Stop Summer Academic Loss

An Education Policy Priority

A white paper from MetaMetrics

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Introduction

Every year, most U.S. students go to school for 180 days (some a few days more; some a few days less). During that time, most progress along a learning trajectory and grow in terms of knowledge and skills. However, when summer break comes along, the formal learning process often ends, and many students, particularly those from low-income families, begin to show learning losses. In fact, research shows that many students experience learning loss when they do not engage in educational activities during the summer. Further, they score lower on standardized tests at the end of summer vacation than they do on the same tests at the beginning of summer vacation (Cooper, 1996).

This summer achievement loss is particularly evident in reading ability. While many students show some loss in reading skills over the summer months, low-income students, who often do not have access to books in the home, experience an average loss in reading achievement of more than two months (Cooper, 1996).

This problem of summer academic loss, also called "summer loss," "summer setback" or "summer slide," is more grave when we recognize that many students start school behind and struggle to catch up throughout their K–12 education. Scientific research over decades has confirmed that, without intervention, children who start school behind likely will stay behind and that children who cannot read at grade level by the fourth grade will likely face an ongoing struggle to learn and even diminished lifetime success (Coley, 2002; Hart & Risley, 1995; Neuman, 1996).

Summer Loss and the Achievement Gap

Over the last few decades, National Assessment of Educational Progress (NAEP) results and other studies have identified gaps in the reading abilities of majority and minority students (USED, 2003; Rock and Stenner, 2005). Emphasis on higher academic standards, plus growing concern about the achievement gap and global economic competitiveness, place a new spotlight on the importance of educational policies and practices that promote student growth.

The federal No Child Left Behind Act (NCLB) holds states accountable for ensuring that all students are

proficient in reading and mathematics and that achievement gaps are eliminated. As we more carefully consider academic patterns of various student subgroups, increasingly, research points to summer academic loss as a primary source of existing achievement gaps.

Researchers have found that summer academic loss is not equal for all students. The magnitude of summer loss varies by grade level, subject matter and family income. Research indicates that summer loss in mathematics is similar among lower and middle-income students. However, unlike with mathematics achievement, family income plays an important role in predicting the magnitude of summer loss in reading. While children from middle-class families show gains in reading achievement during the summer, children from lower income families tend to lose ground. Several researchers argue that most of the achievement gap between majority and minority students can be explained and accounted for by the summer loss accumulated over 12 years of education (Entwisle & Alexander, 1992; Entwisle, Alexander, & Olson, 1997; Heyns, 1987).

Highlights of Summer Loss Research

The most frequently cited study of the different effects of summer vacation on students from different economic backgrounds is that of sociologist Barbara Heyns, Ph.D., on 1,640 Atlanta, Ga., schoolchildren. She found that "summer learning is considerably more dependent on parental status than is learning during the school year." In her data, summer vacation widened the gap in achievement between rich and poor, white and black (Heyns, 1978).

Since 1906, scientists have studied the effects of summer vacation on student learning. A meta-analysis of these studies by Cooper et al (1996) reviewed results from numerous comparisons of summer vacation effects for low- and middle-income students. The results revealed that while middle-income students exhibited slight, though statistically insignificant, gains in reading over the summer, lower income students showed significant loss in reading skills. On average, children from low-income families lost nearly three months of grade-level equivalency during the summer months each year, compared to an average of one month lost by middle-income children, when reading and mathematics performance were combined.

Sociologists Karl Alexander and Doris Entwisle (1992, 1994) have shown that the cumulative effect of summer learning differences is a primary cause of widening achievement gaps between students of lower and higher socio-economic levels. By the end of fifth grade, low-income children fall more than two years behind their middle-class peers in reading and verbal achievement and one-and-a-half years behind in mathematics.

Entwisle et al (1997, 2001) also developed the "faucet theory" to explain the summer slide phenomenon. When the school faucet is turned on, that is, when schools are in session, children of every economic background benefit about equally. However, when the school faucet is turned off, as during summer vacations, reading proficiency of advantaged families continues to develop while that of economically disadvantaged children does not.

Strategies for Stopping Summer Loss

Currently, parents, schools and communities use three primary ways to stop summer academic loss for children: summer school, summer reading programs offered by public libraries or other community organizations, and the reading of books available in the home. Each approach has value for most students who participate.

