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What students would do if they did not do their Homework

Research consistently shows that homework has only a slight effect on educational achievement. So, why do teachers continue to assign homework?

By Dorothy Suskind

Questioning the validity of homework calls us to be brave. It charges us as practitioners to review the research and look past the elephants bickering in the corners of our classrooms and kitchens, holding foreboding signs that shout, “We have always done it this way?” “What on earth will the parents say?” “How will children learn self-discipline and study skills?” and “How will

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my child prepare himself for the rigors of tomorrow’s workforce?” To question the homework default prods us to be advocates and stewards of the children we teach and reflect upon our own motives and methodologies for assigning nightly work. We must put on research-laden armor and prepare to speak up and out at faculty meetings, meet-the-teacher nights, and parent-teacher conferences.

As Alfie Kohn suggests, “ultimately, it’s not enough just to have less homework or even better homework. We should change the fundamental expectation in our schools so that students are asked to take schoolwork home only when there’s a reasonable likelihood that a particular assignment will be beneficial to most of them. The bottom line: No homework except for those occasions when it’s truly necessary” (2007, p. 21).

To follow this charge, we need rich and provocative discussions about standardized homework policies, consistent homework schedules, the effect of homework on struggling learners, how homework is killing a nation of readers, and what types of homework meet Kohn’s definition of “truly necessary” (Gallagher, 2009; Kohn, 2006). We need discussions that make us sweat just a little bit because our responsibility is to our children, not to politics and precedents.

Just as a doctor can’t proclaim that parent pressures, precedents dating back to the 1950s, an increasingly competitive work climate, or threats of global competition made him write that prescription to the over-scheduled and understimulated eight-year-old sitting in the corner of his office, we shouldn’t yield to similar pressures unless they’re packaged atop a mounting heap of research. Yet, as teachers and administrators, that’s exactly what we’ve done. What if we paused and rethought the homework default based, not on pressures and precedents, but on what research suggests about homework and achievement.

What if we paused and rethought the homework default based, not on pressures and precedents, but on what research suggests about homework and achievement.

Limited, and time spent on homework has climbed sharply (Juster, Ono, & Stafford, 2004). Cooper's extensive reviews of studies on homework and achievement suggest that “for elementary age students, the effects of homework on achievement is trivial if it exists at all” (2001, p. 36), and only a moderate positive correlation exists in the middle grades, with those correlations pushing into the negative realm when homework exceeds one to two hours per day (Cooper, 1989; Cooper, 2006; Cooper, Robinson, & Patall, 2006).

Correlations, however, represent a relationship, not a causation. If you visit my 1st-grade classroom in March, you’ll find a correlation between the outside temperature and the number of children wearing shorts. But, if you overheard me telling students, “Please wear shorts tomorrow because I really want it to be warm for my son’s afternoon soccer practice,” you’d probably think I’d spent too much time with the glue sticks.

But, as educators, we have seemingly decided that the small correlation between homework and achievement in the middle grades is in fact a causation. But it’s just as plausible that students who like school and excel at school are more likely to spend more time doing homework than students who don’t like school and don’t excel at school, and that motivation and level of achievement result from in-class learning, not time on task outside school. These interpretations, however, don’t soothe our trepidations about achievement gaps.

Historically, the United States’ educational system has reacted to the perceived threat of global competition by withering autonomy, tightening the bolts of control, and calling for increased homework. This was evident in our response to Sputnik in 1957, the publication of A Nation at Risk in the 1980s, and the bipartisan rollout of the No Child Left Behind Act in 2001. But a scan of the global front reveals that teachers in top-performing nations, such as Japan, Denmark, and the Czech Republic, assign less homework compared to their low-performing counterparts in Greece, Thailand, and Iran. U.S. teachers lead the charge in making homework a high-stakes event, with nearly 70% selecting grade homework, compared to 6% in Germany, 14% in Japan, and 28% in Canada, despite research suggesting that grading students on outside work encourages them to limit their focus, cheat, strive for the minimally set standards of success, and produces undue stress on family dynamics (Baker & LeTendre, 2005; Dudley-Marling, 2003; Bennett & Kalish, 2006).

If caught in an unguarded moment, many teachers and parents will attest to the aforementioned perils of homework, yet
moments later will redress in political correctness and profess that homework teaches self-discipline and study skills, not realizing there is a void of research supporting such claims. In fact, when Hofferth and Sandberg (2001) examined how time studying, reading, and watching television was linked with behavior and achievement, only reading showed a positive correlation. Their research also identified a correlation between emotional well-being and eating family meals, acquiring adequate sleep, and playing organized sports — practices and conditions often called into jeopardy due to rigorous homework regimens.

