The problem of “summer reading loss” among students of low socioeconomic status has been well-documented in many studies over the past 20 years.

For vulnerable students, the gap in reading tends to develop and widen during summer vacation rather than during the school year, says James S. Kim of the University of California, Irvine. In a recent study in Educational Evaluation and Policy Analysis, Kim says minority students appear even more susceptible than white students to losing ground over the long break.

Many schools encourage students to read over the summer with volunteer reading programs, but Kim says the National Reading Panel concluded in a report published in 2000 that studies on the impact of voluntary reading were “inconsistent and inconclusive.” The report, Teaching Children to Read, determined that there was “little experimental support for the use of voluntary reading as an effective instructional policy.”

Modifying voluntary reading

Based on what he felt were the instructional limitations of the programs reviewed by the National Reading Panel, Kim designed a modified voluntary reading program for 4th-graders that he reports had significant effects on the total reading score for black students, Latino students, less fluent readers and students who reported owning fewer than 50 children’s books.

The intervention had no significant effect on white middle-class students, and so would not be appropriate as a large-scale program for all students, but may be an effective policy for improving the reading skills of lower performing students over summer, he says.

Typically, voluntary reading programs share three characteristics, Kim writes:

- students choose their own books;
- they read silently on their own; and
- they receive little or no feedback on their reading or selection of books from teachers or parents.

Children are mailed books

The modified voluntary summer reading program had the following important features:

- Eight books were mailed to children over the summer to ensure that they had access to books.
- Children were sent books that matched their reading levels based on their reading preferences.
- Children were encouraged to read aloud a favorite passage with a parent or family member.
- They were reminded to practice comprehension strategies that they learned in school.

Mailing books to children ensures that they have access to books, an overlooked potential cause of summer reading loss, Kim writes. Highly publicized previous research has found that stu-
Reading program reduces summer lag for 4th-graders

Continued from page 1

Students’ reading achievement is linked to the number of books in their homes.

Giving students a choice about what they read is an important feature of voluntary reading, but often students choose books that are easy for them to read, he notes. In this intervention, children were asked about reading preferences but received books in the mail that had a level of difficulty that matched their reading level.

Study methods

For the study, which took place in a large district in the Mid-Atlantic region, students were randomly selected from schools ranked as high-poverty schools and multi-racial schools in the district.

A total of 552 students completed a baseline Iowa Test of Basic Skills (ITBS). After attrition over the summer, the final sample included 486 students, 252 students in the treatment group and 234 students in the control group. The final sample of students took a posttest measure of silent and oral reading with the ITBS as well.

Oral-reading fluency with the Dynamic Indicators of Basic Early Literacy Skills (DIBELS) was assessed by retired teachers in both the spring and fall. Students were administered a spring reading survey, which included a 20-item Elementary Reading Attitude Survey (ERAS) and a 25-item reading preferences survey. Students were asked how much they like reading books from one of 25 categories of children’s books. A fall reading survey measured reading activity during the summer and access to books at home.

Oral reading added

The National Reading Panel has suggested that guided oral reading and comprehensive strategies enhance the effectiveness of reading practice, Kim says.

In this intervention, children were encouraged to read aloud a favorite passage with a parent or family member to help create an enjoyable reading experience and add an oral reading component. The study, however, did not find any effects on oral reading fluency for students in the treatment group upon re-testing in the fall.

Postcards were sent to the child with every book. The postcards not only asked if the students read the book, but what if any comprehension strategies they used to understand the book. Adults signed the card to indicate that the child had read aloud to them from the book.

The control group received the books and postcards in the fall.

Comprehension strategies

Before the summer break, teachers reviewed comprehension strategies with the students in school. “The intervention attempts to improve reading skills by increasing children’s access to books, matching books to children’s reading levels and preferences, and encouraging children to read orally with a parent/family member and to practice comprehension strategies learned in school,” the researcher says.

Most of the 14 studies reviewed by the National Reading Panel involved students from 5th grade and above. This study was targeted to 4th-graders. Not only do they have the necessary coding skills to participate in a summer reading program, Kim says, but since third grade is often considered a pivotal year, poor readers can benefit from extra reading.

“Voluntary reading interventions, in which children receive free books and are encouraged to read at home, may represent a scalable policy strategy for promoting reading achievement during summer vacation,” Kim states.

Three-level approach to scaffolding can be applied to teaching math

Scaffolding, or the practice of supporting learning as students gradually become more secure in their understanding, has had a major impact on how educators teach across many disciplines.

