



## Research Review: what research says about the value of homework

Does homework help or hinder student learning—and which students, under what conditions, does it help or hinder? School board members have long struggled with this question as they strive to implement policies that will support student learning. Parents worry that their children have too little homework or too much—and teachers get criticized for both.

In recent years, the issue has received increased attention in the popular press and has become a topic of controversy. Unfortunately, research and commentary offer conflicting conclusions on homework.

During the past decade, according to Gill and Schlossman (1996), "leading educational spokespersons have celebrated homework as essential to raise educational standards, foster high academic achievement, upgrade the quality of the labor force, and link family and school in a common teaching mission" (27).

Perspectives vary, however. According to the *School Library Journal* (2005), students are receiving higher grades with less outside preparation, while the *Washington Post* (2006) reports that the increase in the amount of student homework has increased arguments against it. Alfie Kohn, a critic of homework, recently wrote, "There was no consistent linear or curvilinear relation between the amount of time spent on homework and the child's level of academic achievement" (2006, 15).

Other researchers claim that homework helps students develop responsibility and life skills and the ability to manage tasks and that it provides experiential learning, increased motivation, opportunities to learn to cope with difficulties and distractions, and academic benefits (Corno and Xu 2004; Coutts 2004; Xu and Corno 1998).

While many researchers take either a positive or a negative stance on homework, Cooper (2001) takes a more balanced approach, stating, "Research on the effects of homework suggests that it is beneficial as long as teachers use their knowledge of developmental levels to guide policies and expectations" (34). Cooper goes on to explain that homework has both positive and negative effects on various aspects of students' lives.

The lack of unequivocal connections between homework and learning, combined with strong opinions both for and against homework, may spur policymakers to take a closer look at the issue. As this review will show, the research suggests that homework may benefit some students under certain conditions. Older students appear to benefit more than younger students, for example. Although the link between parent involvement in homework and student learning is far from clear, students from lower-income households may not have as much support at home as those from more affluent families; as a result, homework may not be a valuable learning experience for them. Specific types of homework can be very beneficial to students with learning disabilities, however. Some research also suggests that homework has nonacademic benefits, such as helping children establish routines, develop study skills, and take responsibility.

With so many factors influencing homework's efficacy in learning, staying informed of the research and making the best decisions possible with available data may be the greatest steps policymakers can take to help ensure student learning in their districts.

## History of the homework debate

The homework debate has gone in cycles (Cooper, Robinson, and Patall 2006) since the late 1800s, when children in elementary school (then considered to be grades one through four) rarely received homework and those in grammar school (grades five through eight) typically received two to three hours' worth each night (Gill and Schlossman, 2004).

Hagan (1927) was the first American researcher to examine homework's effects on academic achievement compared to the effects of supervised study in school. Unfortunately, findings from this study are unknown. From the end of the nineteenth century through the 1940s, the child health and progressive education movements led to an attack on homework for elementary school and junior high school students. Some even blamed homework for the child mortality rate (Gill and Schlossman 1996); one writer of the period referred to homework as a "legalized criminality" (Nash 1930, 7).

The 1950s saw a decline in the progressive education movement, coupled with a renewed interest in homework. Following the 1957 launch of Sputnik, "the homework problem was reconceived as part of a national crisis: The U.S. was losing the Cold War because Russian children were smarter" (Gill and Schlossman 2004, 177). This renewed interest led to the view that homework was a necessary tool in the learning process (albeit not for elementary school children). In the early 1960s, parents became concerned that children were not being assigned enough homework in the belief that homework was essential for academic excellence (Gill and Schlossman 2004).

With the onset of the Vietnam War, attention was diverted from the academic excellence movement, and public opinion swung once again away from support for homework. Until the mid-1970s, homework was viewed as an example of the excessive pressure on students to achieve (Cooper et al. 1998). The 1983 release of the National Commission on Excellence in Education's report, *A Nation at Risk*, brought about a

new educational excellence movement and a new view of homework. Throughout the 1980s and 1990s, the majority of adults supported and endorsed homework for its character-building and academic benefits.

Today, however, there is disagreement not only about the value of homework but also about whether students are assigned too much of it or too little. Some researchers report that despite media reports of a public revolt against homework, the majority of parents, educators, and policymakers support homework. In fact, according to two decades' worth of data from the National Assessment of Educational Progress (NAEP), "... the majority of all students at all grade levels averaged less than 1 hour of homework nightly" (Gill and Schlossman 2004, 180).

On the other hand, some researchers are echoing those of the Vietnam era, claiming that "a predictable backlash [has] set in, led by beleaguered parents concerned about the stresses on their children" (Cooper, Robinson, and Patal 2006, 4). It is difficult to know whether the pendulum is naturally swinging back to public disfavor of homework, or whether the requirements of the No Child Left Behind Act of 2001 have led teachers to assign more homework and, consequently, to public outcry against the stressors in students' lives. Either way, the overarching question is whether homework actually helps students learn.

## Does homework affect student learning?

The homework debate has often focused on how and why homework affects students' learning and achievement scores. The problem with this focus is the lack of consistent results. Kralovec and Buell (2001) proposed that the public's belief in the effectiveness of homework is based on three homework myths:

**Myth 1:** Homework increases academic achievement.

**What researchers say:** Cooper (1989a) argues that reviews on the link between homework and achievement often directly contradict one another and are so different in design that the findings of one study cannot be evaluated fairly against the findings of others.

