EVOLUTION OF CLASSROOM TECHNOLOGY, THE NEW WAY OF TEACHING, USING IPADS IN SCHOOLS

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ABSTRACT

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The aim of this thesis is to evaluate the present use of iPads in schools, particularly K-12 schools, as well as to consider how they might be used more effectively in the future. In order to carry out this aim, the researcher used the quantitative research method and developed a 32-question survey for a potential 250 participants. Responses to all 32 questions were gathered from those who responded, 65 participants. Of those who responded, 77% were female and 23% were male. Approximately 45% were between the ages of 22-25, 38% were above the age of 25, and 17% were between the ages of 18-21. A majority, 62%, had obtained a Bachelor’s degree as their highest form of education.

The participants were from two schools, one in Bowling Green and the other in Toledo. Out of the 32 questions that they responded to, 18 were multiple-choice questions, and 14 involved free responses. The free responses allowed for a wide range of opinions, and for descriptive statistics to be gathered. Importantly, this study revealed that most teachers, whether or not they already use iPads as a tool for instruction, would use them as such if they were available and if their access was cost-effective. It also revealed that most teachers who are currently using iPads for the purpose of classroom instruction are able to recognize and articulate various ways that they are useful and beneficial tools for this purpose. This study recommended that parents, teachers, school administrators, and government officials communicate with one another and work together to ensure that technology is used efficiently.
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# TABLE OF CONTENTS

**CHAPTER ONE: INTRODUCTION**
- Background of the Study ................................................................. 1
- Significance of the Study ................................................................. 2
- Statement of Purpose and Research Questions ............................... 2
- Personal Interest ............................................................................. 3
- Definition of Terms ......................................................................... 4
- Summary of Chapter ........................................................................ 5

**CHAPTER TWO: REVIEW OF LITERATURE**
- History of Technology Development ............................................. 6
- Digital Divide ..................................................................................... 7
- Information Computer Technology ................................................. 9
- Disadvantages of Technology in Schools ........................................ 11
- Advantages of Technology in Schools ............................................. 12
- Common Sources of Educational Tools ......................................... 12
  - Personal computers ....................................................................... 12
  - Smart phones .................................................................................. 14
  - iPads and tablets ............................................................................. 14
- Technology Usage in Schools ....................................................... 15
  - iPad usage in schools ..................................................................... 16
- Integrating Technology into the Classroom ................................... 18
- Summary of Chapter Two ............................................................... 20

**CHAPTER THREE: RESEARCH METHODS** ........................................... 22
CHAPTER FOUR: DATA ANALYSIS AND DISCUSSION OF RESULTS

Extent that iPads are used

Extent Curriculum Decisions are Made Using iPads

Why Do Teachers Use iPads?

How Does Personal Use Impact iPad use in School?

Summary of Data

CHAPTER FIVE: CONCLUSIONS

Findings

To what extent are iPads used in daily teaching in K-12 environments?

To what extent are curriculum decisions made toward the use of iPads?
Why do teachers use iPads in their teaching?............................................. 40

How do personal experiences and beliefs about technology impact iPad usage
of iPads in the classroom?........................................................................ 41

For Future Research.................................................................................. 41

Recommendations..................................................................................... 41

REFERENCES............................................................................................ 44

APPENDIX A: Student Participant Informed Consent ................................ 50

APPENDIX B: Survey ................................................................................ 51
# LIST OF TABLES

<table>
<thead>
<tr>
<th>Tables</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>28</td>
</tr>
<tr>
<td>2</td>
<td>31</td>
</tr>
<tr>
<td>3</td>
<td>34</td>
</tr>
<tr>
<td>Correlation of Research Question to Survey Items</td>
<td>28</td>
</tr>
<tr>
<td>Frequency of Use of iPads in K-12 schools</td>
<td>31</td>
</tr>
<tr>
<td>Frequency of Planned and Actual Use of iPads in K-12 Schools</td>
<td>34</td>
</tr>
</tbody>
</table>
CHAPTER ONE: INTRODUCTION

Background of the Study

As information and communication technology continually evolves around the world, education has had to adapt. This adaptation is a challenge due to a digital gap and the willingness of teachers to accept the integration of technology into the classrooms (Molesworth, Scullion, & Nixon, 2010). To meet this challenge tablets, computers, and smartboards are becoming a dynamic teaching tools to assist classroom teachers. For this technology to be effective, teachers need some help in making informed technology choices for their classrooms. The focus of this thesis will be to understand the use of technology, specifically the iPad in K-12 classrooms.

Since the 1990s, information and communication technology have found its way into classrooms. The success of integrating technology into classrooms depends on how the digital gap can be bridged and how teachers are going to accept the technology (Molesworth, et al., 2010). Digital gap is a term used to denote the gap between those who have the knowledge and ability to use information technology and computers and the Internet, and those who do not have such knowledge or the ability. To better understand the benefits and barriers of this technology and the reasons that some students cannot access it, more research needs to be conducted. As has been the case with any change in education, especially with regard to technology with can have financial implications, many claims have been made both positive and negative (Buckingham, Scanlon & Sefton-Green, 2001). Understanding these claims is a focus of this research. The bottom line is that many individuals and schools are spending money on technology, thus a greater need to better understand the implications.
Significance of the Study

Studies on informational technologies have attempted to explain factors associated with the difficulties affecting the integration of technology into classrooms. However, less attention has been given to the impact of technology on both teachers and students who use it. Between the teachers and students, there is a digital gap that does not include comfort level, but also engagement level. Prensky (2011) coined the terms “digital natives” to describe students and “digital immigrants” to describe teachers because students are often more knowledgeable than their teachers when it comes to information and communication technology (ICT). Digital immigrants often have some difficulties accepting technological changes. These two groups are differentiated by age and accessibility (Bitman, Brown, Rutherford, & Unsworth, 2011). Watson (2003) explains, “In this climate of educational and societal change surrounding the introduction of ICT, the teacher often falls between two classifications – that of a conservative resister of change, and that of a pioneer and interpreter of change” (p. 30). Today most students have been raised in a digital environment that has shaped their thinking. As a result, attitudes on the acceptance of technology between the digital natives and digital immigrants are different.

Statement of Purpose and Research Questions

Typically, classroom technology is designed by teachers to benefit teachers, it is important to know the difference between technology acceptance between teachers and students. For an innovation to be adapted, adopted, and become a regular part of the pedagogy, teachers, professional associations, and curriculum developers must find a common ground (Fullan, 1991). This will result in the development of classroom technology that looks into the needs of the digital natives. It is crucial that we understand how the two groups, digital natives
and digital immigrants, differ in technology usage. The vital questions and research questions that were employed for this study were:

1. To what extent are iPads used in daily teaching in K-12 environments?

2. To what extent are curriculum decisions made toward the use of iPads?

3. Why do teachers use iPads in their teaching?

4. How do personal experiences and beliefs about technology impact the use of iPads in the classroom?

This thesis focused on how the use of mobile devices has increased in classrooms both for teachers and students. In particular, how iPads have impacted the way tablets have been integrated into our classrooms. The review will focus specifically on iPads. The attitude of both teachers and students towards the use of iPads in schools will be looked into as well. The teachers’ section will look into how teachers are coping with the increased use of technology in the classrooms and how their students view them.

**Personal Interest**

This topic is of great interest to me because I believe technology is and will be an increasingly important factor in our daily lives. It is imperative that children receive all the training they possibly can so as to be better equipped for success in the future. Clearly, those exposed to technology benefit substantially from it and are advantaged because of it. I also can attest that children would enjoy carrying one piece of equipment, an iPad, rather than an entire backpack filled to the brim with books. The iPad is more comfortable and convenient solution to this. Furthermore, an iPad is a one-time purchase instead of having to buy textbooks, notebooks, pencils, and other school supplies every year. Lastly, iPads interest me because it
provides a fun and visually stimulating alternative due to its nontraditional and routine-free qualities.

