

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.

Ohio's EETT ARRA Competitive Grants

Ohio's 21st Century Learning Environments Technology program awarded 96 schools grants, targeting students in grades 6 to 12. Ohio's program focused on professional development and student learning. Through intensive, collaborative and job-embedded professional development and the use of research-based methods, teachers and administrators experienced new models and strategies for teaching and learning. As part of the required summer professional development, each school's grant team, made up of the building administrator, four teachers, and a half time coach, developed a needs-based action plan which helped inform technology purchases.

21st Century Learning: Transforming Teaching and Learning, LHS 2.0 Program Lakewood High School, Lakewood City Schools May 2010-June 2011

Lakewood High School was one of 96 Ohio schools that received a 21st Century Learning Environments Technology grant. They utilized a technology-enhanced, newly renovated school building to build an academic program embracing technology, project-based learning, and the team approach.

Demographics

Lakewood City School District is located in a western suburb of Cleveland, Ohio. The district contains a highly diverse student population with over 30 languages spoken. Approximately, 50% of students qualify for free or reduced lunch. There is one high school with 2000 students in Lakewood. Due to the aging community, the school has noted a declining population over the last five years.

Project Description

In 2008, Lakewood High School completed a partial renovation, and all new classrooms were equipped with projectors, interactive whiteboards, and wireless internet access. At the same time, a set of ninth grade teachers began teaching in a team; the team consisted of an English, history, mathematics, and science teacher who shared the same group of students. Inspired by the increased access to technology and collaborative nature of team teaching, teachers began to reassess their teaching practices. As well, the district focused on enabling and supporting teacher-based teams and project-based

ARRA EETT Grant Details	
Grant Focus	High-Access, Technology-Rich Learning Environment, Online and Blended Learning, and Professional Development
Beginning/End Date of Grant	May 18, 2010-June 9, 2011
Locale	Urban
Funding	\$225,000
Grade Level (s)	9-10
Number of Teachers Impacted	10
Number of Administrators Impacted	1
Number of Students Impacted	200

learning. With technology in place and team teaching beginning to take hold, Lakewood High School received the ARRA grant. At the onset of the grant, 2 teams of core subject area teachers and an intervention specialist, one in the 9th grade and one in the 10th grade, began working with approximately 100 students per group. Each student was provided with a netbook for school and home use. The participating teachers were each provided an iPad, and each team shared two classroom sets of iPod Touches. The team approach allowed for flexible time and flexible grouping within the schedule and cross-curricular teaching opportunities. Anytime, anywhere access to the netbooks provided the opportunity for teachers to leverage their Moodle sites to create collaborative workgroups for students to access content both in and out of the classroom, blurring the lines of a typical school schedule. Professional development through workshops and the efforts of a technology coach supported the integration of technology tools and project-based learning through the school year. In addition, team planning and collaboration enabled teachers to employ and share best practices.

Project Implementation

Beginning in the summer of 2010, the team participated in the state-sponsored Transforming Education course focusing on the digital learner, 21st century skills, Technology, Pedagogy and Content Knowledge (TPACK), project-based learning, and Web 2.0 tools. In the fall, teachers completed small projects and met during regularly scheduled planning times to discuss curriculum and the integration of technology tools. Students received their netbooks during the second semester. Teachers continued to increase their

collaboration and move toward a more project-based curriculum, and by the fourth quarter the entire curriculum was project-based.

An instructional, technology coach was assigned half time to the program. She provided support in the classroom, feedback on lessons, and overall support. The coach also helped support the teachers with curricular and technical issues so they could focus on teaching and learning. Teachers participated in a book study of Doug Lemov's *Teach Like a Champion*, which generated discussions around best teaching practices. Teachers also were provided three separate days during the school year to spend writing unit plans, using tools, and discussing what was working and what was not. Teachers formed natural school-based communities, sharing their ideas, knowledge, and research.

Classroom Examples

- Tenth grade students researched and identified an environmental problem within their community. Students used community resources and the Internet to research issues such as litter in the parks and the appropriate use of bike lanes. Using persuasive writing and principles of design, students presented the selected environmental problem and posed solutions. They created final presentations, which took on a variety of formats including blogs (sample blogs are accessible below under "Resources"). Students also worked with local newspaper reporters to get their feedback on coverage and presentation of community issues. The culminating activity was a presentation of their findings to city officials.
- Tenth grade students worked together on an AIDS Day project. Under the guidance of the biology teacher, students studied the science of viruses and the AIDS virus. In English and history, students examined stereotypes and stigma in American literature and studied the politics of the 1980's during the onset of the AIDS epidemic. The culminating activity was a day spent sharing with local AIDS activists. The students simulated an AIDS test and discussed the results with real AIDS counselors. Students blogged their reactions and research during the entire project, and they created video diaries about their reactions to the day. Students also created 30-second public awareness commercials on AIDS.

