

# SREB

*Educational Technology  
Cooperative*

# Overcoming Doubts About Online Learning

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# Overcoming Doubts About Online Learning

*A recent survey estimates that more than one million U.S. public school students now take classes online — and that number is growing.*

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As the 21st century's first decade draws to a close, America's public school students are participating in online academic classes in increasingly large numbers. More than one million K-12 public school students took online courses in the 2007-2008 school year, according to an estimate in a recent Sloan Consortium survey. This represents a 47 percent increase from 2005 to 2007 alone. With such rapid growth, many educators and state decision-makers have grown wary and want to know what the research says about online learning: They want to know if it works. Available research indicates that it does.

Policy-makers do have some valid concerns. Some educators and state leaders do not understand how Web-based courses can be effective and are not convinced that access to online courses is important for students. Some resist different ways of teaching and learning and are unwilling to incorporate student participation in online courses as part of school programs. Others find it disconcerting that these courses often are taught in locations remote from schools. Teachers and students are not in each other's physical presence — and one or both might be at home. Technology mediates the interaction among students and between students and their teachers. Instruction is focused entirely on *students learning, not on teachers teaching*.

Many educators and state decision-makers want to know what research says about online learning: They want to know if it works.

Simply put, online courses are a dramatic departure from traditional classes, and state leaders rightly want assurance that these courses are effective before they endorse them further and commit more time and resources to their development. Yet, if having research-based evidence to document successful online learning had been a requirement *before* SREB states established virtual (online) schools, the success stories that have emerged in the region would not have been written.

Many legislators in SREB states believed in online learning well before research could firmly support it. They voted to approve funding for their respective state virtual school to give students access to academic courses that otherwise would be unavailable to them. They voted to do so even though they knew they were providing double-funding for these students — for their enrollment both in their traditional school and in the online courses. Equity of access to certain courses outweighed the cost of the double allocation.

As a result, SREB states lead the nation in providing state virtual schools and in the number of middle grades and high school students successfully completing online courses. Several SREB states, including Georgia, Kentucky, Maryland, North Carolina, Virginia and West Virginia, offer more than 23 Advanced Placement (AP) courses through their state virtual schools. Any student in these states, regardless of location, has access to a wide variety of AP courses.

This report outlines recent research that can help educators and state decision-makers understand the benefits of online learning. One clear measure of the benefits — and perhaps the most important — is increased *student learning*. Another is increased *student access* to high-quality courses.

## The benefits of online learning ---

Conducting research about online learning is challenging. Studying this relatively new and continuously changing mode of learning, fostered by rapidly evolving teaching strategies, is like aiming at a moving target: Once studies are designed, the online methods or technologies change. In addition, determining whether student participation in online courses can be credited with their academic success is difficult because learning involves many variables. Isolating the variables and attributing the success to any one factor (or even a cluster of them) is often impossible. Yet research does seem to indicate that online learning *can* increase students' learning and expand their access to courses. In fact, several studies indicate that many middle grades and high school students, in particular, have been successful in their online classes.

A recent analysis of online learning, *Evaluation of Evidence-Based Practices in Online Learning: A Meta-Analysis and Review of Online Learning Studies* (2009), sponsored by the U.S. Department of Education under the direction of SRI International, is attracting attention because it evaluated more than 1,000 studies from 1996 to 2008 that compared online learning with traditional learning. The report explores how the effectiveness of online learning compares with traditional instruction and whether supplementing traditional instruction with online teaching enhances students' learning.

Most of the studies that were reviewed focused on students in higher education. Because analysts found only a few studies about K-12 students to evaluate, they caution against generalizing the report's findings. Yet, they note that their K-12 findings were similar to those for higher education. As a result, they recommend continuing online learning in public schools and call for more research on the impact of online courses for K-12 students.

Significantly, their evaluation also included a review of studies that compared various types of online learning, including “hybrid” or “blended” learning — a combination of online and traditional courses.

The analysts reached several conclusions:

- Online classes, whether completely online or hybrid, on average produce stronger student learning outcomes than those conducted solely in a traditional classroom environment.
- Online learning is more conducive to an expansion of learning time; therefore, students in virtual (online) classes benefitted from more time-on-task.
- Hybrid learning plus the expansion of time-on-task for online learners produced observed learning advantages.

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Their evaluation stops short of attributing a measurable boost in student achievement to hybrid courses. In many of the studies showing an advantage for online learning, the online and traditional classroom conditions differed in significant ways: time spent on learning tasks, curriculum and pedagogy. Sorting out which element — or combination of elements — made the difference is difficult.

## Studies show online students exceed expectations

Two of the studies cited in *Evaluation of Evidence-Based Practices in Online Learning* are particularly important because they shed light on the relationship between online and traditional learning in secondary schools in SREB states. A third study conducted by a prominent citizens' group in Florida also shows the importance of online learning in the region.

### *Online students learn Spanish in West Virginia*

A U.S. Department of Education-sponsored study from 2003 to 2006, called Educational Development for Planning and Conducting Evaluations (ED PACE), focused specifically on the performance of rural middle grades students enrolled in the West Virginia Virtual School Spanish program.