I grew up in Saudi Arabia and, in my experience, the use of technology in the classroom was almost nonexistent. Schools in Saudi Arabia are not equipped with computers, or even projectors. If a teacher wishes to utilize technology in his or her classroom, they must provide it themselves. Some schools may be equipped with just one or two projectors that the entire school shares. Usually, teachers must use their own personal computer if they wish to utilize one. The only teacher that is provided with a computer is the computer science teacher and he or she is also equipped with a computer lab with 10 to 15 desktop computers for her students. This has motivated my interest in this research as I believe that technology is an important component to teaching and makes the process more adaptive and interactive.

**Definition of Terms**

**Classroom Technology** The technology in the class that provides students and users a wide range of potential activities and learning styles in which they become more efficient. With the use of classroom technology students expand important skills for their better future.

**Digital Literacy** Having a large amount of knowledge in order to effectively calculate and navigate important information in the digital world. People can find, generate, evaluate, summarize and communicate information by using digital technologies.

**Digital Native** The person who was born in the period in which a certain technology was introduced. People born in the 20th century when a lot of technology was introduced have a good understanding of the concepts of digital technologies and they can easily interact with the technology.

**Digital Immigrant** a person who was born before the implementation of digital technology.
Digital Natives and digital immigrants are opposite to each other and they have interrelated with technology from an early age.

iPad a device that takes photos, shoots video, plays games, plays music, and allows web browsing and e-mailing. An iPad is also called a slate and is an example of a tablet computer.

Media Convergence is a term in which old and new technologies were combined, and involves the interconnecting of information technology and computing.

Mobile Device is a handheld computing device that is used to operate the system with the help of software. Its operating system may run many different applications such as Skype, Facebook, and What's App. They feature a touch screen display with a small keyboard and weigh less than computers.

Summary of Chapter

Chapter I served as the introduction to this thesis. Chapter One consists of an introduction to classroom technology uses and concerns, as well as a statement of the research questions. Chapter Two reviewed the literature to better understand the history of technology development, the digital divide, the advantages and disadvantages to the use of information computer technologies, and more specifically the use of iPads in schools. Chapter Three provided the background of the research methods utilized in this study. The description of the research method used, a description of the participants, a detailed explanation of data collection, data analysis and limitations of the study. Chapter Four provided an overview of survey results and initial comparisons of research questions. In conclusion, Chapter Five provided a detailed conclusion of the research, implications and, suggestions for further research.
CHAPTER TWO: REVIEW OF LITERATURE

Information Computer Technology (ICT) is the integration of information processing by using computers and other technical devices. Bandele (2006), described ICT as a revolutionary use of the computer, Internet and other telecommunication technology in our lives. Indeed computers have changed the way children learn and the process of teaching by enhancing learning. ICT has made it possible for electronic devices to be integrated so that the sharing of information will be easy. In addition, it is believed that it makes learning more engaging (Bransford, Brown, & Cocking, 2003). This review of literature will begin with a history of technology development, then describe different types of technologies commonly seen in classrooms today, and finally review the current research conducted on the use of technology in classrooms.

History of Technology Development

Educational technology has exponentially grown over the past few years. We have developed a great deal from overhead projectors to iPads, but we have to look back at the start so that we can understand what is coming next. In reality, we started with the writing slate and today we use computer tablets and smart phones daily. We go back as far as 1926 when Sidney Pressey developed a mechanical teaching machine that allows students to input answers to questions, this is similar to today’s computer (Beins, 2001).

There are conflicting arguments of specifically when computers were developed, but it was between the late 1970s and the early 1990s. In 1977 microcomputers were introduced into the market as personal computers. It enabled people to own computers for personal use, but only the very affluent. As microprocessors were developed, the price of computers went down and more people began to own computers. Even though more people began to own computers,
they were still faced with the challenge of sharing information. This challenge led to the development of computer networks (Davis, Bagozzi, & Warshaw, 1989). A computer network is a system in which computers are connected together to share information. But the early networks could only share information within a physical wall.

As the need for sharing information increased, distance also became a problem (Demeulle, Lowther, & Morrison, 1998). This gave rise to expanded networks beyond a physical wall. Subsequently, the need for speed also became an issue. Internet technology developed gradually to accommodate distance and speed as more and more people began to own computers. This development expanded the sharing of data among people and made computer networks the core of communication (Davis, et al., 1989).

Computer networks are classified as wired or wireless. A wired network is a network in which computers are physically joined together by a wire. On the other hand, wireless networks such as Wi-Fi enable computers to share information without the need of wires. Laptops and hand held devices like the iPad also use wireless technology. Wireless networks are considered to be unreliable compared to wired networks, but they support mobility (Pahlavan & Krishnamarty, 2002).

People have been debating whether technology influences structure or vice versa. A great deal of research and writing has been done to better understand this relationship (Woodward, 1965). After decades of debate, the evidence for technology’s influence on structure is still confusing and contradictory (Barley, 1986).

**Digital Divide**

The term digital divide has many meanings depending on the people using it. It became part of educational vocabulary in the mid-1990s (Wilhelm, Carmen, & Reynolds, 2002).
Originally, it described the inequality between people who had and did not have access to information and communication technology (van Djik, 2006). The demographics of digital divide include socio-economic status, ethnicity, and gender. In the United States poor and minority families found difficulties in accessing computer and high-speed Internet. Another group includes those who have access to computer and high-speed Internet, but lack the skills to use it effectively. Furthermore, many of those who had access to computer and high-speed Internet lacked the skills to use it effectively. Lastly, there is a generational gap between teachers and students.

Today, computers, video games and cellphones surround many a youth. They have easy admission to digital resources such as books, newspapers and other forms of digital data. They are comfortable in the digital environment and Prensky (2011) termed them digital natives. Digital natives learn how to use new media and technology tools outside the school. They come to school equipped with the knowledge of how to download and upload materials online, create digital production and communicate using social media. On the other hand, most teachers did not grow up using computers and other digital devices on a daily bases. Prensky (2011) describes the teachers as digital immigrants because they always learn to adapt to the environment. Even their style of teaching does not match that of the digital natives. Frank W. Baker, a media literacy educator wrote,

The problem is that many teachers are not proficient in teaching media literacy. Few educators have been trained in the effective use of media in instruction. Fewer still know how to embrace youth media and culture to engage students in learning (Jacobs, 2009, p.145).
This quote provides further evidence of the digital divide that exists between teachers and students.

To further exacerbate the problem, today, learning styles are different and learning requirements are different as well. In this new millennium, digital literacy and effective communication can be facilitated by the use of information and communications technology. This demand for digital literacy added even more of a burden to teachers who are digital immigrants. Many educators have to accept the fact that mobile phones and mobile digital devices like iPads have become part of educational tools. For example, some teachers do not let their students use cell phones in class because some teachers do not know that all smart phones have applications that let students take notes or even record (Demeulle, et al., 1998). As a result, teachers must meet the needs of the children through educational technology.

Furthermore, teachers have to accept media convergence. Media convergence is defined as the flow of content across multiple media platforms (Jenkins, 2009). This flow of content gives media audience the ability to find whatever information they wanted to find. If teachers stay behind in this digital revolution, the gap between them and their students will widen and their students will look somewhere else for information. Jenkins (2009) believes that media convergence is defined top to bottom by executives in boardrooms, but bottom-up by teenagers in their bedrooms. It is the bottom-up decisions by teenagers that pushed the use of technology into the classroom.

**Information Computer Technology**

Information Computer Technology (ICT) has the potential to support the learning and development of skills in children at an early age because they use tools such as iPads. Learning with technology helps children develop procedural knowledge. Michael Polanyi referred to this
knowledge as “tacit knowledge”. Tacit knowledge cannot be transferred from one person to another because it is difficult to visualize or write down. Innovation is an example of tacit knowledge because it is hard to write down how a person can be innovative (Howells, 2002).

