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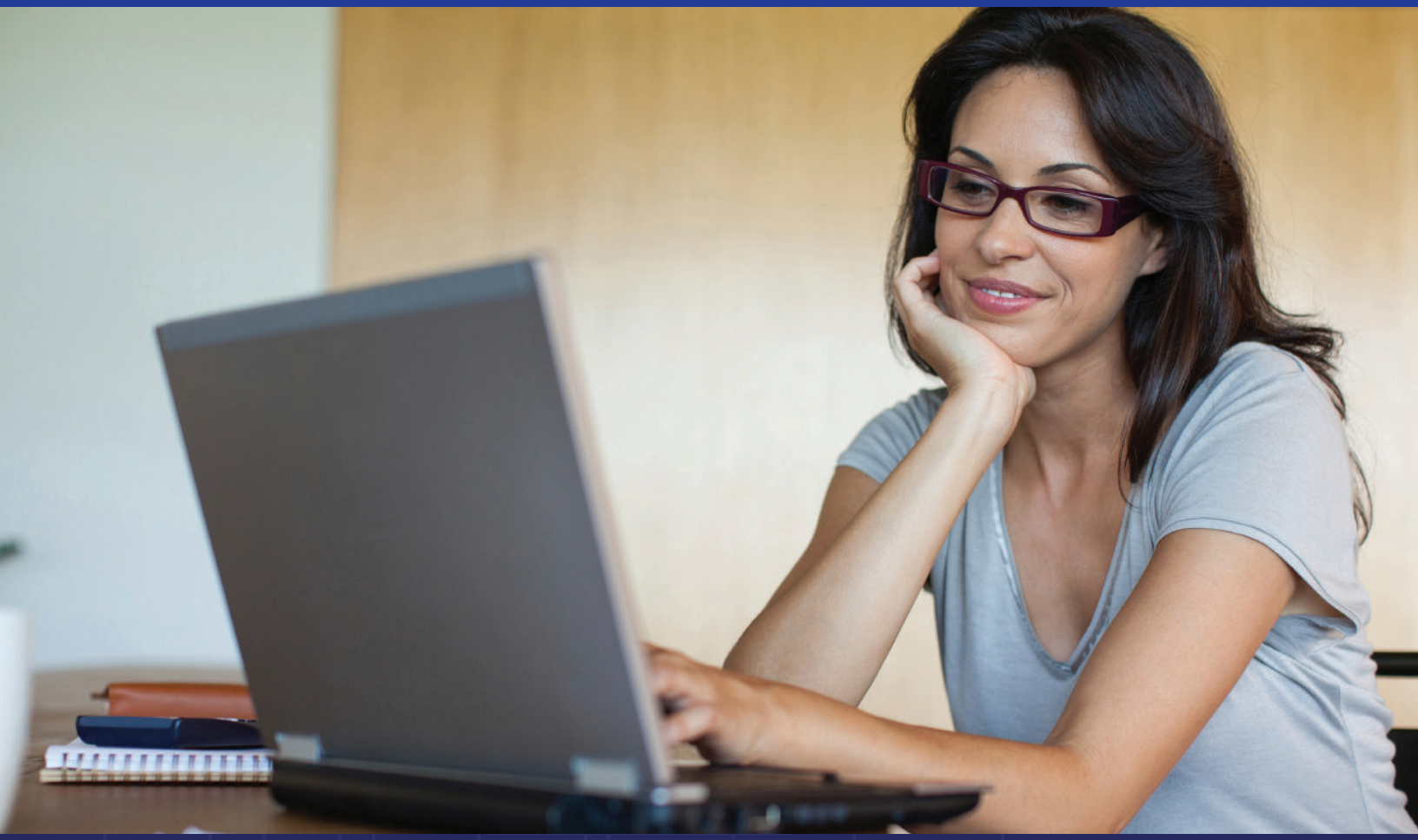
EdTech Leaders Online

A case study of scalable online professional development programs

by Katherine Mackey



CLAYTON CHRISTENSEN INSTITUTE
for DISRUPTIVE INNOVATION

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"My work as an e-learning facilitator as well as an e-learning course developer has made me an ambassador of online professional development. There is no better way to implement 21st-century learning than to experience the process of an online course. If we want our students to succeed in a global environment, then we, as educators, must be engaged in 21st-century content, context, tools, thinking skills, and assessment. Thanks to online learning, I am a 21st-century life-long learner!"

