
Homework's Powerful Effects on Learning

A synthesis of 15 studies shows much higher achievement when homework is required—especially if it is graded or commented on.

Since the turn of the century, parents and educators have expressed ambivalence about homework; they have called it either imperative or useless, depending on their ideology and values. Debates about homework among educators and between students and parents have often been heated. The number of available research studies of the effects of homework have been limited, but our recent quantitative synthesis of available research studies shows that homework benefits achievement and attitudes, especially if it is commented upon or graded (Paschal and others, 1984).

Our synthesis of 15 empirical studies shows that the effects of homework on learning by elementary and secondary students are large and consistent. When homework is merely assigned without feedback from teachers it appears to raise, on average, the typical student at the 50th percentile to the 60th percentile. But when it is graded or commented upon, homework appears to raise learning from the 50th to the 79th percentile. This graded-homework effect is among the largest ones discovered in educational research literature (Walberg, 1984).

Herbert J. Walberg is Research Professor of Education, and Rosanne A. Paschal and Thomas Weinstein are doctoral students in public policy analysis, University of Illinois, Chicago.

The research for arriving at these conclusions began with computer searches of the databases of the Educational Resources Information Center and Dissertation Abstracts International. These searches yielded 67 published documents and doctoral dissertations, but only 15 of the studies compared elementary and secondary school students with various amounts and qualities of assigned homework.

In these 15 Canadian and U.S. studies, reported between 1964 and 1981, the average effect was 36 standard deviations, which would raise the typical student at the 50th percentile to the 65th percentile. Among the 81 comparisons of groups of students with varying standards of homework, 69 (or 85 percent) favored groups with more homework. Thus, both the magnitude and the consistency of the homework effect is substantial.

In addition to assessing the overall effects of homework, we classified the comparisons in 54 ways to assess the possible differential effects of homework for different types of students, topics of study, types and amounts of homework, and quality of research.

The quality of research is important because poorly designed research, particularly correlational studies, can yield misleading results. Some correlational studies, for example, may suggest that more homework is associated with lower achievement and grades. To infer from such findings that homework is harmful is wrong because students doing poorly in school may

HERBERT J. WALBERG,
ROSANNE A. PASCHAL, AND
THOMAS WEINSTEIN



try to compensate by doing more homework. Such an inference is like attributing diseases to medicines because they are taken by sick people.

Statistical controls or, preferably, field trials that randomly assign comparable patients and students to treatments and control groups are necessary to rule out such causal fallacies. In the case of homework, studies that employed randomized control groups

and a quantitative verification of completed homework showed positive effects on average. Studies published in journals showed larger effects than unpublished documents and dissertations.

Homework showed larger effects on reading and social studies tests than on tests of other subjects. However, it conferred equally beneficial effects on children of lower and middle socioeco-

omic groups and various achievement levels. The frequency of homework approached statistical significance (probability less than .06); daily homework showed larger effects than homework required less often or sporadically.

In Benjamin Bloom's (1984) apt phrase, homework is an "alterable variable" that can be constructively changed for the student's benefit. Graded homework produces an effect, for example, three times larger than social class (that is, raising it a standard deviation), about which we can do little. Poor students who intensively and extensively persevere at their homework can academically excel rich ones who do not. In a larger sense, countries that build their human capital by hard work are likely to be rewarded by higher economic growth and welfare (Walberg, 1983).

Historical Perspective

Our computer scan of research literature shows that since 1900 American educators have written approximately 400 articles, mostly opinion pieces, on the complicated subject of homework. Around 1910, for example, articles in *Ladies' Home Journal* and *School Review* (now the *American Journal of Education*) opposed homework on the grounds that it was professionally unsupervised, and that it forced children to carry home their schoolbooks and allowed them to practice mistakes.

Because opinions have varied considerably over the decades, educators

have been equivocal about homework. Sputnik and the specter of Russian technological superiority apparently generated an emphasis on homework for awhile in the 50s—but interest lapsed again during the Vietnam years. Now homework is again being revived, perhaps because of *A Nation at Risk* and other national reports that point out unfavorable comparisons of the achievement of our students with those in other countries (National Commission on Excellence in Education, 1983).