Thus, the use of education tools like iPads give students the opportunity to express themselves as individuals without the restraint of being forced to act collectively by copying what the teacher has on the board. Students will then share the information among themselves and that improves teamwork because everybody participates. Every team needs a leader to explain their work, but not every student will have that leadership quality because leadership cannot be taught for it is a type of tacit knowledge. However the teacher, if comfortable with technology, could serve as the leader.

Using technology tools such as iPads provide student access to resources that they can get anywhere and anytime. This enables students to look for information that they need for their projects without depending on the teacher as the only resource. As a result, students’ work will be different from each other and that enriches their knowledge because of the uniqueness of each other’s work. It also makes students responsible for their learning.

The use of such technology helps in bridging the digital divide between teachers and students (Demeulle, et al., 1998). For the teachers to be able to teach effectively using this technology, they have to acquire computer skills. As they acquire the necessary skills, it narrows the digital gap between them and their students. This gives the teachers more tools to manage their classrooms better. For example, teachers have the ability to create outlines and share it with students online so that the students can make their own personal notes during the class. Teachers can also create online tests. Furthermore, students can do their homework and send it to the teacher earlier. The use of digital devices like iPads eliminates the burden of
carrying books for students. It also reduces the inconvenience of students forgetting their books at home. It makes it easier for information to be provided in various ways.

**Disadvantages of Technology in Schools**

Every kind of change always has its disadvantages. Critics of classroom technology argue that it reduces social interaction between students because it creates an environment for individualism (Lim, Tay, & Hedberg, 2011). Another issue brought up is the likelihood of students plagiarizing. Since the use of classroom technology gives Internet access to students, critics claimed that it will cause a lot of distraction for students and they will be tempted to do other things with their devices (Clark & Luckin, 2013). For example, students will spend more time chatting with friends on social media than on the class. These are legitimate arguments, but if teachers are well versed in the use of classroom technology these concerns will be eliminated (Lim et al., 2011).

**Advantages of Technology in Schools**

Using technology in the classroom may benefit students who have learning disabilities. The iPad has “the features of an eBook reader, it also allowed access to the myriad resources of the internet; allowing users to seamlessly switch from one text to another or to delve beyond the text itself” (Sheppard, 2011). Incorporating technology, such as iPads, into the classroom can increase motivation to learn. Many children and young people are familiar with, and fond of, iPads, so including them in classroom instruction helps to personalize learning to the students’ needs.

Dyer (2013) published a Master’s thesis on the impacts of iPads on college students in terms of their cognitive skills, motivation to learn, and organization. According to Dyer the study found that participants reported a clear positive impact on their organization and
cognitive skills because of the use of the iPad during class and at home. In terms of organization, participants enjoyed being able to take notes and keep all of their class materials bundled in one location. They also reported that they were more likely to use their iPad (than a laptop) because it was mobile, transportable, and easy to use. More specifically, because of access to an iPad at school and home, participants reported various positive outcomes including: increase in their processing skills, increased memory of information, and increase in time it took to access information.

One study from Harvard University revealed that 42% of college freshman cheat on their homework. To address this issue, Zorigian and Job (2009) suggest the use of online homework where random questions and passwords could be used to access the problems, thus reducing students’ ability to share work.

Although the initial investment into a laptop or iPad may be expensive, it may benefit children from low-income families better as the long-term savings occur, as students will not have to buy books as they can be downloaded online. For classroom technology to be successful, these questions about income disparity need to be addressed.

**Common Sources of Educational Tools**

There are many different types of tools that are available to both teachers and students today. These include, but are not limited to, Personal computers, Smart phones, iPads and tablets.

**Personal computers.** The computer is an electronic machine used for processing the input data of the device, by the CPU (Controlled Processing Unit) to get useful information. Computers have evolved since their beginning and include many different types Rouse, M., & Harbeck, R. (2011). Desktop Networks are a group of computers connected to each other that
more than one user can work on. These computers are wired together and are located in one position. The next step in the evolution of the computer was the PC (Personal Computer), which was designed to be used by only one person.

When we look at any computer that we see things from the phenomenon are Screen keyboard and mouse system unit (CPU) speakers and printer. But when maintenance engineer wants to assemble a computer, he needs; a case, motherboard, Processor, fan, RAM cards (Fax modem, Sound, VGA) hard disk, floppy drive disk, CD-ROM drive, keyboard, Mouse, Speakers, Monitor, and Printer.

There are many advantages to using a computer. One is high-speed performance. Computers can perform the most complex computational and logical operations required. A second advantage is performance of exact mathematical and logical operations. A computer can perform complex calculations with the utmost precision. Computers can also store a huge amount of data, information and programs on different storage media and can locate the required information and take it out to the user directly. They have the ability to display information in written images, static images, or animated/video images (multimedia). One can use a computer to directly exchange information with people in various locations around the world. There are also various input and output tools, such as a keyboard, mouse, scanner, speakers, and a printer.

Computers provide immediate correction of the students in each stage of the work, without great difficulty and without errors. It can aid in the development of mental skills of the students by stimulating the student to explore the themes that do not exist within the curriculum.
**Smart phones.** A smartphone is distinct from conventional phones because of its proximity to more advanced features Marshall, G. (2012). Smartphone technology combines the features of older Personal Digital Assistant’s (PDA) and typically includes a camera. One can make outgoing calls and get incoming calls, messages and capture pictures with smartphones. Mostly, smart phones have similar kinds of operating systems and apps.

With a smartphone, users can create a list of tasks and appointments, follow-up appointments and activate the alarm, save contacts, use a calculator for simple mathematical operations, send or receive e-mail, play games, access information (news, entertainment, stock quotes) from the internet, watch TV, send and receive text messages, integrate with other devices such as PDAs, players (e.g. MP3) and GPS devices, capture images and record video clips, record voice messages, transfer and receive files via Bluetooth, GPRS, etc. The advantages of using computers and smart phones in education for students are that they perform many difficult experiences through simulation programs.

**iPads and tablets.** The first tablet is used for commercial Grid Systems 1989 released in September manufactured Grid Pad, its operating system based on MS-DOS (Lim et al., 2011). In 1991, another one tablet Go Corporation manufactured Momenta Pen top market. 1992, Go launched a dedicated operating system, named Pen Point OS, while Microsoft also introduced Windows for Pen Computing. With the "ThinkPad" as the word implies, IBM-ThinkPad series of original models are also tablet. These examples have failed, it criticized handwriting recognition rate simply does not meet the needs of users, and stubbornly high price and weight is also very problematic.

An iPad or tablet is a portable wireless personal computer with a touch screen. It is smaller than a notebook and larger than a smartphone. There are a variety of tablets, but the
most popular is the iPad. In 2001 Bill Gates introduced the world to tablets as he demonstrates a prototype of the Microsoft tablet. It was in 2002 that consumers got their hands on the tablets (Lim et al., 2011).

The use of mobile devices, like the iPad, as an educational tool depends on the existence of broadband Internet. According to the United States of America broadband plan, broadband Internet can help students and teachers take instruction beyond the physical classroom and traditional school day ("The national broadband," 2010). Students can become more productive and they can help each other through chat rooms that are created for a specific class. Furthermore, teachers can set up times that they can chat with their students out of the classroom. This gives students some needed extra time for learning. Today, the individual learning model has become foreign for students who grew up collaborating, sharing, and creating online content together (Tapscott, 2009).

The college students of 2012 will not remember a time in their lives when the Internet did not exist. So, the young children of today will not remember any time when there was no tablet-based mobile device used in the classroom. Studies have shown that the traditional, instructor-centered lecture format in various areas of science and engineering education is not effective compared to active participation and an interactive collaborative environment (Hart, 1995). An interactive collaborative environment can be fostered by the use of mobile devices like iPads that make it easy for students to work in groups and share information. These include the use of wireless tablet PC technology (Koile & Singer 2006; Rogers & Cox, 2008).