**Myth 2:** Without excessive homework, students' test scores will not be internationally competitive.

**What researchers say:** Information from international assessments shows little relationship between the amount of homework students do and test scores. Students in Japan and Finland, for example, are assigned less homework but still outperform U.S. students on tests (Organisation of Economic Cooperation and Development 2004). Other studies find a positive relationship in math, but not in reading (Fuchs et al. 2004).

**Myth 3:** Those who question homework want to weaken curriculum and pander to students' laziness.

**What researchers say:** Kralovec and Buell (2001) note that homework critics rarely question the work assigned but rather the fact that the work is so often performed at home without adult supervision to aid the learning process.

The link between assignment of homework and student achievement is far from clear, as noted by Cooper and other researchers (Trautwein and Koller 2003). In "The Homework Myth" (2006), Kohn says calling the relationship between homework and achievement inconclusive may be too generous, arguing there is no conclusive evidence that homework provides any benefits—either academic or nonacademic—to students. Kralovec and Buell (2003) attribute the lack of conclusive evidence to the diversity of research questions and designs used in homework research. And Cooper, Robinson, and Patall (2006) note that educators claim "a long list of both positive and negative consequences of homework" (6), suggesting a need for continued examination of the subject.

The positive and negative effects of homework can be grouped into categories. Supposed benefits include immediate achievement and learning, long-term academic benefits, nonacademic benefits, and benefits to parents and families. Supposed disadvantages include loss of interest in school due to burnout, lack of leisure time, interference by parents, cheating, and disparity between performance levels of students. However, it is not known if this disparity would be any more of a disadvantage in homework than in regular classwork.

The following studies are representative of the inconclusive nature of homework research:

- Paschal, Weinstein, and Walberg (1984) discovered through a meta-analysis of fifteen quantitative studies that homework did have a positive effect on achievement, especially in certain grade levels. Specifically, traditional, daily, and graded homework had the greatest positive impact on student achievement in the fourth and fifth grades.
- Townsend (1995) examined the association between homework and achievement in language acquisition among third graders. Results from her study indicated that students who were assigned homework scored higher on vocabulary tests than those who were not.
- Mikk (2006) examined the association between homework and math achievement in forty-six countries. Interestingly, student achievement was lower in countries where homework counted toward grades, where it was the basis of classroom discussion, and where students corrected homework in class.
- Swank (1999) examined the differences in test scores among fourth graders who either did or did not do homework. Her findings indicated no differences in math achievement scores between students in the two homework groups.

It is important to note, however, that correlational studies such as these show only that one or more factors are associated with others. They do not show that one factor causes another. Experimental studies, on the other hand, are designed to show causality.

To gain a more complete understanding of the homework/achievement link, Keith (1982) developed a model using path analysis. A path analysis is an extension of a correlation in which a researcher statistically tests proposed links where the presence or absence of one or more factors may lead to certain events, statuses,

or factors that then cause an outcome, such as student learning. The causal model is a visual and mathematical representation of specific relationships between the factors and outcomes in question (Garson 2006).

According to Keith's proposed path analysis, homework has a causal effect on high school achievement. He also found that intellectual ability followed by study time showed the strongest direct effects on student achievement. It is important to remember, however, that path analysis does not assume causality—it simply proposes a model of causality. In other words, Keith's model does not explicitly show a causal link between homework and achievement, but it shows that such a link is possible.

Van Voorhis (2003) examined the association between homework and science achievement in middle school grades. Accounting for variables in students' backgrounds, their teachers, and the involvement of their families, Van Voorhis found that students who completed more science homework earned higher science grades on their report cards. She also noted that interactive assignments—those that require interacting with other students or with parents—and parent involvement were important factors in ensuring homework's effectiveness.

De Jong, Westerhof, and Creemers (2000) accounted for the relationship of many factors to one another in examining homework and math education. Through their multi-level analysis, the researchers found that the amount of homework was the only factor related to achievement—and that it accounted for only 2.4 percent of the difference in achievement between students who did homework and those who did not. Notably, the frequency of homework assignments and the amount of time students spent on them were not related to achievement.

Addressing the question of homework's effect on student achievement, Cooper (1989a) says the majority of the studies that have been examined are correlational, not causal, in nature. Kohn (2006) follows the same line of thought: "A significant correlation is clearly a prerequisite for declaring that homework provides academic benefits, [but] it isn't sufficient to justify that conclusion" (14). The association between homework and achievement, in other words, may be the result of another, not studied, factor that influences both.

Given the shortcomings of correlational studies, Cooper (1989a) and Cooper and colleagues (2006) suggest an emphasis on experimental and quasi-experimental studies. However, numerous shortcomings still exist in the seventeen studies Cooper examined. Trautwein and Koller (2003) highlight several limitations of the research literature. For instance, although student achievement has been found to be higher in classes where homework was assigned than in classes without homework, methodological weaknesses temper the strength of the conclusions that can be drawn from these studies.