Through this grant, our team has really come to think of ourselves as learners again. With so many new possibilities open to us thanks to all of the new tools, we have really had to go back and think very hard about what it means to be a student, what it means to be a teacher, and what it might look like if we became better students of our teaching.

- Sean Wheeler, Lakewood High School Teacher

Evaluating Effectiveness

The LHS 2.0 Program's overall goal was to raise student achievement by creating a more accessible, flexible, and student-responsive learning environment that employs innovative 21st century skills and tools to enable students to create authentic and relevant products

for authentic audiences. According to their local evaluator, the LHS 2.0 project successfully met all grant objectives and was shown to significantly affect student learning. Positive outcomes for students included an increased level of attainment of knowledge and skills as measured by the Ohio Graduation Test and an increased sense of personal engagement and pride in students' learning.

The LHS 2.0 Program affected a subset of Lakewood High School students. Tenth grade results of the 2011 Spring Ohio Graduation Tests show higher scores in all five subject areas for the participating students compared to like peers. There was a significant increase in test scores for students with disabilities.

School Data

- All students comparison scores:
 - ✓ Writing LHS 2.0 96% pass rate; Non-LHS 2.0 92% pass rate
 - ✓ Reading LHS 2.0 95% pass rate; Non-LHS 2.0 90% pass rate
 - ✓ Math LHS 2.0 88% pass rate; Non-LHS 2.0 83% pass rate
 - ✓ Social Studies LHS 2.0 88% pass rate; 84% Non-LHS pass rate
 - ✓ Science LHS 2.0 84% pass rate; Non-LHS 2.0 79% pass rate
- Special education students comparison scores:
 - ✓ Writing LHS 2.0 77% pass rate; Non-LHS 2.0 55% pass rate
 - ✓ Reading LHS 2.0 77% pass rate; Non-LHS 2.0 58% pass rate
 - ✓ Math LHS 2.0 58% pass rate; Non-LHS 2.0 38% pass rate
 - ✓ Social Studies LHS 2.0 54% pass rate; 40% Non-LHS pass rate
 - ✓ Science LHS 2.0 42% pass rate; Non-LHS 2.0 33% pass rate

The transition to project-based learning, specifically the work on a local community-based Earth Day project and a partnership with the Cleveland HIV/AIDS Taskforce during an HIV/AIDS unit, broadened students' understanding of collaboration, communication, and creativity as essential 21st century skills and vital components of any relevant classroom aimed at preparing students for the world outside the walls of a classroom.

The role and nature of professional development underwent a significant change in relation to the grant team and has great potential as a model for professional development to a much wider degree within the district as a whole. The teachers truly embraced the notion of developing a Personal Learning Network (PLN). Some of the best thinking and writing about the teaching profession is occurring on a wide-array of blogs and twitter feeds, and the grant team is in a state of continual learning thanks to its use of Google Reader and Twitter hash-tag searches.

Moving Forward

Based on the success of this program, Lakewood City Schools is moving forward with a 1-to-1 model. Teams of teachers across the district were able to apply for class sets of netbooks. Using funds from the textbook budget, 500 netbooks were purchased and distributed for in-class use only. The school is researching the possibility of supplying all incoming ninth graders with netbooks in the 2012-2013 school year. Training in project-based learning has continued with 15 Lakewood High School teachers attending training by the Buck Institute for Education, specializing in project-based learning. New teams of teachers, along with the original participants, meet on a regular basis to support one another with the integration of 21st Century skills and technology, and new team members are mentored by the original LHS 2.0 project team teachers.

Resources

Lakewood City Schools

<http://lakewoodcityschools.org/>

Lakewood High School Student Blogs

<http://kevinmarekblog.blogspot.com/2011/05/gum-litter-problem.html>

<http://nattaliep.blogspot.com/2011/05/blog-post.html>

<http://imagine-yesterday.blogspot.com>

Ohio Department of Education

<http://www.education.ohio.gov>

SETDA ARRA Information and Resources

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