**Technology Usage in Schools**

As wireless connectivity increased, the use of portable devices increased and the implementation of one to one technology for students both at home and school are expanding
rapidly (Penuel, 2006). One on one technology gives students access to educational information outside the classroom to support their education. It also makes it easy for teachers and students to share references in an instance. It is unthinkable to keep information technology out of the educational system since mobile devices are on the hands of almost and every student (Friedmann, 1997). Educators can learn from the benefits that technology brought to other fields like banking and e-commerce (Pamuk, Ergun, Cakir, Yilmaz, & Ayas, 2013).

Tablet popularity has grown since its availability to the public in the fall of 2002. The advantage of the tablet is that it enables one to write on the computer screen with a digital pen or finger (Wise, Toto, & Lim, 2006). Despite the increase in mobile devices usage, some schools do not want to use mobile devices citing the lack of infrastructure. It is important that colleges include use of mobile devices in teachers’ education because they are the ones who are going to face students who grew up with mobile devices.

**iPad usage in schools.** In an Apple commercial entitled “learn” of 2011, it showed an iPad being used to watch TED talk, practice writing Chinese, play chess, look up meaning of words and play piano (Miller, 2012). This is being used to show the potentials of the iPad as an educational tool. According to Miller (2012),

> The iPad is a multipurpose mobile computing device. The ability to read electronic texts, in particular, makes the iPad an attractive device for colleges and universities. With the average cost of a print textbook significantly higher than that of its electronic counterpart, the e-reading potential of the iPad is not lost on students, faculty, librarians, and higher education administrators. (p.2)

Devices like iPads give students the ability to learn anywhere and anytime without sitting in
front of a computer or laboratory setting (Brand & Kinash, 2010). The iPad has most of the capabilities of the laptop and desktop, but unique features like multiple touch screen and variety of applications gave it limitless uses in mobile learning. As the iPad found its way into the classroom in the hands of students, teachers are beginning to notice the use of iPad as a teaching tool. The challenges that teachers have to deal with are the migration to digital text, which can require different skills and strategies (Coiro, Knobel, Lankshear, & Leu, 2008). Teachers have to understand that integrating digital technology into curriculum provides students with a lot of learning opportunities. It is now the responsibility of educators to integrate technology into the curriculum if they want students to meet future challenges.

Managing iPads. There is a potential for technology to transform education. Conceptually, it is easy, but practically it may be difficult when the rate of advance in technology outpaced administrators. According to Mark Gentile, a pioneer in the mobile enterprise software market, president and CEO of Odyssey Software said that iPad brings in exciting educational opportunities, but with some set of problems for IT managers such as security and content delivery (Gentile, 2012). Apple reported that by February of 2013, 4.5 million iPads have been sold to U.S.-based education institutions. If we compare Apple based tablets with other versions that are on the hands of consumers (students), the challenge for schools becomes huge. How are schools going to integrate all these tablets?

The most successful way of integrating all these tablets is the use of learning management systems (LMS). LMS is an educational technology innovation that resulted in widespread use in higher education (Harrington, Gordon, & Schibik, 2004). According to Campus Computing Project estimate in 2002, 20% of courses in U.S. universities and colleges are delivered via the LMS. That number reached 90% by 2006 (Piña, 2010).
Integrating Technology into the Classroom

Lin, Wong and Shao (2012), who studied the effects of collaborative learning in a digital environment on sixty-four 12-year-old students. When they examined students’ learning attitudes and perception they came with the following conclusion:

The student interviews and the questionnaires revealed their perception that computer-supported CCM is conducive to enhancing group collaboration and peer support, as well as increasing their interest in the Social Studies subject. Most students believed that concept mapping could be applied to other subjects. Furthermore, they felt that the GS software was easy to learn and could assist them in expressing their views. (p. 110)

In addition, a classroom teacher decided to study the impact of incorporating iPads in her classroom she and five other teachers created with recommendations on how to best teach with the devices.

The team spent two full days putting together a comprehensive list of great iPad apps to use during the school year. Heimerl was part of that initial team, and the experience quickly opened her eyes to the teaching potential of iPad (Heimerl, 2013, n.p.). She went on to explain some ways in which she personally used the iPads with her 22 kindergarten students. The school district provided an iPad for each student in her class.

“She decided to try to create a custom learning experience for every student. And it turned out to be as simple as making folders. Heimerl put the same large library of apps on every student’s iPad. Then she dragged just the apps that fit each student’s learning level into custom folders. For example, in one student’s math folder, she might put a number recognition app. But another student who
is ready for adding and subtracting might have an addition and subtraction app, and no need for the number recognition app”. (Heimerl, 2013, n.p.).

As early as 2010, when iPads first came out, an article was written in The Journal concerning the iPad’s potential for use in education. McCrea (2010) wrote then that “today's K-12 students have the world at their fingertips when it comes to technology, and are only limited by budget when it comes to getting their hands on items like Apple's new iPad” (n.p.). McCrea cited Barbara Wippich, a curriculum and instruction intervention coordinator in Kansas City, Missouri, as saying regarding the iPad, which was then just being released to the public, "The sooner we in the education field start to embrace it and use it, the better off we'll be" (n.p.). McCrea (2010) also cited a fourth grade inclusion teacher in Crossville, Tennessee as saying that the new devices could be cost-prohibitive, at $499 - $829 per device. She compared this to the $150 notebooks her class was using, devices that included no internet access. “The more,” she said, “that kids have access to the Web and other applications, the easier it becomes to teach them” (n.p.). Indeed, McCrea’s article goes on to say, the iPad carries potential as a new publishing and development platform. With its own software development kit, it’s also an ideal platform for educational apps. Said one political analyst cited by McCrea, with regard to textbooks, "We'll no longer be thinking in terms of static publications and will instead be using dynamic content with animation, movies, video, and other multimedia built into it. We'll go from trying to feed PDF textbooks into portable devices to building interactive, dynamic applications that students can carry around with them" (McCrea, 2010, n. p.).
Summary of Chapter Two

The concept of Digital Divide is used in this paper. Information society or knowledge society is not just a beautiful image of a bright future that has no relation to reality. This, in fact, the next stage of human development when the main value that determines the welfare of individuals and entire nations are not material goods, and timely and easily accessible information. More precisely - the knowledge gained with it. Elements of the new society already exist today, and they are based on computer technology and telecommunications.

Computer networks and the Internet in particular, have become the principal means of data storage and transmission. Access to computer technology and telecommunications, as well as their proper use - is the key to success in the information society. Those who are aware of that and take the new E- technology will be in an advantageous position over other members of the human race as a great opportunity to get their own professional growth and welfare.

The chapter explained the concept of information technology and its advantages and disadvantages in the school. There are many benefits to integrating the touch pad and laptop in the classroom, as both beautiful practical technologies that could modernize the way we teach to focus more on the interests of students are. The first drawback for some people is that they perceive as a problem rather advanced because of bad experiences with sites such as YouTube and face book. It is true that some children sometimes do anything on these sites.

This chapter tells us the importance of the technology in our daily lives. iPad or product is a convenient Wi-Fi laptop or computer with a touch screen technology. It has a smaller footprint sized than a laptop and bigger than a smart phone. There are wide ranges of pills, but the most well-known is the iPad. In 2001 bill presented the world to pills as he shows a model of the Microsoft company product. As Wi-Fi connection improves, the use of
convenient gadgets improved and the execution of one to one technological innovation for learners both at home and school are growing quickly. One on one technological innovation gives learners access to academic information outside the classroom to support the amount and learning. It also makes it simple for instructors and learners to discuss sources in an example.
CHAPTER THREE: RESEARCH METHODS

Introduction

These days, it is not unusual to see a student using a tablet in secondary schools or higher education classrooms. This was looked at as a distraction initially, but nowadays it has become part of the classroom. Whether the use of tablets like the iPad has positive or negative effect on students’ learning is still a debatable question even though the integration of iPad into schools is spreading widely. For us to really understand the new learning opportunities that iPad bring to schools, more studies need to be done so that we can determine the impacts both on students and teachers. In this section, I will focus on describing the methods and procedures used for data collection in this study.

