

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.

North Carolina's EETT Competitive Grants

IMPACT (initially titled: Information Power: Building Partnerships for Learning) provides the overall vision of the role of media and technology for North Carolina Department of Public Instruction by recognizing that an effective school library media and technology program is essential to support teaching and learning. The IMPACT Leadership for the 21st Century Learner continuation grants provided funding to schools that were awarded IMPACT III and IMPACT IV funds through traditional Title II Part D, competitive grants. Funds awarded enabled IMPACT Model Schools to implement additional technology enhancement programs, including a 1-to-1 program for high schools and provision of digital teaching tools for middle and elementary schools. Furthermore, the IMPACT model acknowledges that an effective school media and technology program supports teaching and learning and encourages collaborative planning.

IMPACT: Leadership for the 21st Century Learner Asheville City Schools, North Carolina September 2009-December 2012

This grant was designed to increase student learning through the full implementation of North Carolina Department of Public Instruction's IMPACT model guidelines. Asheville City Schools' (ACS) teachers, media coordinators, instructional technology facilitators, and other education leaders collaboratively developed curriculum to infuse learning with media and technology resources. These curricula engaged students in the core curriculum while developing 21st century skills.

Demographics

Asheville is located in the western part of North Carolina in the Blue Ridge Mountains. ACS has two high schools, Asheville High School and the School of Inquiry & Life Sciences at Asheville (SILSA), one middle school, and five elementary magnet schools. Elementary students in the district may attend the elementary school of their choice; a magnet program allows students to attend the school whose “theme” best matches their interests. Themes include Arts and Humanities, Science, Mathematics and Technologies, Global Scholars, Experiential Learning, and Human Diversity and Ecology.

Project Description

ACS took the first steps toward implementing the IMPACT model during the 2007-2008 school year as part of the "Digitally Literate Asheville" (DLA) initiative that the district is currently striving to fully implement. The ultimate goal of the DLA initiative is to transform student learning by providing every teacher and student with a laptop and a stable infrastructure to support 21st century teaching and learning. At the same time the DLA initiative was being developed, ACS was identified as a North Carolina Department of Public Instruction IMPACT Model District and received

ARRA EETT Grant Details	
Grant Focus	Project-Based Collaborative Learning and Professional Learning Communities
Beginning/End Date of Grant	September 2009-December 2012
Locale	Rural
Funding	\$2,148,605 Competitive Grant \$32,170 Formula Grant
Grade Level (s)	K-12
Number of Teachers Impacted	335
Number of Administrators Impacted	25
Number of Students Impacted	4,017

EETT funds to provide professional development and devices to teachers. Building on the initial IMPACT grants, the ARRA EETT IMPACT Leadership for the 21st Century Learner continuation grant provided all eight ACS schools with professional development, support for collaborative planning, and equipment. Over 25% of grant funds were used to provide professional development, which emphasized the use of Web 2.0 tools such as wikis, blogs, and Moodle to support a social constructivist approach to learning. Teachers, media coordinators, instructional technology facilitators, and other educators collaborated to develop rigorous, engaging, and standards-aligned collaborative student learning opportunities emphasizing 21st

century skills. The equipment provided included teacher laptops, network infrastructure to support wireless computing, over 900 student laptops for anytime and anywhere learning, digital projectors, 113 interactive whiteboards, 33 student response systems class sets, and other digital tools.

Project Implementation

Implementation started with professional development for teachers, moved to network readiness, and only then moved to provide students access to learning technologies. To guide the project, each school's Media and Technology Advisory Committee developed an implementation plan. The plans included a needs assessment, equipment acquisition plan, professional development plan, and schedules for collaborative planning.

The hardware implementation initially went into building the network infrastructure and increasing switch capacity and wireless access. The next step of hardware implementation supplied teachers with laptops and the interactive presentation technologies. The final step introduced the student learning technologies, which included laptops, interactive whiteboards, software, scientific monitors, and multimedia tools for students and teachers. Deployment of these technologies required careful planning for implementation. The 9th grade classes were provided 1-to-1 access, and 10th to 12th grade classes were provided laptop carts.

Professional development varied by school and was tailored to the needs of the teachers and school program. School teams developed their professional development plans based on teacher surveys, observed needs, and recommendations of the state instructional technology specialists. Each school had a school media coordinator and instructional technology facilitator funded by the district. Additional professional development in the form of summer institutes, afternoon workshops, grade level and department professional learning communities, guest speakers, and conference attendance, including ISTE and the North Carolina Technology in Education Society conference, was also provided.

Through technology, student engagement increased as well as the ability to access and interact with rigorous material.