Trautwein and Koller (2003) also say that lack of longitudinal data and the fact that some of the studies are conducted by teachers themselves, rather than impartial researchers, may lead to overstating the effects of homework. In fact, studies that have included longitudinal data or other checks and balances in the research

design have found that homework has a negative effect on achievement (Cooper et al. 2006; Trautwein and Koller 2003).

## Does homework have other effects?

Researchers also have examined possible nonacademic benefits from homework. Corno and Xu (2004) call homework the job of childhood. By examining taped sessions and interviews with parents and students, they discovered that homework helped third graders learn responsibility and develop time-management and job-management skills. The students also learned to work on schoolwork when they did not want to and to adjust their attentiveness to the demands of a specific assignment. These and similar benefits, such as good study habits and independent learning, have been found by other researchers as well (Johnson and Pontius 1989; Warton 2001). Although not explicitly linked to achievement, it is logical to assume that these factors lead to improved achievement.

It is less clear whether homework can facilitate parents' involvement in children's schoolwork, however. Some researchers have found that homework has a positive effect on parents and families by allowing them to show an interest in their children's academic progress (Hoover-Dempsey et al. 2001). Balli (1998) discovered that when parents help their sixth-grade children with homework, the students believe they do better in school—regardless of how they feel about working with their parents.

Epstein (1988) examined homework, parent involvement, and student achievement in elementary schools. She found more time spent doing homework, more help from parents, and more requests for parent involvement from teachers were associated with lower achievement in reading and mathematics. Epstein attributes the results to the possibility that parents may spend more time helping their children if they are poor-performing rather than high-performing students.

Adding to this hypothesis, Cooper, Lindsay, and Nye (2000) found that students whose parents were more involved in their homework had lower test scores and class grades. This was especially true among elementary school students. In addition, a study by Balli, Wedman, and Demo (1997) reported mixed reviews of the impact of parent involvement on student achievement. Findings from this rigorous study revealed that high levels of family involvement were not significantly associated with high levels of academic achievement. The study did suggest that family involvement might have behavioral benefits, however, such as increased companionship between parents and children and increased awareness on the part of parents of their children's academic life.

Homework also has potentially negative associations, one involving students' economic status. Some have argued that homework can increase the achievement gap between students from affluent and poor families. High-achieving students who have extra resources from home, they say, benefit from homework because they have more opportunities to complete it and often get help with assignments. Low-achieving students from poor families, on the other hand, suffer due to home circumstances caused by economic deprivation.

Such circumstances as parents working several jobs, frequent moves, and crowded homes make it difficult to complete homework or any at-home academic learning (Scott-Jones 1984; McDermott, Goldman, and Varenne 1984). Thus, higher income students who are high achieving gain the most from homework when compared to other high-income or high-achieving students, which begs the question of how much lower-income students—and especially low-achieving lower-income students—can benefit from homework.

Cooper and colleagues (2006) say many of the "negative effects attributed to homework contradict the suggested positive effects" (8). In Chen and Stevenson's (1989) cross-cultural examination of homework in grades one, three, and five, the researchers argue that homework can have a negative impact on students' attitudes toward school. Bryan, Nelson, and Mathru (1995) claim that homework overexposes children to academic duties, decreasing their interest and increasing their physical and emotional fatigue; researchers call this the satiation effect. Similarly, in an examination of parent and student perceptions, Coutts (2004) found that homework may take away leisure time and may not be as varied or useful as work done in class.

So, is homework beneficial to students? The studies discussed in this review cite both potentially positive and potentially negative effects on students, highlighting the difficulty in forming sound conclusions about the value of homework.

### **Does the effect of homework vary with students' age?**

Although the overall effects of homework on student achievement are inconclusive, studies involving students at different grade levels suggest that homework may be more effective for older students than for younger ones.

For example, Dufresne and Kobasigawa (1989) examined home study time among students in grades one, three, five, and seven and the students' responses to test items asking them to pair words associated with each other. The researchers found that older students (the fifth- and seventh-graders) spent more time studying harder items and performed better than the younger students. This may be because "younger children are less able than older children to ignore irrelevant information or stimulation in their environment" (Muhlenbruck, Cooper, Nye, and Lindsay 2000, 298). In addition, Hoover-Dempsy and colleagues (2001) say younger children have less-effective study habits because of their inability to focus and avoid distraction.

Other studies provide similar results. Leone and Richards (1989) examined the association between how much time students spend on homework and what grades they receive. The results showed a positive association between the amount of homework and students' grades for children in grades six through ten and a negative association for children in grades two through four. These findings contribute to the body of research claiming that homework may be detrimental to younger students. Bempechat (2004) argues that younger students' social and cognitive abilities—such as their inability to focus adequately—may moderate the effect of homework on achievement. Despite this extra difficulty younger children may face, Bempechat suggests that homework still provides a way to help them become better learners.

Cooper (1989a) noted a trend in these results: Essentially, as students age, the positive effect of homework on achievement becomes more pronounced. However, Cooper and colleagues (2006) caution against viewing the grade-level effect as fact. The findings may be attributed to various circumstances, they say. For example, differences in students' attention spans and study habits may account for differences in homework's effects. However, it may also be possible that teachers use homework in early grades to establish routines, instill a sense of responsibility, and help students learn time management, rather than for any immediate gains in achievement.