**Game changer: A new default**

Most adults work eight- to 10-hour days and expect unstructured time in the evening to complete household chores and connect with families, hobbies, and interests. But homework deprives children of the same use of their nonwork hours. Gerver (2010) invites us to think of school (or homework) as that person who corners you, perhaps at a cocktail party, who “de- rided all of your interests and told you that they were unimportant, then went on to spend hours telling you about . . . (their) interests and just how important and significant they were and that, really . . . (their) ‘stuff’ was far more important to you than the ‘stuff’ you cared about.”

Consider the story of Cal Tech’s Jet Propulsion Laboratory (JPL), a premier aerospace research facility. JPL attracts engineers who graduate at the top of their classes at high-prestige universities like MIT and Stanford. But the managers found that engineers who excelled were the childhood tinkerers, the ones who had built with Legos, taken apart clocks, and worked on their dad’s car. “The JPL managers discovered through research that there is a kind of magic in play. What might seem like a frivolous or even childish pursuit is ultimately beneficial. It’s paradoxical that even a little bit of ‘nonproductive’ activity can make one enormously more productive and invigorated in other aspects of life” (Brown & Vaughan, 2009, p. 10).

Futurists suggest that successful individuals going forward will be those who have the creativity to make a multiplicity of connections that aren’t evident within the boundaries of their own disciplines and instead adapt, view, and combine perspectives previously thought of as unrelated. That’s what Einstein did with energy, mass, and speed within his theory of relativity. Such acts of courage have marked the innovators who have pushed our country forward. Those moments are unlikely to come within the current folds of school because, as Csikszentmihalyi (2007) asserts, “It is easier to enhance creativity by changing the environment than by trying to make people creative.”

Unfortunately, many students never find that “changed environment” or those spaces at school. Where they do find them is while playing on the ball field, constructing Legos...
on the living room floor, rummaging through the trash, and rifling through the bushes. They make discoveries when their intrinsic motivation inspires them to press forward. This is a very different lived life than the one teachers currently offer where we send children home with structured assignments, calling for narrow interpretations, and promising punitive measures if left undone or completed outside the boxes that teachers have outlined for them.

This homework experience is in opposition to what happens when people are engaged in authentic tasks with intrinsic motivations. “It takes a lot of courage to be a research scientist. It really does. I mean you invest an enormous amount of yourself, your life, your time and nothing may come of it...so that’s the story...it’s great fun, to come upon something new,” said Vera Rubin, a researcher and astronomer (Csikszentmihalyi, pp. 3-4). This search for flow and discovery is what inspired Google executives to ask employees to dedicate 20% of their time pursuing innovation; within this 20% bubble of autonomy, employees created Google News and Gmail (Pink, 2009).

You may want to close your conversation with that pestering cocktail guest by reminding him that the global market has called us to restructure our knowledge economy into a creative economy. Yet homework policies that monopolize students’ free time are preparing them “for 20th-century work, assembly-line work, in which workers don’t have to be creative or smart. They just have to be able to put their assigned bolt in the assigned hole,” with an emphasis on obedience rather than thinking (Brown & Vaughan, 2009; Kohn, 2007). As you get your coat and leave the party guest behind, it would be nice to share with him tomorrow’s plan to build a Lego police station, eat dinner with your family, and read a self-selected book for enjoyment.

Think: If the research has consistently failed to link homework with achievement, as narrowly defined by school culture, what would the future hold if children were allowed to move freely after school as they discovered tomorrow’s world? Heck, I wrote this article during my holiday vacation, not because I was asked to, needed to, or was paid to, but because I felt called on by my own creative desires, philosophical beliefs, and intrinsic motivation to improve our nation’s schools. Imagine what children might do.

References


Some researchers are urging schools to take a fresh look at homework and its potential for engaging students and improving student performance. The key, they say, is to take into account grade-specific and developmental factors when determining the amount and kind of homework. So, what’s appropriate? What benefits can be expected? What makes for good homework policies? Research doesn’t have all the answers, but a review of some existing data yields some helpful observations and guidance.

