

Background

The *American Recovery and Reinvestment Act of 2009* (ARRA) included a \$650 million allocation in ESEA Title II, Part D, commonly referred to as the *Enhancing Education Through Technology* program (EETT). This case study was prepared by the State Educational Technology Directors Association (SETDA) – the principal association representing the technology leadership of state and territorial departments of education – to provide an example of ARRA funds working at the district and classroom level that creates effective, viable, and robust reform in education, and improves the way teachers teach and students learn.

Nevada's EETT Competitive Grants

Nevada's EETT competitive grant addressed the statewide concern regarding student engagement and achievement. Efforts focused on recognizing and addressing the needs of 21st century students through the framework of the revised Nevada Educational Technology Standards, which align to the National Educational Technology Standards for Students (NETS-S). In order to meet the needs of students, teachers were trained in providing 21st century learning experiences for students. To best reach teachers across the state, professional development was provided online and archived for future professional development needs.

Pathway Project July 2009-July 2011

The main purpose of the Pathway Project was to improve middle school achievement by engaging students in 21st century learning experiences. This statewide program sought to provide accessible professional development despite the geography and disparity of Nevada's school districts.

Demographics

Nevada is a geographically diverse state. Clark County, which includes Las Vegas, is the largest school district, and over two-thirds of Nevada's population lives in the Las Vegas metropolitan area. As the seventh largest state in the United States, the remainder of the population living outside Las Vegas is spread across vast rural areas. The Clark County student population is approximately 314,000, while the total state student population is 437,000. There are 341 schools in Clark County and current expenditure per student is \$7,615, well below the national average of \$10,190.

Project Description

The Pathway Project, inspired by collaborative discussions with technology professionals from around the state, provided professional development and tools to create 21st century learning experiences for middle school students. The Pathway Project advisory committee chose to target middle school teachers and students to spark interest and curiosity in adolescent learners. The two-year professional development program focused on changing teacher behavior, using the Technological Pedagogical Content Knowledge (TPACK) model, and delivering effective online professional development. Teachers

received training and worked collaboratively to develop, implement, and revise standards-based projects for their students. A classroom package of technology equipment was provided to participating teachers to support this change, including iPod Touches and laptop carts. All training was conducted online, through a Moodle environment and by building electronic, professional learning communities. In addition, training and collaboration was provided for the site administrators who supported the participating teachers.

ARRA EETT Grant Details

Grant Focus	Ongoing Professional Development and Project-Based Collaborative Learning
Beginning/End Date of Grant	July 1, 2009-July 31, 2011
Locale	Statewide
Funding	\$4,038,709 Federal Funds \$100,000 Local Funds
Grade Level (s)	6-8
Number of Teachers Impacted	128
Number of Administrators Impacted	30
Number of Students Impacted	18,000

Project Implementation

Beginning in July of 2009, teachers across the state applied for acceptance into the Pathway Project; teachers were selected in pairs so that they could provide support to each other as they progressed through the two-year program. Applicants were selected based on administration approval, level of technology support at their school, and geographic location to ensure that each district was represented proportionally. One hundred twenty-eight teachers were selected, representing 17

I haven't had to pull out the textbooks at all this year. It's not that I never use pencil and paper; obviously that still has a lot of value, but as much as I can, I try to get the technology used in whatever way possible. It's a never-ending source of information and reading and writing and critical thinking skills, and it's really all of that together. It's been a very pleasant experience having all this stuff in my classroom!

– Pathway Teacher

districts. The teachers received an iPod Touch cart and a laptop cart per pair of teachers. Teachers were also provided additional devices such as a laptop and projector if not already in place at the school. The professional development consisted of four modules, developed and facilitated by University of Nevada, Las Vegas professors and school district professional developers. Module 1 provided an introduction to the technology tools and a theoretical foundation of the TPACK model and national and state technology standards. In Module 2, teachers planned project-based activities, collaborating across the state. In Module 3, teachers implemented projects with students. Module 4 provided the opportunity for reflection and refinement. Throughout all of the modules, teachers completed assignments, attended webinars, participated in online discussions, and engaged in synchronous sessions.

Classroom Examples

- In seventh grade science, identifying and explaining seismic waves is part of the curriculum. In previous years, science teachers showed a video and asked students to read about seismographs. In the Pathway classroom, using a seismograph app on their iPods, students recorded different waves and manipulated the waves in real time. Next, students worked online to gather data and graph seismic activity in Nevada. Students were engaged in this hands-on discovery of waves and seismograph functions.
- In the unit on immigration in an American history class, students would typically read the textbook and watch a video about immigration through Ellis Island. In the Pathway class, pairs of students chose video segments from the PBS *Faces of America*. Students then responded to prompting questions posted on the teacher's blog. They had the opportunity to share and read the diversity of blog posts, resulting in the expression of empathy for the immigrants and realizing that every immigrating group faced different and yet similar struggles and dreams.

Evaluating Effectiveness

The two main objectives of this program were to change teacher behavior through online, collaborative professional development, and to identify and implement effective tools, strategies, and resources for professional development. To evaluate these goals, qualitative and quantitative data were collected through multiple survey instruments, interviews, classroom observations, and review of artifacts (blog reflections, work samples and online discussion threads). Surveys included the following tools: Attitudes Toward Technological Tools, Dispositions Toward Teaching with Technology, Technology Self-Efficacy (Confidence), and TPACK survey. Teachers were surveyed at the beginning of the professional development and the end of each of the four modules. Data confirmed that the first objective was met; the program positively affected teacher behavior. Participants noted increased confidence and higher attitudes with the tools and pedagogies. In examining a particular variable, participants' attitude toward interactive and delivery tools, there was little change in attitude with each module but a significant positive change by the conclusion of the project. Subsequently, ample anecdotal data, including that from classroom observations and teacher interviews, indicated increased student engagement.

Findings showed that students were indeed motivated by the various technology tools and applications employed. Strengths of the project included the access to the tools and resources, with the freedom to explore, and the collaboration and feedback from the project facilitators and participants. See “Resources” below for access to the *Clark County School District: ARRA-Pathways Project Final Report FY 2011*.

Moving Forward

Many Pathway teachers have already provided professional development within their own schools and districts, and some presented at the state conference. These teachers have become advocates and mentors for integrating technology. Small parts of each module have been archived with plans to adjust and combine in a Moodle environment so that teachers may participate in self-paced and unguided professional development for continuing education credit.

Resources

Nevada Pathway Project Website

<http://cpdmoodle.ccsd.net/pathway/>

Clark County School District: ARRA-Pathways Project Final Report FY 2011

<http://tinyurl.com/7fwy53d>

Nevada Department of Education

<http://doe.nv.gov/>

SETDA ARRA Information and Resources

<http://setda.org/web/guest/ARRAresources>