In a recent issue of the Journal of Mathematics Teacher Education, Julia Anghileri outlines a 3-level hierarchy of scaffolding practices for mathematics.

“Much of the background research on scaffolding has been drawn from studies that do not relate specifically to the mathematics classroom,” Anghileri writes.

“The intention is to build on existing studies and to identify classroom practices that relate to mathematics teaching,” she says.

Twenty-five years ago, researchers D. Wood, J. Bruner and G. Ross introduced the concept of scaffolding in the Journal of Child Psychology and Psychiatry. The authors identified scaffolding practices such as recruiting the student’s interest, prodding (keeping the learner in pursuit of an objective), pointing out discrepancies, responding to the student’s emotional state, modeling the solution, etc.

Anghileri proposes a 3-level hierarchy of scaffolding practices that specifically support mathematics learning:

Level 1—Environmental provisions (classroom organization, artifacts such as blocks)

Level 2—Explaining, reviewing and restructuring

Level 3—Developing conceptual thinking

Environmental Provisions

Before interacting with students, teachers scaffold learning by the environment they create in their classrooms, Anghileri says. Wall displays, puzzles, tools are some obvious examples of environmental provisions. Seating arrangements and grouping arrangements also organize the environment and can support learning, Anghileri says. Tasks that include self-correcting elements as well as computer programs are other Level 1 practices that support students’ independent learning.

Anghileri includes emotive feedback as a Level 1 scaffolding practice. By interjecting remarks, the educator can encourage and give approval to student activities. Along with organizing people and structuring work, approval and encouragement constitute the majority of interactions classified as actual scaffolds, according to one researcher (Bliss, 1996).

Reviewing and restructuring

Showing, telling and explaining continue to dominate classroom teaching, Anghileri says, but these practices can constrain student learning, she adds. Important alternatives for mathematics teachers, more in keeping with the scaffolding approach, are reviewing and restructuring. Reviewing and restructuring involve helping students develop their own understanding of mathematics, she notes.

When students are engaged with a task, Anghileri says, they are not always able to identify the most pertinent aspects of mathematical ideas or problems. In reviewing, teachers can refocus students’ attention and help them reach their own understanding. There are 5 types of reviewing interactions, Anghileri says:

• asking students to look, touch and verbalize what they see and think;
• asking students to explain and justify;
• interpreting students’ actions and comments;
• prompting students and asking them probing questions; and
• parallel modeling.

In parallel modeling, the teacher creates

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Scaffolding approach for mathematics

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and solves a task that shares some of the characteristics of the student’s problem. “The student retains ownership of the original task but has the opportunity to see a parallel task being solved and to transfer understanding,” Anghileri says.

In restructuring, the teacher goes beyond consolidating students’ understanding to make ideas more accessible and take meanings forward. Some examples of restructuring include:

• providing meaningful contexts to abstract situations;
• simplifying the problem;
• rephrasing students’ comments; and
• negotiating meanings.

In negotiating meanings, a teacher pays close attention to what pupils are saying and helps contribute “spoken formulations and revisions” that will arrive at a stable expression that all participants can agree with. Teachers may sometimes be concerned that incorrect meanings will be spread among students, but research has shown that learning improves when errors and misconceptions are exposed and discussed, Anghileri says.

“It is through a struggle for shared meaning that a process of cooperatively figuring things out determines what can be said and understood by both teacher and students and this is what constitutes real mathematics learning in the classroom,” Anghileri says.

Developing conceptual thinking

In mathematics, beyond solving isolated problems, students should be developing concepts through generalization, extrapolation and abstraction. At the highest level of scaffolding are the following practices, Anghileri says:

• developing representational tools;
• making connections; and
• generating conceptual discourse.

An example of representational tools is using a set of dominoes to represent a complete set, she says. Another is evoking images familiar to children, such as recognizing that a triangular prism is a “roof” shape. Graphs and spreadsheets also serve as representational tools, Anghileri says, and so do teachers notations on students’ solutions. Students use these notes to reflect on their mathematical activity.

Making connections is another crucial strategy to support mathematics learning, the author says. Different versions of the same calculation (e.g. ½ x 40; 40x0.5, 50% of 40) may help students make connections between fractions and percentages, for example.

With conceptual discourse, the teacher goes beyond explanations, Anghileri says. For example, after finding a shape that rolls, one teacher asked, “Why will it roll?” and the ensuing discussion included many observations about the concept of curved surfaces.