**How Much Homework Do Students Do?**

Survey data and anecdotal evidence show that some students spend hours nightly doing homework. Homework overload is the exception rather than the norm, however, according to research from the Brookings Institution and the Rand Corporation (see the Brown Center 2003 below). Their researchers analyzed data from a variety of sources and concluded that the majority of U.S. students spend less than an hour a day on homework, regardless of grade level, and this has held true for most of the past 50 years. In the last 20 years, homework has increased only in the lower grade levels, and this increase is associated with neutral (and sometimes negative) effects on student achievement.

**How Much Is Appropriate?**

The National PTA recommendations fall in line with general guidelines suggested by researcher Harris Cooper: 10-20 minutes per night in the first grade, and an additional 10 minutes per grade level thereafter (e.g., 20 minutes for second grade, 120 minutes for twelfth). High school students may sometimes do more, depending on what classes they take (see Review of Educational Research, 2006).

**What are the Benefits?**

Homework usually falls into one of three categories: practice, preparation, or extension. The purpose usually varies by grade. Individualized assignments that tap into students’ existing skills or interests can be motivating. At the elementary school level, homework can help students develop study skills and habits and can keep families informed about their child’s learning. At the secondary school level, student homework is associated with greater academic achievement. (*Review of Educational Research*, 2006)

**What’s Good Policy?**

Experts advise schools or districts to include teachers, parents, and students in any effort to set homework policies. Policies should address the purposes of homework; amount and frequency; school and teacher responsibilities; student responsibilities; and, the role of parents or others who assist students with homework.
References


A Nation At Rest: The American Way of Homework (Summary and comments from authors) - Educational Evaluation and Policy Analysis, 25(3) (2003, Fall). Gill, B. P., & Schlossman, S. L.

Does Homework Really Work?
Leslie Crawford, Great Schools.org

You know the drill. It’s 10:15 p.m., and the cardboard-and-toothpick Golden Gate Bridge is collapsing. The pages of polynomials have been abandoned. The paper on the Battle of Waterloo seems to have frozen in time with Napoleon lingering eternally over his breakfast at Le Caillou. Then come the tears and tantrums — while we parents wonder, “Does the gain merit all this pain?”

However the drama unfolds night after night, year after year, most parents hold on to the hope that homework (after soccer games, dinner, flute practice, and, oh yes, that childhood pastime of yore known as playing) advances their children academically.

But what does homework really do for kids? Is the forest’s worth of book reports and math and spelling sheets the average American student completes in her 12 years of primary schooling making a difference? Or is it just busywork?

Homework Haters

Whether or not homework helps, or even hurts, depends on who you ask. If you ask my 12-year-old son, Sam, he’ll say, “Homework doesn’t help anything. It makes kids stressed-out and tired and makes them hate school more.” Nothing more than common kid bellyaching?

Maybe, but in the fractious field of homework studies, it’s worth noting that Sam’s sentiments nicely synopsize one side of the ivory tower debate. Books like The End of Homework, The Homework Myth, and The Case Against Homework and the film Race to Nowhere make the case that homework, by taking away precious family time and putting kids under unneeded pressure, is an ineffective way to help children become better learners and thinkers.

One Canadian couple recently took their homework apostasy all the way to the Supreme Court of Canada. After arguing that there was no evidence that it improved academic performance, they won a ruling that exempted their two children from all homework. So what’s the real relationship between homework and academic achievement?

From the Homework Laboratories

The good news: In an effort to answer this question, researchers have been doing their homework on homework, conducting hundreds of studies over the past several decades. The bad news? Despite scores of studies, definitive conclusions remain a matter of some debate.

“A few studies can always be found to buttress whatever position is desired, while the counter-evidence is ignored,” writes the nation’s top homework scholar, Harris Cooper, in his 2006 homework meta-study at Duke University’s Department of Psychology and Neuroscience.

How much is too much?

If you’re not ready to make a national case out of your child’s nightly worksheets, it’s worth knowing that she may be complaining for good reason. For better or worse, homework is on the rise in the United States. A survey done through the University of Michigan found that by the 2002-03 school year,
students ages 6 to 17 were doing twice as much homework as in 1981-82. The homework ante has been upped as school administrators respond to increasing pressure for their students to perform better on state-mandated tests.

So how can you know if your child is doing the right amount? Who came up with that 10-minutes-per-grade rule that’s become the accepted norm? (And if that is the magic number, why is my neighbor’s 8-year-old daughter doing two-plus hours a night?)

