COUNCIL FOR SCHOOL PERFORMANCE

Two Miles Down a Ten Mile Road
Instructional Technology and the Impact of Lottery Funding in Georgia

PREPARED BY

Katherine Dolan
Jeanie Weathersby
Gary T. Henry

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Introduction

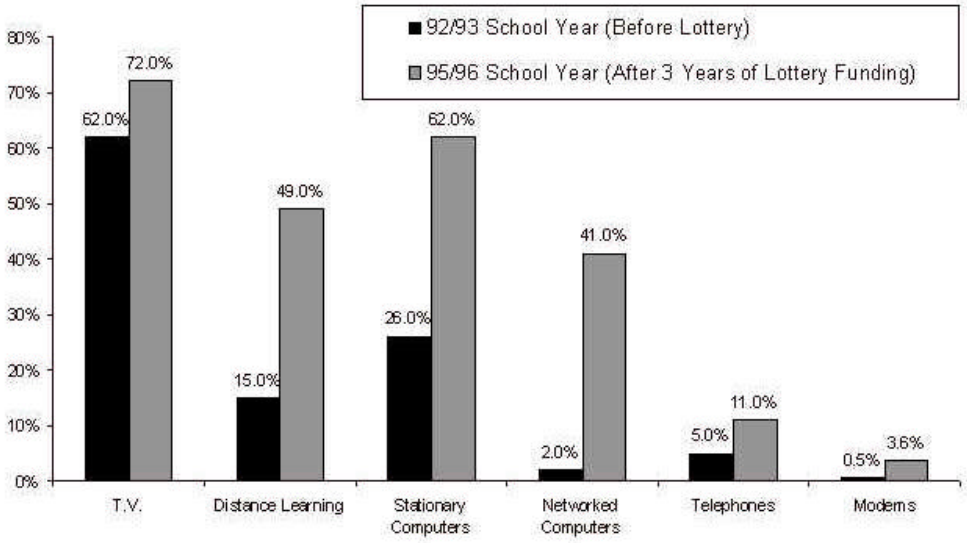
Technology offers new and innovative ways for teachers to teach and for students to learn. It offers students access to courses and instructional materials that they would otherwise not have. It allows students to gain proficiency in using computers and other state-of-the-art technology and, subsequently, prepares these students for a job market that increasingly requires computer skills. Teachers have access to more information for class discussions and assignments. Schools are changing how they operate by integrating technology into instruction.

The state of Georgia, through a lottery generated fund, is among those states making the most significant commitments to instructional technology. While schools are using technology, more can be done to put technology to better use and to expand the use of technology in schools. To maximize the benefits of instructional technology, schools must increase students' access to technology, teachers must increase their knowledge and use of technology, administration must address the issue of teacher training, and policy makers must commit to continued resources for technology.

What is the state of technology in Georgia's schools?

As shown in the following graph, the availability of technology has changed significantly in Georgia's classrooms since lottery funding became available. For instance, the percentage of classrooms with computers has increased from 26% in the 1992-93 school year to 62% in the 1995-96 school year. However, less change has occurred in the percentage of classrooms with telephones and modems.

Figure 1. Technology in the Classroom, Before and After Lottery Funding



How much money is being spent on technology?

While other funds have been used to purchase equipment, lottery funds have provided the backbone of support, particularly for model technology schools. Schools spent the most money on hardware purchases. The average amount of money spent on technology for all schools for the 1993-94 through the 1995-96 school years was $66,817.

Table 1.
Average Annual Expenditures Per School for Technology Equipment (93/94 - 95/96)

Category	Amount Spend	% Lottery Funded
Hardware	$34,939	50.3%
Software	$7,171	43.5%
Network	$15,565	73.6%
Others	$9,142	50.0%
Total	$60,817	54.3%

How is technology being used in the school?

- Media centers are the hub of technology use in schools, with automated card catalogs, Internet access, and numerous CD-ROM programs for information and research.

- Students use computers in computer labs more than in the classrooms, especially in high schools, since labs provide access for entire classes.

- In classrooms, computers are used primarily for rewards (for finishing work early or good behavior), remediation (usually in reading, writing, and math) and research (for papers

Examples of teachers' using technology in the classroom

Mathematics

- Elementary students particularly liked using integrated learning systems because they were able to work individually and at their own skill level. These programs helped students to learn mathematics by offering immediate feedback when they made a mistake.