–JoAnn Nuzum, online facilitator and course developer
West Virginia's e-Learning for Educators program

The Education Development Center (EDC), a non-profit research and development organization based in Waltham, Mass., specializes in professional development, curriculum development, education research, and education technology. One of its specific programs, EdTech Leaders Online (ETLO), brings together all of these strands as it explores the potential of online professional development to transform teaching, as well as professional development itself. ETLO accomplishes this mission within states, districts, and other organizations by training a select number of educators in an online course so that they can facilitate online professional development courses for their colleagues. This capacity-building approach is known as a "train-

ETLO has worked with more than 200 educational organizations in more than 35 states to provide online professional development courses to more than 45,000 educators.

the-trainer" model. Since its inception in 1999, ETLO has worked with more than 200 educational organizations in more than 35 states to provide online training to more than 4,500 educators who in turn have delivered online professional development courses to more than 45,000 educators in their local states, school districts, regional consortia, or other educational organizations.

In 2005, with support from EDC, ETLO's capacity-building approach was incorporated as the central professional development component in the e-Learning for Educators program, a federally-funded, five-year initiative to establish statewide online professional development programs in 10 states.* The program included a large-scale experimental study of the online professional development program conducted by researchers at Boston College's Technology Assessment Study Collaborative (inTASC). The results of this experimental study, the largest of its kind, showed that the online professional development program had significant impact on teachers' content knowledge and instructional practices. The study also found that the teachers' participation in the online professional development program could have positive effects on students, but the results were small and inconsistent. Although not part of the formal study, the program had important advantages over traditional professional development programs. For example, in West Virginia, the program saved teachers from traveling to a centralized location, being away from their students and families, and paying significant tuition costs. This case study looks at the impact of ETLO's training and support in the e-Learning for Educators program and how one of the states, West Virginia, implemented and continues to operate the program.

The traditional professional development context

The majority of teachers participate in formal professional development on a regular basis and in a variety of settings. Schools and districts often provide professional development in the form of lectures and workshops. In some scenarios, teachers gather in a large auditorium to listen to a speaker, oftentimes someone who has published a book about education. With no follow-up or projects required—or even relevance to the challenges the teachers themselves are facing—

* The original eight states in the consortium were Alabama, Delaware, Missouri, Mississippi, Kentucky, New Hampshire, Pennsylvania, and West Virginia. The success of the initial group of eight states in the first three years of the program led to the expansion of the program—with no additional federal funding—to two additional states, Maryland and North Carolina.

teachers often sit and grade papers as the speaker lectures. In other scenarios, teachers leave school for a day or several days to attend a workshop. In these instances, the school pays for a substitute teacher, which can cost anywhere from $40 to $100 a day per teacher in addition to the regular teacher's salary, and student learning is often interrupted in the teacher's absence. Other types of professional development include formal teacher induction, the credits or degrees teachers earn as part of recertification or to receive salary boosts, the national board certification process, and participation in subject-matter associations or informal networks.

Schools and districts spend billions of dollars on professional development each year, but there is a dearth of quantitative research on the impact of professional development. A 2007 review of more than 1,300 studies on professional development conducted by researchers at the American Institutes of Research found only nine studies of professional development programs that met rigorous scientific standards set by the What Works Clearinghouse, the arm of the federal Institute of Education Sciences that reviews experimental research on program impact. On average, the study found, effective programs were characterized by an average of 49 hours of training. The study's authors cautioned against extrapolating the findings given the varying aims of the programs and the small sample sizes of participants.[1]

The Ready-to-Teach Grant Program

Through a number of conversations with state education departments and public television station leaders, Barbara Treacy, the director of ETLO, and her ETLO colleagues identified a funding opportunity—the Ready-to-Teach Grant Program from the U.S. Department of Education—that could allow them to address many of the professional development challenges that schools and teachers faced.

