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AUTHOR Copple, Carol; And Others
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ABSTRACT

This paper was prepared to assist the National Education Commission on Time and Learning. It provides a review of available research on major issues facing the commission and is organized to conform to the commission's legislative mandate as expressed in Public Law 102-62. An overview section reviews the major points discussed in each section of the paper. Subsequent sections present information on the following topics: the history of the length of the school day and year in the United States; the length of the school day and year in the United States and other countries; ways in which time is being allocated to academic subjects; ways that schools can better motivate students so that they learn more in the available time; the extent to which time spent on homework increases total learning time and achievement; ways in which students spend time outside of school; ways in which the extended school year affects teachers' professional development; the implications of extended learning programs for use of school facilities; additional costs to state and local governments resulting from school day/year extensions; and current approaches to extending schooling in the United States. References accompany each section. Twelve exhibits are included. (LMI)

# THE NATIONAL EDUCATION COMMISSION ON TIME AND LEARNING

# BRIEFING PAPER

Carol Copple
Michael Kane
Douglas Levin
Shirah Cohen

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Pelavin Associates, Inc.
2030 M Street, N.W., Suite 800
Washington, D.C. 20036

BRIEFING PAPER
THE NATIONAL EDUCATION COMMISSION ON TIME AND LEARNING

## Overview

This briefing paper has been prepared to assist the National Education Commission on Time and Learning. It provides a review of available research on major issues facing the Commission. The paper is organized to conform to the Commission's legislative mandate as expressed in PL 102-62; the major sections of the paper correspond to the issues and questions that the Commission is to address.

This overview reviews the major points contained in each section of the briefing paper. Bold headings reflect the structure of the paper. Bulleted items provide a summary of the information included in those sections.

**What is the history of the length of the school day and year in U.S. elementary and secondary schools?**

- Policymakers' interest in the length of the school day and year in the U.S. was sparked by A Nation at Risk and subsequent reports highlighting international differences in time children spend in school and their levels of achievement.

- The origins of the September-to-June school year date from the earliest days of compulsory schooling and lie in farmers' need for their children to help in the fields and the discomfort of attending school in the heat of the summer.

- With the growth of industrialization and the market-oriented economy in the late 19th and early 20th century, the required length of the school year steadily increased to meet the need for an educated workforce—from about 12 weeks in the 1850s to the present standard of about 36 weeks.

- By the end of World War II, the school day and year had become fairly uniform in rural and urban areas around the country and have remained essentially stable to the present.

**What is the length of the academic day and the academic year in elementary and secondary schools in the U.S. and other nations?**

- **Who determines the length of the school day and year in the U.S.?**

  State legislatures mandate minimum standards for the length of the academic day and year, and districts and schools tend not to go beyond these minimum standards.

- **How are legislated minimums enforced?**

  As of 1990, 43 of the 50 states may sanction schools for providing less than the legislated minimums with loss of financial aid or accreditation.

- **How does the length of the school day and year in the U.S. compare to other nations?**

  The U.S. average school day is 5.6 hours long, which is longer than in many other developed countries. Japanese and Chinese students are at school 7-8 hours a day but spend far more time than U.S. students in recess, lunch, and extracurricular activities—the difference in academic instruction time per day is relatively small.

  Out of 20 nations, the U.S. average school year of 180 days was one of the shortest, and Japan's with 243 days was the longest.

- **What is the relationship between the length of the school day and year and achievement?**

  Much attention has been given to the fact that Japanese students spend far more time in school than American students and also outperform students in the U.S. and all other countries on achievement tests.

  The relationship between instructional time and achievement is far more complex than it appears at first glance, as illustrated by the fact that students from Japan and other high-achieving nations spend significantly less time in math instruction than U.S. students and those in many other countries with lower achievement scores.

**How is time being used for academic subjects?**

- **How is the total time in a school day or year distributed across various activities?**

  The length of the school year and length of the school day do not translate directly into time for instruction.

  Of the 1080 hours in a typical school year fewer than 50 percent represent time that students are actually receiving instruction. Even less time, perhaps as little as one-third of the total hours in a school year, may be devoted to student time-on-task.

- **How is allocated instructional time distributed across subjects?**

  About 60% of instructional time is devoted to reading/language arts, mathematics, social studies, and science at the elementary level.

Evidence suggests that increasing allocated instructional time by itself has little influence on student achievement.

- **What factors affect the relationship between time and instruction?**

  **Motivation**

  Motivation affects the time-learning relationship in two ways: (1) students make their own decisions about allocating time and effort to learning tasks; and (2) students learn far more in a given period of time when they are highly interested in a learning activity.

  **Instructional appropriateness**

  The match between the subject matter presented and the needs or readiness of students to learn it is an important factor in learning. This idea, which researchers have labeled **academic learning time (ALT),** focuses attention on instruction or materials that challenge students while providing them with a sufficient degree of success.

- **What other strategies are available for increasing productive academic time?**

  **Reducing student absenteeism**

  Student absenteeism accounts for two-thirds of the difference between the gross and net school year, over 100 hours or about ten percent of the hours in a school year.

  **Improving school management**

  Reducing the time involved in starting the school day can add 30 minutes to the time available for instruction in a typical day. This could add as much as 20 percent to currently available instructional time.

  **Improving classroom management**

  It has been estimated that approximately 25 percent of teachers under-allocate time for some instructional areas and that 70 percent of teachers could improve the manner in which they use instructional time.

  **Restructuring the schedule of the school day**

  A set of time-related strategies involve reshaping the schedule of the school day in order to reduce fragmentation and provide more time for sustained, interdisciplinary instruction.

**Adopting a year-round calendar**

Preliminary evidence on year-round schools suggests that some improvements in achievement and reduced grade retention may result from eliminating the long summer break.

**How can schools better motivate students?**

- **Can more effective extrinsic motivators be used?**

  **Work and college opportunities**

  A powerful motivator in Japan and many other countries is the fact that future work opportunities depend heavily on school performance. The connection is weaker in the U.S., though efforts are underway to strengthen it.

  **Student teams**

  Student teams have proven an effective motivational strategy, particularly when students contribute to team scores by improving over their own past performance.

  **Tangible rewards**

  Some schools and districts are reporting positive results from rewarding good grades and attendance with incentives such as discounts on food, clothing, and other things students want.

- **Can intrinsic motivation be more effectively tapped?**

  Rewards, praise and other extrinsic motivators in some cases undermine learners' intrinsic motivation and distract them from learning.

  Several current reform themes relate to increasing the role of intrinsic motivation (e.g., giving students more "real-world" projects and problems).

**To what extent does the time students spend on homework increase total learning time and achievement?**

Among several purposes of homework as stated by teachers, the principal one is to give students time to practice skills learned in class.

- **How much time do students spend on homework?**

  The majority of U.S. students spend less than an hour a night on homework, which is less time than students in most other industrialized countries as well as far less than the time U.S. students spend watching television.

- **Does homework work?**

  Overall, time spent on homework has been found to have a substantial positive effect on student achievement for high school students, a modest positive effect for junior high students, and no consistent effect for elementary students.

- **What is the optimum amount of homework?**

  Research suggests that time spent on homework, only up to two hours a night, boosts the achievement of junior high students, while for high school students "the more the better." For elementary students, no direct benefits have been found.

**How do children spend their time outside school?**

- **Watching television**

  American students watch a lot of television. The majority watch at least 3 hours a day, and 20% watch 5 or more hours a day, more than every country but Scotland, according to one international study.

- **Jobs and related experiences**

  Over half of U.S. high school students across all socioeconomic levels report that they work. Only for students working over 20 hours a week has academic performance been found to suffer.

  Some kinds of jobs, internships, and other work-related experiences provide positive learning experiences for students.

- **Extracurricular activities and sports**

  Community service, extracurricular activities, and sports may also enhance students' self-esteem, build strong relationships with adults and peers, and foster skills important for future success.

**How does the extended school year (or year-round calendar) affect professional development for teachers?**

- **Options for professional development**

  For teachers on extended-year or year-round schedules, there are a variety of options for professional development, including evening and weekend courses, in-service training, and summer leaves of absence.

- **Potential effects of an extended school year on professional development**

  While critics of extending the school year point out that teachers will forfeit summer work and other experiences that contribute to professional development, proponents claim that teachers will benefit professionally through higher salaries and reduced teacher burnout.

**What impact do extended learning programs have on the use of school facilities?**

- With the typical 180-day school year and 6-hour school day, school facilities--a large capital investment--are used for instruction under 15% of the total available time.

- Extended-day and year-round programs make more use of school facilities and have proven to reduce vandalism and theft by reducing the time that facilities are not in use.

**What additional costs to state and local governments would result from extending the school day and year?**

- Estimates of the costs for extending the school day and year vary widely, from relatively low estimates, e.g., $200 per student for an extra six weeks of schooling, to estimates over four times higher, which add up to $1.1 billion for every extra school day for the nation as a whole.

- There is general agreement on the impact of an extended academic year on a school's typical budget items (e.g., personnel costs are the largest component of increased costs from an extended school year).

**Current approaches to extended schooling in the U.S.**

- Of the over 1,600 schools that are operating under an alternative school schedule, only a small handful are extended-day or extended-year programs.

  Decisions to extend the school day or year at an individual school typically derive from a set of interrelated concerns, including the desire to increase student achievement, enrich or expand educational opportunities, and provide "a good place" for children to be in the afternoons or over the summer.

- **How do extended schooling programs differ?**

  Some extended schooling programs consist simply of an increase in the amount of time that school is in session for all students enrolled in the school, while other schools offer parents and students a choice to attend an extended learning program in a summer session.

- **What special needs are met by extended schooling programs?**

In some communities, extended schooling programs serve special needs such as providing safe and educationally enriching programs for youngsters who have no supervision at home during the day.

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## BRIEF HISTORY OF THE LENGTH OF THE SCHOOL DAY AND YEAR IN THE UNITED STATES

Today's interest in the amount of schooling provided to American children was sparked by the 1983 publication of A Nation at Risk and subsequent reports highlighting international differences in the amount of time children spend in school and their levels of achievement. Reactions to these reports by educators, policymakers, the business community, and the public have appeared on the pages of virtually every major newspaper and news magazine in the country.

Differences in achievement levels have compelled policymakers to take a closer look at the differences among the public education systems of the world. What has been found is that U.S. children go to school for substantially less time than children in most other industrial countries, including those that have achieved the highest marks on these assessments. A brief review of the history of the amount of time children in the U.S. spend in school can provide a context for examining current practices.

### The Origins of Required Public Schooling

In 1647 Massachusetts became the first state to require communities to establish and maintain elementary schools for the public good, but it was another 200 years before the first state law was passed that required children to attend school for some minimum amount of time. That 1852 law, also passed by the state of Massachusetts, stated that:

> *Every person who shall have any child under his control, between the ages of eight and fourteen years, shall send a child to some public school within the town or city in which he resides, during at least twelve weeks, if the public schools within that town or city shall be so long kept, in each and every year during which such child shall be under his control, six weeks of which shall be consecutive.*[1]

The now traditional September-to-June school year dates from these early days of compulsory schooling and was shaped by two broad influences: (1) the need for children to help on the farms and in the fields (over 85 percent of the population was engaged in agriculture); and (2) the uncomfortable heat of the summer.

### The Movement from Increasing Diversity to Uniformity

The late nineteenth and early twentieth century brought with it major social and economic changes in American life. The period was marked by mass immigration of non-English speaking, illiterate people and rapid advancement in scientific knowledge and industrial development. More towns and schools were constructed in response to the increasing population, and the importance of education grew as it became apparent that a more educated workforce was needed in the market-oriented economy that industrialization had brought with it. The required length of the school year steadily increased to meet this need— from about 12 weeks in the 1850s to the present standard of about 36 weeks.