In mathematics learning, norms and standards for acceptable mathematical explanation are important characteristics of classroom discourse, she says.

“While accepting a wide range of students’ explanations, teachers can indicate thinking strategies that are particularly valued, thus enabling students to become aware of more sophisticated forms of mathematical reason,” Anghileri says.

“Teachers play a vital role in shaping this discourse through signals they send about the knowledge and ways of thinking and knowing that are valued.”

Anghileri concludes that one problem with the notion of scaffolding is that it assumes learning is hierarchal and built on firm foundations, although many teachers know that elements of understanding can appear in students in an eclectic and erratic fashion. What is needed, she says, is for scaffolding to be imagined as a more dynamic and flexible process.

Quality teaching, not class size raises student achievement

Yet another study has found that despite the enormous appeal of small classes among parents and educators, small class size seems to have no measurable benefits for students.

Two researchers from the University of Wisconsin at Madison conclude in a new study of kindergartners published in *Educational Evaluation and Policy Analysis* that they found “no evidence that class size affects reading or mathematics achievement in kindergarten.” However, they did find significant effects on student achievement from classroom instruction.

“Our results thus resonate with other studies that indicate that what happens inside classrooms matters much more than the structure in which those activities occur,” say University of Wisconsin at Madison researchers Carolina Milesi and Adam Gamoran.

Data on 21,260 children

To re-examine the issue of class size, the two researchers analyzed data on 21,260 children enrolled in approximately 1,000 kindergarten programs during the 1998-1999 school year. The data is from the Early Childhood Longitudinal Study—Kindergarten Class of 1998-99 (ECLS-K), the only nationally representative sample which assesses children’s status at kindergarten entrance, the researchers say. Besides class size, researchers analyzed data on class organization, teachers’ time allocation and type of instructional activities.

In reading and mathematics, the researchers found that both instructional orientations—whole language and phonics in reading and “teaching for understanding” and drill in mathematics—contributed to performance.

“In reading, we found that additional time spent on both whole class and small-group activities boosted achievement, a result that is consistent with prior research showing the value of instructional time in early reading,” the researchers say.

The results from this study are consistent with the emphasis on teacher quality under No Child Left Behind, the researchers note. In California, one of the negative effects of a class-size reduction initiative was a drop in fully credited teachers, the researchers note, a drop that disproportionately affected disadvantaged schools. To meet the goal of having no more than 20 students in K-3 classes, schools hired less qualified teachers. The proportion of fully accredited teachers dropped by an average of 2% statewide while it dropped by 20% for the schools serving the most low-income students, the researchers say.

STAR study results

The major study providing evidence for small class size was an experimental study conducted in the 1980s in Tennessee called Student/Teacher Achievement Ratio (STAR). Other research has looked at whether there are class-size effects that impact achievement. For example, do teachers teach differently in small and large classes? Are certain instructional practices more effective in small classes? Do students behave differently in small classes? The authors did not find evidence of these class-size effects in their study, nor could they identify groups of students that seemed to benefit from small classes.

The results from STAR do not seem to have generalized to real-world settings. An important consideration, the researchers say, is the other schooling conditions that occur with class size. “More research is needed to identify the conditions under which experimental findings, such as Project STAR, can be generalized.”

Gifted children often enjoy a confidence in their abilities that comes from their experiences of success in school and from the public recognition they receive.

But what happens when gifted children meet with failure? Do they doubt their abilities, or do they attribute their failures to lack of effort, bad luck, or teacher favoritism?

Working with attribution theory, a cognitive model for understanding human motivation, one group of researchers recently posed this intriguing question in a study published in *Gifted Child Quarterly*.

The study, based on data from 4,901 gifted students grades 3-11, found that gifted students virtually never doubt their abilities. After analyzing responses from 25-item questionnaires, the researchers conclude that gifted students usually attribute failure to “not working hard enough” (56.7%), “not doing the work the right way (32.1%) and to task difficulty (21.5%).

Attributing failure

“As a group, the sample of gifted students did not make the attributional choice of lack of ability or instructor favoritism (<2.1% for either attribution) for failure in school in general or in the specific content areas of math, science, or language arts,” the researchers write. Few (<4.8%) attributed failure to bad luck.