Treacy and her team at ETLO worked with Alabama Public Television, which served as the project director and fiscal agent for the grant, as well as with partners from eight state departments of education and public television stations, to write a grant proposal for a program that they called e-Learning for Educators. The program would build upon ETLO's existing capacity-building model of online professional development to enable each state to build a statewide online professional development program aligned to its own goals and needs. The partnership would also include Boston College's inTASC, which would evaluate and research the effect the e-Learning for Educators program had on teacher and student outcomes.

The U.S. Department of Education chose to fund the e-Learning for Educators initiative with a five-year, $22 million Ready-to-Teach grant to address the ambitious capacity-building goals outlined in the proposal. The funding allowed ETLO to create a capacity-building plan for each

Table 1. Capacity-building activities for each year of the initiative (Source: ETLO)

YEAR	ACTIVITY
1	Train online facilitators and launch existing e-learning courses, providing 25 courses for 500 teachers per state.
2	Continue training facilitators, begin training online course developers, and expand the program to at least 50 courses and 1,000 teachers per state.
3	Continue to grow and improve the program while adding e-learning courses developed by state teams to address specific state needs.
4	Use evaluation data to inform the growth and improvement of the program and begin planning to sustain it after the completion of the grant funding.
5	Transition the program to be sustained after the completion of the grant funding.

state, as summarized in ***Table 1***, for the five-year term of the grant. This case study shows how this plan worked in West Virginia, as it traces how ETLO trained teachers in an online course to facilitate online professional development courses for their colleagues and develop their own courses based on their identified state needs.

West Virginia's state e-Learning for Educators implementation

Upon receiving the grant funding in fall 2005, ETLO and the leadership team at Alabama Public Television asked the partners from the eight state departments of education and public television stations to identify on a state-by-state basis a director to lead a team to implement a statewide program.

West Virginia selected Donna Landin, an instructional technology specialist at the West Virginia Department of Education (WVDE), to lead its program. With support from ETLO, Landin worked with her public television and state department of education colleagues to form a state leadership team to develop and implement an e-Learning for Educators plan for West Virginia. The team, which consisted of key employees at WVDE and West Virginia Public Broadcasting, met regularly to refine and implement the plan, monitor its success, and make ongoing improvements to it.

Recruiting and training online facilitators

In early 2006, Landin and her team began recruiting teachers from across the state to serve as online facilitators for West Virginia's program. They contracted with 24 teachers during the first

year, with the number of online facilitators increasing to 55 during the five-year grant period. The online facilitators consisted primarily of full-time public school teachers, but also included retired teachers as well as state and district administrators who had formerly taught.

ETLO provided online training each year to the teachers who would facilitate the online professional development courses. The training consisted of a 10-week online course that addressed such topics as building an online learning community; addressing standards; equity and access; and maintaining momentum in an online course. The course had a similar structure to the online professional development courses the teachers would eventually facilitate. It included online readings, web-based activities, online discussions, and a final project that required teachers to create a plan for delivering an online course. Taking the course online enabled the teachers to become familiar as learners with the template and layout of the online professional development courses they would ultimately facilitate.

After finishing the online course, the teachers completed a practicum experience in which they facilitated an online course for other teachers. This allowed the teachers to implement what they had learned in the online course. The teachers could deliver one of the courses from ETLO's existing catalog of more than 50 courses or, once the states had completed the course-developer training starting in year two of the grant, a state-developed course.

During West Virginia's implementation, Landin and her team developed additional training materials that complemented ETLO's training. Starting in year three of the grant, West Virginia began requiring teachers to co-facilitate an online professional development course with an experienced online facilitator after completing ETLO's facilitator training. The experienced online facilitator handled the bulk of the teaching load at the beginning of the course and the new online facilitator carried the load toward the end of the course. After completing their co-teaching, teachers could facilitate their own courses with ongoing support from both WVDE and ETLO. Many other states similarly modified the core program and shared their successes and challenges with the larger e-Learning for Educators group so that all participants learned more about building sustainable state-level online professional development programs.