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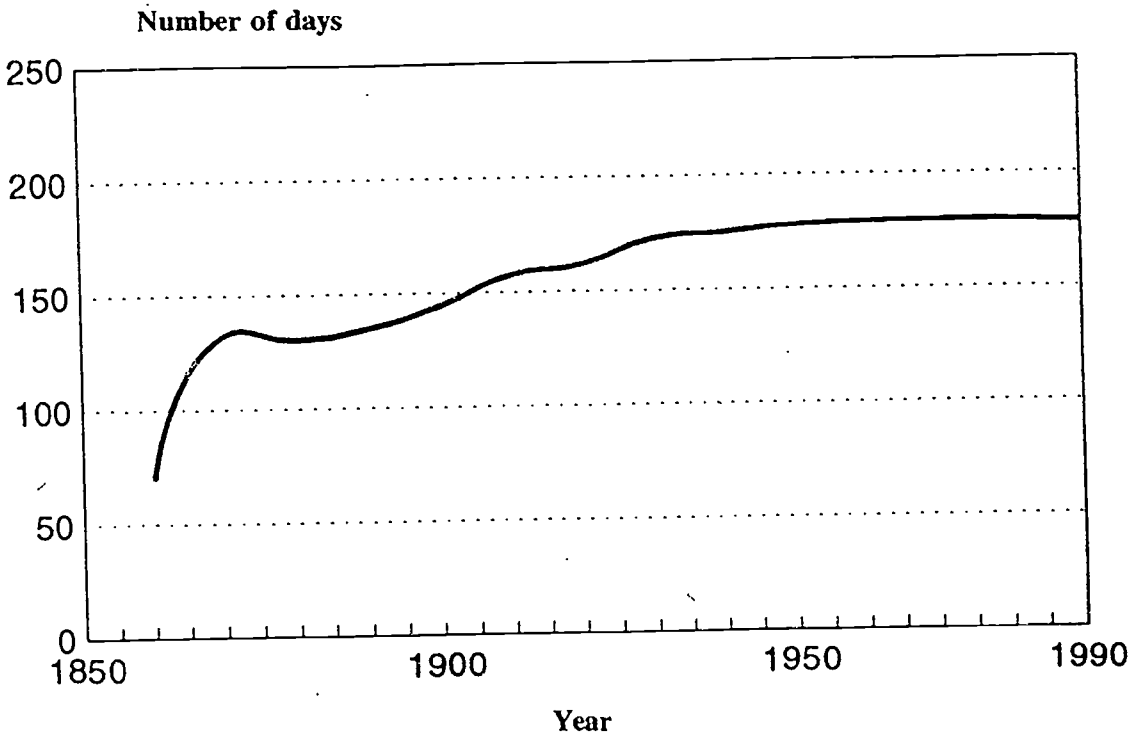
[1]Massachusetts, *General Laws*, 1852, chap. 240

As the need grew for individuals to develop more advanced skills than the elementary schools could provide, high school attendance grew dramatically. In 1876 only three or four percent of the population went beyond elementary school, but by 1914 about 40 percent of the population entered high school. And, by 1918 all states had adopted mandatory attendance laws, which served to further increase the percentage of children continuing through high school and beyond.

Exhibit 1 presents the average mandated length of the public school year from its inception to the present.

## EXHIBIT 1

### Average Mandated Length of the Public School Year 1850 — 1990




SOURCE: Compiled from data from the U.S. Bureau of the Census (1960) and the Council of Chief State School Officers (1991).

As the exhibit indicates, from the end of World War II until the present, the length of the school year has remained essentially stable. The length of the school day has remained largely unchanged as well.

**Public Opinion Beginning to Change?**

Until recently, public opinion in the United States has been fairly firm against changing the school calendar, and state legislatures have reflected this view. States have responded only minimally to A Nation at Risk's recommendation that they consider increasing instructional time by implementing a seven-hour school day and a 200- to 220-day school year; a few states extended their unusually short calendars to the more common 180-day standard, and a few lengthened the school day but only to six or six-and-a-half hours.

At present, a reversal of public opinion may be emerging. In the 1989 Gallup poll, a majority of sampled individuals (48%) said they favored increasing the amount of time that students in their community spend in school, while 44% were opposed and 8% undecided—the first time in the 40 years that Gallup has posed the question that more Americans were in favor of increasing school time than opposed.

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# NOTES

## WHAT IS THE LENGTH OF THE SCHOOL DAY AND YEAR IN THE UNITED STATES AND OTHER NATIONS?

**Who determines the length of the school day and year in the U.S.?**

- State legislatures mandate *minimum* standards for the length of the academic day and the academic year for elementary, middle, and secondary schools;
- Local school boards prescribe calendars; and,
- Individual building principals develop specific schedules.

Individual schools have the freedom to exceed mandated standards and to develop alternative calendars and schedules. In some cases, only one school in the state may choose to offer an extended day, extended year or alternative schedule; in other states whole districts have opted to do so. *In the United States, districts and schools tend not to go beyond the mandated minimum standards in setting the length of the school day and year.*

**How are the legislated minimums enforced?**

As of 1990, 43 of the 50 states may sanction schools for providing less than the legislated minimums.[2] These sanctions may include the loss of state financial aid or the loss of accreditation (Council of Chief State School Officers, 1990).

Some states include in their legislated minimum requirements a number of days specifically allocated for teacher in-service training or staff development which, while a necessary and important expenditure of time, should not be included in any count of teacher-pupil contact. Also counted in the legislated minimums is time spent in school but away from direct instructional settings such as for field trips and school-wide assemblies.

Exhibit A in the Appendix to this paper presents the states' minimum requirements for the number of days and hours that constitute a school year.

**How does the length of the school day and year in the United States compare to other nations?**

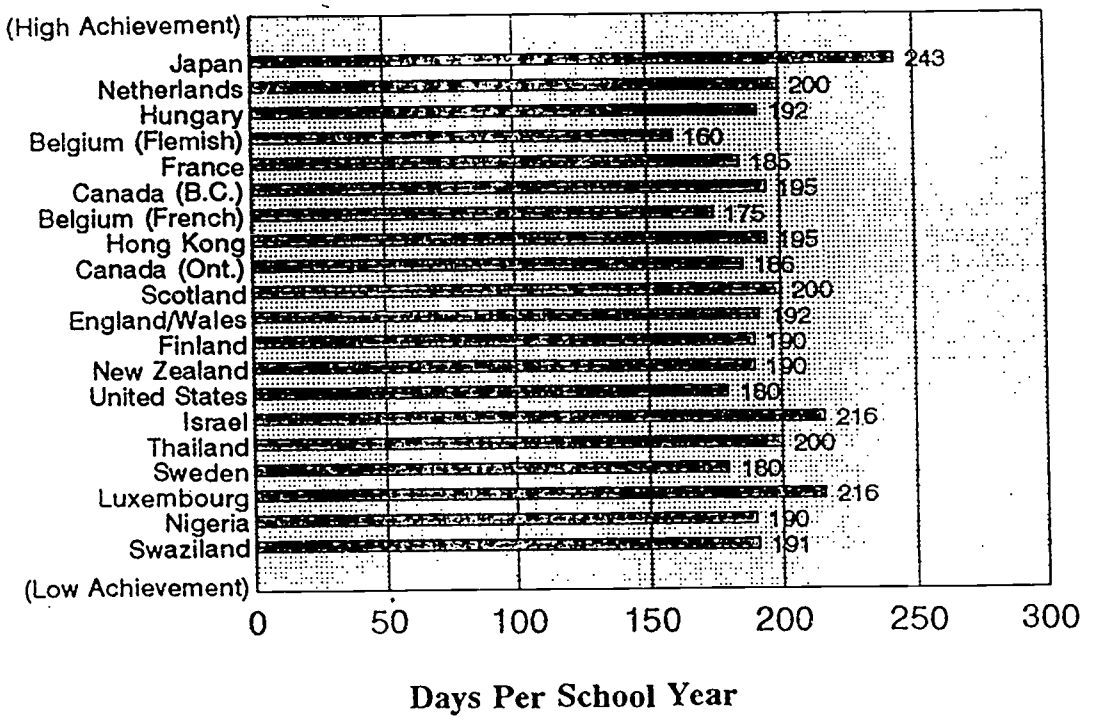
Interest in the length of the school day and year in the United States has been sparked by international comparative studies of academic achievement. These studies, the first of which was conducted in 1965, have spurred public debate on issues of time and learning. Two different nongovernmental research consortia have conducted multinational assessments of educational

[2]Alaska, Colorado, Delaware, Hawaii, New Hampshire, New Mexico, and Ohio are the exceptions.

achievement.[3] In addition to measuring the achievement of students, they have gathered other data that may shed light on differences in educational achievement across countries. These data include the length of the school year and the amount of instructional time received by students. Exhibits 2 and 3 present data on the length of the school year and day in the United States and other countries ranked by level of academic achievement.[4] It should be noted that the Japanese figure of 243 days includes Saturdays when children are in school only a half day; this reduces the number of days in the Japanese school year by about 20 days.

## EXHIBIT 2

### Length of the School Year Among 20 Nations Ranked by Level of Academic Achievement



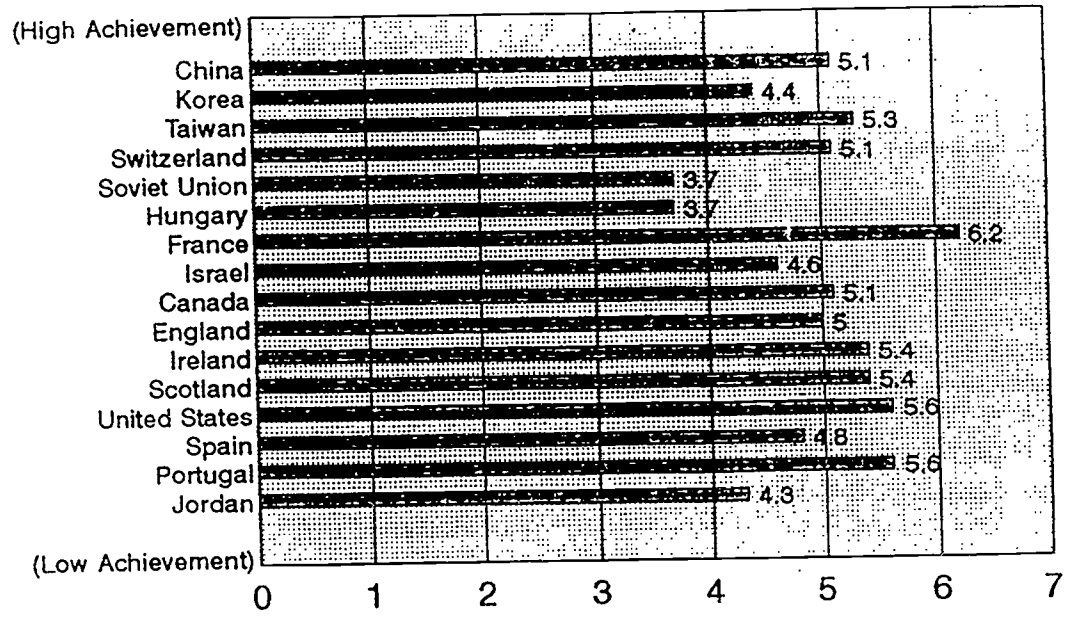

SOURCE: IEA, 1987

[3]The International Association for the Evaluation of Educational Achievement (IEA); and the Educational Testing Service's (ETS) International Assessment of Educational Progress (IAEP).

[4]The determination of the length of the school year and day in other nations is not a simple task. Data from the most recent IEA study do not correspond closely to the most recent IAEP data, and there are other contradictory reports of the length of the school year. The IEA data presented for length of the school year are the most widely cited. For length of the school day the IAEP data are cited.

## EXHIBIT 3

### Length of the School Day Among 16 Nations Ranked by Level of Academic Achievement




**Average Hours of Instruction Per Day**

SOURCE: IAEP, 1991
(IAEP school questionnaire, age 13)

Japan did not participate in the IAEP assessment. According to Harold Stevenson and James Stigler (1992), Japanese and Chinese schools follow similar daily schedules: students arrive at 8-8:30 a.m. and depart around 4:00 p.m., except for Saturday when they leave at noon. Since more of Asian students' school day is spent in recess, lunch, and extracurricular activities, as contrasted with academic classes, the difference between the U.S. and Japan in academic instruction time per day is relatively small.