Muhlenbruck and colleagues (2000) provide a direct examination of the link between homework, grade level, and achievement. Their study, which addressed several concerns regarding the possible effects of students' age, yielded these findings:

- The amount of homework increases as students age.
- Homework may serve different purposes at the elementary and secondary levels.
- Teachers do not give students more help if they have trouble with homework.
- Lower-achieving students may take more time than higher-achieving students to finish assignments.

These findings suggest that the low correlation between homework and achievement at the elementary level may be due to the intended purpose and type of the homework and the reaction of specific students, rather than the homework itself. Age, then, is but one of the factors that need to be taken into account when assessing the association between homework and student learning.

### **How do different groups of students react to homework?**

Much research has been conducted to try to understand the ways in which various types of homework and various situations influence different groups of students. This research indicates that a variety of factors influence homework's effect on students, including the subject matter, the amount of homework, and the nature of the assignment; classroom factors such as provision of materials and follow-up discussion in class; and home or community factors such as parent involvement (Cooper 1989a).

Additionally, much research has been conducted to understand how such factors influence different groups of students. The results have shown that the effects of homework may be influenced by students' academic performance level, ethnicity, and socioeconomic status (SES).

Cooper and Nye (1994) conducted an extensive examination of the literature on homework and students with learning disabilities. Although their review did not conclude overall effectiveness of homework for these students, it did conclude that other variables influence the link between achievement and homework. For instance, monitoring such homework habits as notebook organization was found to be a potentially effective

method for "improving the completion rates and accuracy of homework assignments for students with learning disabilities" (Cooper and Nye 1994, 477).

Although some studies have concluded that homework is an insignificant factor in the achievement of students with learning disabilities (Truesdell and Abramson 1992), a study conducted by Rosenberg (1989) suggested that three factors maximize the effectiveness of homework assignments completed by this group of students. These factors are the rate of homework completion, the percentage correct on homework assignments, and the rate of acquisition of the content being presented. Thus, "homework can be employed to increase the effectiveness of direct instruction sequences with students diagnosed as [learning disabled]" (314).

Researchers have also focused their attention on the effects of homework among various ethnic or socioeconomic groups. As reported in one study, students in predominantly minority schools do less homework than those in predominantly white schools. In addition, students in schools that are identified as low performing and that have high percentages of students in poverty do less homework than students in more high-performing and high-SES schools (Easton and Bennett 1989).

Another study examined the influence of homework, among other variables, on student grades across five ethnic groups: white, black, Hispanic, Asian American, and Native American students (Keith and Benson 1992). This study employed structural equation modeling, a statistical technique for building and testing models of interacting among factors and outcomes. Structural equation modeling provides a more rigorous method of examining relationships between variables than path analysis alone (Garson 2006). Researchers then examined the relationships between those created constructs using path analysis.

In this nationally representative study, the researchers concluded that, relative to other ethnic groups, homework had a stronger impact on Asian American students than on those of other ethnicities. "The differences suggest that not only do Asians report completing more homework, on average, but that each hour of homework they do complete has a greater effect on their learning than for other ethnic groups" (91). The researchers hypothesized that other factors, such as parent support at home, may help strengthen homework's effect on students of various ethnic and racial backgrounds.

### **What types of homework assignments are effective?**

Homework may be defined in simple terms as "tasks assigned to students by school teachers that are meant to be carried out during non-school hours" (Cooper 1989a, 7), but the topic has many aspects, including the purpose of homework, the interaction level of the assignment, and teacher feedback.

## Purpose

Perhaps the greatest distinction that can be made when discussing homework is its purpose. Homework can be assigned for *instructional* and *noninstructional* purposes (Cooper, 1989a), both of which can be further subdivided.

*Instructional* homework is generally assigned for one of four purposes:

- Practice homework, the most common type, is assigned to reinforce material presented in the classroom and to help students master individual skills. In a study of teachers' use of homework in high schools, Murphy and Decker (1989) found that teachers most frequently assigned homework to reinforce class material (55 percent) and to master course objectives (23 percent).
- Preparation homework is assigned to introduce students to material the teacher will present in the future.
- Extension homework asks students to apply previously learned skills to different contexts.
- Integration homework requires students to produce a product, such as a social studies project, by applying multiple skills.

Teachers report assigning extension and integration homework far less frequently than practice and preparation homework (Murphy and Decker 1989).

The second level of homework, *noninstructional* homework, also includes four subcategories (Epstein and Van Voorhis 2001):

- Homework assigned for personal development is intended to help students improve behavioral skills, such as time management or self-confidence.
- Homework assigned to improve communication between parents and their children is identified as parent-child relations homework, such as developing a family tree.
- Peer interaction homework is assigned to more than one student in an effort to build and develop team-working skills.
- Policy homework is often assigned to fulfill mandates from school or district administration, such as requirements for a specified amount of daily or weekly homework.

Little or no research has been conducted on the effects of noninstructional homework. However, as mentioned earlier, homework assigned to younger students may have its main effects on nonacademic outcomes, and teachers may be assigning young students homework for noninstructional purposes.