WVDE used grant funds to pay the facilitators $1,000 for each online professional development course they facilitated. Teachers earned this in addition to their regular wages, and full-time teachers signed paperwork agreeing not to facilitate online professional development courses during school hours.

By delivering the facilitator training online, West Virginia realized a significant up-front benefit: teachers from across the state could receive training and collaborate with each other without having to travel to a centralized location, take time off work, or be away from their students and families—and WVDE would not have to hire substitute teachers.

Recruiting teacher participants

By the time the first cohort of 24 West Virginia teachers had completed the online facilitator training in spring 2006, WVDE had moved Landin to the Office of Professional Preparation, which oversaw teacher certification and license renewal. State code decreed that West Virginia teachers had to complete six semester hours of required coursework from an accredited institution of higher education every three to five years to renew their teaching licenses.[2] Landin saw that online professional development courses could help teachers fulfill this requirement.[3]

West Virginia's rural geography had made recertification costly and inconvenient for teachers. Some teachers lived in areas that were one to two hours away from a college campus. Others with children had to take a one-week session in the summer at a college campus and consequently find childcare. Online professional development could give teachers the flexibility to work on courses in the morning, evening, or on weekends from any location, which would allow them to recertify in a more cost-effective and time-efficient way.

Enrolling in an online professional development course was a two-step process for West Virginia teachers. First, teachers registered with WVDE for a place in the course. Unlike the majority of the states in the consortium, West Virginia did not charge teachers for enrolling.* To do this and operate within the grant budget, WVDE held the program's operating costs down, as discussed in the funding section on pages 8–9.

Second, after securing a place in the course, teachers registered at one of three universities in West Virginia to receive credit for the course. WVDE did not charge teachers to take an online course, but the universities did charge teachers to receive credit for the course. WVDE negotiated agreements with West Virginia University, Marshall University, and Concord University for teachers to pay a reduced fee for three non-degree graduate credit hours that, depending on the institution, ranged from $99 to $130, which was significantly less expensive than the $400 to $700 the teachers paid previously to complete coursework as on-campus students.†

How the program worked

In June 2006, less than a year after the U.S. Department of Education had funded the grant, WVDE launched its first round of online professional development courses. During the first year, these courses were exclusively ETLO courses; WVDE later expanded its course catalog to

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* Of the 10 states participating in the e-Learning for Educators program, only two states, West Virginia and Alabama, chose not to charge teachers a fee to take an online professional development course. The other states charged up to $100 per person per course, which did not include the cost associated with course credits.

† WVDE has had a long-lasting partnership with West Virgina University and Marshall University in terms of course credits being provided for non-degree graduate credit courses.

include state-developed courses and courses borrowed from other states in the consortium, as described on page 8. The program offered courses four times throughout the year—starting in October, January, March, and May—and permitted teachers to enroll in up to two three-credit hour courses at a time.

Each ETLO course was seven weeks long. The courses used a learning-community model, in which teacher participants took courses in cohorts. The courses combined independent activities with activities that the teacher participant had to design for implementation in the classroom. Each course consisted of one orientation session and six one-week sessions of content. Each of the six content sessions involved three components: readings, activities, and discussions. Readings were drawn from articles, book chapters, case studies, and research reports. The activities often required teacher participants to view online videos or work with existing classroom materials. For example, two activites from a math course, called Proportional Reasoning, prompted teacher participants with the following:

1. Considering common errors and misconceptions about how students are thinking about proportions, complete the following Student Misconceptions activity to reflect upon what kinds of difficulties students have with proportional reasoning.
2. Conduct a Student Interview to learn more about one of your student's thinking about proportional reasoning. Read Conducting Student Interviews for a description of how to plan and conduct your student interview. The results of the student interview will inform your lesson design for the final project.