- Asheville City Schools Teacher,
Grade 5

As importantly, teachers received direct support in planning and implementing new methods of instruction during collaborative planning. In the elementary and middle schools, teams of teachers were provided collaborative planning sessions four times during the school year to design units and work with the school media coordinator and instructional technology facilitator to integrate technology and information skills. In the high schools, teachers met as a department twice during the school year. High school teachers received training on particular devices or Web 2.0 tools in the

morning and then worked as a department in the afternoon to explore instructional uses. The most successful collaborative planning teams grew into professional learning communities in which teaching professionals helped one another analyze formative and summative student achievement data in order to identify the best ways to meet the needs of their students.

Leadership was crucial in helping the teachers see the necessity to change practice and make use of new tools and techniques. School leadership was particularly effective in the instances where administrators modeled new tools and allowed staff to see that mistakes were part of the learning process.

Classroom Examples

- In a cross-curricular project in second grade, students and teachers participated in Heifer International's Chores for Change program. Teachers integrated social studies, research skills, reading comprehension, science, math, and persuasive writing. First, students participated in a read aloud activity with the book *Beatrice's Goat*. In this story inspired by Heifer International, Beatrice, a schoolgirl in a poor African village, receives the gift of a goat and is able to sell the milk to help her family of six. Using the interactive whiteboard, students learned mathematical concepts of doubling and division and interacted with a lesson on geometric growth as described in the book. Students researched the various animals available to donate through the program and raised funds to donate the animal. Math lessons revolved around counting and dividing the funds received. The seamless access to internet resources, the opportunities for small group research with laptops, and the interactive lessons via the whiteboard made an otherwise daunting project manageable for the teachers to engage and motivate students.
- In a high school social studies class, students participated in a "Meeting of the Minds" project on Civil War tensions. Equipped with laptops, half of students conducted research and prepared to take on the voice of an individual from the Civil War era during a live class debate. The rest of the class was assigned to develop their background knowledge of the historical era in order to analyze the debate. The analysis took place in live online chat during the debate. This provided an opportunity for students to record reactions and facts as the debate was taking place without interrupting the flow. Debate students were engaged, knowing their peers were chatting about the points they were making, and the "chat" students were engaged as they had the

Our grade level has used the quarterly collaborative planning sessions to create rich, multidisciplinary projects, ranging from student-researched and acted public service announcements about germs and health to service learning projects about world hunger.

- Asheville City Schools Teacher,
Grade 2

opportunity to build knowledge through the chat. A text archive of the chat provided additional learning opportunities. Prior to the grant, students debated the Civil War, but the engagement was minimal except for the few students who played major roles in the debate.

Evaluating Effectiveness

In partnership with the Friday Institute at North Carolina State University, ACS administered the following surveys to staff and students: School Technology Needs Assessment (STNA), Technology Skills Checklist (TSC), and National Educational Technology Standards survey of Performance Standards for In-service Teachers (NETS-T Survey). Based on survey results, technology skills and student attitudes toward learning with technology improved.

District Data

- STNA: 70.5% of teachers either agree or strongly agree that technology has made their students better learners and self-starters.
- STNA: 74.3% of teachers either agree or strongly agree that student engagement is significantly increased as a result of technology.
- STNA: Over the course of the grant, the percentage of teachers that agree that “technology professional development is relevant” increased by 30% in one school and by 27% in another.
- NETS-T: 68.4% of teachers report they now regularly teach students how to “assess the quality of information they gather via the web and/or other technologies.”
- Student passing rate of the end of grade level math and reading scores increased by 6% and 7.5% respectively. The percentage of students exceeding expectations also increased.

Moving Forward

The two high schools have leveraged this grant to acquire additional funding from the Appalachian Regional Commission and the Mebane Foundation to support the Digitally Literate Asheville initiative’s goal of 1-to-1 computing. The IMPACT grants laid the groundwork that has ACS poised to reap the benefits of a digital transformation in teaching and learning and has served as “proof of concept”, demonstrating that the schools would fulfill the promise of 1-to-1. In February 2012, student-to-laptop ratio will increase to 1-to-1 in 10th through 12th grade. Although it may prove difficult to equip the schools at the same level without the IMPACT grant funds, the collaborative practices, professional learning communities, and social constructivist approaches to learning brought about by the IMPACT grants will sustain high levels of student achievement.

Resources

Asheville City Schools

<http://ashevillecityschools.net>

North Carolina IMPACT Website

http://it.ncwiseowl.org/resources/i_m_p_a_c_t/

Friday Institute Evaluation of the IMPACT Model

<http://tinyurl.com/6v4xbvp>

North Carolina Public Schools

<http://ncpublicschools.org/>

SETDA ARRA Information and Resources

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