`Missouri Educator Perceptions on the use of Smartphones/Cell Phones in a Secondary School Setting: Their Relationship to Instruction

by

Christopher Birch

A Dissertation submitted to the Education Faculty of Lindenwood University

in partial fulfillment of the requirements for the

degree of

Doctor of Education

School of Education

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Dr. Lynda Leavitt, Dissertation Chair	9/20/2012 Date
Dr. Sherrie Wisdom, Committee Member	4/20/2012 Date
Dr. Graham Weir, Committee Member	4/20/2012 Date

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Declaration of Originality

I do hereby declare and attest to the fact that this is an original study based solely upon my own scholarly work here at Lindenwood University and that I have not submitted it for any other college or university course or degree here or elsewhere.

Full Legal Name: Christopher James Birch

Signature:  Date: April 20, 2017

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Abstract

This mixed methods study evaluated the differences in the perceptions of educators in the state of Missouri on cell phone use in the classroom setting and its relationship to instruction. Specifically, this study analyzed the difference in perceptions and relationships that exist among educators (teachers and counselors) and administrators in Missouri public schools. Furthermore, this study also examined relationships between region (rural versus suburban), school setting (middle school versus high school), and education level (bachelors and masters/specialist/doctorate) and interest level in using cell phones as an instructional tool. In addition, this research investigated current instructional practices involving mobile technology.

Through a collection of survey data and interviews, the results of the research indicated that educators have a negative perception of cell phone use as an instructional tool and that educators may not be willing to fully integrate mobile technology in the classroom; however, the perception varies widely among region and educational role. Several applications exist for mobile technology in the classroom and many Missouri educators are utilizing them for instruction. This research could provide insight into how Missouri school districts move forward with the integration of smartphone/cell phone technology in secondary classrooms.

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Chapter One: Introduction to the Study

Background of the Study

Students today are digital natives; since birth, technology has consistently engulfed them, and as a result, they are increasingly familiar with the technology that surrounds them, including mobile phones. Nielson (2009) concluded that over three fourths of high school students own cell phones (as cited in Lemke, 2010). With the evolution of mobile technology, besides a two-way communication device, 3G/4G cell phones have now essentially become handheld computers, yet most schools continue to block and ignore the potential learning opportunities these devices have to offer. Obringer and Coffey (2007) found in a nationwide survey of 112 high school principals in 46 states that only 24% of their schools permitted cell phone use by students. Using technology as a tool to research, organize, evaluate, and communicate, it's use and applications has become a 21st century skill (Partnership for 21st Century Skills, 2004). The researcher believes that mobile learning, integrating cell phone technology into the classroom, would increase student achievement and engagement as well as revolutionize instruction. The researcher's intent was to gain the understanding of educator perceptions regarding these devices that could possibly lead to redefining current policies that exist in the Missouri public schools. The population for this study included all public and charter K-12 Missouri educators (defined as counselors, teachers, and administrators).

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Statement of Problem

The researcher has found limited research on educator perceptions of cell phone technology integration in the public school classroom since most high schools ban them

(Obringer & Coffey, 2007). Diamantes (2010) noted that criminal charges also exist in some cases that involve student possession of cell phones. Integrating smart phone/cell phone technology in the public school classroom remains very limited (Common Sense Media, 2009; Kolb, 2007; Meer, 2004; Obringer & Coffey, 2007). Through an intensive review of literature, the researcher has discovered that several studies have investigated teacher and administrator perceptions of technology (Chang & Hsu, 2008; Gorder, 2008; Guerro, Walker, & Dugsdale, 2004; Murphrey, Miller, & Roberts, 2009; Palak & Walls, 2009; Li, 2007). However, limited research exists on the perceptions of Missouri educators and the use of smart phones/cell phones in an educational setting and any relationship these electronic devices may have on instruction (Brown, 2008; Kinsella, 2009; McConatha, Praul, & Lynch, 2007; Roberson & Hagevik, 2008). This study provided insight into the perceptions of smart phones/cell phones that exist among various demographics of Missouri educators and, due to their capabilities, may determine new instructional strategies for integrating smart phone technology into the classroom.

Purpose of Study

The purpose of this study was to determine that differences in perceptions related to cell phone use and its relationship to instruction exist among Missouri educators. Specifically, this study analyzed the perceptions and relationships that existed among educators (teachers and counselors) and administrators in Missouri public schools. This study was also intended to determine a possible difference in perceptions of Missouri middle school educators (teachers/counselors and administrators) and Missouri high school educators (teachers/counselors and administrators) on cell phone use in the classroom setting and its relationship on instruction. Furthermore, this study analyzed

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relationships between region (rural vs. suburban), education level (bachelors and masters/specialist/doctorate), teacher/counselors, and administrators and interest level in using cell phones as an instructional tool. This research should provide insight into how Missouri school districts move forward with the integration of smartphone/cell phone technology in secondary classrooms.