For the discussion component, each teacher participant had to respond to one or more questions related to the readings and activities via the workshop discussion board. Each teacher participant also had to respond to at least two other teacher participants' discussion board responses. In addition to completing the readings, activities, and discussions of the six content sessions, the teacher participants had to complete a final product, which involved creating an action plan or lesson plan based on the workshop content. The online facilitator determined whether each teacher participant had successfully completed all requirements in order to receive course credit.

Developing state courses

During the second year of the grant, ETLO implemented the second phase of the program, which was to provide all of the states in the consortium the opportunity to receive training on how to develop their own online professional development courses. These courses would supplement ETLO's courses and address specific in-state needs.

As with the online facilitator training, ETLO provided course-developer training in each state each year to the teachers who would develop the state online professional development

courses. The 10-week course, which was structured similarly to ETLO's other courses, included online readings, web-based activities, facilitated discussions, and opportunities to practice using development tools in the course management system. The course addressed such topics as organizing course content for online delivery; online instructional-design strategies and techniques; differentiating instruction; online assessment; and building participant collaboration.

As part of ETLO's course-developer training, the course developers worked together in teams of four to six people to create state courses. WVDE initially selected teachers to participate in the training based on their performance as facilitators. It took the teams roughly three months to create a course. All the course development was done online, which allowed individuals from across the state to work together without traveling to a centralized location. During the five-year grant period, WVDE used the grant money to pay the course developers $1,500 for taking ETLO's course-developer training. It has since lowered that amount to roughly $500 per person and redesigned the course-development process.

Even after WVDE had begun creating its own courses, it continued to offer ETLO courses as well. As part of the e-Learning for Educators program, West Virginia, like all of the other partner states, could also borrow state-developed courses free of charge from any of the other nine states in the consortium. When WVDE borrowed courses from other states, it typically kept roughly 40 percent of the content and then added its own content to customize the course to meet West Virginia's specific needs.

Funding

The Ready-to-Teach grant provided WVDE with a set amount of money each year to implement and run the state e-Learning for Educators program. During the 2005–06 school year, WVDE had a budget of $176,197; that amount increased slightly each year, with WVDE receiving $297,000 during the 2010–11 school year. The money from the grant covered all of the program's operating expenses during the five-year grant period. WVDE used over 90 percent of the grant dollars to pay for the salary and benefits for the program coordinator, the stipends for the online facilitators and course developers, and the licenses for the ETLO courses.

Outside of the grant funding, WVDE provided the program with some existing assets, including a computer and office space for the program coordinator, as well as access to statewide licenses for Desire2Learn, the learning management system used to host the online professional development courses, and Elluminate,* a web conferencing program through which the majority of the meetings, training, and course development occurred.

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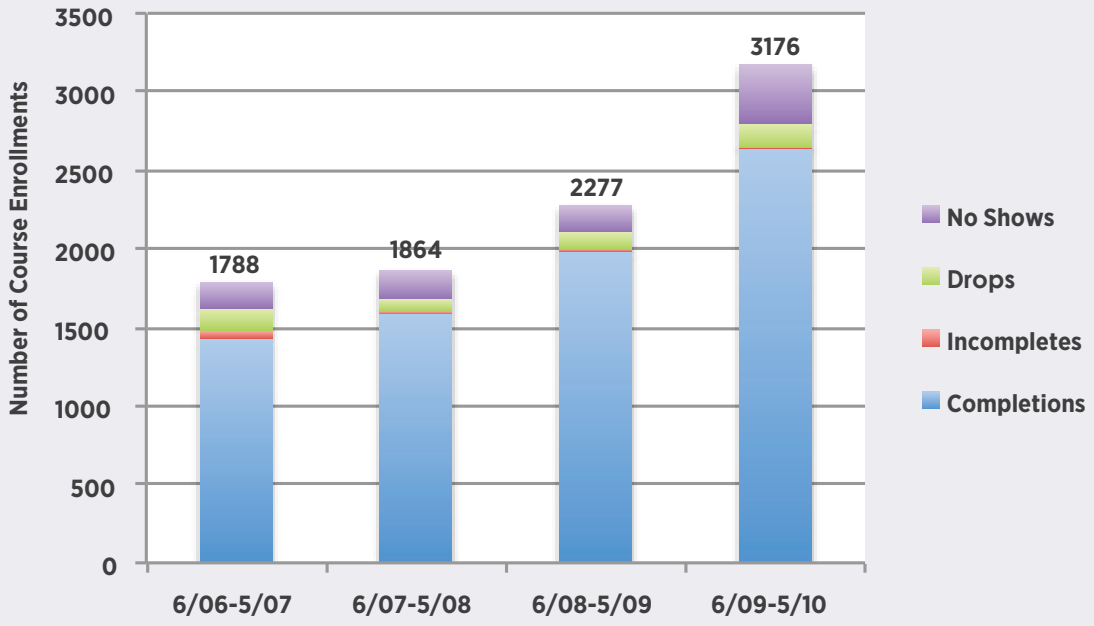
* In July 2009, Elluminate changed its name to Blackboard Collaborate.