Intent and Research Questions

The intent of this research study is to investigate the use of iPad technology in Northwest, Ohio K-12 schools. This research arises from the curiosity to better understand to what extent and how iPad technology is being used in the classroom. The research questions that were employed for this study were:

1. To what extent are iPads used in daily teaching in K-12 environments?
2. To what extent are curriculum decisions made toward the use of iPads?
3. Why do teachers use iPads in their teaching?
4. How do personal experiences and beliefs about technology impact the use of iPads in the classroom?

Research Design and Method

Quantitative methods were employed throughout the investigation of this questionnaire survey. Quantitative methods are used to explain a scenario or phenomena by collecting and
analyzing a numeric or mathematical data appropriately. Quantitative research allows for the researcher to investigate a larger population of participants about their beliefs in a short period of time (Langenbach, Vaughn, & Aagaard, 1994). By using quantitative research methods, the focus is on many participants as opposed to a few, so that a larger pool of data can be obtained, and so that a diverse range of opinions can be explored and analyzed. Specifically, survey research was used in this study to better understand usage and attitudes.

According to Ary, Jacobs, Razavieh, & Sorensen (2006) survey or descriptive research is used to gather information from groups of participants. “Surveys permit the researcher to summarize the characteristics of different groups or to measure their attitudes and opinions towards some issue” (Ary et al., 2006, pg. 31). They also suggest that surveys are most often used to better understand tangible or countable items. Survey research focuses on specific situations or people and it puts more emphasis on words than numbers. Ary et al., (2006) suggest six steps for quality survey research. These steps include: “planning, defining the population, sampling, constructing the instrument, conducting the survey, and finally processing the data” (pg. 408). These steps were followed in this study.

In order to obtain descriptive statistics, the first step, planning, “begins with a question that the researcher believes can be answered most appropriately by means of the survey method” (Ary, Jacobs, Sorensen, & Walker, 2014, p. 405), a question which “typically concerns the beliefs, preferences, attitudes, or other self-reported behaviors of the people (respondents) in the study” (Ary, et al., 2014, p. 379). This self-reporting, on the part of a large number of participants, allows the statistics gathered to be descriptive. This study included numerous open-ended questions, which allowed for an abundance of self-reporting on the part
of 65 participants. The data gathered from this exercise yielded descriptive statistics, featured in this study.

Participants

Most of the participants in this study are from the same college course, student teaching seminar at Bowling Green State University. These student teachers have all had several courses introducing them to the use and applications of technology including the iPad. In addition, they were encouraged to plan for technology use during their student teaching experience. The second, smaller group of participants, (n=6) were from the Toledo School for the Arts (TSA). These grades 6-12 teachers at TSA are in their first year of one-to-one implementation of iPads for every student.

In all about 250 participants were invited to participate, 220 from BGSU and 30 from TSA. Out of the 250/65 actually participated in the study, 23% were male and 77% were female. Seventeen percent were between the ages of 18-21, 45% were between the ages of 22-25, and 38% were more than 25 years old. For 85% of the participants, the highest level of education attained was a Bachelor degree, while 15% had earned a Master’s degree.

The questions for the questionnaire survey were developed as a result of current literature about technology use in the classroom. Data collected will further be used to aid a reasonable conclusion on how iPads are helpful in the classroom or adversely if they are not helpful.

In order to gain access to the student teachers, each of the student teaching seminar instructors were contacted about this study. They were asked if the researcher could come to one class for five minutes to explain the purpose of the study and to hand out a link to the study. If time was not possible, the link was sent to the instructor with the request for
distribution to their students. In addition, a local school that uses one to one iPads in their building was contacted to participate as well. These teachers were sent an invitation by their building principal.

**Procedures**

In this study, survey research methods were used to examine how student teachers feel about the impact of iPads in improving the learning environment of their students. The six steps in survey research suggested by Ary, et al., (2006) were used to organize this study.

**Planning.** The first step, planning should begin by determining intent and questions to be answered. Survey research typically asks a question that “typically concerns the beliefs, preferences, attitudes, or other self-reported behaviors of the people (respondents) in the study (Ary, et al., 2006, p. 408.” In this study, the primary research questions that were focused on the use of the iPad for use and for curriculum planning.

**Defining the population.** The second step, defining the population, involves the creation of a list of participants known as the “sampling frame.” In this study, all of the current student teachers from one University and one school that adopted a one-to-one use of iPads were selected to provide an overall understanding of iPad use in Northwest Ohio. The population was a convenient sample with access to the population through committee support.

**Sampling.** The third step, sampling, involves selecting a representative sample from the entire population, with as little deviation from the population values as possible. In this study, sampling was conducted when analyzing the responses to the open-ended questions. This study highlighted like-minded responses by five or more participants, and also highlighted specific noteworthy responses in several instances.
**Constructing the instrument.** The intent of the survey was to better understand the usefulness and impact of technology in learning or classrooms, as well as its validity. There were sequential steps taken before the issuance of the survey to participants. First, the research advisor was consulted on the contents of the survey. This step is important since it helps to incorporate all questions that are needed to address the research questions. A valid data is an integral part of the research, therefore, a questionnaire was also sent out to group of professionals to better collect valid and reliable data.

The survey that was utilized comprised of 32 questions, based on a Likert scale with an “others” option should the participant wish to share more relevant idea. Out of the 32 questions, 18 of them were multiple choice (e.g. “How often do you use your iPad for school related activities?”) and 14 of them were open-ended (e.g. “In your opinion, what is the main advantage of using technology in the classroom?”). The last three questions concerned the demographics and education level of the participants.

**Conducting the survey.** Step five, conducting the survey, involves field-testing the instrument and “verifying the accuracy of the data gathered.” Like the previous step, this step also involves interviews and distributing questionnaires. This step was thoroughly carried out in this study, through the distribution of 32 questions, the gathering of 65 responses to all 32 questions, and the analysis of those responses.

**Processing the data.** The final (sixth) step, processing the data, includes “coding the data, statistical analysis, interpreting the results, and reporting the findings” (Ary et al., 2014, p. 407). This study has carried out all the components of this step. By using the website surveymonkey.com I was able to view percentiles, graphs, and charts that surveymonkey.com
automatically generated from the data. This also allowed me to more comprehensively analyze the data I had collected.

Data Analysis

A total of 32 survey questions were sent to approximately 250 potential participants. A total of 65 surveys were returned. These responses were tallied by Survey Monkey and totals for each response were provided to the researcher. The other 14 responses were set up as free responses, incorporating the various ways in which the participants replied. These tally-like responses were analyzed by category to provide an overall picture of the general responses. Table 1 below shows, which survey questions, pertained to the four primary research questions.
Table 1.

Correlation of Research Question to Survey Items.

<table>
<thead>
<tr>
<th>Research Questions</th>
<th>Survey Item Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research Question 1</td>
<td>2, 4, 5, 6, 8, 10, 13, 16, 23</td>
</tr>
<tr>
<td>To what extent are iPads</td>
<td></td>
</tr>
<tr>
<td>used in daily teaching</td>
<td></td>
</tr>
<tr>
<td>in K-12 environments?</td>
<td></td>
</tr>
<tr>
<td>Research Question 2</td>
<td>7, 8, 9, 10, 11, 23</td>
</tr>
<tr>
<td>To what extent are</td>
<td></td>
</tr>
<tr>
<td>curriculum</td>
<td></td>
</tr>
<tr>
<td>decisions made towards</td>
<td></td>
</tr>
<tr>
<td>the use of iPads?</td>
<td></td>
</tr>
<tr>
<td>Research Question 3</td>
<td>14, 15, 25, 26</td>
</tr>
<tr>
<td>Why do teachers use</td>
<td></td>
</tr>
<tr>
<td>iPads in their teaching?</td>
<td></td>
</tr>
<tr>
<td>Research Question 4</td>
<td>3, 12, 17, 18, 19, 20, 24</td>
</tr>
<tr>
<td>How does personal use of</td>
<td></td>
</tr>
<tr>
<td>iPads impact iPad use at</td>
<td></td>
</tr>
<tr>
<td>school?</td>
<td></td>
</tr>
</tbody>
</table>

Limitations

There was a small response rate among those who were invited to participate. Only 65 people responded, out of more than 250 who were invited. We also did not have specific addresses for potential participants, so we could not follow up with reminders to them.
Questions #1 (“Do you own a personal device?”) and #2 (“Do you own an iPad or have access to one at school or work?”) were limited in that they were overly broad, and allowed for unfocused responses. There was overlap in certain survey questions, and in the future the differences could be made more explicit within the survey.