Research Questions

The following research questions allowed the researcher to conduct a thorough analysis of Missouri educator perceptions of cell phone use in the classroom and their impact on student achievement and engagement and were the focus of this study:

1. How do Missouri public secondary school (grades 6-12) educators (administrators and teachers/counselors) perceive the use of cell phones in the classroom?
2. What is the relationship between Missouri secondary school (grades 6-12) educators (administrators and teachers/counselors) and interest level in using a smartphone/cell phone as an instructional tool?
3. What is the relationship between the region (suburban and rural) and interest level in using a smartphone/cell phone as an instructional tool?
4. What is the relationship between the education level (bachelors and masters/specialist/doctorate) and interest level in using a smartphone/cell phone as an instructional tool?
5. In what ways do Missouri secondary school (grades 6-12) educators (administrators and teachers/counselors) utilize smartphone/cell phone technology applications in the classroom?

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Independent Variables

Region. The relationship between region (rural and suburban) and interest level in using a smartphone/cell phone as an instructional tool was analyzed.

Education level. The relationship between education level (bachelors and masters/doctorate/specialist) and interest level in using a smartphone/cell phone as an instructional tool was analyzed.

Teachers/Counselors. The relationship between teachers/counselors and interest level in using a smartphone/cell phone as an instructional tool was analyzed.

Administrators. The relationship between administrators and interest level in using a smartphone/cell phone as an instructional tool was analyzed.

Dependent Variable

Interest level in using cell phones as an instructional tool. The dependent variable in this study was the interest level (defined as not very interested in allowing students to use cell phones/ moderately interested in allowing students to use cell phones/ very interested in allowing students to use cell phones) as an instructional tool. The study analyzed the relationships between the independent variables and the dependent variable.

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Hypotheses

Null Hypothesis #1. There is no measurable difference between the perceptions of Missouri public school educators (teachers and counselors) and Missouri public school administrators on cell phone use in the classroom setting.

Null Hypothesis #1A. There is no measurable difference in the proportions of Missouri public educators (teachers and counselors) and Missouri public school administrators in interest level in using a smartphone/cell phone as an instructional tool.

Null Hypothesis #1B. There is no relationship between teacher/counselor and interest level in using a smartphone/cell phone as an instructional tool.

Null Hypothesis #1C. There is no relationship between administrator and interest level in using a smartphone/cell phone as an instructional tool.

Null Hypothesis #2. There is no measurable difference between the perceptions of Missouri middle school educators (teachers/counselors and administrators) and Missouri high school educators (teachers/counselors and administrators) on cell phone use in the classroom setting.

Null Hypothesis #2A. There is no measurable difference in the proportions of Missouri middle school educators (teachers/counselors and administrators) and Missouri high school educators (teachers/counselors and administrators) and interest level in using a smartphone/cell phone as an instructional tool.

Null Hypothesis #2B. There is no relationship between Missouri middle school educators (administrators and teachers/counselors) and interest level in using a smartphone/cell phone as an instructional tool.

Null Hypothesis #2C. There is no relationship between Missouri high school educators (administrators and teachers/counselors) and interest level in using a smartphone/cell phone as an instructional tool.

Null Hypothesis #3. There is no relationship between the region (suburban and rural) and interest level in using a smartphone/cell phone as an instructional tool.

Null Hypothesis #4. There is no relationship between the education level (bachelors, masters, and doctorate/specialist) and interest level in using a smartphone/cell phone as an instructional tool.

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Alternative Hypothesis #1. There is a measurable difference between the perceptions of Missouri public school educators (teachers and counselors) and Missouri public school administrators on cell phone use in the classroom setting.

Alternative Hypothesis #1A. There is a measurable difference in the proportions of Missouri public educators (teachers and counselors) and Missouri public school administrators in interest level in using a smartphone/cell phone as an instructional tool.

Alternative Hypothesis #1B. There is a relationship between teacher/counselor and interest level in using a smartphone/cell phone as an instructional tool.

Alternative Hypothesis #1C. There is a relationship between administrator and interest level in using a smartphone/cell phone as an instructional tool.