**What is the relationship between length of school day and year and achievement?**

In general, students from the United States have fared quite poorly on multinational assessments, with their scores lagging behind those of students from other developed countries (National Center for Education Statistics, 1992). In that light, these facts are striking:

- Japanese students spend considerably more time in school than do their peers in every other nation in the world.[5]
- These same Japanese students have consistently scored at or among the highest achievement levels in the world.

These facts have led numerous educators and policymakers to conclude that the U.S. needs to extend the school day and year. However, the relationship between length of school day and year and learning is far more complex than it may appear at first glance.

Although international data on the length of the school day and year seem to suggest that increasing instruction time should result in higher achievement, data from the same IEA study cited in Exhibit 2 show a very different pattern when hours of instruction and achievement are examined by subject area. In mathematics, for example, some of the countries with the highest levels of achievement devote the least amount of time to math instruction. Japan, the highest achieving nation in mathematics assessments, has one of the least amounts of time devoted to mathematics. Though it should be noted that many Japanese students spend a considerable amount of time studying math outside of regular school hours (IEA, 1987), other countries such as Hungary and the Netherlands also have high math achievement and relatively few hours devoted to math instruction. Moreover, countries at the lower end in achievement (Luxembourg, Nigeria, Swaziland) have relatively large amounts of time spent on math instruction.

A host of cultural differences among countries, as well as differences in student motivation and pedagogical differences from one country to another, appear to influence achievement as well and make interpretation of cross-national data a complex enterprise that eludes simple answers.

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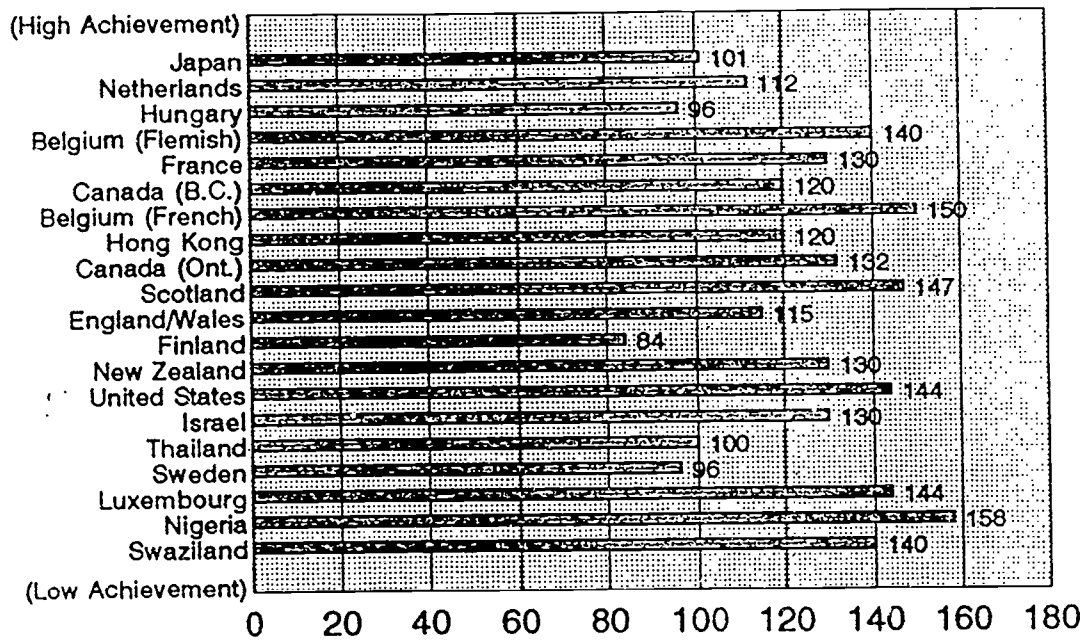
[5]A Washington Post article (March 4, 1992) indicates that Japanese officials plan to shorten the school year this fall in an effort to foster more creative, well-rounded, and less pressured students.

## EXHIBIT 4

### Yearly Hours of Mathematics Instruction Among 20 Nations Ranked by Level of Academic Achievement




SOURCE: IEA, 1987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# NOTES

## HOW IS TIME BEING USED FOR ACADEMIC SUBJECTS?

The length of the school day and school year do not translate directly into time for instruction. In reviewing the adequacy of instructional time in schools in the United States, several factors can be considered: how total school time is distributed across various activities and subjects, the relationship between time and instruction, and strategies to enforce productive academic time.

**How is the total time in a school day or year distributed across various activities?**

The amount of time that students actually receive instruction is reduced by many things, from inclement weather and student absenteeism to recess and standardized testing sessions. Exhibit 5 below presents estimates of how school time is actually used (Karweit, 1982; Rossmiller, 1983), employing the following categories, which were defined by Rossmiller:

**Gross School Year:** the typical school year of 1,080 hours, derived by multiplying 180 days per year by 6 hours per day.

**Net School Year:** the number of hours left after deducting time when either teachers or students are not in school, including student absenteeism, inclement weather, in-service days, and strikes.

**Net Instructional Time:** the time that students are actually receiving instruction after deducting time spent on non-instructional activities out-of-class or in-class. Out-of-class time deducted includes time used for recess, lunch, time between classes, assemblies, field trips, and standardized testing. Deducted in-class time includes time taken up by activities such as grouping/regrouping of students, discipline, transitions between activities, answering students' miscellaneous questions, intercom announcements, and collecting money.

**Time-on-Task:** the time that students are actually paying attention to instruction or really working at their seats.

Clearly, there is considerable erosion from the gross school year—typically 6 hours a day and 180 days a year—to the time that students are actually engaged in learning tasks.

## EXHIBIT 5

### Estimates of Hours of Instructional/Learning Time Provided in a Typical School Year (U.S.)

| Time use category | Karweit minimum | | Rossmiller | | Karweit maximum | |
|---|---|---|---|---|---|---|
| | Hours | % | Hours | % | Hours | % |
| Gross school year | 1,080 | 100 | 1,080 | 100 | 1,080 | 100 |
| Net school year | 840 | 77 | 918 | 85 | 1,020 | 94 |
| Net instructional time | 420 | 38.8 | 485 | 44.9 | 680 | 62.9 |
| Time-on-task | 310 | 28 | 364 | 33.7 | 612 | 56 |

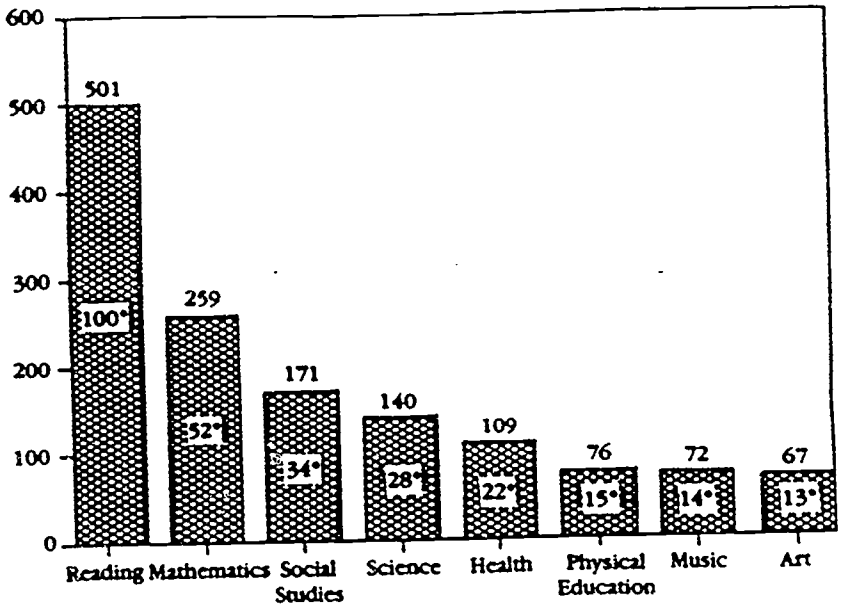
SOURCE: National Education Association (1987).

**How is allocated instructional time distributed across different subjects?**

Net Instructional Time, approximately equivalent to what is called *allocated time* by researchers, is distributed across many subjects of study. Exhibit 6 shows the allocated instructional time for fourth graders by subject, according to a 1985 Association for Supervision and Curriculum Development (ASCD) survey of 1,500 elementary schools (Cawelti and Adkisson, 1985). The total allocated time reported by the teachers in this survey is greater than the total Net Instructional Time as estimated by Rossmiller and Karweit through their observational research; however, the relative distribution of time across subjects in the ASCD survey can be assumed to reflect the approximate breakdown by subjects at the elementary level.

## EXHIBIT 6

### Allocated Instructional Time
### Average Minutes Per Week—Fourth Grade




* Average Minutes Per Day

SOURCE: Association for Supervision and Curriculum Development, 1985.

Equivalent data are not available at the secondary level. However, allocation of requirements across subjects, as displayed in Exhibit 7, may serve as a proxy for how time is allocated by subjects.

Numerous researchers have examined the relationship between allocated time and student achievement and concluded that increasing allocated time by itself appeared to have little influence. Nelson summarizes the research on influence of allocated time on student achievement as follows (Exhibit 8):