Summary of Chapter

Chapter 3 focused on the methods and procedures used in collecting survey data from participants. It revealed the research questions that were used as a basis for forming the survey questions. The identities of the participants were described, as well as how they were contacted in an effort to gain their input. This chapter also broke down the types of questions posed to the participants, and how the responses were organized for analysis.
CHAPTER FOUR: DATA ANALYSIS AND DISCUSSION OF RESULTS

There have been an increasing number of technology tools that are available to teachers in today’s schools. The use of technology has been shown to increase the motivation and interests of students. This study focused on the use of iPads, because it is a popular tool with many different educational applications. The purpose of this research study was to better understand how and why iPads are used by classroom teachers in K-12 schools. Specifically, this research addressed four questions:

1. To what extent are iPads used in daily teaching in K-12 environments?
2. To what extent are curriculum decisions made toward the use of iPads?
3. Why do teachers use iPads in their teaching?
4. How do personal experiences and beliefs about technology impact the use of iPads in the classroom?

To better understand the uses of iPads in K-12 schools, 200 classroom teachers in Northwest Ohio were asked to complete a survey about their use of iPads. Of the participants (n=65), 75% (n=49) owned their own iPad or had regular access to one. Therefore, the majority of participants were able to share firsthand experiences. Survey results were described by research questions in order to provide an organized and balanced explanation of the results. Table 1 in Chapter 3 describes the alignment between the survey questions and the research questions. This will aid the reader in being able to compare and contrast results within a research question as well as between research questions.

Extent that iPads are Used

The first research question, “To what extent are iPads used in daily teaching in K-12 environments?” required a number of survey questions to understand the breadth of usage of
iPads. In total, nine survey questions were constructed that focused on the use of iPads in schools (4, 5, 6, 8, 10, 13, and 16). Three of these survey questions were open-ended (5, 6, and 16). Results in this section will be shared in groups by type of survey question (e.g. multiple choice).

The first set of data results shared in this section will focus on frequency type questions (e.g. How often do you...?). Table one below shows the results of survey questions that focused on frequency of use of iPads. Participants were asked four questions about frequency of use. Findings for each of these questions varied, but a general trend toward higher frequency can be seen in Table 2. The majority of participants agree that iPads or similar devices should be used regularly, defined as at least once a day or more.

**Table 2.**

**Frequency of Use of iPads in K-12 schools. (n=67)**

<table>
<thead>
<tr>
<th>Question #</th>
<th>More Than Once a Day</th>
<th>Once A Day</th>
<th>Once A Week</th>
<th>Once A Month</th>
</tr>
</thead>
<tbody>
<tr>
<td>4- How often do you use your iPad for school-related activities?</td>
<td>46%</td>
<td>15%</td>
<td>5%</td>
<td>35%</td>
</tr>
<tr>
<td>8- How often do you use your iPad as part of instruction?</td>
<td>26%</td>
<td>12%</td>
<td>15%</td>
<td>48%</td>
</tr>
<tr>
<td>10- If you had a class set of iPads, how often would you use an iPad as part of instruction?</td>
<td>32%</td>
<td>31%</td>
<td>35%</td>
<td>6%</td>
</tr>
<tr>
<td>13- To what extent do you believe that iPads or similar technology should be used in the K-12 setting?</td>
<td>38%</td>
<td>35%</td>
<td>35%</td>
<td>2%</td>
</tr>
</tbody>
</table>
Noteworthy from this table is the bimodal nature of the responses. There is clear evidence that the participants are split from their responses to questions four and eight. This seems to suggest that there is representation from both the digital natives, those who readily use and accept technology and the digital immigrants, those who resist to some extent. Being that TSA already uses iPad textbook technology there was likely a heightened concentration of students using their iPads for school related activity and as a part of instruction multiple times a day, seeing as it is already a staple part of their curriculum, whereas students of BGSU, where iPad textbook technology is only an option for specific courses, more likely used their iPads on a much less frequent basis, like once per month. This would explain the bimodal nature of the results.

Interestingly, question number 8 further sheds light on the use versus intent to use in question number 10. It asked teachers how often they used the iPad for instruction, and a majority answered, “Once a month.” However, these same teachers, when answering question 10, noted that this use would increase to a majority at once a day or more often if they had a class set of iPads. There was a strong indication that almost all participants agreed that iPads or similar devices should be used at least once a week in the modern K-12 classroom.

The next set of questions was open-ended in nature to try to better understand the differences between the responses given above. In question number five, participants were asked how many of their students had access to iPads or other devices. The responses varied from “all of my students” to “very few of my students.” Specifically, 26 of the participants said “all” of their students had access to iPads. The remaining participants shared a wide range of responses suggesting access for their students was more limited and based on access at home.
To further understand access, participants were asked to describe how many iPads they had for use at school. The results suggest quite a different range of usage. Twenty-five percent of the participants had a one-to-one situation, where every student had access to an iPad. In addition, more than 20% had at least one iPad per classroom. However, 30% had no access at all to iPads at school.

Finally, participants were asked: “How many of your students use personal devices at school?” The responses here were really focused on two different extremes. Forty-five percent of the respondents felt that almost all of their students used devices at school. Another 49% felt that less than 40% of their students used devices at school. This continues to highlight the evidence of the gap between those that have and use technology (digital natives) and those who do not (digital immigrants).

Extent Curriculum Decisions are Made Using iPads

The second research question asked “To what extent are curriculum decisions made toward the use of iPads?” There were seven survey questions that focused on this research question (7, 8, 9, 10, 11, 12, and 23). The next set of data results focus on frequency type questions (e.g. How often do you…?). Table 3 (below) shows the results of survey questions that ranged from planned use, to actual use, and to proposed use of iPads in hypothetical situations.
Table 3.

Frequency of Planned and Actual Use of iPads in K-12 Schools (n=67)

<table>
<thead>
<tr>
<th>Question #</th>
<th>More Than Once a Day</th>
<th>Once a Day</th>
<th>Once A Week</th>
<th>Once A Month</th>
</tr>
</thead>
<tbody>
<tr>
<td>7- How often do you plan to use an iPad as part of instruction?</td>
<td>31%</td>
<td>8%</td>
<td>18%</td>
<td>46%</td>
</tr>
<tr>
<td>8- How often do you use an iPad as part of instruction?</td>
<td>26%</td>
<td>12%</td>
<td>15%</td>
<td>48%</td>
</tr>
<tr>
<td>9- If you had a class set of iPads, how often would you plan to use an iPad as part of instruction?</td>
<td>32%</td>
<td>28%</td>
<td>38%</td>
<td>6%</td>
</tr>
<tr>
<td>10- If you had a class set of iPads, how often would you use an iPad as part of instruction?</td>
<td>38%</td>
<td>31%</td>
<td>35%</td>
<td>6%</td>
</tr>
</tbody>
</table>

The results show that the participating teachers would use iPads more often in their classrooms if there were a sufficient supply of them in their classrooms. Currently, 48% of these teachers use iPads only once a month as part of their classroom instruction, and 12% use them once a day. However, if they had an iPad for each student in their classroom, only 6% of these same teachers would continue using them once a month, and 94% of the participants would use iPads at least daily if not more often.

