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Laura Jolin Franke

Hamline University, lhector01@hamline.edu

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Franke, L. How Can Personalized Learning Devices Be Used to Best Support English Learners in the Middle School Classroom? (2015)

The research question addressed was, how can personalized learning devices be used to best support English Language Learners in the middle school classroom? The motivation was interest in 1:1 computing and its potential for ELLs. The project involved surveying, interviewing, and observing ELLs and their teachers, in a public middle school, regarding their experiences during the initial three years of implementation of a 1:1 computing environment in which iPads were distributed to each student. The project found little quantitative data on ESL students specifically, but could confirm much of the research on computing and education. Overall quality of teachers, support for technology, and strong classroom management appeared essential to success.

HOW CAN PERSONALIZED LEARNING DEVICES BE USED TO BEST SUPPORT
ENGLISH LEARNERS IN THE MIDDLE SCHOOL CLASSROOM?

by

Laura Franke

A capstone submitted in partial fulfillment of the requirements
for the degree of Master of Arts in Teaching

Hamline University

Saint Paul, Minnesota

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Committee:

Kathryn Campbell, Primary Advisor

Julia Castillo, Secondary Advisor

Debra Haessly, Peer Reader

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CHAPTER ONE

Introduction

Change in Schools

Schools today are much different than they were twenty, ten or even a few years ago. Today education and schools are in constant motion, with the latest educational models, initiatives, focuses, and drives leading to a continuous state of change to improve teaching and learning. School districts have responded to pressures to succeed on state mandated standardized tests; they have been forced to compete with neighboring schools and districts for resources and programs; and they have done their best to keep up with new ideas and methods of teaching to give students and families the best educational experiences possible.

In the fast-paced paperless world of personal technology -- in government, business, entertainment, shopping, community events, and social relationships that connect the world --schools and education could not be left behind. Indeed, education arguably belongs in front, training and teaching, readying students for the complex, technological world they will live and work in as adults.

The latest, and some think greatest, educational tool for K-12 students today is one device for each student; referred to as 1:1 computing or simply 1:1. Because of the low cost of basic tablets compared to outfitting full computers, school districts that are financially able, competitive, and innovative have implemented a policy of issuing a Personal Learning Device (PLD) or electronic tablet to each of their students. For educators, this change involves a transition from standard methods of teaching for teachers, and of learning for students, to new kinds of instruction and education that have the potential to be far more individualized and specialized. Books, the traditional group instruction by a teacher in front of a classroom, writing instruments and many scientific and physical tools are being replaced by a screen. The tablets provide a powerful tool that can put our students in touch with knowledge from anywhere in the world, about almost anything they would like to know, with the push of a few well-chosen buttons. As a middle school English as a Second Language (ESL) teacher on parental leave from teaching, I wondered how these new, perhaps individualized, personal learning devices could be used to best support English Language Learners (ELLs) in the middle school classroom.

ESL Teaching and Curriculum

My interest in 1:1 and its application in the classroom began early in my career and development as an ESL teacher. From 2005 to 2012 I taught at a middle school in a northern suburb of an urban city in Minnesota. My 6th, 7th, and 8th grade students varied greatly in language ability, educational history, background, and culture. Some students

were new to the country from war-torn regions and refugee camps; others were born in this country, but needed language support in mainstream classes such as math and language arts. The ESL program we followed divided students into four categories: 1) newcomer, 2) beginner, 3) intermediate, and 4) advanced ESL; but the learners within these groups often varied across categories because of student grade level, scheduling, and other placements and logistics.

In my beginning days as an ESL teacher, I had one teaching partner and no curriculum was provided by the school district. As a result, we spent a lot of time lesson planning related to what our students' needed and when, and then creating those lessons from scratch. A few years into my teaching, the middle school principal decided that she wanted us to try a commercial reading program with the English Language Learners (ELLs), with the goal of improving their reading scores. I was excited to finally have a curriculum. Each student was assigned a beautiful new book, there was a teacher handbook, and we were provided a new library full of novels. In addition, perhaps most exciting, is that we would have five new computers for student use in our classroom. However, as we began our trainings for this new program and curriculum I had concerns about it being the best fit for our students. The materials seemed better targeted to students solely with reading difficulties and far less suited to students who were learning English and improving their basic skills in a new language. Since I knew that all students benefit from more reading support, the project had value to me. As I somewhat predicted, the program worked well for some of the students but was not the correct fit

for others. It was eliminated in our district by the principals, (for the ELL population), after two years with little success. It is currently still used in the district as a support for students who struggle specifically with reading.

Computing and ELLs

Regardless of my opinions about the ill-fated reading program and ELLs, I learned that the introduction of computers into the ESL classroom was complicated and its issues complex. The benefits of readily accessible computers were plentiful. Students could use the computers for research, typing practice, online learning programs, and cognitive exercises. One obstacle for me was that I had not fully anticipated how varied the students' knowledge of computers and their skills with technology would be. Some students who were new to the country had never used a computer before. For them I spent time teaching the basics, such as how to turn on and log in to the computer and how to type and use the keyboard. Only after that individualized instruction could these students begin with programs that the rest of the students were using. This added preparation proved especially difficult when my classes were grouped by grade rather than English language skill level, as I had to spend most of my time with the newer students and less with the students who were more literate in English and technology. On occasion, while I was working with the newer students, others would wander off to different websites. One student even figured out how to hide his screen and listen to music. I learned quickly to pay close attention to the tricks that more technologically

advanced students knew and used to distract themselves when the class did not move fast enough for them.