Summer School. Children from middle-income families appear to rely on school for only a portion of their academic learning. Children in poor families, however, rely primarily on school for academic learning (USED, 1993). Summer school programs are one way to combat summer academic loss, but, because of costs, are not widely available. Despite the growth in popularity, summer school programs enroll only about 10 percent of the nations' schoolchildren (NWREL, 2002). Further, most schools begin mandating summer school only after students have fallen behind in their regular school year work.

Public Library Programs to Promote Summer Reading. With many schools and their libraries closed for the summer, public libraries provide free and accessible resources for reading and learning. Many public libraries across the nation sponsor summer reading programs for school-aged children. Statistics from the American Library Association indicate that

94 percent of libraries offer study space for children, 95 percent offer summer reading programs, 89 percent provide story hours and 83 percent work cooperatively with schools (Celano & Neuman, 2001).

While helpful overall, many poor children are still at a disadvantage. In many instances, public libraries located in poor neighborhoods are the first to close or restrict hours in a budget crunch. Even when public libraries are open, poor children may not have transportation to get there, a more pronounced obstacle in rural areas. Research shows that public library use among poor children drops off when a library is more than six blocks from their home, compared with more than two miles for middle-class children (McGill-Franzen & Allington, 2003).

Books in the Home. Research has shown that summer reading is the single summer activity that is most strongly and consistently related to summer learning (Heyns, 1978). The best predictor of summer reading is whether books are in the home. Unfortunately, many students go home to text-free or text-poor zones. An analysis of data from the Early Childhood Longitudinal Survey (ECLS), of a nationally representative sample of more than 20,000 children entering kindergarten in the fall of 1998, showed large disparities across ethnic groups in the number of books in children's homes. On average, white families reported owning an average of 93 books, compared to an average of 39 books for black families, 41 books for Hispanic families and 49 books for Asian families. Further, when a composite measure of socio-economic status and the number of books in children's homes was included, the entire reading gap between black and white students and most of the gap between Hispanic and white children was accounted for (Fryer & Levitt, 2002). There are still children with no books in the home. Plus, the mere existence of books in the home does not guarantee they contain child-appropriate content, are of interest to the child or are written at a level the child can understand.

Reaching All Students with Summer Loss Interventions

The three major ways we can prevent summer loss are simply not available to many students, especially those who need it most. Many homes lack sufficient books, and numerous schools are closed in the summer and do not offer summer school. In addition, transportation to public libraries is an obstacle for many students. The challenge is finding innovative ways to get books into the hands of children during the summer. While much is already being done, existing resources are still not reaching many of the students who need them. Sound research is emerging to guide our efforts in ways that work and are cost effective. Also, tools already exist in many states to help pull together the patchwork of existing resources in ways that are most effective for the neediest students.

Structured Voluntary Summer Reading Programs. There is little experimental evidence (with random assignment) showing whether voluntary reading interventions improve children's reading skills, but that is beginning to change. While at the University of California-Irvine, James Sangil Kim, Ed.D., now assistant professor of education at Harvard University, demonstrated in a randomized field study that low-income students are not destined to summer loss. Kim showed that the skills of low-income students could, in fact, grow over the summer if they were able to select books based on each student's interests and reading level. Their gains in reading were comparable to gains one would expect in summer school (Kim, 2005).

Since motivation is the key to voluntary reading, the two critical features of book selection are individual students' interests and reading levels, both addressed in Kim's study. To match books to students' reading preferences, a survey asked students how much they enjoyed reading books from 24 categories and topics widely used in the classifications of children's reading preferences (Guthrie & Greaney, 1991; Monson & Sebesta, 1991; Summers & Lukasevich, 1983).

Kim used a tool that many states use to measure student reading levels, The Lexile® Framework for Reading. The Lexile Framework is a scientific approach to reading measurement that matches readers to text. Its unique feature is that both reader ability and text difficulty are reported on the same scale, in the same units, called Lexile [measures] (Schnick & Knickelbine, 2000; Stenner et al., 1983; USED, 2001). As the most widely adopted reading measure, Lexile measures provide educators, parents and students with a tool to choose materials that can help to improve reading skills across the curriculum, in the library and at home.

