LITERACY

language

BOOKS BEFORE BYTES

***Jeff McQuillan** argues that schools need more books, not more computers*

The closest thing to gospel truth among many education experts for the past two decades has been this: the salvation of our ailing schools lies in more and better computer technology.

One laptop per child and faster internet connections will, we have been told, lead to more learning, better test scores, and higher achievement. The academic Promised Land is but an iPad app away.

The latest manifestation of this belief is the teaming up of Sesame Workshop (the creators of *Sesame Street*) with IBM to create what they call a cognitive vocabulary app. The app, designed for use in early childhood classrooms, is powered by Watson, the IBM supercomputer perhaps best known for beating Ken Jennings at *Jeopardy!*.

According to the official announcement, teachers will be able to use the app to "monitor children's vocabulary development" with real-time "adaptive assessments," using a "secure dashboard" that will deliver "vocabulary learning experiences."

It may well be "engaging, fun, and inspiring," but it may not be affordable.

Teachers and parents should tread carefully. From all reports, children manage to pick up new vocabulary just fine without expensive software linked to a powerful supercomputer. Do kids (and their teachers) really need secure dashboards with adaptive assessments to learn new words?

No Research Support for More Technology

IBM has yet to release any data on just how well their new app works (and compared to what), but the research to date on the impact of technology on classroom learning is not all encouraging.

A 2015 study conducted by the Organization of Economic Development (OECD) of students from 36 countries found that rather than helping kids learn better, more computer technology in the classroom actually seems to be making things worse for students, especially in reading.

Students in the OECD study who used a computer almost every day or every day did worse on reading tests than those who used them only once or twice per week. Students who used a computer outside of school for schoolwork every day did worse than those who used it only once or twice a month.

None of this is really news, however, as the authors of the OECD study themselves pointed out. Researchers for more than two decades have failed to find any significant educational benefits to loading up the classroom with more hardware bells and software whistles.

But the magpie of shiny new technology has proven irresistible to school boards, administrators, bureaucrats, and parents alike. Corporations like IBM, seeing billions of K–12 school spending within their reach, are only too willing to supply the latest in advanced gadgetry.

The promise of higher achievement through technology has turned out to be a cruel joke for students in poor school districts. Billions of dollars have been spent on computer technology, money that could have gone to other activities and materials that have been demonstrated to be effective in learning. Los Angeles Unified School District alone spent $1.3 billion on its failed iPad program.

Yet there is one type of technology that has been consistently shown to have a powerful impact on student achievement and reading scores.

No, it's not Google. It's Gutenberg.

Access to Books

For more than 30 years, studies at the state, national, and international levels have found that, controlling for socioeconomic status, the number of old-fashioned paper books in school and public libraries is one of the most powerful predictors of student reading achievement that we can control (Krashen, 2004; McQuillan, 1997).

The formula is not complicated: the more access to books kids have, the more likely they are to read. And the more they read, the better they read.

In one study (Krashen, Lee, and McQuillan, 2010), my two colleagues and I analyzed data from another international reading test, the Progress in International Reading Literacy Study (PIRLS), which gathered data from students in more than 40 countries. We found that students in countries that have good school and public libraries do better in reading, even after taking into account the country's economic standing.

The same relationship has also been found at the state and district levels: better school libraries, especially ones with qualified school librarians, are correlated with better reading test scores (McQuillan, 1997; Lance and Hofschire, 2012).

The evidence is not just correlational. Experimental studies have also found that giving kids easy access to a wide variety of books leads to more reading and better reading-comprehension scores. Not every child will pull a book off the shelf, of course, but the odds are that if providers stock them, students are more likely to read.

A recent study in rural China by researchers at Stanford University (Gao et al., 2017) shows just what a powerful effect more access to books can have on reading achievement. The research team randomly selected nine classrooms (with a total of 355 students, grades 3–6) to receive new "book corners," with a very modest number of new books (70 books per classroom). Teachers were then provided with information about the importance of free reading and given tips on how to encourage students to read more for pleasure.

The results were dramatic: students in classrooms with more books and a teacher trained in promoting free reading scored more than one-half of a standard deviation above the students in the control group on a standardized reading test. The experimental group also did better in math and Chinese language arts tests.

