

Mobile Computing Devices

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Introduction

The use of mobile computing devices (MCDs) is quickly becoming the most popular way for individuals to communicate and gather information. Implementing these devices for more than just personal use could be beneficial to student learning. According to Alvarez, Alarcon, and Nussbaum (2011), there are benefits to incorporating these devices in the classroom for collaborative learning and active student participation. Potential challenges for educators are how to develop digitally-enhanced and technology supported learning environments, whether these tools will engage the intended audience and address the needs of students and instructors.

In my research, the first article I encountered had the most inclusive list of MCD technology and use of applications. This article by Tucker (2015) discusses allowing students to use their personal digital devices in the classroom, rather than banning them. Using what the author calls the bring-your-own-device (BYOD) approach, students enter the classroom using tools for which they are more familiar and for which they already navigate the world. Tucker (2015) states that this translates into more meaningful, relevant, and engaged learning. The counter to this argument is that students will only become distracted and the learning environment will become compromised.

The author addresses the fears of educators through lesson guidance in how to allow students to use their personal devices in collaborative activities where they will share resources and communicate more freely than standing at the front of the classroom to simply state facts. Also, when students work together to learn information, it is less time the teacher needs to spend in front of the classroom giving boring lectures. Establishing and maintaining expectations for responsible use is important and rules should be implemented early. Teachers can even allow students to help develop the requirements. By treating the student's devices as learning tools,

their perception of the devices in the classroom changes. For educators who feel that because some students may not have their own devices, a divide between the haves and have-nots will be created. Tucker (2015) assures that creating a culture of sharing in the classroom will prevent this divide from happening.

As stated previously, the list of suggested devices that students might bring to the classroom is extensive. Here are a few of the suggestions for devices from Tucker (2015): cellphones (smartphones), iPads, tablets, and laptops. This author suggests many lessons involving activities where students work together using applications. Refer to Table 1 for a detail of innovative uses. The best example of use of these applications with student devices involves using crowdsourcing. Educators can assign students to small groups where they research a particular topic and generate notes. They can use the traditional whiteboard and markers to display their notes or they could post to a digitally shared board like Padlet. Once the information is reviewed by the students and the teacher, students can use Google forms to

Table 1

Innovative tools used with mobile computing devices

Tool/Application	Usage by Tucker (2015)
Socrative	Group icebreaker activity
Google Forms	Complete a survey
Google Voice Phone Number	Voice survey to tell teacher what they're passionate about
Kahoot	Game-based blending learning to practice for quizzes
Google Drive	Create and share documents (multimedia presentation) – students could rap, beat-box, sing, and choral read
RSA animation video (iMovie)	Perform a Shakespearean prologue
Google Books	Use magazine to compare life in 1935 to today
Padlet	Post information or timeline for 1935 life comparison
Google+ community online Voxer (smartphone usage)	Connect outside of class to work on projects
Instagram	Scavenger hunt for a field trip to Chinatown in San Francisco

collaboratively write a paper, create a presentation, or use iMovie to create a video presentation.

Additions to the list such as Kindles and netbooks, are provided by Glackin, Rodenhiser, and Herzog (2014). The authors suggest that when a learner owns two or more MCDs, it is more likely they will access eBooks. Benefits to this use are accessibility to more published books and documents, and access at a lower cost. Disadvantages to using these devices were functionality and pedagogy. Solutions can include better support for the digital devices and more deliberate development of instructional material. Overall, the benefit of students using these personal devices when learning is increased.

Grant, Tamim, Brown, Sweeney, Ferguson, and Jones (2015), also researched the use of the same mobile devices (smartphone, tablets, etc.) in K-12 classrooms. Of the nine participants they surveyed, only two used personal MCDs in their classroom. None of the participants used the BYOD approach. The teachers preferred school-owned devices and assigned them to each student for continued use in the classroom. Some teachers sought diversity by holding classes in other locations such as the library or an auditorium, but most activities were still mostly relegated to a desktop computer.

Although, I love many of the tools and applications used by the teachers and researchers in this report, many cannot be used effectively in my college classroom. My students would love to use their mobile computing devices in the classroom, and many do; however, a number of the applications used in K-12 would seem child-like to them. I assign work that requires video presentations in project management and I require an e-portfolio, so Google Drive and its applications are useful to my class. I am intrigued by the Instagram scavenger hunt activity since I include this activity type in my project management course...to keep students engaged during lecture. I pass out a sheet of paper with a scenario and the students will find the answer in the

PowerPoint slides, if they pay attention. I am trying to figure out a way to use Instagram to create the same time of scavenger hunt to replace the PowerPoint lecture. During this research, I discovered that Coastal Carolina University (CCU) provides a web page of suggested applications (Cool Tech Tools), via the CeTeal training office, for use while teaching and in student assignments. Some of the applications include Kahoot (as previously mentioned), but also Quizlet (similar to Kahoot) and PowToon, which allows animated cartoons.

Conclusion

In conclusion, even though many classrooms still ban the use of personal mobile devices, or BYOD, there is progress being made by educators such as Tucker (2015) and supported by research evidence as shown in Glackin et al. (2014). Allowing students to use their personal MCDs in the classroom will provide them access to new information and new ways of learning, with greater ease because they are already familiar with the environment for which they are learning. According to Swan, Van't Hooft, Kratcoski, and Unger (2005), students easily adapt these devices to their own needs, especially if they are provided the devices at a young age. Personalized learning supported by these devices is already happening beyond the classroom, so allowing them in the learning environment will keep students more engaged in learning activities and more motivated to learn.

The top ten usage I discovered in my research include the use of smartphones, laptops, tablets, and e-readers (Kindle). Most activities included collaboration to research new information, compile results, and present results to others. Applications such as Google document and Google Drive, allowed students to share information with their group as well as with their teachers. Students could use RSA animation video, such as iMovie, to show creative ways to present results beyond the typical use of applications like Microsoft PowerPoint. Google

Books and the use of Kindle e-readers can give students lower cost access to books (eBooks).

Each of these opportunities improve learner's chances to obtain and retain more information, improving learning.

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