Mobile phones in the classroom: Preservice teachers answer the call

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ABSTRACT

This study examined the perceptions of 245 preservice teachers in Kentucky and Tennessee to determine their support for the use of mobile phones in the classroom, as well as their perceptions of the mobile phone features that they view as beneficial for school-related work, and the instructional benefits and barriers to mobile phone use in the classroom. The results indicated that almost half (45%) of preservice teachers supported the use of mobile phones in the classroom while one-fourth (25%) did not support their use and approximately one third (30%) reported uncertainty. The preservice teachers perceived many features/functions of mobile phones as being useful in the classroom, but they identified access to the Internet, clicker capabilities, use of educational apps, and use as a reader as the most valuable. They perceived cheating, disruptions, cyberbullying, and accessing inappropriate content as major barriers to the use of mobile phones in the classroom.

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1. Introduction

Described as portable computers and the Swiss army knife of technologies, mobile phones have historically been banned in K-12 schools due to the perception that they are disruptive. A number of factors including, but not limited to, their increasing ubiquity, their ability to provide students with anywhere learning opportunities, the growing BYOD *(Bring Your Own Device)* movement, and mounting demands by parents, students, and school stakeholders, have resulted in a gradual lifting of the ban. A recent survey conducted by Bradford Networks (2013) found that 89% of colleges and universities and 44% of K-12 school districts in the United States and the United Kingdom allow students to bring their own devices to use on school networks. As more and more K-12 schools have opened their doors to mobile phone use, the benefits and barriers associated with their integration have materialized.

Preservice teachers find themselves in an interesting dichotomy with respect to mobile phone integration. Whereas previous attempts to provide 1:1 integration have been made with students who have digital devices, this generation of preservice teachers is among the first to have grown up in a 1:1 world. Ownership of digital devices among the Millennial generation (ages 18–34) was reported by Zickuhr (2011) to be 95% mobile phone, 57% desktop, 70% laptop, 74% iPod, 63% game console, and 5% tablet—only 1% do not own one of these devices. In fact, one could argue that today's preservice teachers *are* the students whose teachers believed used their mobile phones to disrupt class. On the other hand, preservice teachers are also the former students who identified the ban on mobile phones as the number one barrier to the integration of technology in the classroom (Project Tomorrow, 2010) and were increasingly using their phones to complete school assignments (Purcell, Heaps, Buchanan, & Friedrich, 2013). Considering that teachers are the gatekeepers to technology integration in the classroom, preservice teachers will play an important role in the success or failure of mobile phone inclusion in the BYOD initiative.

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2. Literature review

Student learning, engagement, motivation, and productivity are positively influenced by technology (Roblyer & Doering, 2010). Mobile devices, such as mobile phones, are no exception. They provide teachers and students with the benefits traditionally found in 1:1 computing—and more. The increasing ubiquity and instructional features of these devices has made mobile learning "one of the key current trends of educational applications for new technologies" (Wu et al., 2012, p. 818).

2.1. Benefits to using mobile phones in the classroom

The foremost instructional benefit linked with mobile devices is their ability to involve students in meaningful learning opportunities from *anywhere* (Traxler, 2009). For example, students use mobile phones to access the Internet. Allowing teachers and students to conduct online research is a benefit of 1:1 computing (Dunleavy, Dexter, & Heinecke, 2007). In a survey of 1121 teachers, Thomas, O'Bannon, and Britt (2014) found that student access to the Internet was identified as the number one benefit of using mobile phones in the classroom. Currently, one fourth of teens use their mobile phones as their primary method of accessing the Internet (Madden, Lenhart, Duggan, Cortesi, & Gasser, 2013). A survey of 2462 Advanced Placement (AP) and National Writing Project (NWP) teachers revealed that the most popular way they use mobile phones with students is to complete Internet research (Purcell et al., 2013). In addition to conducting research, 73% of the respondents noted that their students used personal mobile phones to complete assignments, while 79% of the teachers required their students to access assignments online, and 76% required them to submit assignments online. Mobile phones can also be used to access online tools (e.g., Dropbox, Web 2.0, Poll Everywhere) and apps (e.g., PBS mobile apps and Illuminations) for classroom use. Further, the Internet can be used for communication, collaboration, and cooperative problem-solving Harris (2002).

