

Friday Institute Education Brief

Arlington Public Schools Digital Learning Device Project: Digital Devices Enhance Learning But Require Adequate Technical Support and Planning Time for Teachers

The Study

In the Arlington Public Schools (APS) 2011-17 Strategic Plan, the community set a goal to ensure that every student from grades 2 through 12 had a personal digital learning device (1:1) to support instruction. The overall aim of 1:1 programs is to create a technology-rich learning environment that provides teachers with significantly more options for creating engaging, relevant and personalized learning experiences for all students—regardless of their background, language or disabilities.

In order to better understand the current state of the APS 1:1 program transition, the district partnered with the Friday Institute Research and Evaluation (FIRE) team at North Carolina State University to conduct a small-scale study. The purpose of the study was to identify implementation successes and challenges and to signal opportunities for program growth moving forward. The following is a summary of study findings for research questions developed in collaboration with APS, as well as recommendations and next steps for the APS 1:1 project.

Findings

Results from classroom observations and reports from teachers and students indicated that APS students used digital devices for approximately half of the school day. The usage was more frequent in the upper grades, with student device-use observed in 37% of elementary classrooms visited, compared to 47% middle school and 62% of high school classrooms. Teachers and students reported that digital devices were most often used for monitoring and assessing student understanding, accessing online content and resources for assignments, and creating written pieces or products to demonstrate learning. Teachers and students did, however, express some concern that occasionally students misused the devices, distracting from academic activities.

Students, teachers and parents also reported that students' ability to take devices home was an additional benefit of the 1:1 program. Students and parents highlighted the value of being able to track assignments and grades in real-time from home. At the same time, many parents expressed concerns that their students were spending too much time using the devices for non-educational activities at home.

Through surveys, focus groups and interviews, the majority of teachers, students and parents indicated that using digital devices in school has: 1) made learning more interesting for students; 2) made it easier for students to collaborate with other students; and 3) enabled students to learn about things they are personally interested in. When asked to describe the ways that the 1:1 device program has positively impacted student learning, teachers reported that the devices have enabled the greatest increases in students' technology skills, self-directed learning skills and collaboration skills.

Some teachers, however, expressed doubts about the value of 1:1 for student learning. They highlighted the loss of instructional time due to technical problems and student distraction as well as the additional planning time the teachers have to dedicate to creating new lessons. Many parents expressed ambivalence or doubts about the value of the 1:1 device project. When asked if 1:1 student device access is important to their child(ren)'s success in school, 51% of parents agreed, 34% "disagreed" or "strongly disagreed," and 15% were undecided. The concerns were highest among parents of elementary children; the parents focused primarily on excessive screen time and a lack of interaction with physical learning resources.

School-based supports were most critical for facilitating effective and appropriate use of 1:1 digital devices to enhance student learning. Both principals and teachers reported that the role Instructional Technology Coordinators (ITCs) played was essential, particularly their work supporting teachers' classroom instruction and providing professional development opportunities for teachers. Teachers also expressed that they gained valuable instructional and technical support from their colleagues in both formal and informal settings.

The majority of teachers reported the following conditions as significant obstacles to using digital devices to enhance student learning: excessive time needed to develop content for digital instruction (58%), inadequate opportunities for teacher input on how technology is used (54%), and lack of a shared vision for the use of student devices in support of teaching and learning (52%). Teachers indicated that they would benefit most from professional development on using devices to support creativity and innovation, using devices to create learner-centered instruction, specific application uses and subject-specific support.

Recommendations

The following recommendations are intended to support program improvement. These recommendations were derived from explicit suggestions put forth by study participants, as well as a holistic synthesis of the findings:

- Develop and communicate a shared vision and plan for promoting learning with devices.
- Offer more professional development opportunities on both technical skills and pedagogical skills.
- Provide teachers more unrestricted time to create, practice and experiment with technology.
- Support students, teachers and parents to achieve safe, flexible and appropriate use of devices.
- Create a plan for monitoring and improving technical support and materials.

A Note Regarding Remote Learning

This study was completed before the 2020 COVID-19 global pandemic and nationwide school shutdown. The findings and recommendations apply specifically to the use of digital devices in in-person school settings; however, some high-level lessons could be reasonably applied to remote learning settings as well:

- Digital devices have the capacity to make learning more personalized, and therefore more engaging, to students.
- Schools and districts must ensure that teachers understand the vision and the goals for the use of digital devices.
- To ensure that students and teachers can use digital devices effectively, schools and districts must provide sufficient technical support to teachers and students, and they must provide sufficient learning time for teachers.

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