Alternative Hypothesis #2. There is a measurable difference between the perceptions of Missouri middle school educators (teachers/counselors and administrators) and Missouri high school educators (teachers/counselors and administrators) on cell phone use in the classroom setting.

Alternative Hypothesis #2A. There is a measurable difference in the proportions of Missouri middle school educators (teachers/counselors and administrators) and Missouri high school educators (teachers/counselors and administrators) and interest level in using a smartphone/cell phone as an instructional tool.

Alternative Hypothesis #2B. There is a relationship between Missouri middle school educators (administrators and teachers/counselors) and interest level in using a smartphone/cell phone as an instructional tool.

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Alternative Hypothesis #2C. There is a relationship between Missouri high school educators (administrators and teachers/counselors) and interest level in using a smartphone/cell phone as an instructional tool.

Alternative Hypothesis #3. There is a relationship between the region (suburban and rural) and interest level in using a smartphone/cell phone as an instructional tool.

Alternative Hypothesis #4. There is a relationship between the education level (bachelors, masters, and doctorate/specialist) and interest level in using a smartphone/cell phone as an instructional tool.

Rationale for the Study

At the time of this research, 62% of all schools in the country did not allow students to use cell phones in class (Nash, 2011). However, cell phone use in the classroom provides students and school districts with several opportunities and can save districts money on technology. Project Tomorrow (2010) reported that 98% of 9^{th}-12^{th} graders and 83% of 6^{th}-8^{th} graders own a cell phone (as cited in Kolb, 2011). The researcher's experience has revealed that these tools are already in the hands of students.

Another benefit to allowing students to use smartphone technology is that classroom activities with this technology allow students to further develop their digital literacy skills and prepare them for 21^{st} century jobs (Elgan, 2008; Kolb, 2011). In addition, as Kolb (2011) noted, "cell phone instructional activities give educators the opportunity to talk to their students about mobile etiquette" (p. 41). Current smartphone applications allow students and teachers to enhance their current instructional practices. Teachers can utilize software like Poll Everywhere—an instant feedback system that allows students to text responses to any number of multiple choice/matching items

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(McLester, 2011). Students do not currently see the connection between their tools and learning. Fisher and Frey (2010) claimed, "most students do not know how to use it as a learning tool" (p. 227). In addition, noted educational gaming expert Marc Prensky (2005) also recognized that kids are nevertheless employing cell phones for what they want to know—finding information, texting, etc.

Students find the use of cell phones in the classroom to be motivational. Kolb (2011) recognized "integrating their favorite device [cell phones] into learning can get students more engaged with classroom content" (p. 40). Roberson and Hagevik (2008) acknowledged "considering how to use cell phones in education is one way to blend real life and school life to make learning more relevant, personal, and meaningful" (para. 15). Specific cell phone technology can also enhance levels of engagement among students. Some studies (Mula & Kavanagh, 2009; Patry, 2009) have suggested that automatic response systems have the potential to raise student engagement, concentration and participation. Marcoux (2009) also endorsed the use of cell phones, suggesting that "the cell phone optimizes current digital engagement as it allows for personal thought and instant feedback" (para. 14).

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In the experience of the researcher as a suburban high school assistant principal, current cell phone policies create situations that quickly escalate beyond the normal realm of classroom disruption when students refuse to hand over their device to the teacher and/or administrator. In the researcher's district, this type of incident results in a three-day suspension. Other administrators are facing similar situations, noting that "the cell phone has become a virtual appendage—an essential communication tool, and not necessarily more disruptive than a student tapping a pencil" ("Among Colleagues," 2011,

p. 96). According to Ramaswami (2008), rather than fear the technology of cell phones, administrators should begin considering their applications in the classroom.

Current cell phone bans are also met with resistance among parents (Hamilton, 2008). However, Engel and Green (2011) recognized that "clear policies must be in place that outline when, where, and how the devices can be used . . . it is a good idea to have a classroom policy as well that reiterates these policies" (p. 45). Parents also see cell phones as a vital means of communication with their children (Perona, 2006; Song, 2006). Despite concerns over their use, cell phone technology in the classroom setting reflect skills that students can eventually use in the 21st century world that awaits them.

Definition of Terms

1:1 Computing: A "technology-rich educational reform where access to technology is not shared—but where all teachers and students have ubiquitous access to laptop computers" (Bebell & O'Dwyer, 2010).

3G Network: Third-generation cell phones that include the ability to transfer voice data and download information online, exchange e-mail, and instant messaging (UMTS World, 2009).

4G Networks: Fourth-generation cell phones that include high-speed mobile wireless access with rapid data transmission speed (UMTS World, 2009).

