
Improving the Effectiveness of Digital Educational Tools in Increasing Student Achievement and Reducing Achievement Gaps



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Research Brief: Instructor Capacity

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Why Instructor Capacity Matters

Those involved in introducing and implementing digital instructional tools should be skilled in the use of them and have ongoing and consistent support to make sure it is working for all students. Teachers' (and students') understandings of how the technology functions is key in determining how they will use the tools, in both intended and unintended ways. Building the capacity of adults (instructors, as well as parents) to effectively use digital tools means ongoing access to professional training for the planning and use of the technology, as well as time for practicing with the tools and communicating with others about effective strategies for their use.

Study information

Our mixed method study examines implementation and outcomes of digital educational tools, specific to three digital tool platforms: 1:1 devices in regular classrooms, synchronous but remote online tutoring, and asynchronous course modules, across two urban school districts, Milwaukee Public Schools and Dallas Independent School District.

The summary of findings below are based on ongoing analysis of observation data collected in 222 sessions (176 in DISD; 46 in MPS) in elementary through high school classrooms during the winter and spring of the 2014-2015 and 2015-16 school years. Observers visited 3rd-12th grade classrooms in pairs to provide interrater reliability. Observations measured student and instructor usage and engagement of technological tools in the classroom using the Implementation of Digital Instruction Tools Observation Instrument. Recorded tutoring sessions of online tutoring were also analyzed using the observation tool.

Summary of Findings

Instructors demonstrated varying capacities related to:

- Technical support, such as maintaining internet connectivity, addressing hardware and software challenges, and providing functional headphones
- Navigating the digital tools platform itself
- Content knowledge to support various courses and modules taken by students in the same classroom
- Pedagogic strategies specific to blended and digital environments

- Classroom management, including specific strategies to engage students in the digital environment

The roles of instructors differed depending on the session context and digital tool in use, but typically could include:

- Providing tech support either for themselves or students
- Administrative responsibilities to enroll students, capture or review progress monitoring in the instructional software, etc.
- Redirection and behavior management to keep students on task
- Instructors in all three digital tools contexts provided content support, but in varying degrees. For example, the lab instructors for the credit recovery modules rarely addressed content questions, where in the 1:1 classroom model teachers were directly interacting with content and students via the technology
- In the case of the 1:1 initiative, locating and choosing the right tools for use in the classroom
- Student support in general, especially in the credit recovery labs
- Progressing instruction through the software as students complete assignments or assessments
- Drawing on software to assess student learning

Recommendations

Instructor experience and certification

- Supporting students' content knowledge in advanced classrooms is a challenge with digital tools where instructors have students in multiple course topics. Examine economies of scale to be realized across districts (e.g., such as a "call center" staffed by content people who also know the digital tools platform and can provide timely support)
- Since many tools don't make specific accommodations for students with disabilities:
 - Primary instructor should have special education training in order to make appropriate accommodations, or
 - Primary instructors should have regular access to a special education teacher elsewhere in the school who also has been trained on digital tool platforms
- Access to staff trained on digital tools is needed to support English learners

Instructor training

- Tech support
 - Conduct a needs assessment with current instructors on 3-4 specific areas they need training on (apart from digital tool platform itself)
 - District technical support staff conducts training
- Provide pedagogic training on digital tools (not just on how to access data and navigate platform)
 - Student engagement in blended settings
 - Facilitating higher order thinking via digital tools
 - Incorporating offline materials

Please visit <https://my.vanderbilt.edu/digitaled> for more information on the study and our research partners and funders.