The literature on types of homework is generally restricted to descriptions of the purpose of each type and how often homework of that type is assigned in the classroom. Research comparing the effects of the various types of homework on academic achievement is far less exhaustive. Of the studies that do exist,

researchers have focused on the two most frequently reported purposes of homework: Practice and preparation. However, these types of homework are often studied independently. For instance, of the eight studies included in Cooper's (1989b) meta-analysis of preparation and practice homework, only two studies examined the effects of both types.

In an effort to compare these two homework practices, Foyle (1985) examined their effectiveness in tenth-grade American history. Although, like many researchers, he concluded that homework—compared to no homework—had a statistically positive impact on student achievement, Foyle did not find a significant difference in achievement between practice and preparation homework.

In addition, Cooper's (1989b) meta-analysis of preparation and practice research revealed no conclusive results regarding comparisons of the two. However, he concluded that, "with regard to achievement, all eight studies found that homework involving preparation for new material or practice of old material led to higher scores on tests than homework that dealt solely with the content of the present day's lesson" (122).

The small number of studies conducted on the impact of homework assigned for different purposes leaves policymakers with little evidence on which to base decisions.

A couple of research studies, however, have examined the role of homework policy. In one older study, schools in which more homework was routinely assigned had higher levels of student achievement compared to schools where regular homework was not expected (Rutter, Maughan, Mortimore, and Ouston 1979). In a more rigorous statistical test of school homework policies and student math achievement, Philips (1997) found that students at schools where above-average amounts of homework were assigned (compared to the total sample of schools) had higher math achievement than did students at schools where students did less homework.

## **Interaction**

Homework can be further classified by level of interaction, or the social context in which it is completed; that is, independently, by a group of students, or with help from a parent, sibling, or other individual (Cooper 1989a).

Most studies that measure the impact of homework on achievement focus on homework completed without help from others. Little research exists on the impact of homework completed by a student working with one or more other people. Yet, multiple studies highlight the impact of parent involvement on homework. Because approximately eighty-seven percent of the first eighteen years of a child's life is spent outside of school, parents have the opportunity to exert a great degree of influence over their child's time (Walberg, Paschal, and Weinstein 1985). This potential for impact has lent itself to numerous studies on the impact of parent involvement on homework, but research still provides highly mixed reviews of just how much impact can be attributed to parent involvement.

A quasi-experimental study by Van Voorhis (2003) looked at science homework involving interaction between parent and student to measure its impact on family involvement and academic achievement. (Such a study tests causal hypotheses without random assignment.) The researcher found that these assignments promoted higher levels of parent involvement than did noninteractive assignments. In addition, students who were assigned interactive homework also returned more homework assignments than students who were assigned noninteractive homework. Finally, she found that students who were assigned interactive homework received better science grades than students who were assigned other types of homework.

Although the findings from this study are encouraging, other studies mentioned earlier in this review have not demonstrated a clear and positive link between parent involvement in homework and student learning.

### **Teacher feedback**

The teacher's response to homework assignments is occasionally reported as a factor influencing the impact of homework on achievement or other outcomes. According to Cooper (1989a), teachers can provide four types of feedback:

- Letter grades that evaluate students' performance on the homework.
- A review of the homework that provides students with ways to improve their work.
- Verbal or written praise or criticism.
- Nonverbal incentives, such as extra recess.

An experimental study conducted by Murphy and Decker (1989) revealed that the majority of teachers (approximately three-quarters of them) check and grade homework. Although this study did not examine the impact of such feedback on student achievement, the results could indicate the level of importance teachers place on homework, which may indirectly influence the rate at which students complete it.

Several other studies examining teacher feedback have focused on its effects on student achievement. Cooper's (2001) review of studies that included teacher feedback measures found no significant impact on student achievement from the type of feedback provided by teachers. While the use of incentives has been shown to increase homework completion rates, most such studies have focused on learning disabled students in math classes and failed to examine the effects of teacher feedback on other groups of students or in other content areas.

### **How much time should students spend on homework?**

The types of homework are further classified by the amount of homework assigned, which includes both frequency, or how often homework is assigned, and length of completion, or time involved to complete homework (Cooper 1989a). However, as Cooper points out, few studies separate the two factors, which are often used interchangeably when discussing amount of assigned homework.

Overall, a review of mainly correlational studies examining the amount of homework and its relation to achievement revealed encouraging findings. Cooper's (2001) meta-analysis of seventeen studies measuring such a relationship noted fifty correlations among the studies; "of the 50 correlations, 43 indicated that students who reported spending more time on homework also scored higher on a measure of achievement or attitude" (26). This relationship held true across elementary, middle, and high school grade levels. Another study showed some indications that the optimal amount of homework for high school students was 1½ to 2½ hours per night, and less for younger students (Cooper, Robinson, and Patall 2006).

Unlike the studies included in his 2001 meta-analysis, a later study conducted by Cooper and colleagues differentiated between the amount of homework assigned by the teacher and the amount that students completed (Cooper et al. 1998). Interestingly, the amount of homework assigned by teachers was typically unrelated to student achievement; yet, as in his earlier findings, student reports of the amount of homework completed were positively associated with student achievement.