International Perspective

As Europeans and Japanese know, homework need not be merely rote memorization. Nor should we accept the claims of some educators that hard work is somehow inimical to know-how and creativity. In the subjects that seem reasonable to compare internationally—mathematics and science—Japanese students exceed our own more decisively in hypothesis formulation and problem solving than they do in factual mastery; and we have consistently underestimated their technological ability.

The Japanese also do very well in foreign languages, geography, music, and traditional Western and Japanese arts and crafts. Their success seems to have less to do with culture and heredity than with diligence, which is almost always a key ingredient in superior accomplishments. They say, "If you do not understand it, read it 100 times, and you will understand it." Japanese high school students engage in up to 40 hours of extramural tutoring and study per week, in addition to regular school on Saturday and only brief summer vacations.¹

Students' Time Budgets

How much homework could American students complete if they were highly motivated, and how much do they currently do? Consider first the case of one child, now an academic-track senior at a suburban high school nationally known for its excellent comprehensive program for studies. As a sophomore, he was required to write only about ten papers, none over two pages. As a junior, he also wrote about ten one- and two-pagers and an assignment the school takes great

pride in, the 12-page junior essay—a total of 32 pages for the year. For extracurricular debate, however, he composed and edited, on average, 450 pages of closely reasoned briefs per year on defense, unemployment, and education policies. This example indicates that students are capable of doing much more than is currently expected of them, even at superior high schools.

National surveys also bear this out, and show that students have considerable discretionary time that is currently wasted. The 1981 High School and Beyond Study of more than 55 thousand American high school students showed, by their own reports, that students were averaging four to five hours of homework and about 28 hours of television per week (Walberg and Shanahan, 1983). Television is passive entertainment that often contributes relatively little knowledge and learning (the evening television news has fewer words than the front page of the *New York Times*). Some psychologists, moreover, suspect that simplistic solutions and violence portrayed on television may hamper children's social and character development. At any rate, the choice between homework and television seems clear insofar as learning is concerned.

Why is homework generally effective? If one thing is now widely recognized about effective schooling, it is that "time-on-task" predicts how much is learned. Time is by no means the only ingredient of learning, but without it, little can be learned (Walberg, 1984). Homework, of course, extends the school day.

If typical American students add four hours of homework per week to 30 nominal hours of school work (six hours per day for five days a week), they have added 13 percent to their nominal learning time in school. If typical Japanese students add about 16 hours of homework to 36 hours of schooling including Saturdays (Rohlen, 1983), their homework raises learning time 44 percent. Total weekly learning time in Japan, about 52 hours, is thus 53 percent higher than the 34 hours in the United States. If after-school tutoring, more extensive study time for special examinations, and a longer school year in Japan are considered, then Japanese students may

spend twice the annual study time of American students.

By American standards, the Japanese seem to have compressed high school and college into four years at double time. The Japanese high school diploma, by this measure, may be equivalent to the American baccalaureate degree, considering the rigor of Japanese high school courses in calculus, physics, chemistry, foreign languages, geography, and other subjects, as well as completion rates by most students.

Homework increases learning by increasing its length. But it may have other less obvious benefits. It encourages academic pursuits independent of the teacher, perhaps more important than work under direct supervision—and an ultimate aim of education. In an other-directed society, it may encourage solitary reflection and insight; but it need not be done alone, and teams of students may be assigned homework projects to foster cooperative skills.

Policy Constraints on Homework

We may not be able to expect much more homework to be done unless there are substantial changes in American schools. Writing, for example, is learned by writing; practice and coaching, as we all know, makes for better performance. But considering how much time it would take a high school English teacher with five classes of 25 or more students per day to annotate and grade, say, a weekly two-page essay from each student, it is unlikely that very many essays will be assigned. Instead, recitations will persist and multiple-choice and short-answer tests will continue to prevail.