21st Century Skills: The Partnership for 21st Century Skills (2004) defined 21st century skills as including the following student outcomes: life and career skills, learning and innovation skills, core subject and 21st century themes, and information, media, and technology skills and involving the following foundations: standards and assessments, curriculum and instruction, professional development, and learning environments.

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Bring Your Own Technology (BYOT): A school wide initiative that allows students to bring their own technology products for learning (Ullman, 2011).

Digital Literacy: Framing the Information and Communication Technology (ICT) Literacy Panel's definition of digital literacy, Borawski (2009) defined the term as "using digital technology, communications tools, and/or networks to access, manage, integrate, evaluate, and create information in order to function in a knowledge society" (p. 53).

Mobile Learning: Utilizing any mobile communication or cell phone device for educational purposes (Keskin & Metcalf, 2011).

Mobile Technology: For the purpose of this study any application of cellular phone devices.

Perception: For the purpose of this study, a personally held belief about some concept or entity.

Short Messaging Service (SMS): The texting component of any cell phone or other communication device (UMTS World, 2009).

Smartphones: A smartphone is any cellular device that can perform multiple functions with various technology (Ramaswami, 2008).

Student Engagement: Newman (1992) defines student engagement as "the student's psychological investment in and effort directed toward learning, understanding, or mastering the knowledge, skills, or crafts that academic work is intended to promote" (p. 12).

Student Achievement: The measurement of student performance on any given educational task or assessment (Wong & Nicotera, 2007).

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Limitations

The researcher was the only responsible party in collecting and analyzing data as well as preparing all discussion related to the study. Although the researcher's intent was to gather input from every Missouri public educator (roughly 22,000 Missouri educators), the actual number of respondents was 319, which limited the overall review and analysis of data.

Delimitations

The researcher chose to limit this study to educators in the state of Missouri. Including other states or the entire population of educators in America may not have been possible because of the difficulty in gathering contact information to launch the survey instrument. This study was limited to secondary educators (grades 6-8) because most scholarly discourse on mobile technology reflects secondary and higher education.

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Assumptions

Cell phones are useful educational tools with limited use in the classroom; however, they have multiple purposes and applications that can be used. The researcher believes that these are currently being under-utilized.

Summary

Since their inception, mobile devices have revolutionized the way society communicates; however, the researcher believes that because of safety and privacy concerns, cell phone use for educational purposes in the educational setting is limited. Gaining an understanding of educators' beliefs of these tools may help reform contemporary technology use practices in Missouri public schools. The purpose of this mixed methods study was to measure how Missouri educators perceive cell phone use in

the classroom and how Missouri educators are currently integrating mobile technology for instructional purposes. The research questions and related hypotheses reflect the purpose of the study. The researcher analyzed relationships that exist between various demographics of Missouri educators and their interest in using cell phones for instruction. Specifically, this study examined perceptions based on educational setting, region, and level of education. Furthermore, the study was intended to increase educator awareness in instructional practices related to cell phone use in the classroom. Chapter Two reviews the literature related to the study, which includes a discussion of the evolution of technology in the educational setting, cell phone bans in schools, technology integration in the classroom, and various educator perceptions of technology use. Chapter Three explains the methodology of the study. The research results and data analysis is examined in Chapter Four, and Chapter Five elaborates on the conclusions and educational implications of this research.

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Chapter Two: Review of Related Literature

Introduction

This study intended to identify the perceptions of cell phone technology that exist among Missouri educators and asserts that integrating current cell phone technology into the classroom would increase student achievement and engagement as well as revolutionize instruction. The following review of literature recognizes the historical background of instructional technology, noting the transition of audio-visual equipment to computer-based innovations. The review also analyzes the role digital literacy plays in recent learning environments. In addition to the 21st century skills initiative, programs like 1:1 computing and Bring Your Own Technology are also examined.

This chapter also elaborates on the role of the cell phone in society, tracing the origins of the modern smart phone and the rationale behind cell phone bans in schools. Technology in learning environments—its effects on student engagement and student achievement along with its barriers—are also discussed. The literature related to professional development and technology integration is addressed. Finally, research on integrating cell phones in the classroom and teacher and administrator perceptions of technology ise included. This literature review provides the knowledge base for this mixed methods study.

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Evolution of Technology Integration in Education

Technology in education began in the early 1900s with the integration of educational films (Schneider, 2011). Use of sound recordings, radio broadcasting, and motion pictures in the classroom expanded in the 1920s (Nworie, 2007). The use of these types of media influenced educators to create the educational term audiovisual instruction