By contrast, in a study conducted by De Jong, Westerhof, and Creemers (2000), the researchers contend that "teachers giving less homework are less effective" (152). They caution, however, that such a finding pertains primarily to teachers who give significantly small amounts of homework but do not define "small amount."

Some researchers argue that the relationship between time spent on homework and academic achievement is weaker for students in elementary grades than for older students (Cooper and Valentine 2001; Cooper 1989a). Researchers often attribute such a discrepancy to the fact that younger students typically have shorter attention spans than older students. However, other researchers offer contrasting views and contend that the impact of homework time on achievement is greater at the earlier (fourth and fifth) grade levels, compared to the later (sixth to tenth) grade levels (De Jong, Westerhof, and Creemers 2000). Additionally, some research suggests that the positive relationship with student achievement weakens when middle school students spend more than one hour on homework per day (Cooper et al. 2006).

Studies have also looked at how long students of various ability levels spend on homework. Several researchers contend that low-performing students spend more time on homework than high-performing students do (De Jong, Westerhof, and Creemers 2000; Epstein and Van Voorhis 2001).

Other studies have found just the opposite, however (Keith 1982; Leone and Richards 1989). De Jong and colleagues (2000) argue that when students are grouped on the basis of ability, teachers assign more homework to high-performing students than to low-performing students, perhaps because they expect more from the high achievers (Burstein 1993). However, in classes of mixed ability, the lower-performing students spend more time on homework than their higher-performing peers, which may account for the difficulty in finding clear relationships between time spent on homework and student achievement.

Although little research has been conducted on the impact of homework completed during in-school versus out-of-school hours, it is worth noting such a distinction. In a longitudinal study conducted by Keith, Diamond-Hallam, and Fine (2004), researchers used structural equation models to examine the effects of in-school versus out-of-school homework on high school students. They concluded that homework completed outside of the school day had a greater impact on grades and achievement test scores than homework completed in study hall or elsewhere during the school day.

The No Child Left Behind Act of 2001 (NCLB) has brought a surge of federal and state funding for out-of-school-time programs that provide academic assistance, such as homework help, for low-performing students. Although the literature on the relationship between homework completed out of school and academic achievement is sparse, Cosden and colleagues (2001) examined ten studies that evaluated after-school programs offering academic activities and homework assistance. Only two of the studies reported improved academic achievement; however, several noted improvements in behavioral skills, such as increased academic motivation and improved work habits, which may indirectly impact achievement.

Overall, these researchers noted, "After-school programs can serve a protective function for children, particularly for those who do not have access to other structured after-school activities or homework assistance at home" (Cosden et al. 2001, 216). Results from a rigorous three-year study of the 21st Century Community Learning Centers program, which mandates programs to provide out-of-school-time enrichment, remediation, and homework assistance in reading, math, and other subjects, did not find any connection between providing structured time for homework completion and academic performance (James-Burdumy, Dynarski, Moore, Deke, Mansfield, Pistorino, and Warner 2005).

### **What the research means for school districts**

The conflicting nature of the research findings noted in this review reflects the continuing debate surrounding the value of homework. Over the past 150 years, the public's support for homework has waxed and waned on a fairly regular cycle. Today, however, increased demands for accountability are being put on public education. U.S. schools have never before been confronted with requirements for academic performance as stringent as those enacted in NCLB. The new backlash against homework could be viewed as part of the natural cycle, or as a fresh perspective on how these strict accountability requirements affect students.

Regardless of the reason, school leaders and educators need definitive, research-based guidance on the role homework should play in their school systems. Although homework cannot serve as an easy answer to raising student achievement, the literature suggests that it can have a direct effect on student learning under certain conditions and an indirect effect under other conditions. The results, while not clear cut, suggest the following lessons:

- Homework appears to provide more academic benefits to older students than to younger students, for whom the benefits seem to lie in nonacademic realms, such as in improving study skills and

learning structure and responsibility. The amount of homework provided to younger students may therefore be less important than simply assigning something to help them establish routines and learn personal responsibility.

- The amount and type of homework seem to be more important factors for older students. Interactive assignments that bring parent and child together to extend school-day content may be useful. Older students appear to benefit from completing homework on a regular basis, although it is unclear whether better students do more homework, or doing homework creates better students. Nor is it clear whether providing structured time for students to do homework results in any major learning gains. However, postsecondary education (e.g., community college or university) requires independent study outside of class and, thus, facilitating practice of these study and time management skills at home appears to be a reasonable policy at the high school level regardless of any connection between secondary student learning and homework.
- Students from low income households, especially those who are low performing, may not benefit from homework in the same way as do students from more financially secure households.
- If the results are clear about any link between homework and student learning, it is for students with learning disabilities. The additional time to practice skills under the supervision of a parent seems to be a successful method for meeting the learning needs of these students.
- Homework also appears to facilitate learning for Asian American students to a greater extent than it does for students of other ethnic and racial heritages, although, notably, the reasons for such a difference are not clear.
- Having teachers assign homework that prepares students for upcoming lessons or helps them review material that has not been covered recently may have more impact on student learning than assigning homework that simply continues the school day's lessons into the evening hours.