The oft-bandied rule on homework quantity — 10 minutes a night per grade (starting from between 10 to 20 minutes in first grade) — is ubiquitous. Indeed, go to the National Education Association’s website or the national Parent Teacher Association’s website, and 10 minutes per grade is the recommended amount for first through 12th grade.

But where did it come from? “The source [of that figure] was a teacher who walked up to me after a workshop I did about 25 years ago,” says Cooper. “I’d put up a chart showing middle school kids who reported doing an hour to an hour and a half were doing just as well as high schoolers doing two hours a night. The teacher said, ‘That sounds like the 10-minute rule.’” He adds with a laugh, “I stole the idea.”

If you think your child is doing too much homework, Cooper recommends talking with her teacher. “Often there is a miscommunication about the goals of homework assignments,” he says. “What appears to be problematic for kids, why they are doing an assignment, can be cleared up with a conversation.” Also, Cooper suggests taking a careful look at how your child is doing her assignments. It may seem like they’re taking two hours, but maybe she’s wandering off frequently to get a snack or listening to her iPod.

Less is often more

If your child is dutifully doing her work but still burning the midnight oil, it’s worth intervening to make sure she gets enough sleep. Recent studies suggest that proper sleep may be far more essential to brain and body development.

In fact, for elementary school-age children, there is no measureable academic advantage to homework. For middle-schoolers, there is a direct correlation between homework and achievement if assignments last between one to two hours per night. After two hours, however, achievement doesn’t improve. For high-schoolers, two hours appears optimal. As with middle-schoolers, give teens more than two hours a night, and academic success flatlines.

Not all homework is created equal

Just as revealing, it appears that grade level has a direct impact on homework’s effectiveness. In a previous meta-study conducted in 1989, Cooper’s team at Duke University found that grade level heavily influences how much homework helps with academic advancement (as measured by standardized and class test scores.) It appears middle- and high-schoolers have much to gain academically by doing their homework. The average high school student doing homework outperformed 69% of the students in a class with no homework. Homework in middle school was half as effective. In elementary school, there is no measurable correlation between homework and achievement.
Despite all the research, homework remains something of a mystery. Until Cooper and other researchers discover the best homework practices at every stage of a student’s development, parents will need to use their own best judgment.
Homework: Is It Worth It?
Fiona McPherson, Ph.D.

Overall, homework does appear to result in higher levels of achievement for older students (at the secondary level). For these students, more time spent on homework is associated with higher levels of achievement, although there is probably a level beyond which more is counterproductive (perhaps at three hours a day).

For students aged 11-13, homework appears to be of benefit, but not to the same degree as for older students. For these students, spending more than an hour or two on homework does not result in greater benefit. There is little evidence of benefit for students younger than 11, although it can be plausibly argued that small amounts of homework can have an indirect benefit for promoting good study habits and attitudes to learning.

The Suggested Benefits of Homework

The most obvious presumed benefit of homework is, of course, that it will improve students' understanding and retention of the material covered. However, partly because this (most measurable) benefit has not been consistently demonstrated, it has also been assumed that homework has less direct benefits:

- improving study skills, especially time management
- teaching students that learning can take place outside the classroom
- involving parents
- promoting responsibility and self-discipline

The Possible Negative Effects of Homework

Probably the most obvious negative effect is the stress homework can produce in both student and parent. Homework can be a major battleground between parent and child, and in such cases, it's hard to argue that it's worth it. There are other potential problems with homework:

- homework demands can limit the time available to spend on other beneficial activities, such as sport and community involvement
- too much homework can lead to students losing interest in the subject, or even in learning
- parents can confuse students by using teaching methods different from those of their teachers
- homework can widen social inequalities
- homework may encourage cheating

What Research Tells Us

Because homework has been a difficult variable to study directly, uncontaminated by other variables, research has produced mixed and inconclusive results. However, it does seem that the weight of the evidence is in favor of homework. According to Harris Cooper's much-cited review of homework studies, there have been 20 studies since 1962 that compared the achievement of students who receive homework with students given no homework. Of these, 14 showed a benefit from doing homework, and six didn't.
The clearest point is the striking influence of age. There seems, from these studies, to be a clear and significant benefit to doing homework for high school students. Students 11 to 13 years of age also showed a clear benefit, but it was much smaller. Students below this age showed no benefit.

In 50 studies, time students reported spending on homework was correlated with their achievement. 43 of the 50 studies showed that students who did more homework achieved more; only 7 studies showed the opposite. The effect was greatest for the high school students and, again, didn't really exist for the elementary school students. For the students in the middle age range (11-13 years), more time spent on homework was associated with higher levels of achievement only up to one to two hours; more than this didn't lead to any more improvement.