During the two year pilot, the new reading program was a three part system that grouped students into three categories; 1) independent reading, 2) computer work, and 3) small group instruction led by the teacher. The students would rotate every twenty minutes to be in each category during the class period. It was difficult to know what was going on in the other two groups (of those students working more independently) while I was teaching in the small group; and, of course, my awareness of what was happening at all times with each student and on each of the computers was difficult, if not impossible.

Adult ESL, Limited Technology

After my time at the middle school, I taught adult ESL students in one of the biggest urban districts in the state of Minnesota. Not only was this a much larger district with different resources, but I was teaching adults rather than children. I enjoyed my former position and the energy of the middle school students, but this was an exciting change. It was an opportunity to see what kind of curriculum and technology was being used with the adult ESL population, how they responded to it, and how they learned from it. I taught what the district called Level 2 ESL, equivalent to perhaps a combination of newcomers and beginners in my former district. As with the middle school, students had a variety of language and educational backgrounds. I had students who spoke a little English but could not read or write in English. A few students could decode the letters and structure but not understand what they had read. Many students, with little or no

formal schooling, were combined in the same class with students who had college degrees and professional jobs in their native countries. Some students moved very quickly to the next level, but some remained in Level 2 for years; the students' advancement was almost always due to the amount of formal education coming into my course. Early on I appreciated the variety of backgrounds and cultures, as well as the personalities and personal drive of the students. Each was there voluntarily, some after working two or even three jobs. They were determined to learn English and to better their lives. It was extremely inspiring. In terms of instructional resources, I found myself in almost an opposite situation from that of the middle school. We had curriculum but very limited technology. There was not a SMART Board (interactive whiteboard) or a bank of computers in my room. However, to many of these adult students these limited resources were more than they had ever seen, experienced, or perhaps imagined. They each had a book, I had an overhead projector, and we had access to a computer lab once a week.

iPad Rollout

The year I left the middle school to teach adult ESL my former district purchased iPods or iPads for every student in kindergarten through 12th grade. As I left I had mixed emotions about missing out on the introduction of such groundbreaking tools. I may have dodged a bullet missing the first year fumbles implementing the iPads at the middle school but also may have missed an opportunity to be a part of something that could truly

change ESL education. I imagined amazing computer programs that could aid my diverse learners, as well as students in mainstream classes.

Throughout my time with the adult students, I stayed in touch with many of the staff at the middle school and heard different perspectives, a lot about the internal workings of (or at least opinions on) the iPad roll out. It seemed that teachers either loved using the new technology with their students or hated it. Many of my adult students were parents of English Language Learners (ELLs) in primary and secondary schools. I wondered what my adult learners, with such little exposure to technology, would think when their children brought home a Personal Learning Device (PLD) for schoolwork.

Guiding Questions

As I heard and read about the 1:1 rollout, I began to wonder if these new tools were indeed beneficial. I wondered what district leaders, teachers, and students thought of using tablets for school purposes; how these personal devices are being used in the classroom; and what successes and struggles have emerged during implementation. As a teacher of English Language Learners, I specifically wondered how ELLs benefited from using a PLD because of the possibilities that computing and applications provided, combined with their needs for individualized specialized instructional support.

The Research Question

Because of my interest in personal learning device use in the classroom, the clearly apparent need for familiarity with current technology, and the prioritization and

funding that districts have recently put into PLDs, the question I explored in my research was: “How can personalized learning devices be used to best support English Language Learners in the middle school classroom?”

The goal of my research was to familiarize myself, as a returning ESL teacher, with the latest research on effectively using a PLD device with English Language Learners, since those students have been the focus of my education and professional career to date.

My research project is two-fold. First, I present background on the reasons why technology is important, perhaps even necessary now, in our schools, and explore the challenges and advantages of using these devices.

Second, I hoped to learn more about the possibilities and difficulties implementing PLDs both for ELLs and their teachers, and to discover what specific programs teachers have found to be successful for English Language Learners. Are iPads and equivalent devices in fact helping ELLs? Or, are they causing more complications in an already complex educational challenge? Do the positives of more options in curriculum outweigh the negatives?

Overview of Remaining Chapters

In the Chapter Two literature review, I cite relevant research to provide background on the interest and use of technology in the classroom. I focus on the following three questions:

1. Why do school districts choose Personal Learning Devices for their students?

2. What are the benefits and disadvantages of using PLDs in the classroom and for English Language Learners in particular?
3. And what, if any, specific programs and practices have been found to support ELLs when using current technology, specifically 1:1 computing?

In Chapter Three I describe the qualitative research project devised to determine students' and teachers' experience during the initial three years of a program that put a personal learning device (Apple iPad) into the hands of each student in one middle school. I concentrate on an ESL classroom, and include teachers of these students in mainstream classes.

In Chapter Four I describe the responses to the survey instruments and my observations in the classroom. The research day in the classroom was at the end of the third academic year of implementation of the iPads. Some of the students had experienced the iPads for all three years. The ESL instructor was included and had been part of the iPad initial implementation. I also share the answers of my questions to students and teachers, describing the views in the ESL classroom from several perspectives. I review these responses in terms of the initial literature review.

Chapter Five presents a synthesis of my learning regarding this project and the literature review. I consider methods that will be helpful to myself and other teachers of English Language Learners, both in the ESL classroom and with their mainstream teachers. Any apparent limitations that emerged during the phases of the study are

considered, along with recommendations for further research. Finally, I reflect on the value of this Capstone to my education and career.

CHAPTER TWO

Literature Review

“I think it's fair to say that personal computers have become the most empowering tool we've ever created. They're tools of communication, they're tools of creativity, and they can be shaped by their user.” (Gates).