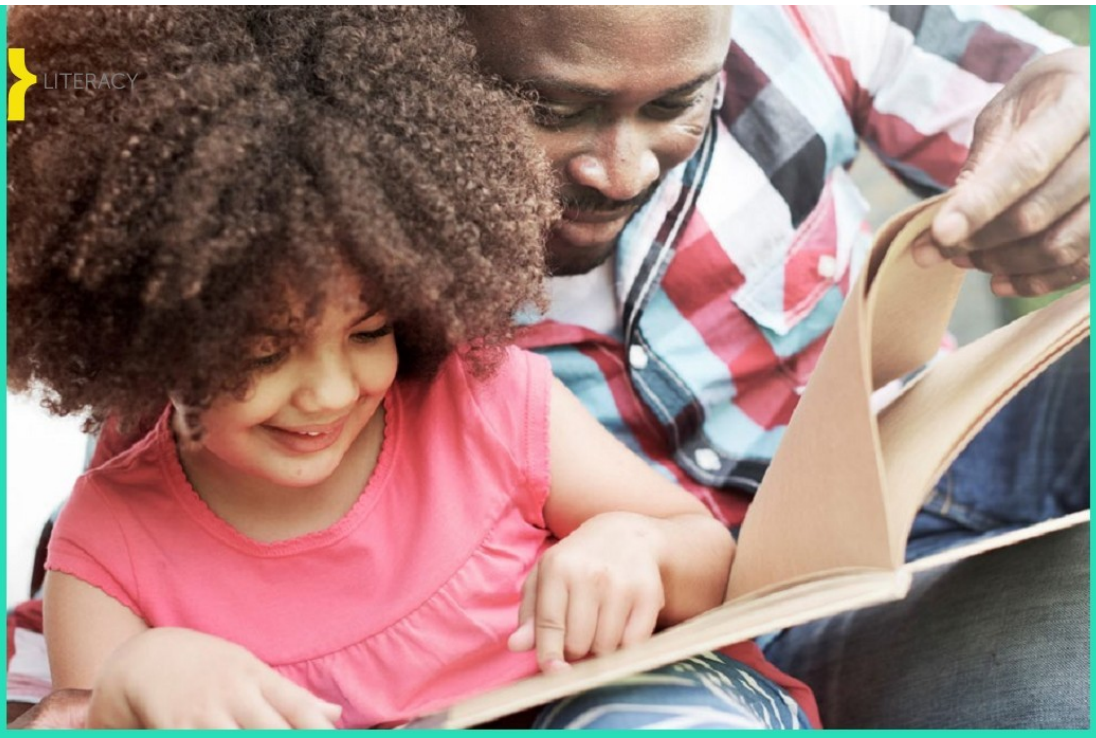
Even very small interventions can have an impact. Allington and colleagues (2010) found that giving a group of elementary school students just twelve books to read over three consecutive summer breaks increased their reading scores significantly compared to students who did not get any books. The impact on standardized reading scores was greatest among the poorer students in the group, improving their scores by about one-fifth of a standard deviation.

More access to books, when done properly, improves reading scores.

Low Tech, High Impact in "Book Deserts"

Ironically, the money school districts have diverted from buying books





and magazines to closing the "digital divide" has likely made the achievement gap between students from high- and low-income families even worse. Kids from middle- and high-income families can always get their books from Amazon.com and local bookstores. Those from poor families do not have those options. The library, particularly the school library, is their only hope.

"Before we pump more money into the latest technology, we need to make sure kids (and their parents) have lots of access to the technology that has served us well for the past half a millennium: the paper book."

Smith, Constantino, and Krashen (1997) documented just how few books are available in many poor neighborhoods, and Di Loreto and Tse (1999) found similar disparities between public libraries in rich and poor communities. More recently, Neuman and Moland (in press) compared the "print access" of middle-class and high-poverty neighborhoods in three large urban centers (Washington, DC, Detroit, and Los Angeles). They found that middle-class neighborhoods had up to 400 times as many books per child as poor neighborhoods. The researchers rightly called these high-poverty areas "book deserts."

The solution is not the purchase of even more technology in the form of e-readers or tablets for students. The current costs and restrictions on commercially published e-books make this solution unworkable. In any case, a survey by Scholastic Books in 2014 found that 65% of six- to 17-year-olds actually prefer printed books to e-readers, up from 60% only two years earlier. Why not just give students what they want?

Printed books are easy to use. They require no charging, software updates, or teacher training. They can be thrown in a backpack without breaking and are easily shared with friends. They contain no tempting buttons to check Facebook, Twitter, or SnapChat.

Before we pump more money into the latest technology, we need to make sure kids (and their parents) have lots of access to the technology that has served us well for the past half a millennium: the paper book.

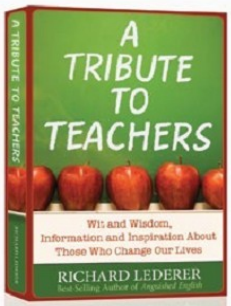
Jeff McQuillan, PhD, is a former high school Spanish teacher and university professor. He is editor of *Learn English Magazine* and blogs on language education topics at the Backseat Linguist (*http://www.backseatlinguist.com*).

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"Teachers have never needed a book like this more than right now." — *Language Magazine*



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