The Third International Mathematics and Science Study (TIMSS), however, found little correlation between amount of homework and levels of achievement in mathematics. While they did find that, on average, students who reported spending less than an hour a day on homework had lower average science achievement than classmates who reported more out-of-school study time, spending a lot of time studying was not necessarily associated with higher achievement. Students who reported spending between one and three hours a day on out-of-school study had average achievement that was as high as or higher than that of students who reported doing more than three hours a day.

Two British studies found that while homework in secondary schools produced better exam results, the influence was relatively small. Students who spent seven hours a week or more on a subject achieved about a third of an A level grade better than students of the same gender and ability who spent less than two hours a week.

**How much homework is 'right'?**

A survey conducted by the United States Bureau of the Census (1984) found that public elementary school students reported spending an average of 4.9 hours and private school elementary students 5.5 hours a week on homework. Public high school students reported doing 6.5 hours and private school students 14.2 hours. Recent research studies by the Brown Center on Education Policy concluded that the majority of U.S. students (83% of nine-year-olds; 66% of thirteen-year-olds; 65% of seventeen-year-olds) spend less than an hour a day on homework, and this has held true for most of the past 50 years. In the last 20 years, homework has increased only in the lower grade levels, where it least matters (and indeed, may be counterproductive).

In America, NEA and the National PTA recommendations are in line with those suggested by Harris Cooper: 10 to 20 minutes per night in the first grade, and an additional 10 minutes per grade level thereafter (giving 2 hours for 12th grade).

In Britain, the government has laid down guidelines, recommending that children as young as five should do up to an hour a week of homework on reading, spelling and numbers, rising to 1.5 hours per week for 8-9 year olds, and 30 minutes a day for 10-11 year olds. The primary motivation for the government policy on this seems to be a hope that this will reduce the time children spend watching TV, and, presumably, instill good study habits.

TIMSS found that students on average across all the TIMSS 1999 countries spent one hour per day doing science homework, and 2.8 hours a day on all homework (the United States was below this level). On
average across all countries, 36% of students reported spending one hour or more per day doing science homework.

There is some evidence that the relationship between time on homework and academic achievement may be curvilinear: pupils doing either very little or a great deal of homework tend to perform less well at school than those doing 'moderate' amounts. Presumably the association between lots of homework and poorer performance occurs because hard work is not the only factor to consider in performance -- ability and strategic skills count for a great deal, and it is likely that many very hard-working students work so long because they lack the skills to work more effectively.

**What makes homework effective?**

By which I mean, what factors distinguish "good", i.e. useful, homework, from less productive (and even counterproductive) homework. This is the $64,000 question, and, unfortunately, research can tell us very little about it. Cooper did conclude that there is considerable evidence that homework results in better achievement if material is distributed across several assignments rather than concentrated only on material covered in class that day. There is no evidence that parental involvement helps, although it may well be that parental involvement can help, if done appropriately. Unfortunately, parental involvement can often be inappropriate.

**Can students really watch TV or listen to music while doing homework?**

A burning question for many parents! A British study found that watching TV while doing homework was associated with poorer quality of work and more time spent. However, simply listening to the soundtrack did not affect the quality of the work or time spent. It's assumed that it's the constant task-switching caused by looking back and forth between the screen and the work that causes the negative effect. From this, it would also seem that listening to the radio should not be a problem. It's worth noting that we become less able to multi-task as we age, and that parents' objections to their children's study environment probably reflect their awareness that they themselves would find it difficult to concentrate in such circumstances.
After sitting in class all day, the last thing seventh grader Micah Carey wants to do is open up a book. All of his hard work powered him through his struggles with science.

"We've had science homework that I needed help on, so I could just ask the teacher and she would help me," said Micah Carey, seventh grader at Murray Hill Middle School.

"Why do kids need to work a second shift when they get home on academic assignments?" asked Alfie Kohn. Alfie Kohn is the author of twelve books about education and human behavior including The Homework Myth. He travels the country offering lectures about whether homework really is necessary. Kohn says six hours of studying at school is enough. Kids should use after-school time to explore other interests and relax. "The nagging fact is that parents have been away from their kids, and the first thing out of their mouth is, 'Do you have any homework?' How sad is that?" said Kohn.