As one of the biggest advocates for personal computers, and a founding member of Microsoft, it is no surprise to hear these words from Bill Gates. When one sees his words and realizes their impact in society, it can easily be agreed that these tools of communication and creativity must be readily available to students and children: tools that empower, can be shaped by the user, and also connect them to the world of new people and information. The way information travels, in a digital form via invisible network, has changed nearly everything in the last few decades.

Bill Gates is far from alone in his beliefs about the power of the personal computer. However, there are many others who see new technology as a craze, including personal computers and believe that the concept of 1:1 in the classroom is not a positive change for education. Some believe that personal computers are simply the latest fad and are no more than a replacement tool and attempted bandage for a struggling educational system.

Why Schools are Implementing 1:1 Technology

This chapter explores why school districts choose to implement technology in the classroom and how it has led to 1:1 computing. It presents research about the benefits and challenges of educational technology and the concept of 1:1 in the K-12 classroom. That exploration leads to what experts have found to be successful and challenging in the implementation of 1:1, and finally, the chapter provides specifics on what elements of 1:1 may be beneficial to ELLs in the classroom.

Educational Gains with Technology

There is a lot of research and general information about how technology can help in learning. In 2002, in a report to the US Department of Commerce, R. Bajscy gives a concise list of the advantages of technology in the classroom. She looked not only at how technology is used in education but also who specifically gains from technology. She views technology in teaching and learning as an enhancer to:

- Help organize students' materials.
- Help students, teachers, and parents interact, anytime and anywhere.
- Facilitate and assist in the authentication and prioritization of materials found on the Internet.
- Simulate, visualize, and interact with scientific structures, processes, and models.
- Learn history and depict future trends.
- Provide better access of materials to handicapped populations.

- Translate languages automatically (Bajcsy, 2002).

In 2000, in a summary of reviews of research on computers and education, J.T. Fouts indicates that, while not all reviews show outcomes in favor of computer use, the vast majority reach positive conclusions about their efficacy. He reports general concurrence that:

- When combined with traditional instruction, the use of computers can increase student learning in the traditional curriculum and basic skills areas.
- The integration of computers with traditional instruction produces higher academic achievement in a variety of subject areas than does traditional instruction alone.
- Students learn more quickly and with greater retention when learning with the aid of computers.
- Students like learning with computers and their attitudes toward learning and school are positively affected by computer use.
- The use of computers appears most promising for low achieving and at-risk students.
- Effective and adequate teacher training is an integral element of successful learning programs based on or assisted by technology (Fouts, 2000).

A more recent study conducted by Baytak, Tarman, & Ayas found that most students believe that their learning is improved by integrating technology into classroom curriculum. Students participating in the study reported that using technology in school

makes learning fun and helps them learn more. They believed that technology makes learning interesting, enjoyable, and interactive. Children today love to learn by doing, interacting, and discovering (2011).

Advocates at the Top

For real success with change, there must be support from those who fund, and in the case of education, who also set policy and regulate what is done in schools. In an interview after his appearance at the Consortium for School Networking's annual conference in New Orleans in March of 2011, White House Chief Technology Officer Aneesh Chopra reiterated the stance of President Obama's administration and the U.S. Department of Education beneath it that being facilitators of technology access was the best and perhaps most practical goal of the federal government in lean economic times (Editorial Projects in Education Research Center, 2011).

In 2010 the U.S. Department of Education released a survey of more than a thousand studies about online learning. That study concluded that "students in online-only instruction performed modestly better than their face-to-face counterparts, and that students in classes that blended both face-to-face and online elements performed better than those in solely online or face-to-face instruction" (U.S. Department of Education, 2010).

The year 2010 also revealed an interesting study about successful implementation models of education technology. The study found that "most of the schools that have

integrated laptops and other digital tools into learning are not maximizing the use of those devices in ways that best make use of their potential” (One to One Institute, 2010).

Increased Interest from Educators

Increased attention and advocacy from educational leaders and policymakers, goes hand in hand with increased interest from school districts and educators. The *Speak Up* survey, which is conducted annually by Project Tomorrow—a nonprofit research organization—and Blackboard, Inc., surveyed nearly 300,000 students, parents, teachers, and other educators about their views on technology in education. Findings from the 2010 survey found “an increased interest from educators in mobile learning, as well as an increase in the number of students who own mobile devices, such as smart phones, regardless of economic or demographic differences.”

The survey also found “an increased interest in online learning and blended learning opportunities, as well as electronic textbooks” (U.S. Department of Education, 2010). Since this 2010 study, the term “blended learning” has gained in popularity. In 2013 the Great Schools Partnership defined this type of learning as:

The practice of using both online and in-person learning experiences when teaching students. In a blended-learning course, for example, students might attend a class taught by a teacher in a traditional classroom setting, while also independently completing online components of the course outside of the classroom. (Great Schools Partnership, 2013).

The concept of blended learning is not a recent development, but has gained so much popularity and use that it ended up being described and named as the reasons for its popularity were studied. For years, researchers have been looking at classrooms that use blended learning or a similar model, and frequently they are one-to-one classrooms.

Achievement and Higher Order Thinking

One group of researchers investigated whether student access and use of laptops in a one-to-one program predicted higher state achievement scores. "The strength of the students' access and use of technology was a consistent positive predictor of students' reading and mathematics scores, with students' use of their laptop at home as the strongest implementation predictor of reading and math scores." They went on to say that "when used effectively, technology applications can support higher-order thinking by engaging students in authentic complex tasks within collaborative learning contexts" (Shapley, et al., 2006).