Question #11 was framed in this way: “What Types of Apps are You Familiar with that Can be Used for Educational Use with the iPad?” Notably, there were three main apps that participants listed. They were “schoology”, “notability”, and “explain everything.” Each of
these apps were listed at least six or more times, with schoology and notability being very popular with more than 15 responses. Other apps that were listed, just not as frequently, included: calculators, Sketchbook Pro, and Show Me.

Question #12 was framed in this way: “What is your favorite ‘App’ for personal use on the iPad?” Ten respondents cited “Pinterest” as a favorite app on the iPad, and five cited “Twitter.” Other apps that were listed, just not as frequently included: Explain Everything, Notability, Schoology, Facebook, and Safari.

**Why Do Teachers Use iPads?**

The third research question focused mainly on open-ended questions to better understand why teachers used or would use iPads in school or personally. There were four main survey questions to facilitate this understanding (14, 15, 16, 26, 27).

To better understand participants’ perceptions of advantages and disadvantages of technology they were asked to list their ideas. Question #14 asked, “In your opinion, what is the main advantage of using technology in the classroom?” One common response was that the main advantage is quick access to a lot of information. One respondent said, “Access to information. The world is at our fingertips!” Another frequent response was how technology allows teachers to save time. One respondent said that it “streamlines education; allows more teaching time, rather than spending time on organizing.” Other common themes, not as frequently listed, suggested that technology in the classroom allows for better organization, keeps education relevant, keeps students more engaged, makes learning more fun, and enables everyone to save paper.

Likewise, participants shared their ideas about disadvantages. Question #15 asked, “In your opinion, what is the main disadvantage of using technology in the classroom?” The most
frequent response from more than half of the respondents suggested that a main disadvantage was how “distracting” technology can be. Several people mentioned that students could easily use devices to play games or engage in other non-learning activities instead of the tasks at hand. Other participants cited problems that could occur in cases of glitches, slow Internet connections, or other tech failures. One person wrote, “Tech failures are persistent, pervasive, and crippling.” In addition a few participants also mentioned that young people can potentially become too dependent on the technology, and may find ways to engage in less work and less learning.

Question #16 asked, “What professional development would you need to be able to better utilize iPad technology in your classroom environment?” Out of the 65 participants that answered, 33 requested education on apps, for instance which apps would be beneficial or how to use specific apps. One individual asked for, “Training on various apps, how to find them, how to sync the class set of iPads so I can observe student work/progress during lesson.” Other trends displayed were a need for education on overall iPad usage in the classroom, or none, where the participant felt prepared and educated on incorporating iPads into the classroom.

Question #26 was framed this way: “Do you think the iPad will provide the correct method of education for students?” Out of 67 participants, 74% answered “yes” and 26% answered “no.” Among those who answered “yes,” several noted (Question #27) that the iPad will allow for lessons to be more engaging. One respondent said that the lessons could be completed at a faster pace, and another cited convenience. Another respondent pointed out that, with iPads, students can even turn in assignments from home on snow days. Several were
unsure what was meant by “the correct method of education,” with one person saying that this method is merely “a piece of the educational pie.”

**How Does Personal Use Impact iPad use in School?**

The fourth research question asked, “How does personal use of iPads impact iPad use at school?” There were several open-ended questions as well as short responses that helped to answer this research question (17, 18, 19, 20, 25, 28).

In Question #17, participants were asked if technology helped them during their own educational experience. Out of 67 participants, 80% said “yes” and 20% said “no.” Among those who said “yes” (Question #18), some clarified that technology helped them to access information more quickly and easily. Others said that it allowed them to be better organized. One person mentioned that it allows them to locate more resources. Some answered this question based on their experience as students in the past, while others answered this question based on their current experience as teachers.

Those who responded that technology was not helpful (Question #19) had various reasons for why it failed to benefit their education. Three people said they found it distracting. One person said that it slowed down the learning process. Another cited glitches, power losses, and other damaging occurrences which “caused an inability to effectively finish” work. Another respondent said that technology is expensive. One person said that technology was not helpful because he or she “didn’t have a PC or laptop or any smart devices.”

Participants were asked to describe what they believe to be the main purpose of technology. They were given four choices (to help explain the lessons, to make class time more effective, to help students understand content more quickly, or all of the above). Out of 67 participants, 17% felt that educational technology helps explain lessons, 28% felt that it makes
class time more effective, 18% felt that it allows students to understand content more quickly, and 74% felt that all of the above reasons are true.

To understand the extent to which participants would embrace technology use in their classrooms they were asked (Question #23), “If you could choose, would you prefer your students to have a/an [1] ebook [2] textbook [3] both?” Out of 67 participants, only two skipped this question. A total of 26 people, or 40%, answered “ebook.” A total of five people, or 8%, answered “Textbook,” and a total of 34 people, or 52%, answered “Both.” When asked for clarification of why (Question #24), 11 participants responded that ebooks are easy to use, easy to access, or convenient. One person mentioned that students could freely highlight or circle text without being concerned about the next person who might use their book. Two individuals mentioned that they have a difficult time reading material on computer screens, and that they would prefer having textbooks.

Summary of Data

Overall, a majority of the participants and their students already use iPads when they are available to them. From this population, more than half would use them in the classroom setting at least once a day, if one device was available per student. Those who favor their use cite benefits such as ease of access, resourcefulness, saving time, and keeping students engaged. For some, the cost of providing an iPad for all students may be prohibitive. Others still hesitate to embrace them as a useful tool, noting that they can be distracting and glitches can occur.
CHAPTER FIVE: CONCLUSIONS

The purpose of this study was to examine classroom trends concerning the use of technology in teaching lessons and educational material. This study sought to trace early uses of technology in the classroom, looking also to current trends and expected patterns for the future.

The main research questions were:

1. To what extent are iPads used in daily teaching in K-12 environments?
2. To what extent are curriculum decisions made toward the use of iPads?
3. Why do teachers use iPads in their teaching?
4. How do personal experiences and beliefs about technology impact the use of iPads in the classroom?

Findings

The data from this study suggest that there are differences in beliefs between those that regularly use iPads and those that do not. This study asserts that these differences can be compared to the digital natives and digital immigrants (Bitman, et al., 2011). These differences are even more evident when explored by research question.

To what extent are iPads used in daily teaching in K-12 environments? In more than half of the participants’ classrooms iPads are being used daily. The responses to the survey questions revealed that a majority of educators and their students already use iPads in cases where these devices are available. It was found that 61% of all respondents would use them in the classroom setting at least once a day, providing that one device was available per student. This portrays the notion that if teachers have them, they will use them, which
eliminates much of the concern surrounding how to acquire the technology for technology immigrants (Prensky, 2011).

**To what extent are curriculum decisions made toward the use of iPads?** Those who are in favor of using iPads in classrooms stated that they allow for ease of access to study materials, online sources, ebooks, helpful apps, etc. They also consider these devices to be resourceful, in that students have a world of information at their fingertips. They believe that these devices will save time and allow teachers and students to make an efficient use of time when it comes to learning. They also feel that students will be better engaged, and that they help keep learning interesting. Because of their access to the Internet and online learning materials, there is much potential for students to engage in self-learning and exploration.

For those respondents who believe that iPads in the classroom are not a good idea, some stated that it’s not cost-effective to provide an iPad for all students. Others still hesitate to embrace the iPad as useful tools, noting that they can be distracting and students can easily turn to Facebook or other recreational use rather than studying. These findings are similar to the concerns that were noted by Lim et al., (2011). They also recognize that glitches and power losses can occur, along with Internet problems, which might interrupt a teacher’s lesson plan and sabotage the learning process.

**Why do teachers use iPads in their teaching?** Further use of iPads and other smart technology in the classroom setting seems to be inevitable. As evidenced by the data, many students have access to iPads at home, even if they don’t at school. In addition, teachers themselves use iPads personally, and it is an easier transition to use in the classroom as well. Young people are embracing new technologies, and are increasingly expecting to be able to use them in multiple settings. Many teachers are also finding that they can be effective in the
process of helping their students learn new concepts, when they have ample number of devises in their classrooms. However, access is an important component of use and integration.

