



Teacher perceptions of using mobile phones in the classroom: Age matters!



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ABSTRACT

This study examined the digital native–digital immigrant dichotomy based on the results of a study involving 1095 teachers from two states in the southeastern United States. The study focused on age as it relates to the relationship between the type of mobile phone they owned, their support for the use of mobile phones in the classroom, their perceptions of the benefits of specific mobile features for school-related work, and their perceptions of instructional barriers. The results indicated that the age of the teacher matters, however, not as suggested by Prensky (2001). There were no significant differences in the findings for the teachers who were less than 32 and the ones who were 33–49; however, they both significantly differed from those over 50 in mobile phone ownership and support for the use of mobile phones in the classroom as well as in their perceptions regarding the useful mobile features for school-related work and instructional barriers. In each instance, the older teachers were less likely to own smartphones, were less supportive on all items, were less enthusiastic about the features, and found the barriers to be more problematic.

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1. Introduction

Most educators consider technology to be an integral part of “providing a high-quality education” (U.S. Department of Education, 2003, p. 3). Increasingly, K–12 schools are recognizing mobile devices as important learning tools with a vast range of classroom applications (Johnson, Adams, & Cummins, 2012). This recognition is confirmed in the growing popularity of the “Bring Your Own Device” model, which takes advantage of personal mobile devices to increase access while connecting students’ personal and academic learning (Lai, Khaddage, & Knezek, 2013). Perhaps the most ubiquitous of these mobile devices—mobile phones—have a plethora of classroom applications (calculator, calendar, audio and video recorder, digital camera, Internet access, texting/email, educational apps, etc.) that can assist students in the development of 21st century skills. Unfortunately, the majority of schools have banned the use of these tiny computers in the classroom (Lenhart, Ling, Campbell, & Purcell, 2010). A number of traditional integration barriers (e. g., lack of access, lack of teacher training, fear, school climate) have contributed to the ban (Thomas, O'Bannon, & Britt, in press); however, teachers’ perception that mobile phone use by students creates a classroom disruption is the primary concern (Lenhart, 2012).

Conversely, recent research suggests that teacher support for the use of mobile phones in the classroom may be shifting (Johnson et al., 2012; Thomas & McGee, 2012; Thomas, O'Bannon, & Bolden, 2013; Thomas & Orthober, 2011). One reason for this shift could be the growing number of digital natives entering the classroom as teachers. Prensky (2001) suggests that *digital natives*, who were born after 1980, have grown up surrounded by digital technologies and, consequently, are more comfortable using them than those born prior to 1980, whom he labels *digital immigrants*. Prensky alleged that as this younger generation of educators replaces older teachers in the classroom, technology integration would no longer be an issue.

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2. Literature review

Technology can positively impact student learning (Clements, 1994), engagement, motivation, and productivity (Roblyer & Doering, 2010). Mobile technology devices, such as mobile phones, are no exception. Mobile phones are small mini-computers, which offer a variety of features and functions that are beneficial to students and teachers in the classroom. Additionally, a recent report (Madden et al., 2013) indicates that 78% of teens and 91% of adults own a mobile phone.

2.1. Benefits of using mobile phones in the classroom

Mobile phones are among a mounting number of mobile devices being recognized for their ability to engage students in meaningful learning opportunities from *anywhere* (Traxler, 2009). The features and functions afforded by mobile phones facilitate content creation (Hartnell-Young & Vetere, 2008), student-centered learning, collaboration (Corbeil & Valdes-Corbeil, 2007), authentic learning (Brown & Duguid, 1996), differentiation of instruction (Kukulska-Hulme, 2007), and assessment and reflection (Markett, Sanchez, Weber, & Tangney, 2006).

In addition, studies involving the use of mobile phones to access the Internet (Madden et al., 2013), send/receive text messages (Lenhart, 2012; Looi et al., 2010; Plester, Wood, & Joshi, 2009; Santos & Ali, 2012; Thomas & Orthober, 2011), and use cameras and recorders (Bull & Thompson, 2004; Dlott, 2007; Molina, 2006; Smaldino, Russell, Heinich, & Molenda, 2005) have yielded promising results for the classroom. Although there are multiple benefits to using these devices in the classroom, there are also documented barriers that must be overcome in order for their use to be productive.