Rearranging English teachers' work schedules or redefining their responsibilities to make it more realistic for them to regularly assign meaningful homework would cost millions of dollars. Neither state legislators nor school boards presently contemplate spending a lot more money, but they might spend considerably more if clear increases in productivity and effectiveness could be forecast and shown. Declining industries have had to resort to such productivity bargaining to survive international competition and avoid plant closings. (Merely increasing salaries, as currently proposed, without additional or higher



quality of services would simply raise costs and lower productivity and tend to lock in currently tenured staff and traditional practices.)

Another solution might be to use aides, who might work part-time, or even high school students to mark homework. They might be paid considerably less than teachers and do grading, marking, and coaching during or after regular school hours under teacher supervision.

Parents and Homework

The amount, quality, and usefulness of homework is jointly determined by teachers, parents, and students. If one of the three legs of the homework stool is unsupportive, little may be accomplished academically in the large amount of time students spend outside school.

How much time is spent within and outside school? The 12 years of school, each year made up of 180 six-hour days, add up to 12,960 hours, the equivalent of 6.2 years of full-time work. This time amounts to only about 13 percent of the students' waking hours in the first 18 years of life, leaving 87 percent of children's time under nominal control or influence by parents.

But the traditional American family may not be in very good shape, at least by statistical indicators. And without community and parental support, teachers by themselves cannot press homework very far.

Between 1860 and 1960, the U.S. divorce rate fluctuated between 30 and 35 per thousand marriages. Fertility rates declined after 1960, nonmarital cohabitation rose dramatically, and divorce increased to unprecedented rates. At current rates, about one-third

of all American children will witness the dissolution of their parents' marriage. At the same time, the percentage of working wives rose from 32 percent in 1960 to 56 percent in 1981 (Walberg, 1984).

Yet recent evidence suggests that the "curriculum of the home," which partly overlaps the school curriculum, is decisive in children's learning. The home curriculum includes informed parent-child conversations about everyday events, encouragement and discussion of leisure reading, monitoring and joint analysis of television, deferral of immediate gratification to accomplish long-term goals, expressions of affection and interest in the child's academic and personal growth, and caprice and serendipity. This curriculum, like the one in school, varies in both amount and quality; both are important and multiply one another's effects.

"Home interventions" go a step beyond mere homework by encouraging and enabling school staffs and parents to improve the home curriculum or the academically-stimulating environment for learning. These cooperative programs, sometimes involving old-fashioned teacher visits to children's homes, coordinate school and home efforts to raise the amount and quality of child study. They supply social support, materials, and procedures for parents to tutor and otherwise encourage their children at home. The programs intensify or extend the student's regular study in school beyond conventional homework assignments.

In 29 controlled studies of such programs during the past decade, 91 percent of the comparisons favored enrolled children over control groups. Although the average effect was twice that of social class, some programs had effects 10 times as large.

Conclusion

There seems little doubt that homework has substantial effects on students' learning. There is even less doubt that American students, on average, allocate comparatively little time to it—perhaps about one-sixth of the amount of time they spend watching television, which may be useless if not harmful. The superior achievement of Japanese students appears attributable not only to study time in school (as the

National Commission, 1983, emphasized) but extraordinary effort outside school, both totaling to perhaps twice the typical American student's time.

The National Commission report (1983), other national manifestos, and recent quantitative syntheses of research on educational productivity have given citizens and educators a greater grasp of the facts about learning, their meaning, and national significance. It is by no means clear that the spirit of our times; the structure, technology, and incentives in our schools; and the state of our families' support of learning are consistent with the changes that seem in order. Nevertheless, research clearly indicates that greater amounts and higher standards of homework would benefit our students' learning. □

Some contend that the pressure to achieve produces high suicide rates among Japanese youth, but no clearcut evidence suggests that suicide rates in Japan or elsewhere are attributable to homework. Suicide rates among Japanese youth went down in recent decades as examination rigor went up, while in the U.S. youth suicide rates have gone up spectacularly in recent decades with a corresponding increase in homework. Japan's suicide rate for young males is tied with Canada's and is lower than the rate in nine Western nations (Rohlen, 1983).

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