They don't think it's sad at Murray Hill Middle School with Howard County Public Schools. They are making homework work. It's all part of "After School at the Hill." It's a homework club for middle school students. It's one of the largest after-school programs in the state. Micah appreciates the help. "When you are in the after-school program, you can have your teachers help you because they know what your homework is and especially if you are in that teacher's class for your homework. So they can help you if you don't understand," said Carey.

"You need to know that they have a good foundation of learning and what their skill set is, and do I need to study extra here, and do I need more comprehensive notes for my classes? I do think homework gives them a good foundation for when they move on further in school," said Jacqueline Carey, mother of Micah Carey.

Once the final school bell rings, students report to assigned classrooms with teachers. Students complete homework in everything from science, math, and English to reading. The after-school program has 280 students enrolled. This is 40 percent of the student body population at the school. "We out-gained more than 3,000 schools in the state of Maryland. We believe part of the reason is because of our focus on homework: that is, if students do not acquire things in class, they will acquire them through homework," said Donyall Dickey, principal at Murray Hill Middle School.

Donyall Dickey became principal at Murray Hill Middle School in 2007. He recently published teacher resources on the Common Core State Standards. He also wrote a book called The Integrated Approach to Student Achievement. Shortly after he took over, the school’s state assessment scores shot up in 2008. "I've always been principal of schools that needed some level of improvement. I can always attach the value of homework to that subsequent improvement," said Dickey.

One Montgomery County public school does not have homework. Gaithersburg Elementary School eliminated homework. Students read a book for 30 minutes a night. Educators say it has been a huge success with students and families.

For the kids at Murray Hill Middle School, they will continue spending their afternoons tackling homework together in the club. "After School at the Hill" is part of the 21st Century Community Learning Center, which is federally funded.
Since the start of the school year, many of Wayne Tsai’s math students have been watching his lectures at home or in the computer lab.

They take notes and jot down questions about his algebra and geometry lessons and then return to Tsai’s classroom the next day, ready to apply what they’ve learned to problems and projects that traditionally would have been assigned as homework.

The practice — known as “the flipped classroom” because of the reversed roles of lectures and homework — has helped students understand the lessons better and move through them more quickly, Tsai said. More class time is now spent on projects and extra help for those who need it.

“It was something I’ve never done before, and I was nervous to learn at home,” said Jessica Hutchinson, 16, a student in Tsai’s class at Hilliard Darby High School. “But I liked it. You get extra help at school, but you’re learning it at home.”

Steve Estepp, the executive director of curriculum and instruction in the Hilliard schools, sees it as shifting the role of teachers “from the gatekeeper of knowledge to the role of the coach.”

The flipped classroom, in use across the country, also is one approach to using more digital presentations, as the state has suggested through its Ohio Digital Learning Task Force.

“It’s spreading because innovative teachers are looking for a way to use technology to transform the traditional classroom,” said Jim Warford, a senior consultant at the New York-based International Center for Leadership in Education. He is the former chancellor of Florida’s public schools and has been studying the practice for three years.

No formal studies have been conducted, but Warford points to the success at Clintondale High School in Michigan. The urban high school, which draws students from the metro Detroit area, flipped its entire school curriculum after trying the strategy with ninth-graders in 2010.

Administrators there have said the approach has helped bolster the school’s attendance rate and decrease the number of disciplinary incidents. The number of students failing each class also has declined.

Many teachers, including Tsai, either videotape themselves or direct their students to the Kahn Academy, a website that provides more than 3,000 free tutorials and exercises in mostly math and science. Students reviewing concepts online can pause the lessons as needed, something they can’t do with a teacher in class.

Joanna Burcham, a math teacher at Olentangy Orange High School, struggled to find time for both her lesson and problem-solving in a 45-minute class period. Last year, she had students in her Advanced Placement Calculus and Honors Algebra 2 classes watch her recorded lessons online and come to class ready to work on questions. Students loved it, she said.
“I’m still giving the information, but in the classroom ... I’m here for support and to help clarify things,” Burcham said. “There’s so much time in class now, and students are collaborating with each other.”

This year, she has posted all her lessons and notes on YouTube.com for all her classes. Students’ grades are up by at least 7 percent, she said.

Tsai was inspired to record his lessons online after he turned to the Internet for help with changing the air filter in his car. “That’s what people are doing these days,” he said. “If they want to learn something, they watch it online. This has got to be how kids want to learn.”
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 Patall 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-Demspey 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


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


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.

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