Figure 1. West Virginia's e-Learning for Educators enrollment numbers by year (Source: WVDE)



During the first two and a half years of the grant, WVDE purchased the majority of its online professional development courses from ETLO. By the end of the grant, WVDE was still purchasing some courses from ETLO, but the majority of its courses were ones that WVDE had either developed itself, borrowed from other states within the consortium, or were from a set of 17 courses that ETLO had designed specifically for states to use in perpetuity. This shift allowed the program to continue increasing its course offerings without purchasing additional ETLO courses.

With implementation support and consulting from ETLO, WVDE was careful to put sustainability plans in place early so that at the end of five years the state would be able to continue supporting the program. The state's funding was less than what the Ready-to-Teach grant provided, but WVDE figured out ways to offer the same number of online professional development courses.

Results

Over the five-year grant period, 84 percent of West Virginia's participants—or 7,641 teachers—completed online professional development courses, as depicted in ***Figure 1.***

An important component of the e-Learning for Educators initiative was a large-scale experimental study that examined the effects of online professional development on teachers'

Table 2. Summary of statistically significant findings for teachers (Source: inTASC)

	4th-grade ELA	7th-grade ELA	5th-grade math	8th-grade math
Instructional practices	Writing	Writing	Algebraic thinking	Proportional reasoning
	Vocabulary	Vocabulary	Fractions	Geometric measurement
	Reading comprehension	Reading comprehension	Measurement	Functions
Knowledge	Writing		Algebraic thinking	Proportional reasoning
	Vocabulary	Vocabulary	Fractions	Geometric measurement
	Reading comprehension	Reading comprehension	Measurement	Functions
	Composite ELA	Composite ELA	Composite math	Composite math

Stastically significant effect with a large effect size
Stastically significant effect with a moderate effect size
Stastically significant effect with a small effect size
No statistically significant effect with a small effect size
No statistically significant effect with no effect size

content knowledge and instructional practices as well as on student achievement. Between January 2007 and June 2009, researchers at Boston College's inTASC conducted four randomized controlled trials with teachers from multiple states. The four trials employed the same research design, but each focused on a single grade level and subject area: fourth-grade English language arts (ELA), fifth-grade math, seventh-grade ELA, and eighth-grade math. For each trial, researchers randomly assigned teachers to treatment or control groups and grouped students based on the assignment of their teacher. Teachers participated in the study for three semesters, and students participted in it for two. Teachers in the treatment group completed a series of three ETLO-developed online courses (roughly 100 hours), while teachers in the control group participated in their normal professional development activities, whether online or face-to-face.