This coincides with many who believe that technology in the classroom gives learners lifelong skills that will ease them into life after school: "Tablets help students better prepare for a world immersed in technology. Students that learn technology skills early in life will be better prepared to pursue relevant careers later in life. The fastest growing and highest paying jobs in the United States are technology intensive." Employment in 'computer and information systems' is expected to grow by 18% from 2012-2022, according to the US Bureau of Labor Statistics (Statistics, 2012).

Access in a World of Digital Transfer of Information

Today's students are gaining more and more access to technology and to modern technological tools. Results from "The New Digital Playbook: Understanding the Spectrum of Students' Activities and Aspirations," issued by Project Tomorrow (2014) report the following statistics for student access to technology (Nagel, 2014).

- Access to smart phones:
 - 89% of high school students (grades 9–12)
 - 73% of middle school students (grades 6–8)
 - 50% of students in grades 3–5
 - 21 % of K–2 students
- Access to laptops:
 - 66% of all high school grades 6-12
 - 61% of all middle school grades
 - 62 % in grades 3–5 have access to laptops
 - 41 % in grades K–2 have access to laptops
- Use of school-issued mobile devices:
 - 33 % of all high school students
 - 31% of middle school and elementary students

After the 2013 Speak Up Survey from Project Tomorrow, CEO Julie Evans revealed at the FETC 2014 conference that, in regards to access to mobile learning, “If there was any doubt in our mind that we were beyond the tipping point in terms of kids

carrying a computer in their pocket, backpack or purse,” she said, “we’re there.” Evans shared how this access is being used. She stated that 66% of students are using mobile devices for anytime research, 43% for educational games and 40% for collaboration with their peers. In addition, students used technology to organize their learning: 33% of students surveyed use mobile devices for reminders and alerts related to their academic lives, 24% take photos of their assignments, and 18% for in-class polling (2014).

A study by Winkle and Goertler (2008) exploring students’ academic and professional use of multimedia tools, found that students are involved with technology in their daily life, but when asked are reluctant to use the same skills in a classroom: “if students are using them for day-to-day communication and information sharing, for co-constructing identities and creating discourse communities (through such websites as Facebook and MySpace), (or more currently Instagram or Tumblr) why aren’t the classes?” (Winkle & Goertler, 2008, p 495).

In order to add student interest, schools are adopting use of discourse communities as well as game-based learning. According to the Horizon report, “game-based learning will be widely adopted by mainstream classrooms within two to three years.” (New Media Consortium, 2011).

A more recent study by O’Connor, Jeanes & Alfrey, (2014) however suggests that although game based learning does have benefits perhaps the speed to which game based learning was adopted was overestimated. “More support for teachers and students is needed to legitimate these types of approaches within broader curriculum contexts to

support student learning.” The study indicated more specifically, foundational understandings of:

- socially critical approaches to critical inquiry that serve to enhance knowledge relating to learner-identified topics
- learning intentions and authentic assessment and how these might align with inquiry-based learning
- forming connections with external experts to support learners early in an inquiry process
- and how to extend explorations and elaborations within the constraints of a congested and contested curriculum. (O'Connor, Jeanes & Alfrey, 2014).

Benefits and Challenges of Technology in the Classroom

With an abundance of technology available, teachers and students are finding new and innovative ways to use technology in school and outside of school for instructional purposes. Proponents of technology in the classroom report that they have seen improvements across the board from student motivation and engagement, to academic achievement and higher test scores, among other benefits.

Student Motivation and Achievement

A specific example of student motivation comes from Education Evolving (2005), which reveals that students say “when they use the Internet, their motivation to learn and their academic performance improve. They complete their school-work more quickly,

they are less likely to be stymied by material they do not understand, and their papers and projects are more likely to draw upon up-to-date sources and state-of-the-art knowledge. They also feel they are better at juggling their school assignments and extracurricular activities when aided by technology.”

Public Broadcasting Service ([PBS LearningMedia](#), 2013) conducted a national survey of pre-K-12 teachers that describes how teachers are using technology in America’s classrooms. They report that “Three-quarters of teachers surveyed link educational technology to a growing list of benefits, saying technology enables them to reinforce and expand on content (74%), to motivate students to learn (74%), and to respond to a variety of learning styles (73%). Seven in 10 teachers (69%) surveyed said educational technology allows them to ‘do much more than ever before for their students’” (2012).

Another example of benefits of 1:1 is found in a report on one-to-one computing in the state of Indiana. It revealed that 100% of educators interviewed shared either observational or anecdotal evidence about the success of one-to-one. Those results included increased student and teacher engagement, improved academic achievement, and improved attendance. Educators also observed that students developed deeper cross-disciplinary knowledge and more in-depth “21st century skills” development (Lemke & Martin, 2004).

Many other studies have also found an increase in student engagement and motivation at one-to-one schools. Mouza (2008) found students using laptops:

- acquired a sense of pride and empowerment
- displayed increased intrinsic motivation and persistence
- often went beyond the requirements of assignments
- directed their own learning and engaged in higher level activities
- created interactive time lines, and electronic storybooks
- used spreadsheets to gather and analyze data
- looked up information and published reports
- often took laptops home to refine and improve on projects
- took the initiative to come up with their own collaborative projects to work

Mouza stated “Qualitative data indicates that laptop integration and the use of the Internet create enhanced intrinsic motivation and engagement with school work. Students reported significantly higher positive attitudes toward school than comparison students in traditional learning environments” (Mouza, 2008). With increased student motivation and engagement, school districts are seeing an increase in academic achievement.