Students in the treatment group were taught five comprehension strategies to increase their understanding of what they read and a paired reading strategy for use in reading favorite passages aloud to their parents. They were asked to use these strategies during the summer as they read eight books, each matched to their reading and interest levels. A postcard was mailed home with each book asking students to check off the comprehension strategies they used while reading and to obtain a signature from a parent/caregiver after reading aloud.

Although there were no statistical differences between the two groups at the beginning of the experiment, at the end of the summer, the Iowa Test of Basic Skills reading scores of students in the voluntary summer reading program showed a statistically significant increase over students in the control group who received no summer reading intervention. Further, there was an even larger treatment effect for minority students. Notably, the voluntary summer reading program study, called Project READS, at a cost of approximately $100 per student ($40 for books and postage; $60 for labor to package the books), was one-third the cost per student for summer school in that district.

Powerful, cost-effective interventions such as this, implemented over multiple summers, particularly through fifth grade, hold the promise of eliminating summer slide and, at the very least, putting a significant dent in the achievement gap.

Promoting Structured Voluntary Summer Reading Programs through State Testing Programs

One of the potentially powerful consequences of NCLB is the increased attention of parents to children's test scores. As parents have become increasingly concerned about test scores, there is a need for states to do more to communicate effectively what the scores mean and how parents can use the results. Since so many state assessments report Lexile measures from their NCLB accountability tests, parents and teachers now have a better understanding of what their child can read and how they can take action. The student report for the ISAT, for example, demonstrates how Lexile measures can provide actionable information to parents and teachers.[1]

Research clearly demonstrates that to eliminate the achievement gap, time and attention must be focused on how we can marshal education resources to keep the educational "faucet" turned on year-round. Perhaps, the most cost-effective way is to make sure the test reports going home include a student's Lexile measure and a description of the importance of reading over the summer. By coordinating and connecting the testing program to public library resources, low-income students will have access to a wide selection of reading materials and a tool for helping select those that match their reading abilities.

Matching Students with Reading Materials Year-Round

The Lexile Framework has been validated with diverse samples of texts, achievement tests and children (USED, 2001). However, while the Lexile Framework is a powerful tool for matching readers to texts that meet and challenge their reading abilities, it is not the total answer. Reader interests and motivation remain key variables. By knowing both a student's Lexile measure and personal interests, parents and teachers are able to match him or her with the more than 100,000 books that have been measured using the Lexile scale. A teacher, librarian or parent can search for books on www.Lexile.com at a student's Lexile level across different interest areas, such as science fiction or mystery.

As many as 17 states will report Lexile measures on their state assessment reports in 2007. Other schools and districts across the nation obtain Lexile measures from diagnostic tests, such as the Scholastic Reading Inventory or the Gates-MacGinitie Reading Test. All students in Texas, for example, receive a Lexile measure from the Texas Assessment of Knowledge and Skills (TAKS).

The Houston Independent School District (HISD), the nation's fourth largest district, uses Lexile measures district-wide. All students receive a Lexile measure from the TAKS and the Stanford Achievement Test Series, 10th Edition (SAT–10). Every HISD school librarian now has access to students' Lexile measures and can assist students, parents and teachers in locating appropriate titles. Students looking for reading

[1] www.isbe.state.il.us/assessment/pdfs/ISR_Grades_3_5_6_8.pdf

materials visit the HISD Library Services Web site, where they find "Lexiled" reading lists and can search HISD's "Lexiled," online databases, EBSCO and Grolier Online, to find articles at their level in various subject areas.

Florida has built a library resource program called SUNLINK that allows parents and teachers to perform an online search of all K–12 library media materials in all of the school library media centers in the state. The online tool also provides a way to find Lexile-leveled books on particular topics of interest to the student, parent or teacher. If a book is not available in a particular school, it can be borrowed from any school in the state through inter-library loan.[2]

While all students in California receive Lexile measures [called California Reading List (CRL) Numbers] from their state assessments, Green Tree East Elementary School in Victorville, California, has done extensive work with Lexile measures, including specific connections with local public libraries.

North Carolina suggests that parents access Follett, EBSCO and Big Chalk databases in their libraries to search for reading materials at their child's Lexile level.

Students in Illinois also receive Lexile measures on their state test reports. The Skokie Public Library uses NoveList, a database that allows patrons to develop their own personalized reading lists based on such factors as favorite authors, preferred book length, Lexile measure and publication year. The reader can also use the "Find Similar Books" feature to locate titles with similar subject ratings.