EXHIBIT 7

# HIGH SCHOOL GRADUATION REQUIREMENTS IN CARNEGIE COURSE UNITS

| | English | Social Sciences | Math | Science | Art/ Music | Foreign Language | Vocational | Other | Electives |
|---|---|---|---|---|---|---|---|---|---|
| Alabama | 4 | 3 | 2 | 2 | — | — | — | 1.5 | 9.5 |
| Academic/College Bound | 4 | 4 | 3 | 3 | — | 2 | — | 1.5 | 4 |
| Alaska | 4 | 3 | 2 | 2 | — | — | — | 1 | 9 |
| Arizona | 4 | 2 | 2 | 2 | — | — | — | 0.5 | 9.5 |
| Arkansas | 4 (1) | 3 (2) | 3 (3) | 3 (3) | 0.5 | — | — | 1 | 6.5 |
| California | 3 | 3 | 2 | 2 | 1 (4) | — | — | 2 | — |
| Academic/College Bound | 4 | 1 | 3 | 1 | 2 | 2 | — | — | 4 |
| Colorado | — | — | — | — | — | — | — | — | — |
| Connecticut | 4 | 3 | 3 | 2 | (5) | — | (5) | 1 | 6 |
| Delaware | 4 | 3 | 2 | 2 | — | — | — | 1.5 | 6.5 |
| District of Columbia | 4 | 2 | 2 | 2 | — | : | — | 2.5 | 7 |
| Vocational/Career Bound | 4 | 2 | 2 | 2 | — | — | 9 | 1.5 | — |
| DODDS | 4 | 3 | 2 | 2 | 1 | — | 1 | 2 | 5 |
| Florida | 4 | 3 | 3 | 3 | 0.5 | — | 0.5 | 0.5 | 9 |
| Georgia | 4 | 3 | 2 | 2 | — | — | — | 2 | 8 |
| Academic/College Bound | 4 | 3 | 3 | 3 | — | 2 | — | 1 | 4 |
| Vocational/Career Bound | 4 | 3 | 2 | 2 | — | — | 4 | 1 | 4 |
| Hawaii | 4 | 4 | 2 | 2 | — | — | — | 4.5 | 6 |
| Academic/College Bound | 4 | 4 | 2 | 2 | — | 2 | — | 4.5 | 6 |
| Vocational/Career Bound | 4 | 4 | 2 | 2 | — | — | 2 | 4.5 | 6 |
| Idaho | 4 | 2.5 | 2 | 2 | 0.5 | (6) | — | 4.5 | 6 |
| Illinois | 3 | 2 | 2 | 1 | — | — | — | 0.5 | 1 |
| Indiana | 4 | 2 | 2 | 2 | — | — | — | 8 | 1 |
| Iowa | — | — | — | — | — | — | — | — | — |
| Kansas | 4 | 3 | 2 | 2 | — | — | — | 1 | 9 |
| Kentucky | 4 | 2 | 3 | 2 | — | (7) | (7) | 2.5 | 7.5 |
| Academic/College Bound | 4 | 2 | 3 | 2 | — | — | — | 1 | 8 |
| Louisiana | 4 | 3 | 3 | 3 | — | — | — | 2.5 | 7.5 |
| Maine | 4 | 2 | 2 | 2 | 1 | — | — | 1.5 | 3.5 |
| Maryland | 4 | 3 | 3 | 2 | 1 | — | 1 | 1 (8) | 5 |
| Massachusetts | — | — | — | — | — | — | — | — | — |
| Michigan | (9) | (9) | (9) | (9) | (9) | (9) | (9) | (9) | (9) |
| Minnesota | 4 | 3 | 1 | 1 | — | — | — | 1.6 | 9.3 |
| Mississippi | 4 | 2 | 2 | 2 | — | — | — | — | — |
| Academic/College Bound | 4 | 2.5 | 3 | 3 | — | — | — | — | — |
| Missouri | 3 | 2 | 2 | 2 | 1 | — | — | 2 | 10 |
| Montana | 4 | 1.5 | 2 | 1 | — | — | — | 1 | 10.5 |
| Nebraska | (10) | (10) | (10) | (10) | (10) | (10) | (10) | (10) | 9 |
| Nevada | 4 | 2 | 2 | 2 | — | — | — | (11) | 8.5 (12) |
| New Hampshire | 4 | 2.5 | 2 | 2 | 0.5 | — | — | 1.7 | 7 |
| New Jersey | 4 | 3 | 3 | 2 | 1 | — | — | 4.5 | 4.5 |
| New Mexico | 4 | 3 | 3 | 2 | — | — | — | 2 | 9 |
| New York | 4 | 3 | 2 | 2 | — | — | — | 5 (13) | — |
| North Carolina | 4 | 2 | 2 | 2 | — | — | — | 1 | 9 |
| North Dakota | 4 | 3 | 2 | 2 | — | — | — | 5 | 1 |
| Ohio | 3 | 2 | 2 | 1 | — | — | — | 1 | 9 (14) |
| Oklahoma | 4 | 2 | 2 | 2 | — | — | — | — | 10 |
| Oregon | 3 (15) | 3.5 | 2 | 2 | — | 1 (16) | — | 2.5 | 8 |
| Pennsylvania | 4 | 3 | 3 | 3 | — | — | — | 3 | 5 |
| Puerto Rico | 3 | 2.5 | 3 | 2 | — | — | — | 4 | — |
| Rhode Island | 4 | 2 | 2 | 2 | — | — | — | — | 6 |
| Academic/College Bound | 4 | 2 | 3 | 2 | 0.5 | 2 | — | — | 4 |
| South Carolina | 4 | 3 | 3 | 2 | — | — | — | 1 | 7 |
| South Dakota | 4 | 3 | 2 | 2 | — | — | — | 1 | 8 |
| Tennessee | 4 | 1.5 | 2 | 2 | — | — | — | 1.5 | 9 |
| Academic/College Bound | 4 | 2 | 3 | 2 | 1 | 2 | — | — | 6 |
| Texas | 4 | 2.5 | 3 | 2 | — | — | — | 2 | 7 |
| Academic/College Bound | 4 | 2.5 | 3 | 3 | 1 | 2 | — | 2 | 3 |
| Utah | 3 | 3 | 2 | 2 | 1.5 | — | 1 | 2 | 9.5 |
| Vermont | 4 | 3 | (17) | (17) | 1 | — | — | 1.5 | — |
| Virgin Islands | 4 | 2 | 2 | 2 | — | 1 | 1 | 2 | 6 |
| Virginia | 4 | 3 | (17) | (17) | 1 (18) | — | 1 (18) | 2 | 6 |
| Academic/College Bound | 4 | 3 | 3 | 3 | 1 | 3 | 1 | 2 | 4 |
| Washington | 3 | 2.5 | 2 | 2 | — | — | 1 | 3 | 5.5 |
| West Virginia | 4 (19) | 3 | 2 | 2 | (20) | (20) | (20) | 2 (21) | 7 |
| Wisconsin | 4 | 3 | 2 | 2 | — | — | — | 2 | — |
| Wyoming | (22) | (22) | (22) | (22) | (22) | (22) | (22) | (22) | (22) |

Note: "—" indicates no state policy regarding Carnegie course units.

1. Oral communication may be substituted at 11th or 12th grade.
2. One unit of practical arts may be substituted.
3. Five units of math and science are required, 2 units in one area and 3 in another. At least 1 unit in life sciences and 1 unit in physical sciences.
4. May take course in either art/music or foreign language.
5. One unit in either the arts or vocational education.
6. School must offer these programs. There are no course requirements.
7. One additional course unit in foreign language or vocational arts.
8. Physical education.
9. No state requirements, but financial incentives are provided for districts requiring the recommended levels of graduation credit requirements.
10. Local districts establish specific graduation requirements. Each district must require 200 hours for graduation of which 80% must be from the core curriculum. All courses listed here make up the core curriculum.
11. One unit credit required in humanities, 1 in American government, 2 credits in physical education.
12. Pupils who demonstrate competency in the use of computers are not required to take the course of study in computers and therefore must earn only 13.5 units in the required courses.
13. A 3-unit sequence in any major subject, except English and social studies, is required; one half unit of health is also required. One half unit of physical education each year is not counted in the 16 unit total.
14. Of the 8 electives, 1 must be chosen from applied arts, fine or performing arts, or a foreign language.
15. Includes the equivalent of one unit in written composition.
16. One unit shall be earned in any one or combination of applied arts, fine arts or foreign language.
17. A third unit of math or science is required for a total of 5 units in math or science.
18. One unit of credit required from fine arts or practical arts.
19. Four units of English/language arts or 3 and one-half units of English/language arts and one-half unit of speech.
20. A student must earn 3 units in at least one content area besides English.
21. One unit health and physical education.
22. No state requirements; districts set their own.





Source: Council of Chief States School Officers' 1990 Policies and Practices Survey.

## EXHIBIT 8

### Summary of Research on Influence of Allocated Time on Student Achievement

| Study or Article | Conclusions |
|---|---|
| Dempster (1987)<br>Heyns (1986)<br>Karweit (1983)<br>Leinhardt & Bickel (1987) | Time devoted to school learning appears to be a moderate prediction of school achievement. |
| Pintrich (1986)<br>Karweit (1985)<br>Levin & Tsang (1987)<br>Hossler, Stage & Gallagher (1988)<br>Mazzarella (1984)<br>Quaratoria (1984)<br>Slavin (1987) | Considerable increases in the amount of schooling would be required to bring about even modest increases in student achievement. The costs required to do this are not justified. |
| Jacobson (1990) | Increased allocated time increased student achievement. |

SOURCE: Nelson, 1990.

As the next section describes, achievement has been found to be related to the time that students are actually engaged in learning activities that are appropriate for them.

**What factors enhance the relationship between time and instruction?**

Research has consistently identified two related factors which, along with instructional time, determine how much students learn: (1) student attentiveness and motivation; and (2) the appropriateness of instruction.

**Student motivation**. As discussed in a subsequent section, motivation affects the time-learning relationship in two major ways. First, whatever the length of the school day, school year, or homework assignments, the student makes his or her own decisions about allocating time and effort to learning tasks (Levin, 1984). Second, when students are highly interested in a learning activity, they learn far more in a given period of time than when they are less fully engaged (Harnischfeger, 1985).

**Appropriateness of instruction.** Instructional appropriateness partially rests on the match between the subject matter presented and the need or readiness of the student to learn it. Spending a lot of time going over material that a student has already mastered does not increase learning (Walberg and Frederick, 1982), nor does spending time teaching concepts or skills that a student is not yet ready to learn.

Karweit (1984) and others have pointed out that, in fact, presenting material that students are not ready to handle creates serious problems, particularly in cumulative subjects like math. If students are not yet ready for the next step, learning declines and may stop altogether. Moreover, students tend to get frustrated and lose confidence in their ability to learn the material. In these instances, additional instructional time actually reduces learning.

Researchers reviewing the results of IEA's Second International Mathematics Study have suggested that a likely reason for Japanese superiority in math achievement is this *more focused instructional approach in which each topic is mastered before the teacher moves on* (Travers, 1985). In the U.S., by contrast, many topics are dealt with only briefly—perhaps for a class period or two—and the teacher moves on before many students master them (Crosswhite et al., 1985). In addition, U.S. students are often presented with the same material several times during their elementary years, instead of thoroughly mastering them and then moving on (Travers, 1985).

These findings point to the importance of distinguishing various components of time allotted to instruction. Of the time allocated to instruction *(allocated time),* only the time in which students are engaged in learning activities *(engaged time, or "time-on-task")* can reasonably be considered instructional time. A related concept is academic learning time (ALT), which refers to time in which students are engaged in the tasks of appropriate levels of difficulty; in ALT students are challenged by the instruction and materials and able to succeed sufficiently for learning to take place.

Unlike increasing allocated time, increasing time-on-task or academic learning time (ALT) shows a clear positive relationship to student achievement. Moreover, it has been shown that ALT can be increased by changing teacher behaviors that are subject to alteration through staff development programs (Denham and Lieberman, 1980; Smyth, 1985).

**What strategies are available for increasing productive academic time?**

Increasing the school year does not automatically guarantee that the additional time will be used for productive academic instruction. Later sections of this paper will consider two frequently proposed strategies for increasing productive academic time (other than extending the school day or year:) *increasing homework* and *increasing student motivation.* This section discusses strategies related to increasing productive academic time by reducing absenteeism, improving school and classroom management, restructuring the schedule of the school day, and adopting a year-round schedule.

**Reducing student absenteeism.** Rossmiller estimates that *student absenteeism* accounts for two-thirds of the difference between the gross and net school year (over 100 hours), and *time out of class for non-instructional activities* accounts for three-quarters of the difference between the net school year and net instructional time (about 325 hours).

Since a great deal of instructional time is lost through student absenteeism, strategies for improving attendance are important to increasing instructional time. One way to increase students' attendance is to increase their motivation, which is discussed in a later section.

**Improving school management.** An elementary school principal[6] described these areas of potential time savings:

- *Starting the day.* When the first bell sounds, students often take five minutes to get to their classrooms and then lose another 15 minutes hanging up coats, sharpening pencils, turning in money for fund-raising, looking for homework assignments, etc. More time is lost if the teacher asks for lunch money, takes attendance (calling the name of every child), and leads the class in the Pledge of Allegiance and an opening song. After this, directions for starting the morning activities often consume another 5-10 minutes. In all, 30-40 minutes have been spent doing what could be done in 15 minutes or less.

- *Assemblies and programs.* Though these are necessary, they often take up more time than they should. The principal should give direction as to the assemblies and programs to be held and their length.

Other ways to lose instructional time include too many fund-raising activities, late arrivals, and intercom calls.

**Improving classroom management.** Teachers' behaviors divide allocated time into engaged time and non-engaged time. The relative distribution of time between the two is often based on the classroom management skills of a teacher (Karweit, 1985). It has been estimated that approximately 25 percent of teachers under-allocate time for some instructional areas and that 70 percent of teachers could improve the manner in which they use instructional time (Brandt, 1982).

One way for elementary school teachers to increase the amount of engaged time available is to *reduce transition times* between subjects where a teacher can lose 10 minutes or more. Often students use this time to disturb each other or call the teacher's attention to some unrelated topic. The loss of time can be reduced by giving the students something to think about to bridge the gap between subjects.

Among other recommended ways that teachers could improve their classroom management and effectiveness are (Wyne and Stuck, 1982):

- Showing students clearly what is expected of them;
- Establishing tasks at appropriate levels of difficulty;
- Assigning tasks that should result in high rates of success;
- Providing students with objective feedback; and
- Ensuring that the curriculum and tests are compatible.

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[6]Ida H. Love, Principal, J.F. Chick Elementary School, Kansas City, Missouri, as cited in Walberg (1988).