There is also evidence of increased student Grade Point Averages (GPAs) as well as increases in standardized and statewide test scores. One study compared cumulative GPAs of middle school students at the end of a year with laptops to the year prior when they did not have laptops (Lei & Zhao, 2008). That research reported "a marginally-significant increase in average student GPA and found significant gains in students' technological proficiency" (Lei, 2008).

The One to One Institute quotes a recent study by the Project RED team on its description of why 1:1 programs are paramount to student achievement.

“The Technology Factor, Nine Keys to Student Achievement and Cost Effectiveness, found that students in 1:1 programs outperform across all education success measures compared to those in higher student to computer ratio environments. Numerous other achievement and financial benefits were also attributed to 1:1 settings and students’ consistent access to personal, portable technologies. Student collaborations and project- based lessons are fundamental instructional tools in 1:1 environments” (One to One Institute, 2015).

Shift in Teaching, Learning, and Educational Norms

Since the integration of newer technology and concepts such as game-based learning, there has been a dramatic shift in traditional learning. Educators have had to rethink their teaching styles, and students have had to adjust and adapt to the changes as well. According to Tsantis, "Research shows that traditional methods of teaching can no longer be utilized to capture the interest of children who are being reared during the rapid growth of the computer age." She adds that “New research suggests almost all middle and high school students have access to mobile devices and are using them for schoolwork. And nearly a third of them are using mobile devices issued by their schools” (Tsantis, 2008).

With this shift in student learning comes not only a shift in teaching but also changes educational norms. “Effective school transformation from traditional norms and

practices to those where students take control of their learning in a digital environment involves systemic reforms. Vision, structures, policies and practices must fundamentally shift to ensure success.” According to the Institute... “This is not only challenging work – but can be emotionally staggering for educators and surrounding community. It is essential to understand and plan for the fact that change can be difficult for people and that change happens over time. Time, planning, professional development, communications, evaluation and adjustments are paramount to successful 1:1 implementations” (One to One Institute, 2015). With successful implementation, schools will start to see the benefits that 1:1 programming can provide.

Role of Teachers and Methods of Instruction

“Computers are powerful tools. Access to these technologies can change the teaching and learning dynamics in the classroom to more inquiry-based methods, instead of memorization and drill. The use of technology is a more interdisciplinary approach that can act as a catalyst to move towards teachers acting primarily as coaches while our students motivate themselves to grow as learners” (Fairman, 2004).

Others agree, Bebell & Kay in 2010 felt it was “impossible to overstate the power of individual teachers in the success or failure of 1:1 computing” stating that teachers place the pivotal role in the success and that it is essential that we understand this. Their research showed that teachers nearly always control student access and use of technology, and that they must put incredible amounts of time to adapt their materials and

methods to make technology in a 1:1 environment effective and relevant (Bebell & Kay, 2010).

Because the advantages to education are so compelling and the access to technology so pervasive, there is no denying that technology and computing are in schools to stay. The extent to which students are using technology, specifically computers and PLDs in the classroom varies, but with all of the benefits that researchers, school districts, teachers, and students are seeing, one wonders why all schools are not rushing to purchase a computer for every student. The implementation of programs providing one computer or laptop for each student (1:1) has exploded in the last few years, and we are beginning to see the disadvantages, as well as advantages.

Cost and Liability

Some school districts are more hesitant to introduce newer technology even with evidence of student motivation, engagement and achievement. Some hesitations stem from the cost of purchasing a PLD for every student. Lee Wilson, a prominent education marketing expert, estimated the annual cost per student per class with tablets to be \$71.55 vs. \$14.26 for print textbooks. Furthermore, implementing tablets or similar devices in K-12 schools requires purchasing hardware (the tablet) and software (the textbooks), building new wi-fi infrastructure, and training teachers and administrators how to use the technology. Implementation costs for e-textbooks on iPad tablets are 552% higher than new print textbooks in an average high school (Wilson, 2012).

For example, school officials in Broward County, Florida, the sixth-largest district in the country, shelved a \$275 million proposal to issue laptops to each of their more than 260,000 students after re-evaluating the costs of a pilot project. The district, which paid \$7.2 million to lease 6,000 laptops for the pilot at four schools, was spending more than \$100,000 a year for repairs to screens and keyboards that are not covered by warranties (Hu, 2007).

In addition to the costs of purchase and maintenance, another concern is the liability associated with student ownership. “Tablets are more susceptible to theft than print textbooks. In San Francisco, New York, and Los Angeles, robberies related to Internet-enabled handheld devices (including tablets) have accounted for 50, 40, and 25 percent respectively of all robberies in 2012” (Press, 2012).

Emphasis on Technology over Learning

More critical, perhaps to education, some critics argue that too many schools emphasize technology over learning. “Tablets shift the focus of learning from the teacher to the technology. This change marginalizes decades of learned wisdom in the teaching profession in favor of an unproven technology” (Schmoker, 2011). According to education reformer Mike Schmoker, “until the core elements of literacy and critical thinking are learned by every student, it makes little sense to adopt or learn new programs, technology, or any other innovations. Technology gets in the way and makes learning and teaching more burdensome” (2011).

Others complain that PLDs distract from learning rather than enhance it. Instead of working on the teachers' assignment, students are watching videos, surfing the Internet, going on social networks, and instant messaging friends. For some teachers, this creates difficult classroom management issues that outweigh the benefits of 1:1 computing.

According to Lanir (2012), tablets have too many distractions for classroom use. Students may pay attention to apps, email, games, and websites instead of their teachers. Eighty seven percent of K-12 teachers believe that today's digital technologies are creating an easily distracted generation with short attention spans.