Students also use their mobile phones to communicate through sending/receiving text messages. Texting supports *anywhere* interaction; communication; and collaboration among teachers, students, and content (Thomas & Orthober, 2011). For example, Thomas and Orthober surveyed 46 high school students in three classes who received teacher-generated text messages on a variety of course-related topics. Results indicated that students found the use of teacher-generated text messaging to be beneficial in increasing communication and interaction (student-to-teachers and student-to-content). Further, according to Plester, Wood, and Joshi (2009), texting can also improve students' phonological awareness, vocabulary, and reading ability.

Recording audio and video is another useful feature of mobile phones for improving student literacy. Student-created podcasts can improve students' reading, writing, and listening skills (Smythe & Neufeld, 2010). Podcasts and/or vodcasts (video casts) also assist teachers in the differentiation of instruction by appealing to audio or visual learners (Smaldino, Russell, Heinich, & Molenda, 2005).

Additional instructional benefits of mobile phones include providing teachers the ability to personalize instruction (Steel, 2012), create student-centered learning opportunities, collaborate (Corbeil & Valdes-Corbeil, 2007), and differentiate instruction (Kukulska-Hulme, 2007). Further, teachers and students also use traditional instructional tools on mobile phones, such as the calculator and digital camera (Thomas, O'Bannon, & Britt, 2014). Regardless of the abundant benefits of mobile phone integration, the barriers to their use must be considered.

2.2. Barriers to using mobile phones in the classroom

While mobile phones provide many of the benefits associated with 1:1 computing, they also share some of the same barriers. For example, in a study of two middle schools, Dunleavy et al. (2007) found that 1:1 computing could be disruptive and a distraction. Lenhart, Ling, Campbell, and Purcell (2010) agree that the most common dispute against the use of mobile phones in the classroom is the disruption they cause. And this assertion is supported by two recent studies involving university students. Baker, Lusk, and Neuhauser (2012) conducted a study with 882 university students regarding the classroom use of electronic devices. Generally, these students felt that any use of mobile phones was disruptive to learning. Of specific concern were making calls, checking and sending text messages, and checking email. Additionally, McCoy (2013) conducted a study with 777 college students and discovered that 80% believed that using digital devices in the classroom, such as mobile phones, distracted them from learning. Additional studies support the findings of these researchers.

Rosen, Lim, Carrier, and Cheever (2011) investigated the effect of texting during instruction. Results indicated that academic performance decreased when students texted during class. Similarly, educators worry about the influence of textese, the abbreviations and slang associated with texting, on written language skills. Yet, research on this issue is mixed. Coe and Oakhill (2011) examined the effect of student texting/textese and literacy and reported a positive relationship, whereas Drouin and Driver (2012) identified that texting negatively affects students' literacy.

Additional concerns include students' use of mobile phones for cheating, sexting, and cyberbullying. Studies (Commonsense Media, 2010; Tindell & Bohlander, 2012) confirm that students use their mobile phones to cheat. Teens also use their phones for sexting, the practice of sending sexually explicit photos and/or messages via a mobile phone. According to the Pew Internet & American Life Project, 4% of teens ages 12–17 who own mobile phones have sent these types of messages (Lenhart et al., 2010), and 15% have received such messages. Another concern is cyberbullying, which is bullying that takes place through the use of digital technology. While cyberbullying can occur through the use of the Internet and social media, Holfeld and Grabe (2012) conducted a study with 665 middle school students and discovered that offenders used their mobile phones to bully others in 41% of the incidents.

Traditional barriers to technology integration—fear of change, lack of training, modeling, lack of personal use, motivation, and a negative school environment (Bitner & Bitner, 2002)—also hinder the integration of mobile phones into the classroom. These barriers can also prevent teachers from developing the knowledge, pedagogy, and self-efficacy necessary to move past "low levels" of technology integration and enable teachers to take full advantage of the instructional benefits that technologies provide (Ertmer & Orrenbreit-Leftwich, 2010). The potential negative uses associated with the use of mobile phones have prompted school officials to ban them from the classroom, thus