The central lesson of this body of research is that homework is not a strategy that works for all children. Because of its possible negative effects of decreasing students' motivation and interest, thereby indirectly impairing performance, homework should be assigned judiciously and moderately. Heavy homework loads should not be used as a main strategy for improving home-school relations or student achievement.

## References

- Balli, S. J. (1998). When mom and dad help: Student reflections on parent involvement with homework. *Journal of Research and Development in Education, 31*, 142-146.
- Balli, S. J., Wedman, J. F., & Demo, D. H. (1997). Family involvement with middle-grades homework: Effects of differential prompting. *Journal of Experimental Education, 66*, 31-48.

- Bempechat, J. (2004). The motivational benefits of homework: a social-cognitive perspective. *Theory into Practice*, 43(3), 189-196.
- Bryan, T., Nelson, C., & Mathru, S. (1995) Homework: A survey of primary students in regular, resource, and self-contained special education classrooms [Abstract]. *Journal of Learning Disabilities*, 27, 85-90.
- Burstein, L. (1993). *The IEA Study of Mathematics III: Student growth and classroom processes*. Oxford: Pergamon Press.
- Chen, C., & Stevenson, H. W. (1989). Homework: A cross-cultural examination. *Child Development*, 60, 551-561.
- Cooper, H. (1989a). *Homework*. White Plains, NY: Longman.
- Cooper, H. (1989b). Synthesis of research on homework. *Educational Leadership*, 4, 85-91.
- Cooper, H. (2001). Homework for all—in moderation. *Educational Leadership*, 58, 34-38.
- Cooper, H., Lindsay, J. J., & Nye, B. (2000). Homework in the home: How student, family, and parenting-style differences relate to the homework process. *Contemporary Educational Psychology*, 25, 464-487.
- Cooper, H., Lindsay, J. J., Nye, B., & Greathouse, S. (1998). Relationships among attitudes about homework, amount of homework assigned and completed, and student achievement. *Journal of Educational Psychology*, 90(1), 70-83.
- Cooper, H., & Nye, B. (1994). Homework for students with learning disabilities: The implications of research for policy and practice. *Journal of Learning Disabilities*, 27(8), 470-479.
- Cooper, H., Robinson, J. C., & Patall, E. A. (2006). Does homework improve academic achievement? A synthesis of research. *Review of Educational Research*, 76, 1-62.
- Cooper, H., & Valentine, J. C. (2001). Using research to answer practical questions about homework. *Educational Psychologists*, 36, 143-153.
- Corno, L., & Xu, J. (2004). Homework as the job of childhood. *Theory into Practice*, 43, 227-233.
- Cosden, M., Morrison, G., Albanese, A. L., & Macias, S. (2001). When homework is not home work: After-school programs for homework assistance. *Educational Psychologist*, 36(3), 211-221.
- Coutts, P. M. (2004). Meanings of homework and implications for practice. *Theory Into Practice*, 43, 182-188.

De Jong, R., Westerhof, K. J., & Creemers, B. P. M. (2000). Homework and student math achievement in junior high schools. *Educational Research and Evaluation, 6*(2), 130-157.

Dufresne, A., & Kobasigawa, A. (1989). Children's spontaneous allocation of study time: Differential and sufficient aspects. *Journal of Experimental Child Psychology, 47*, 274-296.

Easton, J. Q., & Bennett, A. (1989). *Homework in different types of schools*. Paper presented at the annual meeting of the American Educational Research Association, San Francisco, Calif., March 1989. (ERIC Document Reproduction Service No. ED308256.)

Epstein, J. L. (1988). *Sample clinical summaries: Using surveys of teachers and parents to plan projects to improve parent involvement* (Parent Involvement Series, Report P-83). Baltimore: Johns Hopkins University, Center for Research on Elementary and Middle Schools.

Epstein, J. L. & Van Voorhis, F. L. (2001). More than minutes: teachers' roles in designing homework. *Educational Psychologist, 36*(3), 181-193.

Foyle, H. C. (1985). The effects of preparation and practice homework on student achievement in tenth-grade American history. Ph.D. dissertation, Kansas State University, 1985. *Dissertation Abstracts International, 45*, 8A.

Fuchs, Thomas and Woessmann, Ludger. What Accounts for International Differences in Student Performance? A Re-examination using PISA Data. Institute for Economic Research at the University of Munich, March 24, 2004

Garson, G. D. (2006). *Statnotes: Topics in multivariate analyses*. Retrieved November 30, 2006, from [www2.chass.ncsu.edu/garson/pa765/statnote.htm](http://www2.chass.ncsu.edu/garson/pa765/statnote.htm).

Gill, B., & Schlossman, S. (1996). A sin against childhood: Progressive education and the crusade to abolish homework, 1897-1941. *American Journal of Education, 105*, 27-66.

Gill, B. P., & Schlossman, S. L. (2004). Villain or savior? The American discourse on homework, 1850-2003. *Theory Into Practice, 43*, 174-181.

Hagan, H. (1927). The value of homework as compared with supervised study. *Second Yearbook, Chicago Principal's Club, 147-149*.

Hoover-Dempsey, K. V., Battiato, A. C., Walker, J. M. T., Reed, R. P., DeJong, J. M. & Jones, K. P. (2001). Parental involvement in homework. *Educational Psychologist, 36*, 195-209.