Concurrent to Lanir, another study found that, "Four-fifths of young people aged 8 - 18 multitask while using digital media" (Gasser & Palfrey, 2009). Often, students are given laptops and teachers are told to start teaching with them. With little training and a lot of administrative pressure, teachers may feel overwhelmed and their teaching will suffer. If they are focused on classroom management rather than the teaching and learning, the students will suffer as well.

Factors for Successful Implementation

Therefore, many suggest that a program is only as good as its implementation. Much needs to be in place for successful implementation of technology, including 1:1 programming. The Benton Foundation Communications Policy Program (2002) suggests that five factors must be in place for technologies to support real gains in educational outcomes:

- Leadership around technology use, anchored in solid educational objectives.
- Sustained and intensive professional development that takes place in the service of the core vision, not simply around technology.
- Adequate technology resources in the schools.
- Recognition that real change and lasting results take time.
- Evaluation that enables school leaders and teachers to determine whether they are realizing their goals and to help them adjust their practice to better meet those goals (Benton Foundation, 2002).

In agreement with this, the summation of a report on education reform states “The indicators for success are not solely dependent on the level of student access, but rather on the nature of student and teacher use and the fidelity of the implementation. Such fidelity of implementation in a school, in turn, is determined by leadership, teacher proficiency, professional development, curricular fit, school culture, pedagogical approaches—and, on the level, speed, and type of technology and Web 2.0 access. Innovative leadership is needed to ensure progressive school policies on technology and Web 2.0, and other emerging technologies to facilitate strong links between the formal and informal learning enabled through the Web” (Cisco, 2015).

For example, one study conducted research over a four year period and reported that “Although the overall quality of schools’ implementation improved slightly in the fourth year, we estimated that just a third of middle schools (6) achieved substantial immersion levels, whereas the remaining schools (15) had minimal to partial immersion

levels” (p.80). It also reported that, “Students’ access to and use of laptops for learning within and outside of school continued to fall well short of expectations in the fourth year” (p. 88). Moreover, “Evidence from classroom observations suggested that laptop computers and digital resources allowed students in Technology Immersion schools to experience somewhat more intellectually demanding work” (p. 81–82) and that, “Across four evaluation years, there was no evidence linking Technology Immersion with student self-directed learning or their general satisfaction with schoolwork” (p. 83). (Shapley, Sheehan, Maloney, & Walker, 2009).

“Such disappointments are the latest example of how technology is often embraced by philanthropists and political leaders as a quick fix, only to leave teachers flummoxed about how best to integrate the new gadgets into curriculum. Last month, the United States Department of Education released a study showing no difference in academic achievement between students who used educational software programs for math and reading and those who did not.” He continues by stating that “some schools have gone so far as to cancel their programs because of lack of evidence of achievement gains” (Hu, 2007).

Education week presented that “it is difficult to pinpoint empirical data to support the case for mobile learning in schools—a trend that educators have been exploring for several years now—let alone data to support even newer technologies such as tablet computers like the iPad. The studies that do look at the effects of mobile technologies on learning are often based on small samples of students involved in short-term pilots, not

the kind of large-scale, ongoing samples of students that educators and policymakers would like to see” (Editorial Projects, 2011).

A leader in one-to-one research, Project RED, supports one-to-one laptop initiatives in K-12 schools. In October 2010, they released a study about successful implementation models of education technology. That study found that “most of the schools that have integrated laptops and other digital tools into learning are not maximizing the use of those devices in ways that best make use of their potential. The report goes on to outline the critical steps needed to capitalize on that potential” (Editorial Projects, 2011).

Clearly there is much debate about the benefits versus the challenges of implementing and using PLDs in the classroom. Ultimately, the question arises if studies have shown unequivocally that 1:1 computing has a significantly higher impact on learning than previous methods. Most research on 1:1 computing in schools has been done with the general student population, without specifically targeting the ELL population. But there are many benefits of 1:1 that seem well suited to English Language Learners, since they are an especially diverse group from a variety of cultures and educational experiences.

ESL Teaching and Technology

The new technologies offer many possibilities to the second language learner, but the effectiveness often depends on the resources English language teachers have available to them. As with general education teachers, ESL teachers need to know what

technological tools are out there to help students succeed, how to use the technology, what needs to change, and proper leadership and guidance in implementation of the technology. They also seek tools that best align with the four modalities that make up an ESL class; 1) speaking, 2) listening, 3) reading, and 4) writing.

Language Modalities

The World Class Instructional Design and Assessment (WIDA Consortium) includes 33 states and territories, including Minnesota, and lists the language modalities (domains) and defines how ELLs process and use language as follows:

- Listening- process, understand, interpret, and evaluate spoken language in a variety of situations.
- Speaking- engage in oral communication in a variety of situations for a variety of purposes and audiences.
- Reading- process, understand, interpret, and evaluate written language, symbols and text with understanding and fluency.
- Writing- engage in written communication in a variety of situations for a variety of purposes and audiences.

Technological Tools for Modalities

Stone compiled the most detailed list of technological tools available at that time that accommodate the above mentioned modalities. Although dated, his list stands the test of time. It discusses learning in a language lab, but it can easily be transferred to 1:1 computing and modern ESL classrooms.

- Speaking. Dialogues can be effectively used in developing speaking skills.
- Listening. Videotapes or interactive videodisc programs can provide excellent listening comprehension activities.
- Reading. Reading skills can be substantially developed using computer-assisted instructional programs.
- Writing. Technology-assisted activities such as fill-in-the-blank, multiple-choice, and true/false questions help students to write at the word level, retrieving information and developing problem-solving skills” (Stone, 1991).