West Virginia's virtual Spanish program was established to provide equal access to foreign language courses for students who live outside the state's population centers. The program was created because West Virginia has a shortage of world language teachers. The middle grades course was a hybrid virtual program — combining Web-based instruction with classroom teaching and audio-interactive components to serve rural, isolated schools where certified Spanish teachers were not available.

Based on data collected for three years, the report shows that middle grades students in rural settings were successful in learning Spanish in the hybrid online course.

- **Middle grades students in the virtual Spanish I classes learned Spanish as well as students in traditional Spanish I classes.** Based on three separate observations, researchers concluded that students in online classes performed as well as peers in traditional classes: They maintained a relatively high level of achievement, and their scores on an oral proficiency assessment showed consistent improvement in performance over three years.
- **High school Spanish II teachers said that students who had taken the online Spanish I course did well in Spanish II.** In fact, the teachers reported that Spanish II students who had taken the online Spanish I course often outperformed other students. They excelled in language proficiency and attitudes toward class.
- **Survey results showed most students developed positive attitudes and good study habits in online courses.** The middle-graders reported that they developed strong work habits and felt more prepared for high school. They were generally motivated by the course; about three-quarters of the students said they learned a lot from the course and reported that they liked learning a foreign language. They wanted to continue Spanish in high school and believed knowing Spanish offered them advantages in preparing for high school and college.
- **Enhanced language proficiency had an impact on students' achievement beyond their Spanish courses.** Students from the online Spanish I courses knew more vocabulary and had better spelling skills in English and Spanish than their classmates in traditional Spanish courses. Attitudes toward class and work habits were evidenced by students' participation in class, greater self-confidence and more responsibility for their own learning.

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Researchers concluded that online world language courses were successful for middle grades students.

### *Online students learn algebra in Louisiana*

The Louisiana Algebra I Online project, designed for schools where insufficient numbers of certified mathematics teachers were available, was implemented as a pilot project by the Louisiana Virtual School in 2002-2003. The goal was to provide high-quality, standards-based Algebra I instruction for eighth-grade students who otherwise would not have had access to the course. Classes met on a standard schedule, and each student had a multimedia, Internet-connected computer during class time and also could use course materials at home if they had Internet access. Certified teachers delivered the instruction online. They served as mentors and

models to teachers in classrooms who were not certified in secondary math but who collaborated with the online teachers to guide and support the students. A total of 134 teachers and 257 students in 18 different classrooms in six school districts and two private schools participated in the pilot phase.

For comparison, the researchers identified school districts where instruction was delivered in traditional classrooms and where teachers taught their usual math curriculum without alteration, including some instruction in technology, such as graphing calculators and electronic spreadsheets. A total of 174 students were enrolled in the classrooms used for comparison.

All of the online teachers were certified to teach secondary mathematics, and 85 percent of the teachers in the comparison classrooms were certified to teach secondary math. All of the online teachers had achieved “mentor teacher” status as identified by the Louisiana Department of Education. Class observations were made of both groups, valid assessments were ensured, and student surveys were administered. Some findings of the project include:

- Most students in the virtual setting liked using technology to learn math (72 percent), working with other students (69 percent) and having a new experience (59 percent).
- Nearly half of the students (45 percent) communicated with their online teachers during every lesson.
- Seventy percent of the online students reported that the most difficult aspect of the course was completing their assignments on time. Only 15 percent said using the technology was difficult — indicating that most students did not perceive technology to be a barrier to success.
- Online students reported spending more time interacting with other students about math in the course (84 percent) than their peers in traditional classrooms (68 percent).
- The majority of online students (75 percent) gave high ratings to their online teacher about their level of helpfulness.
- The majority of students in both groups (online, 80 percent; traditional, 94 percent) reported they had a good or satisfactory learning experience in their courses.
- More online students (80 percent) were confident or very confident in their technology skills after taking the course than their peers in the comparison classrooms (62 percent).
- Online students outscored their peers in traditional classrooms on 18 of the 25 (72 percent) items on a post-test — demonstrating that they benefitted more from their courses than their peers in traditional settings.
- Half of the online students were confident or very confident in their algebra skills after taking the course, although 67 percent of their peers in the comparison classrooms were confident or very confident in their skills.

The Algebra I project suggests that the online students may have acquired better understanding of some aspects of the course content because of the technological enhancements of the course. As a result, the Algebra I Online model can serve as a viable approach to providing Algebra I instruction, particularly when a certified math teacher is not available locally.

With the pilot phase complete, the project continues today. More than half of the 400 students in the Algebra I Online course are eighth-graders who are taking Algebra I for the first time. A Louisiana high school that has participated in the project since 2006 was highlighted in its local newspaper in 2008 because all of the students who took Algebra I online in the 2005-2006 school year completed all of their high school math classes (Algebra I and II, geometry and advanced math) online through the Louisiana Virtual School. All of the students now are attending universities.

Online students in the Algebra I Online project outscored their counterparts on 72 percent of the items on a post-test.

