

Homework: What the Research Says

OPINIONS vary on whether or not homework has positive effects on achievement (see Cooper 2007). But the best way to answer this question is to compare the achievement of students who are assigned homework with that of students assigned no homework. In 2006, we reported the results of an exhaustive meta-analysis of research addressing the question “Does homework improve academic achievement” (Cooper Robinson, and Patall 2006).

Studies That Assign Homework to Some Students but Not to Others

In the literature, we found six studies conducted between 1987 and 2003 that compared homeworkers with no-homeworkers, and equated students by using either (a) random assignment of students to conditions or (b) statistical controls or by matching a student in one group with a similar student in the other group while eliminating students who did not have a good match. The results provided a clear picture that homework can be effective in improving students’ scores on unit tests, that is, the class tests that are administered at the end of a topic unit. Second-grade students who did homework did better than no-homework peers on number places; those in third and fourth grade did better on English skills and vocabulary; those in fifth grade, on social studies; high school students, on American history; and twelfth graders, on Shakespeare. Across five studies, the average (fiftieth-percentile) homework doer had a higher unit test score than 73 percent of students not doing homework.

Studies That Try to Model the Homework Process

Another type of study supported the same conclusion. These studies simply asked students (or one of the students’ parents) how much homework they do; the researchers did not intervene by giving some students homework and others, none. However, the researchers attempted to equate students statistically on other characteristics that might be associated with homework and achievement and therefore might account for any relationship between the two. For example, these “causal model studies” might equate students according to

their ability level to rule out the possibility that students’ ability increases both homework completion and achievement. Even though these studies cannot lead to the same degree of confidence in a conclusion about homework’s direct effect on achievement as experimental studies do, they do typically involve more nationally representative samples of students and use broader measures of achievement, such as cumulative grades and standardized test scores, than those used in experimental studies. Thus, the strengths and weaknesses of the two types of studies nicely complement each other.

We found twelve studies that tested more than thirty different causal models. The other factors that might influence achievement (and time on homework) that were used (and controlled for) in the causal models included numerous student factors (e.g., gender, ethnicity, ability, motivation), family factors (e.g., wealth, parent involvement), school factors (e.g., subject matter, teachers’ training, class size), and other behaviors of students (e.g., time spent watching television, extracurricular activities and jobs, absences from school). Achievement was measured for different subject matter, including reading, math, science, and social studies, using several types of achievement measures. In eleven of the twelve samples, the link between time on homework and achievement was positive.

A third type of study of the effects of homework involved no attempt to vary homework purposively or to equate students on other characteristics that might explain any relationship. Thus, these correlational studies can make no claims about a causal link between homework and achievement. Although not conclusive, this type of evidence can give important clues about when, where, and for whom homework might be more or less effective. In 35 samples of students used in correlational studies, 27 found the link between homework and achievement to be positive; in eight, it was negative.

Studies That Simply Correlate Time on Homework and Achievement

The correlational results were noticeably different depending on the grade level of the students. The average

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correlation between time spent on homework and achievement was substantial for secondary school students, but for elementary school students it hovered around no relationship at all. Several explanations for this result are possible. First, research in cognitive psychology indicates that younger children are less able than older ones to tune out distractions (Plude, Enns, and Broudeur 1994). One might imagine that the distractions present in a younger student's home would make studying there less effective for them than for older students. Second, younger students have less-well-developed study habits (Dufresne and Kobasigawa 1989). For example, older students spend more time than younger ones working on harder items. Older students are also more likely to use self-testing strategies to monitor how much of the material they have learned.

Other explanations for the weak correlation between homework and achievement in early grades are possible. Evidence suggests teachers in early grades may assign homework more often to develop young students' management of time—a skill rarely measured on standardized achievement tests or graded in class (Muhlenbruck et al. 1999). Studies also supply some evidence that young students who are struggling in school take more time to complete homework assignments. Thus, although age differences in attention span and study habits can likely be applied to the homework situation, poor-achieving young children are also likely to spend more time on homework simply because it is more difficult for them.

Does the Subject Matter of Assignments Relate to Homework's Effectiveness?

The single experimental study showed that math homework for second graders helped them learn place value; both the causal model studies and correlations showed homework to be equally effective for math and other subjects. If anything, the correlational studies suggested a slightly more positive effect of homework for math than for reading. This phenomenon might occur because children are more likely to read after school regardless of whether it is assigned as homework, whereas math activities are less naturally embedded in students' after-school environments.

How Much Homework Should Students Do?

Little evidence is available to answer this question for grades 1–6. But the best studies we have suggest (a) that short practice assignments do improve performance on class tests and (b) that teachers also use homework assignments to accomplish other learning-related objectives. For junior high school students, the positive association with achievement

appears for even the most minimal amount of time spent on homework, but disappears after about 90 minutes of homework a night. For high school students, the positive relation between homework time and students' achievement levels out at about two hours and may even decline for hours beyond this, suggesting an optimal amount of homework for high school students of between 90 minutes and two and one-half hours a night. However, we must keep in mind that this is correlational evidence, so it is still possible that students spending more than ten hours on homework a week do so, even in part, because homework is harder for them—that is, lower achievement causes more time on homework.

Conclusion

Each of the studies that have looked at the link between homework and achievement has flaws, but they tend not to share flaws. Across the studies, a wide variety of students have provided data, and the relationship between homework and achievement has been tested in varied subject areas under different circumstances. The studies have controlled for or tested many plausible competing explanations in various combinations. With only rare exceptions, the relationship between the amount of homework students do and their achievement was found to be positive and was generally statistically different from zero. Thus, to conclude on the basis of the evidence in hand that doing homework can cause improved academic achievement would not be imprudent. Still, this assertion must be quickly followed by the qualification that the positive effect of homework on achievement for young students may be limited. We did find experimental evidence that homework for young children can improve scores on unit tests involving simple mathematics skills (i.e., learning place value). However, correlational studies suggest the homework—achievement link for young children on broader measures of achievement appears to be weak.

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