**Restructuring the schedule of the school day.** Another set of strategies and scheduling reforms that is growing in popularity focuses on reshaping the schedule of the school day (Epstein, 1990; Diffily, 1991). The intent of these reforms is to provide more time for sustained, interdisciplinary instruction during the day, permitting a more diverse array of learning activities. Scheduling reforms are more common in middle schools than high schools. It was recently estimated that 15 percent of schools for young adolescents use flexible schedules, and that that percent could more than double within the next few years (Epstein, 1990).

**Adopting a year-round schedule.** Advocates claim that a year-round school calendar reduces the forgetting that occurs over the long summer break in the traditional calendar and reduces the time wasted in the unproductive review that now occupies the first weeks of instruction at the beginning of the fall term in most schools (Ballinger, Kirschenbaum, and Poimbeauf, 1987).

The research conducted to date suggests that year-round schooling has no detrimental effects on student achievement (Merino, 1983; Herman, 1991), and some schools and districts with year-round calendars report improved achievement levels. For example, student achievement scores in the large Los Angeles Unified School District's year-round schools show a higher rate of gain than comparable September-June schools in the district. Year-round schools in Houston, Texas, and Provo, Utah, and other communities have also shown improved achievement scores. Some schools also report reduced grade retention and dropout rates (Ballinger, Kirschenbaum, and Poimbeauf; Jordan, 1992). Of the schools and districts reporting favorable results with year-round schooling, some serve predominantly low-income and minority student populations and some primarily middle-class students. In either case, students do at least as well in year-round schools as schools with the traditional calendar, and in some cases, they appear to do better.

## Related Issues

There are a number of issues relating to time and learning that were not included in this paper, in some cases because there is little empirical work on them. These include:

- What is the impact on student learning of various ways of restructuring the schedule of the school day?
- How much improvement can realistically be made in teachers' classroom management, and what strategies are most effective in bringing about this improvement?

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State Calendars for Minimum Number of Days and Hours in School Year

| State | Number of Hours | Number of Days |
|---|---|---|
| Alabama | 6 | 175 |
| Alaska | 4(K-3); 5(4-12) | 180 |
| Arizona | K: 2; 1-3: 4; 4-6: 5<br>7-8: 6; 9-12: 4 courses | 175 |
| Arkansas | 5.5 | 180 |
| California | 5 (4-8); 6 (9-12)** | 180 |
| Colorado | 5.5 (1-6); 6 (7-12) | 176 |
| Connecticut | 4 | 180 |
| Delaware | 6 | 180 |
| Florida | 3 (K); 4 (1-3); 5 (4-12) | 180 |
| Georgia | 4.5 (1-3); 6 (4-12) | 180 |
| Hawaii | 6 | 180 |
| Idaho | 4.5 (K-6); 6(7-12) | 177 |
| Illinois | 4 (1-2); 5 (2-12) | 176 |
| Indiana | 5 (1-6); 6 (7-12) | 175 |
| Iowa | Local Boards determine | 180 |
| Kansas | 6 | 180 (1-11)<br>175 (12) |
| Kentucky | 6 | 185 |
| Louisiana | 5 | 180 |
| Maine | 5 | 180 |
| Maryland | 6 | 180 |
| Massachusetts | 5 (1-6); 5.5 (7-12) | 180 |
| Michigan | 5** | 180 |
| Minnesota | 2.5 (K); 5 (1-3);<br>5.5 (4-6); 6 (7-12) | 175 |
| Mississippi | 5 | 175 |
| Missouri | 3 to 7 | 174 |
| Montana | 2 (K); 4 (1-3);<br>6 (4-12) | 180 |
| Nebraska | Varies 1032 hrs. (Elem.)<br>1080 (H.S.) | |
| Nevada | 4 (1-2); 5 (3-6)<br>5.5 (7-12) | 180 |
| New Hampshire | 4.5 (1); 5.25 (2-8)<br>5.5 (7-12) | 180 |
| New Jersey | 4 | 180 |
| New Mexico | 2.5 (K); 4.5 (1-3)<br>5 (4-6); 5.5 (7-12) | 180 |
| New York | 5 (K-6); 5.5 (7-12) | 180 |
| North Carolina | 6 | 180 |
| North Dakota | 5.5 (1-6); 6 (7-12) | 180 |
| Ohio | 5 | 182 |
| Oklahoma | 2.5 (K); 5 (1);<br>6 (2-12) | 180 |

# NOTES

# APPENDIX

# NOTES

## HOW CAN SCHOOLS BETTER MOTIVATE STUDENTS SO THAT THEY LEARN MORE IN THE AVAILABLE TIME?

Increasing instructional time and homework may have little effect on learning if students are not motivated to allocate additional effort toward learning tasks. More ominous, as Levin states (1984), is the possibility

> ...that by increasing the "costs" to the student by having to spend more time in what is often an oppressive and uninspiring environment, dropout rates may increase and some students may be turned-off to further learning. Additionally some students may reduce their effort to compensate for the larger time commitment that they must make (p. 3).

Schools have tended to rely heavily on motivating students extrinsically, that is, through sanctions such as grades, teacher praise and disapproval, promotion, and detention. Parental controls, rewards and punishments are also key in determining levels of student effort (Levin, 1984). Today, these motivators are not doing the job, as indicated by high dropout rates in many schools and low levels of academic achievement and effort. Some educators and researchers are looking for more efficacious extrinsic motivators; others are focusing on intrinsic motivation so that students enjoy and appreciate learning for its own sake.

### Can more effective extrinsic motivators be employed?

**Work and college opportunities.** A powerful extrinsic motivator in Japan and many other countries is the fact that future work opportunities depend heavily on school performance. This connection is weaker in the U.S. (Bishop, 1989). Moreover, the steep decline in the youth population has reduced the role of competition for college admittance as a motivator for student achievement (Levin, 1984).

On the other hand, the business community is increasingly involved in efforts to convince students of the importance of education to their employment and advancement prospects. The workplace payoff for acquiring certain skills in school—and the importance of communicating the payoff to students and parents—is strongly emphasized by the Department of Labor's Secretary's Commission on Achieving Necessary Skills (SCANS, in press). Since such efforts are just getting underway, it is too soon to see if they will have a significant impact on student motivation.

**Motivational power of student teams.** Recognizing and rewarding the achievement of student teams have been found to motivate student effort. Rather than being pitted against each other—as they are when graded "on the curve"—students are encouraged to work to improve their own performance and the performance of each teammate. The evidence suggests that they do, and their effort is reflected in higher achievement (Allen and Van Sickle, 1984; Okebukola, 1985; Slavin, 1985; Sherman and Thomas, 1986).

Students contribute to their team scores by improving over their own past performance, so that high, average, and low achievers are challenged to do their best. Rewarding students for improving has been found to be more motivating than rewarding them in comparison to others because rewards for improvement make success neither too difficult nor too easy to achieve

(Slavin, 1986). Team rewards have included group recognition (e.g., special recognition bulletins or ceremonies) and class or team fun time (e.g., extra recess or time at a fun activity table).

**Tangible rewards.** Some schools and districts are experimenting with rewarding good grades and attendance with incentives such as "freebies" or discounts on things students want—food, records, clothes, bowling or movies—that local merchants agree to provide. The status of the "honor cards" that entitle students to these benefits seems to be part of the incentive, perhaps the biggest part. In some locales, businesses have said that they will give hiring preference to students with the honor cards, which makes concrete the connection between school performance and "real-world" consequences.

Success stories for such incentive programs include rises in SAT scores, reduction of dropouts, and longer honor rolls (Tousignant, 1992), but they have not been studied systematically. Critics, skeptical of a burger-for-an-A mentality, contend that schools need to focus on tapping intrinsic motivation. Advocates acknowledge that tangible rewards should only be seen as one piece of the motivation puzzle, but they argue that this is a reasonable place to start, especially with students that are likely to drop out or achieve at low levels.

**Can intrinsic motivation be more effectively tapped?**

A growing literature warns of a risk that use of rewards, praise and other extrinsic motivators undermines learners' intrinsic motivation. There is concern that individuals are likely to conclude that if someone is compensating them for doing a task or learning activity, it must not be appealing on its own merits (Lepper, 1981, 1983). Research also suggests that rewards and praise distract learners and focus their attention on getting the payoff rather than figuring out the problem or exploring possibilities. When people work because of external motivation only, they choose less complex tasks, attend to a narrower range of material, and are less able to shift direction in solving a problem (Lepper, 1981, 1983; Nicholls, 1983).

Many educators and researchers argue that subject matter is mastered more readily and more thoroughly when students become able to derive *intrinsic rewards* from learning—that is, learn for the joy of learning rather than for the grade or some other carrot (Lepper and Greene, 1981; Resnick and Klopfer, 1989). Interviewed students have reported that their motivation is higher when teachers clearly know and care for their subjects, take an interest in their students as individuals, and solicit students' opinions (Evans, 1992).

Relying on intrinsic motivation and de-emphasizing rewards does not mean reducing feedback to students, which is essential for learning. In fact, specific feedback, such as being told the strong and weak points of a presentation rather than just receiving a grade, has proven most beneficial to learning (Lepper, 1983).

Several current reform themes relate to increasing the role of intrinsic motivation in the schools. Among these are:

- Giving students "real-world" projects and problems that have obvious relevance to them;

- Reducing reliance on teachers lecturing to the class and giving students a more active role in controlling and pursuing their own learning (e.g., working in groups on projects in which they determine what they need to know and how to find out),

- Emphasizing higher order thinking and problem solving, which are inherently more motivating than routinized practice; and

- Assessing students' performance in the context of tasks that are meaningful to them.

**Related Issues**

Although research confirms the risks of undermining intrinsic motivation by placing too heavy an emphasis on extrinsic motivation, there is probably an important role for each. Students must have some initial motivation in order to engage in work before the inherent enjoyment of learning and problem solving can come into play. This raises at least two related issues.

- If schools increase instructional time, what can they do to ensure that students will be sufficiently motivated so as not to reduce their effort?

- Can the various factors that influence extrinsic and intrinsic motivation be combined into an integrated whole, so that they work together rather than being at odds?

Other issues of interest are:

- Do students with different learning styles vary in terms of the learning conditions, pacing, and reinforcements they find most motivating and conducive for learning?

- How is motivation affected by self-esteem, and what can schools do to promote self-esteem?

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# NOTES

## TO WHAT EXTENT DOES THE TIME STUDENTS SPEND ON HOMEWORK INCREASE TOTAL LEARNING TIME AND ACHIEVEMENT?

The question of whether homework increases learning is pertinent to any consideration of extending the school day or year because it is another way—a very inexpensive way—to extend learning time. Measuring class and homework time on specific subjects, Garner (1978) found that in 10th grade, for instance, one half-hour of homework in math extended by 75 percent the math learning time offered by class time alone. Homework clearly adds to the time students spend on learning tasks. If homework indeed helps, it is a means of increasing achievement without adding to time in school.

Teachers report that they assign homework principally to *give students time to practice skills learned in class*. Among the other stated purposes of homework are increasing students' involvement with the learning task and enhancing their study skills and time management (Epstein and Becker, 1982; Epstein, 1988). Homework also functions to make parents aware of the kinds of work being done in school and how their children write, think, and execute assignments (Epstein, 1988).

**How much time do students spend on homework?**

Not surprisingly, homework time for individual students varies more than class time, ranging from none at all to several hours a night. Older students are assigned more homework than younger students (Garner, 1978; Cooper, 1989a, 1989b; NAEP, 1991), though the percentage of 17-year-olds who reported not doing their assigned homework was higher than that of younger students (NAEP, 1991).

Exhibit 9 presents trends in the amount of time spent on homework at three age levels in 1984 and 1990 on the National Assessment of Educational Progress (as well as the relationship of homework time to proficiency, which is described in the next section.) In 1990, 64 percent of 17-year-olds and 63 percent of 13-year-olds reported doing less than one hour of homework nightly. To place this in perspective, 20 percent of U.S. 13-year-olds reported watching more than five hours of television a night (IAEP, 1992). In another study, fifth graders reported spending an average of 18.9 minutes a day doing homework, as compared to 131.1 minutes watching television, 98.6 minutes going out, and 30.8 listening to music (Anderson. Wilson, and Fielding, 1988).