- A high school special education class developed a "business" to learn math and other skills. The students used technology to place orders and bill customers.

Science

- Middle school students learned about robotics with a computer program. The program allowed students to create a robot and then control the robot's movements.
- Using GSAMS, students took a "field trip" to Zoo Atlanta, where they were able to ask the zoo staff questions.
- High schools students asked scientists at the Medical College of Georgia difficult questions about biology using distance learning.
- One class took an electronic "field trip" to Africa, where they participated in a project with African students.

Social Studies

- Distance learning programs accessed through the school's satellite dish brought history and current affairs to life for students studying the bombings in the British Isles.
- Students used a computer program to design and build a prototype of a castle after researching different castles around the world.
- Satellite programs, such as Snoops, allowed students to interact with students in other countries. Students e-mailed, faxed, and mailed letters to each other.

Language Arts

- Students used computer programs to create and edit newsletters, to write stories and screenplays, and e-mail letters to writers and scientists in other countries. Using computers to write reports and stories gave students a sense that they were real "writers" and that their work was important and meaningful.
- Electronic publishing of the high school yearbook and newspaper taught students more about technology and fostered teamwork.
- Students in one school are using PowerPoint, a software program that creates visual presentations, to write, edit, and layout a book.
- Many teachers were excited about the benefits of Accelerated Reader, a computer program that allows students to read and answer comprehension questions at their own pace.

What issues emerged from this evaluation?

Issue 1: Continued lottery funding

Schools have more technology than ever before and give credit to the lottery. However, more equipment and training are needed to fully integrate technology into instruction. Additional funds for equipment maintenance should be included.

Issue 2: Funding to maximize the benefits

Major funding decisions include how much needs to be invested to bring schools to a minimum level, how priorities should be set, and whether local contributions should be expected. Consideration should be given to a baseline grant, allowing every school to have a school-wide network connected to the district, Internet access, and at least three to five computers per classroom. A lottery-funded challenge grant with a maximum amount per student and a sliding scale of state matching funds based on the district's ability to pay and percentage of students on free and reduced price lunch would maximize local support and provide baseline funding for schools.

Issue 3: Technical support

The roles of technical support and instructional support should be distinguished and considered two different positions. Every school needs on-call technical support staff to assist with setting up, upgrading, maintaining, and repairing equipment, since technical support issues usually require immediate response. A goal of one technical support staff to two schools would meet current needs.

Issue 4: Support for instructional use

Increased on-site support for instructional use of technology must be available to help teachers integrate technology into the curriculum. Given the opportunity to plan and combine groups of participants, a ratio of one support staff for eight schools would fill the need for instructional support. This additional support should be linked to the role of the traditional curriculum resource person at the school or system level.

Issue 5: Distance learning

School personnel need to learn more about distance learning—how to operate the equipment, what distance learning offers, and how to integrate it into instruction. Program developers need to find out what teachers need and would most likely use. Publishers of program listings need to find out from teachers how to make the listings user-friendlier. A two-year grant project establishing partnerships between schools and GPTC or Regent's institutions could be used to find ways to maximize the use of distance learning in schools and to increase the buy-in of schools to the curriculum enhancements that distance learning offers. An evaluation of the project would provide further information for improvement.

Issue 6: Building infrastructure

School buildings present a variety of constraints to the use of technology, including inadequate wiring and insufficient space. Retrofitting of classrooms needs to be funded, and guidelines for incorporating technology into school building design need to be developed.

Methodology

The Applied Research Center of Georgia State University was commissioned by the Council for School Performance to evaluate the use and funding of instructional technology in Georgia's schools. For evaluation purposes, the Council divided the state into five regions and selected a consortium of researchers from local colleges and universities to conduct the evaluations. Educators from Fort Valley State College, Georgia Southern University, Georgia State University, North Georgia College, and Valdosta State University participated in the evaluation. The evaluation consisted of in-depth studies of 112 randomly selected elementary, middle, and high schools, approximately 20 from each region.

Consortium researchers used a comprehensive approach to provide a clear picture of technology in Georgia's schools. Using data from varied sources, including students, teachers, administrative staff, observations, and surveys, researchers focused on the perceptions of effectiveness of technology as part of the instructional program and the use of technology by students as part of their learning experience. Researchers also investigated teachers' skill level and access to training, each school's planning process for technology, and the availability of and access to equipment. By the end of the study, researchers had completed 336 interviews, 224 focus groups, and 2,240 classroom observations.