2.2. Barriers to using mobile phones in the classroom

A number of recognized barriers to using mobile phones in the classroom appear in the literature, including disruption (Campbell, 2006; End, Worthman, Mathews, & Wetterau, 2010; Shelton, Elliott, Lynn, & Exner, 2011; Thomas et al., *in press*), texting (Rosen, Lim, Carrier, & Cheever, 2011; Wood et al., 2011), cheating (CommonSense Media, 2010; McAfee, 2012; Pickett & Thomas, 2006; St. Gerard, 2006; Thomas et al., *in press*), sexting (Lenhart et al., 2010; Thomas et al., *in press*), cyberbullying (Holfeld, 2012; Lenhart et al., 2010), and accessing inappropriate content on the Internet (Thomas et al., *in press*). In a recent study conducted by Thomas et al. (*in press*); teachers also indicated lack of access to wi-fi as an additional barrier. In addition to the recognized barriers to using mobile phones in the classroom, the barriers to technology integration must be considered.

2.3. Teacher age and technology integration

The National Center for Education Statistics (NCES) released a report in 2000 that revealed that only 20% of classroom teachers felt comfortable using technology in their classrooms. Soon after the NCES release, Prensky (2001) proposed that acceptance and use of technology is different for teachers according to their age. He proclaimed that those born after 1980, which he labeled *digital natives*, had grown up surrounded by technology and accordingly were more comfortable using it than previous generations, which he labeled *digital immigrants*. He suggested further that *digital immigrants* struggle to learn and use technologies and are thus reluctant to adopt them. Therefore, he said that as *digital natives* became teachers, problems with technology integration would cease. Nearly a decade later, NCES (2009) reported that 40% of teachers claim that they or their students used technology during instructional time. Although technology use has doubled in the last decade, Mueller, Wood, Willoughby, Ross, and Specht (2008) reported that teacher use of technology is often at a low level; technology is not being used as an instructional tool to engage 21st century learners in meaningful learning (Ertmer & Ottenbreit-Leftwich, 2010).

A number of barriers to technology integration exist in the literature, including the fear of change, lack of training, modeling, personal use, and motivation (Bitner & Bitner, 2002), as well as knowledge, teaching beliefs, self-efficacy, and school culture (Ertmer & Ottenbreit-Leftwich, 2010). Is teacher age yet another barrier? There is research to suggest that age does influence teacher integration of technology, but it is mixed.

2.3.1. Digital natives/immigrants and integration

Based on Prensky's (2001) claims, one might assume that the gains made in teacher integration of technology are simply a result of digital natives entering the classroom. After all, "natives" have been described as "very technology-savvy, feeling strongly about the positive value of technology, and relying upon technology as an essential and preferred component of every aspect of their lives" (U.S. Department of Education, 2003, p. 19). A few studies have supported this contention and have found that digital natives are more likely to use technology for learning. A study conducted with 68 college students and 79 faculty members (Salajan, Schonwetter, & Cleghorn, 2010) revealed a "slight intergenerational difference between the usefulness and importance of digital technologies for learning and teaching" (p. 1393). Further, a study with 388 college freshmen (Thompson, 2013) revealed "some positive correlations between use of digital technology and the characteristics ascribed in the popular press to the digital native learners" (p. 1).

However, Thompson also found that digital natives limit themselves to using a narrow range of technologies, and older participants can become comfortable with new technologies. These findings support the argument by Bennett, Maton, and Kervin (2008), who conclude that digital natives do not constitute a homogenous group in regard to technology, skills, attitude, or learning style. Moreover, in a study with preservice teachers, Lei (2009) discovered that while these digital natives had positive attitudes toward technology and had the skills needed to use basic technologies, they lacked skills associated with more advanced technologies.

Conversely, other studies have suggested that *digital immigrants* are more likely to implement technology than their younger counterparts. For example, Lau and Sim (2008) surveyed 250 Malaysian secondary school teachers and found that older teachers were more likely to use computer technology than younger teachers. The researchers attributed this finding to the combination of experience, classroom management, and technology skill level. Russell, O'Dwyer, Bebell, and Tao (2007) corroborated this finding. They surveyed 3000

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