U.S. students tend to spend less time doing homework than students in many other developed countries. In the most recent international assessment, 31 percent of U.S. 13-year-old students reported spending two hours or more on homework every day, this figure was 55 percent in France, 49 percent in Israel, 44 percent in Taiwan. On this indicator, the U.S. was the fourth lowest out of the 15 participating countries (IAEP, 1992).

## EXHIBIT 9

### Trends in the Amount of Time Spent on Homework, 1984 to 1990

| Amount of Homework | Year | AGE 9 | | AGE 13 | | AGE 17 | |
|---|---|---|---|---|---|---|---|
| | | Percent | Average Reading Proficiency | Percent | Average Reading Proficiency | Percent | Average Reading Proficiency |
| None | 1990<br>1984 | 31 (1.9)<br>36 (1.3) | 208 (1.5)<br>213 (0.9) | 21 (1.1)<br>23 (0.8) | 252 (1.9)<br>254 (0.8) | 23 (1.0)<br>22 (0.9) | 274 (2.0)<br>276 (0.7) |
| Didn't Do Assigned Homework | 1990<br>1984 | 5 (0.4)<br>4 (0.3) | 187 (4.8)<br>199 (2.1) | 5 (0.5)<br>4 (0.2) | 244 (3.2)<br>247 (1.7) | 13 (0.6)<br>11 (0.3) | 288 (2.3)<br>287 (1.2) |
| Less Than 1 Hour | 1990<br>1984 | 46 (1.6)<br>42 (1.0) | 214 (1.7)<br>218 (0.7) | 37 (0.9)<br>36 (0.7) | 258 (1.1)<br>261 (0.6) | 28 (0.9)<br>26 (0.4) | 291 (1.6)<br>290 (0.8) |
| 1-2 Hours | 1990<br>1984 | 12 (0.6)<br>13 (0.5) | 214 (2.8)<br>216 (1.3) | 28 (1.0)<br>29 (0.5) | 265 (1.6)<br>266 (0.7) | 25 (0.7)<br>27 (0.5) | 300 (1.4)<br>296 (0.8) |
| More than 2 Hours | 1990<br>1984 | 6 (0.5)<br>6 (0.2) | 194 (3.5)<br>201 (1.8) | 8 (0.5)<br>9 (0.3) | 262 (2.2)<br>265 (1.2) | 12 (0.7)<br>13 (0.6) | 307 (2.6)<br>303 (1.1) |

SOURCE: NCES (1991). Trends in Academic Progress.

**Does homework work?**

One of the most extensive studies addressing this question is Keith's (1982) analysis of the High School and Beyond (HSB) data. Controlling for family background, race, ability, and school program (track), Keith found a modest but impressive positive effect of homework on high school grades. Keith also found a linear relationship between hours of homework per week and school grades at three ability levels—with the result that the grades of low-ability students who did 10 or more hours of homework a week were as good as the grades of high-ability students who did no homework.

In a comprehensive review of research addressing the utility of homework, Cooper (1989a, 1989b) summarized the evidence as follows. Homework has substantial positive effects on the achievement of high school students. Achievement of junior high students also correlates with homework time, but the effect is only half as great as for high school students. For elementary students, Cooper found no relationship between homework time and achievement, but this may be because less able students need more time to complete assignments. And, at the elementary level, parents often work with children on their homework until it is done.

Cooper conveys the size of the homework effect in the following example. Assume a hypothetical teacher teaches a 10-week unit in exactly the same way to two classes, each of which has 25 students of equivalent ability. One class takes home about a half-hour of homework three

nights a week, and the other class is assigned no homework. From the results of the studies reviewed, Cooper determined that:

- **For high school.** The average (13th ranked) student in the homework class would rank 8th if shifted to the no-homework class at the end of the unit.
- **For junior high school.** The average (13th ranked) student in the homework class would rank 10th if shifted to the no-homework class at the end of the unit.
- **For elementary school.** There is no evidence of homework being linked to achievement.

A similar pattern of results was found in the latest National Assessment of Educational Progress (1990) for math achievement. At 8th and 12th grade levels, math proficiency is positively related to homework time. For 4th graders, more math homework time was related to lower math achievement, though, as suggested above, it may simply be that less able students need more time to complete assignments. The above table, which relates homework time to average proficiency across science, mathematics and reading, shows significantly lower proficiency for 9-year-olds who failed to do assigned homework; however, when 9-year-olds did no homework because they were assigned none, their proficiency level was equivalent to that of students doing homework.

**What is the optimum amount of homework?**

While the value of homework time clearly depends on how interesting and useful assignments are, the question of the optimum amount of homework is worth considering in an examination of students' time for learning. Based on nine studies correlating the amount of time students spent on homework with achievement, Cooper (1989b) charted performance levels as a function of time and drew the following conclusions:

- **For high school.** The more homework time, the higher the achievement--within reason.
- **For junior high.** Improved achievement with more homework time, up to a maximum of 2 hours a night.
- **For elementary school.** Homework time has not been consistently related to higher achievement.

It should be reiterated that homework for elementary students may serve important functions, such as fostering independent study habits and letting parents know how their children are doing and how they work on tasks. In addition, time spent by parents reading with children and sharing other enjoyable learning experiences has been found to be linked to school achievement (e.g., Clarke-Stewart, 1983).

## Related Issues

There are other issues related to the subject of homework that were not within the scope of this paper. They include:

- What kinds of homework experiences are most productive and engaging for students?
- How can teachers, perhaps in cooperation with parents, evolve homework experiences that are more engaging than those students have now?
- How can homework provide opportunities for active, applied learning?
- What is the effect of teacher follow-up and feedback on homework assignments?
- How can homework be tailored to different learning styles, learning disabilities, and other individual differences among students?

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# NOTES

## HOW DO STUDENTS SPEND TIME OUTSIDE OF SCHOOL?

Since extending the school day or year would decrease the time students have outside of school, it is important to look at how students spend their out-of-school time and how their activities affect their academic achievement and individual growth. Students spend time in a variety of activities including working, participating in extracurricular activities and sports, watching television, completing homework, doing chores, spending time with family, reading, socializing with friends talking on the phone, and listening to music. Homework time and its relation to achievement are discussed in the previous section. This section summarizes research related to other major ways that students spend time outside of school—television, jobs, and extracurricular activities—in order to help determine whether some experiences important to students' development and well-being would be displaced by increasing school time.

**Watching television.**

American students spend a lot of time watching television. Fifth graders in one study reported spending an average of 131.1 minutes a day watching T.V., as compared to only 18.9 minutes a day on homework (Anderson, Wilson, and Fielding, 1988). Exhibit 10, based on data from the 1990 National Assessment of Educational Progress (NAEP), shows the percentage of 9-, 13-, and 17-year-old students who spend various amounts of time per day watching television. In 1990 and in prior NAEP assessments, 13- and 17-year-olds who reported watching more television tended to have lower average mathematics proficiency levels. In 1990 the pattern was also evidenced at age 9, where students reporting less than 6 hours of viewing each day had higher average mathematics proficiency than those who watched for longer periods.

Since the many hours spent in television viewing do not promote student achievement—or physical development—displacing TV time with additional school time is unlikely to have negative outcomes for students.

**Jobs and related experiences.**

Another major activity that occupies many students' time outside of school is working. Approximately half of all U.S. 17-year-olds and a quarter of all 14-year-olds are employed at least part time (McDill, Natariello and Pallas, 1985; Barton, 1989). Middle-class students work in nearly the same proportions as students from lower-income families, though students with less educated parents do tend to work longer hours (Barton, 1989).

Some educators and parents are concerned that working students have less time and energy for school work, while others see students as gaining skills beneficial for their academic experience and future performance on the job. A number of factors appear to determine the positive or negative effects of working. Among these are the amount of time the student works and the nature of the job.

## EXHIBIT 10

### Trends in Television Watching at Ages 9, 13, and 17

| | NUMBER OF HOURS WATCHED PER DAY | | | | | |
|---|---|---|---|---|---|---|
| | 0-2 HOURS | | 3-5 HOURS | | 6 OR MORE HOURS | |
| | Percent of Students | Average Mathematics Proficiency* | Percent of Students | Average Mathematics Proficiency | Percent of Students | Average Mathematics Proficiency |
| AGE 9 | | | | | | |
| 1990 | 37 (0.9) | 231 (1.2) | 39 (0.7) | 234 (0.9) | 23 (0.8) | 221 (1.4) |
| 1982 | 44 (1.1)** | 218 (1.4)** | 29 (0.6)** | 227 (1.1)** | 26 (1.0) | 215 (1.2)** |
| AGE 13 | | | | | | |
| 1990 | 31 (0.9) | 277 (1.2) | 53 (0.7) | 271 (0.9) | 17 (0.7) | 258 (1.4) |
| 1982 | 45 (0.8)** | 273 (1.2) | 39 (0.4)** | 269 (1.1) | 16 (0.8) | 256 (1.8) |
| AGE 17 | | | | | | |
| 1990 | 51 (1.2) | 312 (1.1) | 41 (1.1) | 300 (1.2) | 9 (0.5) | 287 (1.8) |
| 1978 | 69 (0.7)** | 305 (1.0)** | 26 (0.6)** | 296 (1.1) | 5 (0.2)** | 279 (2.1)** |

* Average mathematics proficiency is the average proficiency score across all mathematics subtests for all students in a given age, year, and amount of viewing category.

** Statistically significant difference from 1990.

SOURCE: National Center for Education Statistics. (1991). Trends in Academic Progress.

**Academic achievement of working students.** According to employment data collected as part of NAEP, students who worked 20 or fewer hours a week had academic averages, homework habits, and attendance records similar to those of non-working students (Barton, 1989). By contrast, the academic performance of students working more than 20 hours a week was slightly lower than that of non-working students. Students working longer hours were less likely to do their homework and more likely to be absent five or more days a year; they tended to take less rigorous academic courses and have lower expectations about attending a four-year college.

Having reviewed the research on working students and their performance in school, McDill et al. (1985) concluded that if there are increases in the amount of time required for school work—the length of day or year or the amount of homework—even modest amounts of

working may have negative consequences for educational performance and persistence. Though some students might quit or cut back on work in response to increased time demands of school, other students, including those working to help support their families, would be unlikely to do so. Instead, McDill and his associates (1985) warn, the school performance of these students would probably suffer, and they would be at greater risk of dropping out.

**Skills gained by working students.** Balancing the concern about jobs detracting from students' academic experience is a recognition of the potential benefits of working. For instance, it has been argued that work experiences can increase interpersonal skills, encourage responsibility, and ease the transition from school to work (e.g., The National Panel on High School and Adolescent Education, 1976; The Secretary's Commission on Achieving Necessary Skills, in press). Whether a job actually affords opportunities for students' learning and development appears to vary with the nature and content of the work.

In one study, students were observed working at the jobs most commonly held by young people—food service, retail sales, clerical, manual labor, and cleaning—and the jobs were rated according to opportunities for learning, social interaction, and initiative and autonomy (Greenberger, Steinberg and Ruggiero, 1982). None of the jobs were found to involve a substantial amount of ongoing, formal training or a substantial amount of time spent with a supervisor. Only students in clerical jobs spent a substantial amount of work time reading, writing, or doing mathematics. Retail sales jobs offered the most opportunities for initiative or autonomy; food service and retail jobs ranked highest in social interaction. In short, while all jobs give young people some opportunity to develop responsibility and discipline, not all jobs offer equivalent opportunities for students' learning, development and socialization (Greenberger et al., 1982).

In some communities, employers are beginning to cooperate with schools to develop appropriate work experiences for students—experiences that will help students to learn as well as to see the relevance of acquiring skills in school. Internships, apprenticeships, and a variety of other school-to-work experiences are being tried out. Increasing the school year or day does not preclude these school-to-work experiences, which in many cases can be designed to fit the school schedule.