James-Burdumy, S., Dynarski, M., Moore, M., Deke, J., Mansfield, W., Pistorino, C. & Warner, E. (2005). *When Schools Stay Open Late: The National Evaluation of the 21st Century Community Learning Centers Program Final Report*. Washington, D.C.: U.S. Department of Education/Institute of Education Sciences National Center for Education Evaluation and Regional Assistance.

Johnson, J. K., & Pontius, A. (1989). Homework: A survey of teacher beliefs and practices. *Research in Education, 41*, 71-78.

Keith, T. Z. (1982). Time spent on homework and high school grades: A large-sample path analysis. *Journal of Educational Psychology, 74*, 248-253.

Keith, T. Z., & Benson, M. J. (1992). Effects of manipulable influences on high school grades across five ethnic groups. *Journal of Educational Research, 86*, 85-93.

Keith, T. Z., Diamond-Hallam, C., & Fine, J. G. (2004). Longitudinal effects of in-school and out-of-school homework on high school grades. *School Psychology Quarterly, 19*(3), 187-211.

Kohn, A. (2006, September). Abusing research: The study of homework and other examples. *Phi Delta Kappan, 8*-22.

Kralovec, E., & Buell, J. (2001, April). End homework now. *Educational Leadership, 58*, 39-42.

Leone, C. M., & Richards, M. H. (1989). Classwork and homework in early adolescence: The ecology of achievement. *Journal of Youth and Adolescence, 18*, 531-548.

Mikk, J. (2006, May) *Students homework and TIMSS 2003 mathematics results*. Paper presented at the International Conference "Teaching Mathematics: Retrospective and Perspectives," Tartu, Estonia.

Muhlenbruck, L., Cooper, H., Nye, B., & Lindsay, J. J. (2000). Homework and achievement: Explaining the different strengths of relation at the elementary and secondary school levels. *Social Psychology of Education, 3*, 295-317.

Murphy, J. & Decker, K. (1989). Teachers' use of homework in high schools. *Journal of Educational Research, 82*(5), 261-269.

National Center for Education Statistics. (2001). *Pursuing excellence: Comparison of international 8th grade mathematics and science achievement from a U.S. perspective, 1995 and 1999*. Retrieved October 25, 2006, from [nces.ed.gov/pubs2001/20011028.pdf](http://nces.ed.gov/pubs2001/20011028.pdf).

Nash, J. B. (1930, May 31). What price home study? *The School Parent, 9*, 6-12.

Organisation of Economic Cooperation and Development, *Learning for Tomorrow's World—First Results from PISA, 2003*, Paris. <http://www.oecd.org/dataoecd/1/60/34002216.pdf>

Paschal, R. A., Weinstein, T., & Walberg, H. J. (1984). The effects of homework on learning: A quantitative synthesis. *Journal of Educational Research, 78*, 97-104.

Philips, M. (1997). What makes schools effective? A comparison of the relationships of communitarian climate and academic climate to mathematics achievement and attendance during middle school. *American Educational Research Journal, 4*, 633-662.

Rosenberg, M. S. (1989). The effects of daily homework assignments on the acquisition of basic skills by students with learning disabilities. *Journal of Learning Disabilities, 22*, 314-323.

Rutter, M., Maughan, B., Mortimore, P., & Ouston, J. (1979). *Fifteen thousand hours. Secondary schools and their effects on children*. London: Open Books.

Strauss, V. (2006, September 12). As homework grows, so do arguments against it. *Washington Post*, p. A04.

Swank, A. L. G. (1999, July). *The effect of weekly math homework on fourth grade student math performance*. Johnson Bible College. (ERIC Document Reproduction Service No. ED433234.)

Townsend, S. (1995). *The effects of vocabulary homework on third grade achievement*. Union, N.J.: Kean College of New Jersey. (ERIC Document Reproduction Service No. ED379643.)

Trautwein, U., & Koller, O. (2003). The relationship between homework and achievement—still much of a mystery. *Educational Psychology Review, 15*, 115-145.

Truesdell, L. A., & Abramson, T. (1992). Academic behavior and grades of mainstreamed students with mild disabilities. *Exceptional Children, 58*, 392-398.

Van Voorhis, F. L. (2003). Interactive homework in middle school: Effects on family involvements and science achievement. *Journal of Educational Research, 96*(6), 323-338.

Warton, P. M. (2001). The forgotten voice in homework: Views of students. *Educational Psychologist, 36*, 155-165.

Weiss, L. B. (2005). Little homework, yet reaping A's. *School Library Journal, 15*. Retrieved October 10, 2006, from <http://www.slj.com>. June 2005, p. 16.

Walberg, H. J., Paschal, R. A., & Weinstein T. (1985). Homework's powerful effects on learning. *Educational Leadership*, 42, 76-79.

Xu, J., & Corno, L. (1998). Case studies of families doing third-grade homework. *Teachers College Record*, 100(2), 402-436.

---

The homework review was produced by researchers at Edvantia for the Center for Public Education. Edvantia, formerly the Appalachia Educational Laboratory, is an education research and development not-for-profit corporation founded in 1966.

Posted: February 5, 2007

© 2007 The Center for Public Education