These are just a few examples of the ways states, schools and public libraries are using Lexile measures and other library tools to empower readers, especially young readers and their parents, to personalize their access to books and other reading material that can help them to enjoy reading and increase their reading abilities. Taking it one step further, sending books home for summer reading that are customized to student interests and reading levels can help turn summer loss into summer gain.

Conclusion

If we are to achieve the NCLB goal of having all students reading at grade level by 2014, we must ensure that *all* students have access to learning opportunities in and out of school. However, when they return to school after summer break, some students are showing as much as a two-month loss in reading ability from the previous school year—simply because they don't have opportunities to practice their skills. By working as communities to keep the educational faucet turned on and ensure students have access to level-appropriate reading materials year-round, we can mitigate summer reading loss for all students, regardless of their socio-economic status. As a result, all children will graduate with the literacy skills necessary for success in school and in life, and no child will be left behind.

[2]www.sunlink.ucf.edu/train/quickflix/3lexiles.viewlet/3lexiles_launcher.html

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About the Authors

Malbert Smith III, Ph.D., is the president of MetaMetrics, an educational measurement and research organization. Together with co-founder and CEO A. Jackson Stenner, Ph.D., Dr. Smith created The Lexile Framework for Reading; El Sistema Lexile para Leer, the Spanish-language version of the widely used reading framework; The Lexile Framework for Writing; and The Quantile® Framework for Mathematics. Focused on fostering literacy and mathematics excellence, Dr. Smith strives to make educational measurement actionable in the classroom and at home. His vision of common metrics for reading, writing and mathematics opens the way for differentiated instruction. In each state—and increasingly abroad—educators use Lexile and Quantile measures to blend instruction and assessment in whole-class and intervention settings. Concerned with the relationship between early literacy and college and career readiness, Dr. Smith led research to build a continuum of text complexity that places educational and life goals on the Lexile scale. He has taught graduate seminars in educational research and test development and design at Duke University and the University of North Carolina at Chapel Hill, from which he received the Distinguished Alumni Award. Dr. Smith serves on the UNC School of Education Foundation Board and the National Rural Educational Outreach Center, and is a member of the Critical Friends of Council of Chief State School Officers. He also is a member of The American Association for the Advancement of Science, The American Educational Research Association and The National Council on Measurement in Education. He frequently speaks at events on educational research and measurement.

Dee Brewer, M.A., M.Ed., joined MetaMetrics in 2006. Prior to MetaMetrics, she worked for nearly 15 years at the state level in education research and policy research and analysis. She spent five of those years with the SERVE Regional Education Lab, where she worked with leaders, including State Education Agencies, State Boards of Education, Governors' offices, legislative staff and other key state policy makers, in a six-state region to provide policy research and analysis to support the development of state policies and legislation. Ms. Brewer has extensive expertise in data collection and conducting statewide program and policy evaluations. She has provided technical assistance to districts implementing research-based models of school and program improvement and evaluated trends related to improving schools, student learning and student achievement. Ms. Brewer also served for one year as a selection expert for the U.S. Department of Education's Education Resources Information Center, working with national experts in her content areas. She worked as a school psychologist for more than ten years and as a test and measurement specialist for a large urban school district for five years. She began her career as a classroom teacher with special needs students.

MetaMetrics and The Lexile Framework for Reading

MetaMetrics, an educational measurement and research organization, develops scientific measures of student achievement that link assessment with targeted instruction to improve learning. The organization's psychometric team developed the widely used Lexile Framework for Reading; El Sistema Lexile para Leer, the Spanish-language version of the reading framework; The Quantile® Framework for Mathematics; and The Lexile Framework for Writing.

The Lexile Framework for Reading is an educational tool that connects readers with reading materials using a common metric called a Lexile measure. What makes the Lexile Framework unique, and what has led to its widespread adoption, is that it measures both reading ability and text complexity on the same developmental scale. When used together, Lexile reader measures and Lexile text measures allow educators, parents and students to find books and other materials that meet and challenge a reader's unique ability and interests. More than 115,000 books, 80 million articles and 60,000 Web sites have Lexile measures, and the number of resources with Lexile measures continues to grow. For more information, www.Lexile.com.

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