**Extracurricular activities and sports.**

Many students spend time after school participating in school-related activities such as sports, clubs, and student publications. Because involvement in sports is so time-consuming, there has been extensive research on the impact of sports on students' academic achievement. The results reported are mixed. Some reports indicate lower academic performance by school athletes (e.g., Landers et al., 1978), while others have reported an association between athletic participation and higher grades, as well as enhanced self-esteem and higher educational aspirations (e.g., Rehberg and Schafer, 1967). A more recent study conducted by Soltz (1988) found that athletes' grades were significantly higher on average than those of non-athletes. Further, Soltz reports that athletes received fewer failing grades during sports seasons.

In addition to sports, students participate in a wide variety of after-school activities, both school-sponsored and in outside organizations. For instance, there are 400 national organizations listed in the Directory of American Youth Organizations including Scouts, 4-H, YMCA, and Boys

and Girls Clubs of America. Seven out of 10 eighth graders report participating in these organizations (Pittman, 1991). Pittman describes five areas of competency and student development that such organizations seek to promote: (1) *health and physical competence* (e.g., knowledge, attitudes and behaviors that will ensure future health); (2) *personal and social competence* (e.g., the development of intrapersonal skills, interpersonal skills, coping skills, and judgment skills); (3) *cognitive and creative competence* (e.g., appreciation of and participation in areas of creative expression, such as oral and written language skills); (4) *vocational competence* (e.g., awareness of vocational options); and (5) *citizenship competence* (e.g., ethics and community participation).

Evidence that these competencies may be developed by extracurricular activities has been found in several studies. In several surveys members of youth organizations stated that their involvement in clubs helped them to improve their self-confidence and develop better communication and social skills (Ladewig and Thomas, 1987; Harris and Associates, 1988). Another study reported that former members of youth organizations go on to attain higher levels of education, become more involved in civic activities, find and maintain employment, and earn higher incomes than their peers (Ladewig and Thomas, 1987).

Participation in extracurricular school activities, besides enhancing students' personal development, builds attachment to the school and provides an avenue for success for students who may not perform well in the classroom. McDill et al. (1985) suggest that cutbacks in extracurricular activities due to increased school time deprive the school of the only holding power it has for many high risk students.

**Related Issues**

In considering the impact of increasing school time on student activities outside of school, other issues of interest are:

- Would increasing school time significantly constrain students in pursuing individual interests and talents (in the arts, sciences, etc.)?
- In what ways and to what extent would students actually reduce the time they now spend in various kinds of activities—television viewing, jobs, extracurricular activities, and so on—with increases in school time?
- How would the effects on student out-of-school activities differ for increasing the length of the school year vs. the school day?

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# NOTES

## HOW DOES THE EXTENDED SCHOOL YEAR (OR YEAR-ROUND SCHOOL CALENDAR) AFFECT PROFESSIONAL DEVELOPMENT FOR TEACHERS?

Continuing professional development for teachers is considered essential for quality schools. Opponents of the extended year argue that shorter summer vacations will hinder teachers' ability to pursue professional activities. However, professional development is not pursued solely in the summer. There are options for professional development of teachers throughout the year. Further, there are other potential effects of an extended school year, both positive and negative, on the professional development of teachers.

**What are the options for professional development in extended year programs?**

Staff development activities are often available during the school year. These opportunities for further career enhancement are offered through university-based evening and weekend courses as well as through school-based in-service training. In addition, summer leave remains an option in year-round schools.

**Evening and weekend courses.** More and more universities are offering courses at night, on weekends, and in three-week blocks at the school site or extension centers in the community. A higher percentage of all teachers are taking advantage of these options rather than traditional summer courses. According to The Status of the American Public School Teacher, 1985-1986 (National Education Association, 1987), 21.1% of teachers were pursuing college courses in education during the school year and only 12.4% were doing so in the summer.

**In-service training.** In-service training is a primary means of professional development for teachers. The NEA (1987) reports that 72.7% of teachers participated in school-sponsored workshops during the school year. Opportunities for more frequent and comprehensive in-service training are available in extended-year or year-round schools.

For example, at New Stanley Elementary School in Kansas City, Wednesday afternoons are reserved for teachers to meet with each other for training, planning and collaborating. Further, four times a year teachers devote a week to professional development. Instead of attending various workshops and seminars, all teachers undergo the same training at the school site and at more frequent intervals.

**Summer leaves of absence.** One additional strategy that can be used by schools with extended-year or year-round programs is allowing teachers to take leaves of absence in the summer in order to pursue additional professional development and replacing them with teachers from area schools that are on the traditional calendar. Because these substitutes are experienced teachers who are familiar with the curriculum, it is possible to maintain the quality, momentum and continuity of instruction. This substitute strategy also offers employment opportunities for other teachers who are on summer vacation.

**What are some potential effects of an extended school year on professional development?**

Proponents and opponents of year-round schooling offer arguments for positive and negative effects of such calendars on the professional development of teachers.

**Different opportunities for ongoing professional development.** Within the traditional school calendar, summer is the only break long enough to incorporate professional development other than short workshops and in-service training. Spacing the breaks in the extended year calendar throughout the year provides an opportunity for an iterative approach to professional development. Research indicates that providing such opportunities for trying out new practices, obtaining feedback from real-time experience, and following up with further staff development contribute significantly to effective staff development (Slavin, Karweit, and Madden, 1989).

This model also allows all of the teachers in a school to participate in iterative cycles of professional development. This practice is consistent with research that points to the value of training entire faculties together, especially when new reforms are being put into place.

**Higher teacher salaries.** Higher salaries resulting from extended-year contracts with more teaching days may enhance the status and attractiveness of the profession and result in higher quality personnel entering the career (Ballinger, 1987).

**Reduced teacher burnout.** In year-round education or extended school year calendars, the schedule frequently contains smaller and more frequent breaks. This permits teachers to relax, travel, study, and pursue a variety of other activities several times during the year. This may reduce the stress factors that lead to teacher burnout (Ballinger, 1987).

**Difference in quality of educational experience.** While research data are not available, some question whether the educational experiences provided in evening or weekend courses are equivalent to that in courses taken during the normal work week. After teaching all day or week, for instance, teachers may exhibit less motivation, attention, and retention in an evening or weekend class

**Summer work experiences that enhance professional development.** In 1986 nearly a third of all teachers worked in the summer—13.8 percent within the school system and 19.5 percent for outside employers (NEA, 1987). Summer employment opportunities within the school system would be increased rather than decreased with an extended year.

However, without a summer break fewer teachers would have the experience of working in jobs *outside the schools* that (1) help them keep up to date in their fields; (2) provide stimulation and a change of pace from classroom teaching; and (3) increase their familiarity with the demands of today's workplace to assist them in preparing students for the world of work. No data are available on the percentage of teachers who hold summer jobs or internships of this kind. There is a growing recognition that these kinds of experiences for teachers benefit students (e.g., American Business Conference, 1992; The Secretary's Commission on Achieving Necessary Skills, in press), but providing workplace exposure in shorter periods, such as three-week intersessions, is also being explored by some districts.

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Program materials from extended-year and year-round schools around the U.S.

# NOTES

## WHAT ARE THE IMPLICATIONS OF EXTENDED LEARNING PROGRAMS FOR USE OF SCHOOL FACILITIES?

School buildings typically constitute one of the community's largest capital investments, larger than city halls, county buildings, hospitals or parks. Yet, with the typical 6-hour school day and 180-day school year, the school building is used for instruction for less than 15% of the total available time (Holcomb, 1992). This utilization level is quite low in comparison with hospitals, which are in use 100% of the time, and even relative to most business and government offices, which are in use 30-40% of the total available time.

To make more effective use of school buildings and facilities, the Governors' Task Force on Facilities (National Governors' Association [NGA], 1986) suggested as options for policymakers to consider: (1) changing the traditional school calendar; and (2) increasing the use of school buildings by non-school community groups.

In districts where enrollment is increasing rapidly, using schools year round on staggered schedules is an alternative to costly construction of new buildings. In addition, avoiding extended idle periods has been found to reduce theft and vandalism (Ballinger, Kirshenbaum, and Poimbeauf, 1987). For instance, the Oxnard School District in Oxnard, California, was experiencing an annual loss of about $80,000 due to burglary and vandalism; since school facilities began to be used year-round, such loss has been less than $10,000 per year.

Underutilization of school facilities, vandalism and theft are also reduced by extending the school year or by providing summer programs (e.g., for remediation or enrichment). In Parry McCluer High School in Buena Vista, Virginia, for instance, room utilization rates have consistently run at over 50% since implementation of the voluntary, tuition-free fourth quarter (summer), as compared to a 4% utilization rate before the fourth quarter was offered. In some parts of the country, schools will have to be air-conditioned if they are to be used in the summer, but these costs are considerably less than the cost of constructing new buildings (NGA, 1986).

Some school districts are sharing or leasing vacant space to a variety of community organizations. In addition to providing revenue and reducing vandalism and theft, such arrangements produce benefits such as increasing political support in bond elections, revitalizing neighborhoods, and increasing contact between educators, parents, and community members (NGA, 1986). Extension of the school day or year may mean schools will have to curtail some of their sharing of facilities.

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# NOTES

## WHAT ADDITIONAL COSTS TO STATE AND LOCAL GOVERNMENTS WOULD RESULT FROM EXTENDING THE SCHOOL DAY AND YEAR?

With the limited resources available for improving education, it is essential to consider not only the potential impact of extending the school year or day but the associated costs. Extending school time clearly will increase the cost of education, though it has also been suggested that extended year programs may save money in several ways, including reduced grade retention and decreased delinquency, that can partially offset cost increases.

**What are the costs of extending school time?**

Estimates of the cost of extending school time vary widely—by as much as a factor of four. For example:

- Using 1989 average national daily per pupil expenditures of $27.45, compiled by the National Education Association and Education Commission of the States, several sources, including NAYRE, have estimated that the *cost for each additional day of school at over $1.1 billion.* The cost of increasing the academic year from 180 to 210 days would be estimated at $33 billion dollars per year. As indicated in Exhibit 11, the cost per pupil by state ranges from $18.97 in Alabama to $46.88 in New Jersey.

- Some local cost estimates have been much lower than the above estimates. For instance, one high school that has been operating an extended-year program for nearly 20 years (Parry McCluer High School in Buena Vista, Virginia) reports a per pupil cost of $200 for an additional six weeks of classes, or about $6.66 per pupil day.

Though the magnitude of estimates of the costs of extending the school year vary dramatically, there is general agreement about the budget items that are affected. In some cases, the best data available are from year-round education rather than extended year or day programs; where these are reported below, it is because similar budget effects occur in both models:

- **Personnel Costs**—The largest component of increased costs resulting from an extended school year or extended school day is for personnel. When personnel are asked to extend their work day or work year, additional proportional compensation needs to be provided. In Utah, custodial and office personnel costs increased significantly after implementation of extended day schedules. The additional costs were approximately $200-300 per student per year (Utah State Board of Education, 1989). Faculty salaries and fringe benefits increased by 2.9 percent at a rural Virginia high school with an extended day schedule (Bishop, Worner, and Weber, 1986).

