. Pretests and posttests were given in all major subject areas. Statistical analysis showed positive gains were made in all subject fields.

> The educational gains were very significant in social studies 10 and business math at the .01 percent level.
>
> The educational gains were highly significant in English 7, 8, 9, and 10; in social studies 8 and 9; and in personal typing at the .001 percent level.
>
> There were gains in physical fitness and earth science but they were not considered significant below the .05 percent level.

Growth in academic areas between pretest and posttest of 40 points in English 10, of 42 points in social studies, and a 45 point mean increase in exam scores in typing, point up the fact that physically handicapped boys and girls do benefit academically from being involved in a well-structured extended school year program combining continuity of learning and enrichment.

> Elementary school children showed a mean growth of 2.8 months on the Stanford Reading Test and a mean improvement of 3.25 months in arithmetic.
>
> Junior high school students showed a mean increase of 10.3 month in arithmetic on the Iowa Test of Basic Skills. This gain paralleled the mean gain of 8.0 months on the wide range achievement test in arithmetic.

Physical fitness tests were given to measure student coordination, endurance, and skill. In every case, mean improvement was registered for elementary and for high school pupils, but the gains were not all significant.

> At the elementary level the gains for weight lifting were considered significant at the 1 percent level.

Improvement at the junior high level was considered significant at the 1 percent level in shuffleboard and pulley lifting.

In baseball throw the mean difference between pretests and posttests was just shy of significance at the 5 percent level.

Gains were made at the senior high level in five out of six activities, however, significance was evident at the .01 percent level in only one area.

In terms of the total physical fitness the resulting gains must be considered significant in that they refute the contentions of some rehabilitation professionals who contend that physically handicapped children cannot stand the "pace."

Academic Growth At Green Chimney's

A statistical analysis of the achievement tests administered to control and noncontrol students did show a language growth on the part of the experimental group was significant at the 5 percent level.

The experimental group showed gains were made which were higher than those made between pretests and posttests by the control group on the Stanford Achievement subtests for paragraph meaning, arithmetic applications. Statistically, the results were not significant at the 1 percent level.

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