All teachers completed a pre-test in the spring semester of their first year of participation and a post-test at the end of the spring semester of their second year of participation. The pre-

Table 3. Summary of statistically significant findings for students (Source: inTASC)

	4th-grade ELA	7th-grade ELA	5th-grade math	8th-grade math
Knowledge	Writing	Writing	Algebraic thinking	Proportional reasoning
	Vocabulary	Vocabulary	Fractions	Geometric measurement
	Reading comprehension	Reading comprehension	Measurement	Functions
	Composite ELA	Composite ELA	Composite math	Composite math
Practice	Writing	Writing		
	Reading comprehension	Reading comprehension		

Stastically significant effect with a large effect size
Stastically significant effect with a moderate effect size
Stastically significant effect with a small effect size
No statistically significant effect with a small effect size
No statistically significant effect with no effect size

and post-tests included both closed- and open-response questions designed to measure content knowledge and the self-reported frequency of desirable instructional practices as defined by each online professional development course. All students completed a pre-test at the beginning of the school year—after teachers in the treatment group had completed an online course, but before any instruction had occurred—and a post-test at the end of the school year designed to measure areas of knowledge that might be affected by changes in teachers' instructional practices as a result of the program.

Tables 2 and 3 provide summaries of the findings within each trial. The green squares represent specific topics within math or ELA where the e-Learning for Educators program produced statistically significant results, meaning the differences in scores between the treatment and control groups were likely not due to chance. The blue squares, on the other hand, indicate that the differences in scores were not statistically significant. Within the green and blue squares, the shade of the color indicates the effect size, meaning how much improvement the treatment group experienced relative to the control group. The darker the color, the larger is the effect size.

This means, for the darkest green squares, the e-Learning for Educators program had the largest impact relative to the control group. As Table 2 shows, the e-Learning for Educators program was quite good at changing teachers' content knowledge and instructional practices based on pre- and post-test scores; those changes, however, seemed to have little impact on student performance, as Table 3 shows.

Conclusion

The e-Learning for Educators program shows that online professional development delivered in what is essentially a train-the-trainer model can have a significant impact on teachers' knowledge, skills, and practices. Although the effects on student outcomes were small and inconsistent, there were still promising signs.

First, given that the program was effective in altering teachers' practice, teaching different practices in the curriculum could bolster student learning.

Second, given that states around the country have professional development requirements similar to West Virginia's, shifting to an online model for professional development where possible has significant upside for teachers and schools. Online learning is a classic disruptive innovation—an innovation that transforms a sector where the products or services are complicated, expensive, and inconvenient into one where the services are simple, affordable, and accessible—relative to traditional learning. In the case of West Virginia, the e-Learning for Educators program fits right into this mold, as it made professional development far more affordable and convenient for teachers. It also enabled teachers to learn without missing teaching time, such that schools did not have to incur the costs—both in dollars and lost student learning—of having substitute teachers.

Given that the program was effective in moving teaching practice—something many conventional professional development programs cannot show—online learning possesses significant potential to transform the world of professional development.

Notes

[1] Yoon, et al, "Reviewing the Evidence on How Teacher Professional Development Affects Student Achievement," Institute of Education Sciences, 2007, http://ies.ed.gov/ncee/edlabs/regions/southwest/pdf/rel_2007033.pdf.

[2] Title 126 Legislative Rule, "Minimum Requirements for the Licensure of Professional/Paraprofessional Personnel and Advanced Salary Classifications (5202)," West Virginia Board of Education, p. 38, http://wvde.state.wv.us/policies/p5202.pdf.

[3] In addition to e-Learning for Educators, WVDE continues to offer traditional professional development opportunities for teachers. These opportunities include National Board Certification, Cyber Safety, Early Childhood Special Needs Inclusion, and Classroom Management. See http://wvde.state.wv.us/elearning/ for more information on professional development in West Virginia.

About the Institute

The Clayton Christensen Institute for Disruptive Innovation is a nonprofit, nonpartisan think tank dedicated to improving the world through disruptive innovation. Founded on the theories of Harvard professor Clayton M. Christensen, the Institute offers a unique framework for understanding many of society's most pressing problems. Its mission is ambitious but clear: work to shape and elevate the conversation surrounding these issues through rigorous research and public outreach. With an initial focus on education and health care, the Christensen Institute is redefining the way policymakers, community leaders, and innovators address the problems of our day by distilling and promoting the transformational power of disruptive innovation.

About the author

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