### *Report cites success in Florida*

In 2007, a well-known citizens' group — the Florida TaxWatch Center for Educational Performance and Accountability — reported on student achievement and cost-effectiveness in the Florida Virtual School (FLVS) compared with traditional schooling. Its report, *Final Report: A Comprehensive Assessment of Florida Virtual School*, sought to answer two fundamental questions about FLVS:

- How does student achievement at FLVS compare with student achievement in traditional schools?
- Is instruction through FLVS cost-effective, particularly compared with traditional schooling?

The TaxWatch report found that FLVS students had success on two critical measures: state assessments and course grades. FLVS students performed higher than other students in the state on both reading and math on Florida's Comprehensive Assessment Test (FCAT).

The percentage of FLVS students in 2005 who met state standards **in math** in grades six through 10 ranged by grade level from 63 percent to 87 percent, compared with 47 percent to 63 percent for all public school students. The results for 2006 were similar: The percentages for FLVS students ranged by grade level from 70 percent to 87 percent, compared with 53 percent to 65 percent for all public school students.

In 2005, the percentage of FLVS students in grades six through 10 **in reading** who met state standards was higher than for other students. The percentages by grade ranged from 57 percent to 72 percent, compared with 32 percent to 56 percent for all public school



students. The results were similar in 2006. The percentages for FLVS students ranged by grade level from 49 percent to 83 percent, compared with 32 percent to 64 percent for all public school students.

Nearly two-thirds of students perceived their FLVS course work to be at least as difficult — often more so — than the traditional course work they had experienced. Despite the difficulty, the study found students earned higher grades in the online courses. When grades from a virtual course were compared with grades the same students had earned in the same subject area from a traditional course the year before, the results clearly showed that the FLVS students earned higher grades in their online courses.

A separate study in the TaxWatch report compared grades of FLVS students in courses in 10 subject areas with grades of comparable students enrolled in those subjects at traditional public high schools. FLVS students outperformed their traditional school counterparts in nine out of the 10 subject areas, in both the 2004-05 and 2005-06 school years. Only students in art/visual arts courses performed better in traditional courses.

Research by the National Center for Educational Accountability indicates that students earning a score of 3 or higher on one or more Advanced Placement (AP) exams in English, math, science or social studies were more likely to graduate from college in five years or fewer when compared with students who did not take these classes. (A score of 3 is generally considered passing. Many colleges will grant college credit to students when they enroll if they have earned this score on AP exams.)

FLVS students  
outperformed their  
traditional school  
peers in most  
subjects.

FLVS students who take AP courses online consistently outperform their traditional school peers on AP exams. In 2006, students in FLVS averaged 3.05 on their grades (on a 4.0 scale) for all AP classes taken, compared with 2.49 for all public school students and 2.56 for all Florida students.

The success of FLVS students on the Florida assessments, AP exams and in regular courses can be attributed in part to the quality of FLVS teachers as well as the school's instructional approaches. All FLVS teachers hold Florida certificates in the area in which they provide instruction. In 2009, 46 percent hold an advanced degree, and 124 of the 1,055 teachers hold National Board Certification.

In return for decreased costs compared with traditional schools, FLVS produced students who earned higher grades and test scores than their traditional school counterparts. "FLVS gets solid student achievement results at a reduced cost to the state," states the Florida TaxWatch report.

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## Research supports online courses

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States and schools need not wait for more research on the effectiveness of online learning before launching more programs for middle grades and high school students. The evidence on the success of online learning is sufficient.

SREB's 2008 *State Virtual Schools Report* documents that over the last 10 years more than one million middle grades and high school students in SREB states have completed academic, for-credit online courses provided by their state-supported virtual schools.

Furthermore, students respond positively to online learning. SREB asked online students in SREB states for feedback about their experiences in a voluntary online questionnaire in spring 2008. SREB's report of the results, *Do Online Courses Work for Middle Grades and High School Students? Online Students Have Their Say*, summarizes more than 2,000 responses. Most students indicated that they value access to high-quality courses and teachers, and they embrace the technology. They concluded that Web-based courses are well adapted to their learning skills — skills that are uniquely different from those of previous generations of students.

The students' affinity for online courses is, in many respects, a natural extension of the rapidly expanding world of technology that they experience today. Cell phones, iPods, YouTube, FaceBook and other social media can connect today's students to each other and to their teachers in ways only recently made available — ways that can be used for instruction.

Above all, only online courses can give students access to high-quality courses and teachers regardless of where they live or attend school. Many students in SREB states cannot meet their own state high school graduation requirements because they do not have access to the courses they need or because their schools have too few students interested in some courses to justify offering them. Online learning solves that problem.

For educators and state leaders who still have doubts, two resources are available online to answer questions about online learning and to show how it works with students. In collaboration with the Pearson Foundation, SREB produced a video, "It Happens Online," which features online teachers in SREB state virtual schools who provide valuable information about online learning. Most of the SREB state virtual schools also provide a wealth of information on their Web sites about how online learning works.

In addition, the SREB Web site lists all the state virtual school Web sites at [www.sreb.org](http://www.sreb.org). The annual SREB state virtual school reports also are on the site.

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