One concern voiced by previous research in attributional theory is that gifted students whose identities are tied to being smart or talented could be expected to become less motivated if they attributed failure to lack of ability. The results of this study seem to dispel that concern. But the researchers note that greater insight is needed in gifted students’ “lack of effort” responses. Do they see this lack of effort as situational or as a long-term personality trait? When students respond that lack of effort is situational (e.g. “did not do my work the right way”) rather than as a personality trait, that is seen as a positive in the research literature, the authors write.

Attributing success

Girls and boys did not differ meaningfully in their responses to questions about failure, but they did differ in the way they accounted for their success in school. Girls (54.9%) were more likely to attribute their general success in school to effort than boys (38.5%) while boys (41.8%) were more likely to credit their ability (“I am smart”) than girls (28.4%). This gender pattern held for math and science, and across all the grade levels.

In language arts, however, the percentage of boys that attributed their success in language arts to ability (24.6%) dropped close to that of girls (24.9%). Similar proportions of boys and girls, about 44%, attributed their success to working hard, even though it’s widely recognized that girls have long outperformed boys in language arts, the researchers note. This response, researchers say, shows how “profoundly ingrained” is the hesitancy of girls to attribute their success to ability.

“We see potential negatives for girls who do not accurately recognize their academic abilities,” the researchers say. “They may be more tentative about undertaking challenges or putting themselves in competitive situations. We encourage research on gifted girls to assess how they approach highly challenging tasks and competitive situations compared to boys.”

On a positive note, the researchers write, in math and science, girls attributed failure to not working hard enough, despite widespread publicity in recent years about boys performing better in these areas than girls.

For the study, researchers analyzed responses to a 25-item questionnaire completed by 4,901 gifted students who participated in a university-based academic talent search (grades

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Students with disabilities seldom to blame for schools not meeting AYP

Students with disabilities are seldom the reason why schools fail to meet their Adequate Yearly Progress (AYP) goals under No Child Left Behind (NCLB), according to a report recently released by the Aspen Institute, *Beyond NCLB: Fulfilling the Promise to Our Nation’s Children*.

In 2004–05, 16% of schools (approximately 14,121 schools) and 20% of districts (2,347 districts) did not make AYP, says the 222-page report. Research in five of the largest states—California, Florida, Michigan, Georgia and Pennsylvania—found that subgroups of students with disabilities were seldom the sole reason schools did not make AYP.

In fact, schools in those five states rarely reported assessment results for students with disabilities because of the small populations of students in them, according to the No Child Left Behind Commission, an independent, bipartisan commission funded by the Aspen Institute and major foundations.

“Most of the time, schools were labeled in need of improvement because of low performance overall or because of low performance by multiple subgroups,” finds the report, which is based on a yearlong investigation into the implementation of NCLB. The commission held 12 public hearings across the country, visited schools and received 10,000 comments on its website.

To ensure that subgroup data is statistically reliable, schools are only required to include student subgroups above a minimum size (N-size) in their AYP calculations. However, the law leaves it up to states to determine the N-size they will use. In California, groups must have at least 100 students or 50 students and comprise 15 percent of the school population.

“As a result of this flexibility, large numbers of students are not counted in some states’

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Students with disabilities not cause of AYP failures

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accountability systems,” the report says. “The large and varied N-sizes in these states mean that many African American and Hispanic students, as well as students with disabilities and English language learners, remain invisible, and schools are not held responsible for improving their performance.”

The trend has been for states to raise their N-sizes, according to the report. The Associated Press has reported that 1.9 million students throughout the country—or about one in 14 test scores—are not counted in AYP calculations because of state N-sizes.

The NCLB commission obtained student achievement data for every school in the five states to examine how often schools missed AYP because of students with disabilities and also because of students with limited English proficiency. (See chart below).

To address states’ challenges with assessing students with disabilities, the U.S. DOE has issued rules for determining how students with disabilities are included in state accountability systems. Under the rules, children with severe cognitive disabilities—up to 1 percent of students in a state—can be administered alternate assessments using alternate standards. These standards are different from the regular academic standards used to assess students without disabilities and those students with disabilities who take regular assessments aligned to regular standards.

In addition, the U.S. DOE has issued other regulations that allow up to 2 percent of a state’s student population, who struggle to be on grade level, to take assessments using “modified achievement standards.” These standards are required to be aligned to grade level expectations, but are permitted to be lower in scope than the standards used for nondisabled students.

To access the report, Beyond NCLB: Fulfilling the Promise to Our Nation’s Children, go to www.nclbcommission.org.

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Impact of students with limited English proficiency on Adequate Yearly Progress (AYP)

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