Stone went further and looked at other factors that affect English Language Learners, including cultural sensitivity and testing specific to ELLs.

- “Culture. Video activities are well suited for observing cultural differences and similarities in a live context.
- Testing. Computer-assisted testing now provides a more comprehensive, fast, and accurate way of testing student language skills (other than speaking skills).
- Computers and computer networks. Computer-assisted instructional (CAI) programs are ideal for fostering reading and writing skills in the target language.
- Video is especially useful for cultural and paralinguistic information, and interactive video for all of the language skills.” (Stone, 1991).

Of course, technology in schools has changed since Stone published his work; with tools such as SMART boards, PLDs, access to the Internet, and widespread use of technology in society and business. But the basics of his modalities and factors for ELLs remain the same. Technology has, in fact, greatly improved access to these learning tools, provided more general knowledge of what technology can offer students, and supplied an abundance of applications to students and teachers.

Current Applications Effective in the ESL Classroom

What applications are currently used for ELLs in the classroom? In looking specifically at computer applications for ELLs, it is important to note that there are thousands of applications for student and teacher use, as well as many language specific ones. A potential ultimate goal of this research is to discover which applications and programs are truly beneficial, how the teachers and students are using PLDs in the classroom, and how and if PLDs are benefiting ELLs overall.

Technology for Language Acquisition

It is no surprise that research suggests the benefits of technology for language acquisition. In a review of studies that focused on technology's impact on language acquisition, Zhao (2005) examined studies that researched the use of digital multimedia and language. Zhao concluded that "technology is helpful to language acquisition because:

- Multimedia presentations (video, images, sound, text) can create stronger memory links, also instant replay if needed, and search of materials.

- The Internet provides learners with access to real life materials, both news and literature, as well as current culturally relevant materials.
- Through learner control and media annotations the reader can more easily digest the information and link to other resources to help comprehension.
- Students can engage in authentic (e-mail, chat, etc.) types of communication.”

(p.16)

Language Applications

With evidence of enhanced language learning a multitude of computer programs and applications have been developed, providing many options for educators to consider. There are some free language applications found on any computer or PLD with Internet access such as Google Translate, a multilingual service provided by Google to translate written text from one language into another. Anyone using these programs will soon learn they are inconsistent and often give incorrect meanings. “Although *Google Translate* provides translations among a large number of languages, the accuracies vary greatly” (Aiken, 2011).

Expensive but well known programs, like Rosetta Stone, which is a computer assistance language learning (CALL) software program, that targets language learning, has had success for some students. And there are differing opinions on the effectiveness of these more complex software systems as well. “The problem lies in the fact that this sort of learning just doesn’t appeal to everyone, and not everyone can use this method of learning to their advantage” (Effective, 2015).

It is also necessary to remember that ELLs come with varied educational backgrounds. A program like Rosetta Stone is not well suited to every student. ELLs range in language level, amount of time they have been in the country, as well as other factors that influence what will help them succeed in school.

Anyone who can search on a computing device can find and purchase language and other educational applications within the confines of a PLD. Many applications are specific to the iPad but cannot be accessed from a laptop, android, or similar device, and conversely, laptop or android software cannot be used on an iPad. This disconnect between platforms limits what students and teachers can use. That being said, the majority of applications targeted to ESL are made for and easily accessed with the iPad. Not as easy to find as applications and their descriptions is finding information on how the applications are being used in the ESL classroom. There are blogs, websites, and forums where ESL teachers discuss how they are using PLDs and what they have found success with, but there is little to no solid quantitative research on what works systematically for ELLs.

Technology Aids for ELLs

Most agree that technology will help English learners. “Using iPads can help ESL students to be stimulated from all points of view and to be convinced to interact as much as possible with their peers and leaders, because interaction and collaboration is essential to students' success in English” (Brasoveanu, 2012).

For example, “Wikis and blogs allow students to work collaboratively and share their work with a limited or unlimited number of people. The video phone service Skype is also popular with teachers, particularly for allowing their students to connect with peers in other parts of the country or the world. Other tools, like VoiceThread, which archives and indexes images, videos, text and audio, are popular with all ages of students, including at the elementary level” (Editorial Projects, 2011). Similarly, Bahrani and Tam showed that mobile devices, laptops and audiovisual tools such as films, cartoons, and television news programs enhance ELLs’ learning abilities (2012).

Role of Teachers of ELLs

Using innovative language applications and tools leads to a dramatic shift for teachers of ELLs. Ingerson argues that in order for ELL students to be successful, not only do they need motivating technology tools, but they also need knowledgeable teachers who will help them make good use of the technology tools (2011). Ingerson’s study shows that “grades increase when teachers are provided with adequate training and when extensive input is understood in this context as making instruction comprehensible to the learner” (Echevarría, Vogt & Short, 2013). Echevarria et al. also state that “Differentiated instruction emphasizing use of technology improves ELLs’ participation in class” (2013).

With appropriate applications and teacher training, technology can only benefit ELLs. A qualitative study by Kasapoglu-Akyol puts it simply. “ESL students believe that using technology, especially using educational technology tools, helps them to

improve both their language and communication skills. They use technology tools both outside and inside the classroom to practice English and learn more about writing, reading, speaking and listening skills” (Kasapoglu-Akyol, 2010).

This literature search section began with a quote from Bill Gates; it ends with a quote from Steve Jobs, father of Apple, developer of iPad, a man of equal status to Bill Gates in the world of technology, founder and CEO of the company that introduced computers into U.S. schools.