# EXHIBIT 11

## Estimated Costs of Lengthening the School Term by State

| State | Cost per day | |
|---|---|---|
| | Per Pupil | Statewide (millions) |
| Ala | $18.97 | $13.8 |
| Alaska | $40.29 | $4.2 |
| Ariz. | $22.05 | $15.0 |
| Ark. | $18.18 | $7.9 |
| Calif. | $25.67 | $121.4 |
| Colo. | $27.72 | $15.7 |
| Conn. | $44.06 | $20.5 |
| Del. | $32.49 | $3.2 |
| D.C. | $41.15 | $3.3 |
| Fla. | $28.06 | $50.4 |
| Ga. | $24.76 | $27.9 |
| Hawaii | $25.02 | $4.2 |
| Idaho | $16.76 | $3.6 |
| Ill. | $27.57 | $49.0 |
| Ind. | $22.92 | $21.9 |
| Iowa | $25.50 | $12.2 |
| Kan. | $26.14 | $11.2 |
| Ky. | $21.85 | $13.8 |
| La. | $18.93 | $14.7 |
| Maine | $31.87 | $6.6 |
| Md. | $32.71 | $22.8 |
| Mass. | $37.44 | $30.3 |
| Mich. | $28.18 | $44.1 |
| Minn. | $29.03 | $21.4 |
| Miss. | $17.89 | $9.0 |
| Mo. | $23.48 | $18.9 |

| State | Cost per day | |
|---|---|---|
| | Per Pupil | Statewide (millions) |
| Mont. | $24.45 | $3.7 |
| Neb. | $21.52 | $5.8 |
| Nev. | $23.67 | $4.4 |
| N.H. | $26.85 | $4.6 |
| N.J. | $46.88 | $50.4 |
| N.M. | $23.22 | $6.4 |
| N.Y. | $45.36 | $116.6 |
| N.C. | $23.13 | $24.9 |
| N.D. | $19.89 | $2.3 |
| Ohio | $24.14 | $42.5 |
| Okla. | $19.36 | $11.1 |
| Ore. | $28.25 | $13.3 |
| Pa. | $31.82 | $52.6 |
| R.I. | $36.24 | $4.9 |
| S.C. | $20.51 | $12.6 |
| S.D. | $18.93 | $2.4 |
| Tenn. | $19.48 | $16.2 |
| Texas | $22.92 | $76.2 |
| Utah | $15.18 | $6.6 |
| Vt. | $30.96 | $2.9 |
| Va. | $27.70 | $27.2 |
| Wash. | $25.77 | $20.8 |
| W. Va. | $22.74 | $7.4 |
| Wis. | $32.02 | $25.0 |
| Wyo. | $30.81 | $2.9 |

SOURCE: Data from National Education Association, Estimates of School Statistics 1989-1990, and the Education Commission of the States. Figures calculated by National Association for Year-Round Education (1991).

- **Maintenance Costs**—A number of California school districts found that as the school year or day increased, wear and tear on buildings and grounds increased proportionately, although maintenance costs per square foot per day remained constant. These districts also found that vandalism and burglary costs decline when buildings remain occupied for longer periods (Oxnard School District, 1992).

- **Utility Costs**—The Utah State Board of Education (1989) and two California school districts (1992) found that annual cost increases for all utilities in year-round schools was directly proportionate to the number of additional days of school operations. This assumption could reasonably be made for extended year or day programs as well.

- **Transportation Costs**—Operating an extended year program would undoubtedly increase transportation costs, since the number of students transported at any time would remain constant and the transportation service's annual days in operation would increase. Operating an extended day program, however, may not increase transportation costs, since only the services' time of operation, rather than total hours in service, would change.

- **Material and Supply Costs**—Materials and supply costs increased 6.9 percent at a Virginia high school operating under an extended day program, since the number of hours students spend using supplies and materials increased (Bishop, Worner and Weber, 1989).

- **Cost of Maintaining the School Lunch Program**—The costs of school lunch programs consist of labor, utilities, food, and supplies (Oxnard School District, 1992). These costs presumably would all rise as the number of lunches served increase under an extended year program. Additional wear and tear on cafeteria equipment would be likely to increase cafeteria capital costs. Extending the academic day within a traditional nine-month school schedule would not increase lunch program costs, if the number of students served remained constant.

- **Grade Retention/Delinquency Costs**—James Bradford of Buena Vista City Schools maintains that his district has saved money through McCluer High School's extended year program, since fewer students have had to repeat the year and juvenile delinquency problems caused by longer idle summers have been reduced (Buena Vista City Public Schools, 1992).

**How cost-effective is increasing school time compared to other means of increasing student achievement?**

Researchers at the Institute for Research on Educational Finance and Governance at Stanford University examined the effects on achievement of extending instructional time by one hour (one half-hour more in reading and one half-hour more in math) as compared with the effects of cross-age tutoring, computer-assisted instruction, and reductions in class size (Levin, Glass and Meister, 1984; Levin and Tsang, 1984). Increasing instructional time was the least

effective of the four interventions. Cross-age tutoring, for example, had mean effect sizes [7] ranging from .38 to .97, while increasing instructional time had mean effects of only .03 for math and .07 for reading. When costs were added to the picture to make cost-effectiveness comparisons, increasing instructional time was found to be the least cost-effective measure as well.

The 180 additional hours in Levin's intervention was far less than the 320 hours that the Commission on Excellence (1983) proposed adding to the school year (1983). This larger increase would presumably produce a larger improvement in achievement; however, even if Levin's effect estimates were doubled, time increases, according to this analysis, would still be the least effective means of obtaining achievement gains and by far the least cost-effective.

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[7] An *effect size* is a statistic that compares the performances of two groups, for instance, a group that has had cross-age tutoring and a control group that has not. Educators and researchers commonly consider an effect size of 0.25 or greater to be educationally meaningful; differences of this size accompany noticeable improvements in classroom performance.

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# NOTES

## CURRENT APPROACHES TO EXTENDING SCHOOLING IN THE U.S.

There are presently estimated to be over one million students enrolled in over 1,600 schools that are operating under an alternative school schedule. However, most of these programs are year-round programs. Only a handful are extended-year or extended-day programs. Extended and year-round programs share a common feature: the reduction of summer break time and a more continuous distribution of instructional time over the year. However, they differ on a more important dimension—the amount of time available for learning.

*Extended-day* and *extended-year programs* increase the amount of instructional time available to students, while *year-round programs* adopt a year-round calendar that simply redistributes the standard 180 school days throughout the year—staggering school and vacation days over the course of 12 months.

While some schools with extended time have only recently switched to an alternative schedule, others have been operating for nearly 20 years. Decisions to extend the school day or year at an individual school are most often derived from a set of interrelated concerns. First and foremost, there is a desire to increase students' educational achievement, sometimes focusing on students that are having the most difficulty in school. A second common purpose is to enrich or expand the educational opportunities of children beyond what the traditional school year is able to provide. Third, with many parents working, some communities seek to provide "a good place" for children to be in the afternoons and over the summer.

Exhibit 12 presents details from 11 examples of extended schooling programs currently in operation. All the programs listed in Exhibit 12 add school time by extending the school year. They are believed to encompass all the schools in the United States with a 210 day or more school year (Ballinger, 1992).

**How do extended schooling programs differ?**

Some extended schooling programs consist simply of an increase in the number of days that school is in session and all students attend for the extended period of time. *Beacon Day School* (Oakland, California) and *Cornerstone Schools* (Detroit, Michigan) are both in session for 240 days; *Corporate Community Schools of America* (Chicago, Illinois), and *Lockett Elementary School* and *Moton Elementary School* of the *New Orleans Public School District* (New Orleans, Louisiana) are in session for 210 days.

Other schools offer a choice to attend an extended schooling program in a summer session when traditional schools are closed. *Parry McCluer High School* (Buena Vista, Virginia), *North Branch High School* (North Branch, Minnesota), and *Robert Lewis Stevenson Lower and Middle School* (Carmel, California) fall into this category.

Not all extended-day or extended-year programs require that every student in the school participate in their additional schooling programs. In public schools two models that allow some choice for students and their families are most prevalent. In the first, all students attend the standard 6-hour school day, 180 days a year with the *option* to attend the extended schooling

program offered at that school, typically in the summer. For example, *Parry McCluer High School* operates a traditional school calendar year for 9 months a year, but during the summer 50% of the student body participates in an extended schooling program, which includes remediation, enrichment, and acceleration.

*North Branch High School* uses another variation on this model. It operates a year-round quarter system where students are given the option to attend a summer fourth quarter extending the length of their school year to 220 days. If the students are not interested in attending a fourth quarter, they are given the flexibility to attend any three quarters throughout the course of the calendar year.

A second model gives students the choice to attend either a school with an extended schooling program or another school in the district that has a standard September-to-June calendar. All students that choose to attend the school with the extended schooling program participate. *New Stanley School* (Kansas City, Kansas) is operating such a model under a grant from RJR Nabisco. Since this program's inception in 1990, no parents have exercised the option to have their children attend another more traditional school.

Most private schools require that all enrolled students participate in their extended schooling program, but there are those that offer their program as an extra session above and beyond the standard school day and year. *Robert Lewis Stevenson Lower and Middle School* offers their students the option to attend school into the summer up to 215 days. The extra time is spent exclusively for enrichment purposes—giving the students learning opportunities in areas that are not offered in the traditional school year.

**What special needs are met by extended schooling programs?**

In Murfreesboro, Tennessee, a large number of children care for themselves after school because their parents work. In an effort to provide safe and educationally enriching care for youngsters during the hours where there may be no adult supervision in the home, the *Murfreesboro Elementary School District* currently offers both an extended-day and an extended-year program. What is provided is not custodial care; a quality educational program has been designed with the working family in mind. Planned activities for this additional time include lessons on musical instruments, art instruction, computer training, foreign language experience, and supervised homework time.

Two of the *New Orleans Public School District's* twenty-four schools are currently involved in a project developed solely as a model to provide more instructional time for students living in homes and neighborhoods where drugs and other problems are prevalent. According to a recent American Federation of Teachers report, the state of Louisiana ranks 45th in total per pupil expenditure and New Orleans has been ranked as the third poorest large city in the U.S. Additionally, the large majority of students of these two schools reside in low-income housing developments located in high-crime areas. In direct response to these concerns, *Lockett Elementary School* and *Moton Elementary School* now remain in session an additional 40 days to give students a productive way to spend time and increase learning.

*Intermountain Children's Home* is a residential treatment facility for severely emotionally disturbed children. The school's goal is to mainstream students back into public education and the average stay there is under two years. The additional 30 school days that the school is in session are generally voluntary but may be required at the discretion of the school staff. The extra days are used to remediate students' lengthy absences from education.

As each school tailors its extended schooling program to the needs of its student body and community, it inevitably creates its own unique, individualized program. Currently, for every school that chooses to establish an extended schooling program, a different "variation on a theme" is implemented.

## References

Information on the profiled programs were obtained through personal communication with school officials and literature and other promotional or descriptive materials from the schools. The list of programs included was provided by Dr. Charles Ballinger (Feb/Mar, 1992), Executive Secretary of the National Association for Year-Round Education. The details provided by Dr. Ballinger were modified slightly on the basis of information gathered directly from the programs.

# EXHIBIT 12

## Extended Learning Programs
## Offering 210 Days or More of Schooling

| Program | Level | Type of Control | Established | Total Enrollment | Percent of Enrollment Participating | Type and Length of program | Funded By |
|---|---|---|---|---|---|---|---|
| Parry McCluer<br>Buena Vista, VA | 9-12 | Public | 1974 | 400 | 50 | 218-day quarter system with voluntary summer quarter | State/District |
| Beacon Day School<br>Oakland, CA | Pre K-8 | Private | 1982 | 325 | 100 | 240-day extended year | Parents |
| Murfreesboro Elementary School District<br>Murfreesboro, TN | K-6 | Public | 1986 | 4450 | 42 | Optional 12-hour day and optional summer sessions | Parents of participating children only |
| North Branch<br>North Branch, MN | 9-12 | Public | 1988 | 165 | <100 | 220-day flexible quarter system with voluntary summer quarter | State/District |
| Corporate Community Schools of America<br>Chicago, IL | Pre K-7 | Private | 1989 | 300 | 100 | 210-day extended year | Corporations |
| Intermountain Children's Home<br>Helena, MO | K-6 | Private | 1989 | 24 | <100 | 210-day extended year | Medical Insurance; States; Corporations Churches; Individuals |
| Lockett<br>Meton<br>New Orleans, LA | K-6 | Public | 1989 | 1450 | 100 | 220-day extended year | State/District |
| Robert Lewis Stevenson<br>Carmel, CA | K-5 | Private | 1989 | 200 | 80 | 215-day extended year | Parents |
| New Stanley<br>Kansas City, KA | K-5 | Public | 1990 | 380 | 100 | 205-day extended year | State/District<br>RJR Nabisco |
| Cornerstone<br>Detroit, MI | Pre K-7 | Private | 1991 | 167 | 100 | 240-day extended year | Genesis Foundation<br>Parents |