**How do personal experiences and beliefs about technology impact iPad usage of iPads in the classroom?** Most individuals have positive experiences and beliefs toward technology, which encourages the use of iPads in the classroom (Dyer, 2013). In addition, as was noted by the participants, I don’t have access now, but if I did, I would definitely use them. Despite various concerns with technology usage and its downsides, like power supply, program glitches, etc. the vast majority is in favor of increasing usage in the classroom. With personal use, and training more and more teachers would be willing to use more technology for the benefits of engagement and enjoyment of learning. Over the upcoming years, this will likely lead to an increase of iPads in the classroom as well as other new technologies.

**For Future Research**

To continue this research, compare classrooms that are using iPads regularly with those that are not regularly using iPads as part of their learning process. I would compare and contrast the speed and efficiency, as well as depth of understanding with which they are able to learn new concepts, complete projects, etc.

Someone else could focus on a different technology, besides iPads and tablets, to see what trends exist and how they are affecting classrooms in this country. They could look into which forms of technology have been found to be most effective to help the education process the most, and which have been found to be the least effective.

**Recommendations**

It is recommended that teachers survey their own students as to how they would, or would not, like to make use of iPads, other smart devices, or other technologies in their
classrooms. They should also work closely with their school administrators to ensure that there is an adequate budget for such technologies, giving periodic reports on how technology is benefiting the teaching and learning process. They should pay attention to education journals or other publications that highlight the use of technology in the classroom, in order to glean insights from other teachers and other classrooms in different locations.

In addition, findings from this research suggest that parents remain in close communication with their children’s teacher(s) concerning the use of technology in the classroom, how it’s being used, and what they can do at home to help their children make the best use of smart devices for the purpose of learning. They should also make sure that effective security settings and protective barriers are set up on these devices to help ensure that their children are not exposed to cyber attacks or other undesirable elements available online.

It is also imperative that professional development leaders include technology, particularly iPad technology into their repertoire. With iPad usage increasing at such a fast rate they must provide education to teachers and administrators to keep up with the advancements in technology. In order to integrate iPads into the classroom and curriculum professional development leaders must stay up to date and, in turn, keep teacher up-to-date with the latest developments in iPad technology.

Finally, administrators should look to other school districts where technology is being used in the classrooms, learning what has worked well and what has not worked so well. In looking at the costs of providing technology and smart devices for classrooms, they should take a long-term approach and consider the benefits that in the long run could outweigh the short-term costs. They should also stay in close communication with teachers to ensure that
technological needs are being met, also providing accountability to ensure that smart devices are being used effectively and as intended.
REFERENCES


https://etd.ohiolink.edu/ap/10?0::NO:10:P10_ETD_SUBID:5485


APPENDIX A:
Student Participant Informed Consent

Student Participant Informed Consent
You are invited to participate in a research study designed to investigate your uses of I-pad technology in Northwest Ohio K-12 schools. Increasingly, schools are purchasing these devises. I am curious to understand to what extent they are used and how they are used in the classroom. The Principal Investigator of this study is Duaa Alsufi, a student at BGSU in the College of Education and Human Development, and the School of Teaching and Learning. I am completing this research study as part of the requirements for a Masters degree in Curriculum and Teaching. The research questions addressed in this study are: 1- To what extent are I-Pads used in daily teaching in k-12 environments? 2-To what extent are curriculum decisions made towards the use of I-Pads? 3- Why do teachers use I-Pads in their teaching?
You have been selected to participate in this study because you are student teachers actively participating in teaching in K-12 schools. You must also be 18 years of age or older to participate in this study. As part of your participation you will be asked to respond to a survey about your use and your students use of technology (specifically ipads) in your classroom. You will not be asked for your name or any information that might identify you so your responses will be completely anonymous. You are under no obligation to participate in this research study; your decision to participate is entirely voluntary.

If you agree to participate in this research study, please simply continue the survey that follows this letter. During your participation in this survey there is no risk to you greater than that experienced in daily life. You may refuse to participate in this study or withdraw your voluntary consent and discontinue participation in this study without penalty and without affecting your relationship to your school. By agreeing to participate, you give us permission to use your responses in the research of this program.

If you have questions concerning the evaluation, please contact the Principal Investigator Duaa Alsufi (duaaa@bgsu.edu) or the research advisor Tracy Huziak-Clark at 419-372-7363 (thuziak@bgsu.edu). If you have questions about the conduct of this study or your rights as a research participant, you may contact the Chair of Bowling Green State University's Human Subjects Review Board at 419-372-7716 (hsrb@bgsu.edu).

Thank you for your time and consideration.
APPENDIX B: Survey

1. Do you own a personal device?
- [ ] 1- smarthphone
- [ ] 2- smart tv
- [ ] 3- Ipad
- [ ] 4- note book
- [ ] Other (please specify)

2. Do you own an i-Pad or have access to one at school or work?
- [ ] Yes
- [ ] No

3. How often do you use your i-Pad for personal use?
- [ ] More than once a day
- [ ] Once a day
- [ ] Once a week
- [ ] Once a month

4. How often do you use your i-Pad for school related activities?
- [ ] More than once a day
- [ ] Once a day
- [ ] Once a week
- [ ] Once a month

5. How many of your students have access to an i-Pad?
   (best guess is fine)

6. How many i-Pads do you have access to for use at school?
7. How often do you plan to use an i-Pad as part of instruction?
☐ More than once a day
☐ Once a day
☐ Once a week
☐ Once a month

8. How often do you use an i-Pad as part of instruction?
☐ More than once a day
☐ Once a day
☐ Once a week
☐ Once a month

9. If you had a class set of i-Pads, how often would you plan to use an i-Pad as part of instruction?
☐ More than once a day
☐ Once a day
☐ Once a week
☐ Once a month

10. If you had a class set of i-Pads, how often would you use an i-Pad as part of instruction?
☐ More than once a day
☐ Once a day
☐ Once a week
☐ Once a month

11. What types of “Apps” are you familiar with that can be used for Educational use with the I-Pad?
12. What is your favorite “App” for personal use on the i-Pad?

13. To what extent do you believe that I-Pads or similar technology should be used in the K-12 setting? *
   - More than once a day
   - Once a day
   - Once a week
   - Once a month

14. In your opinion, what is the main advantage of using technology in the classroom? *

15. In your opinion, what is the main disadvantage of using technology in the classroom? *

16. What professional development would you need to be able to better utilize I-Pad technology in your classroom environment? *

17. Did technology help you during your educational experience? *
   - Yes
18. If yes, what way was technology helpful?

* 

19. If no, how did technology hurt?

* 

20. In your opinion what is the purpose of the use of educational technology?

☐ Help explain the lessons
☐ Make the class more effective
☐ Help students understand the information faster
☐ All of the above

Other (please specify)

* 

21. How often do your students carry their textbooks to and from school? *

☐ once a week
☐ twice a week
☐ three times a week
☐ five times a week

Other (please specify)

* 

22. How many of your students use personal devices at school?

☐ 80 - 100 %
☐ 60 - 80 %
☐ 40 - 60 %
23. If you could choose, would you prefer your students to have a:

☐ ebook
☐ textbook
☐ both
Other (please specify) 

☐ less than 40%

24. Why you choose that?

25. What do you think of using the I Pad specifically as a means of e-books in schools?

26. Do you think the iPad will provide the correct method of education for students?

☐ Yes
☐ No

27. If your answer above is yes please give some examples:

28. Are you comfortable with using technology in classroom?
29. Are other comments about the use of technology in schools that you would like to share? 

30. Gender

- Male
- Female

31. Age

- 18-21
- 22-25
- 25+

32. What is your highest level of education?

- High School
- Bachelor
- Master’s
- PhD