“So, your kids must love the iPad?” I asked Mr. Jobs ... The company’s first tablet was just hitting the shelves. “They haven’t used it,” he told me. “We limit how much technology our kids use at home” (Bilton, 2014).

Conclusion

Certainly not everyone is in agreement that the benefits outweigh the negatives in regards to PLDs in the classroom.

It is also clear that there is far less quantitative research on PLDs and any advantages and disadvantages for ELLs than there are with the general population of students. The following chapter will look at one urban school district that implemented personal learning devices to each of their students three years ago. It will describe a process that surveyed and interviewed students and teachers, as well as observed classrooms in an attempt to determine how personalized learning devices can be used to best support English Language Learners in the middle school classroom.

Chapter Three will describe the rationale for the methods chosen to conduct this research and how they were implemented. The chapter will also give background on the 1:1 implementation in a district, describe how the data was collected, explain the ESL program and its participants, describe in detail the surveys, interviews, and observations, as well as the ethical practices used to inform participants and to protect their identity.

Chapter Four will discuss the data collected from the study to determine what is beneficial for middle school ELLs while using iPads in the classroom.

Chapter Five will provide further discussion of the major findings, limitations, recommendations, and implications of the study.

CHAPTER THREE

Research Methods

Established research methods were used to inquire into the question "How can personal learning devices best be used to support English Language Learners in the middle school classroom?" Qualitative methods, including student and teacher surveys, interviews, and classroom observations, were used to gather information about the effectiveness of personalized learning devices and the implementation of a roll-out of iPads in a middle school. The research was conducted at the end of the third year, after some of the students and teachers had the opportunity to use the devices for three years.

Questions probed the pros and cons of technology in the ESL classroom both for English Language Learners and teachers, particularly the use of PLDs and the concept of 1:1 during their iPad rollout from 2012-2015. The hope was to gain insight into what was particularly challenging for both students and their instructors during the rollout, and ultimately to discover what has been considered successful in supporting ELLs' academic progress. Since ESL teachers are trained to handle individualized learning and cultural differences, being equipped with personalized, specialized software and applications seemed particularly well-suited to the ESL classroom spotlighted in this study.

Research Paradigm: Qualitative Study

"Qualitative research is designed to reveal a target audience's range of behavior and the perceptions that drive it with reference to specific topics or issues. It uses in-depth studies of small groups of people to guide and support the construction of hypotheses. The results of qualitative research are descriptive rather than predictive" (QRCA, 2015).

"A qualitative study also allows the research to be more focused on human behaviors and opinions, and allows for descriptions of specific learners" (Mackey and Gass, 2005).

Setting

Small qualitative studies are valuable in looking at specific situations with a small set of participants. This study took place in a suburban school district that serves three neighboring cities. Because the anonymity of research participants was paramount, the name of the school has been blocked out in citations when elements of data or community wide communication are cited. The research in Chapter 2 provided many reasons why school districts choose to implement 1:1 technology in their K-12 classrooms. Many of those reasons are reflected in the districts' purpose for their 1:1 initiative.

The district website describes the 1:1 digital learning initiative as an opportunity to improve engagement, personalize student learning, and provide equitable technology access for all students. They provided iPad tablets for all

students grades 3-12 and iPod touches to students kindergarten – grade 2 during the 2014-15 school year. The hope was that technology would support student learning and better prepare them for college and their future, and that effective teaching and learning with iPads would integrate technology into the curriculum anytime, anyplace.

In the Fall of 2011, the district's community approved a levy to support and increase educational technology in the district, making it possible to move further and faster towards a 1:1 technology initiative. Several teachers throughout the district piloted the use of the iPad in their classrooms and then were appointed as leaders for the iPad roll out in the summer of 2012.

That summer, each teacher received an iPod or an iPad with the opportunity to learn how to use it and to secure instructional resources over the summer. They received specialized training from experts in the district. In the fall of 2012 each student from grades K-3 received an iPod and those from grades 4-12 received an iPad. For simplicity, it was labeled an iPad roll out. The PLDs were given out and staggered between buildings and grade levels to ensure that the technology department from the district could be present at those sites to help with any issues that arose.

This study asked what challenges emerged during the initial roll out, what has been learned in the past few years, and what successes teachers and students are seeing after 3 years of 1:1 computing, with a specific focus on English Learners.

Background on ESL in the District

The district of the study has over 5,300 students, of which 11.9% qualify for English as a Second Language. There are 52 languages spoken by the students and their families, and over 17 % of students speak a language other than English, not all of whom qualify for ESL. In order to qualify for ESL services students and families must provide information to the district based on guidelines from the Minnesota Department of Education:

First a home language questionnaire (HLQ) is completed for all students who enroll in a district. The HLQ is the first step in determining whether a student is eligible for English Learner programs and services. How the student looks or sounds in English should not determine whether or not an HLQ is completed. Districts and charter schools must determine the primary home language of all students.

After that, a Parent Notification of English Learner Services is sent. When a student is first identified as an English Learner, the state requires that parents are notified of English Learner services available to the student. Districts and charter schools that receive Title III funding from the federal government are required to notify parents every year that their child receives English Learner services. All parents have the option of declining English Learner services.

Finally, students who qualify for ESL are given language tests by a certified district ESL teacher who determines what level and how much ESL support the student will receive. The language tests have four sections that assess the students on their reading, writing, speaking, and listening skills. ESL services are also based on several

factors including, but not limited to, the students' amount of time in the country, amount of English language skills, and amount of educational background. It is important to note how ELLs are placed into their classes to understand why they receive that particular amount of/level of ESL service. Important to the study is to note that the more small group, ESL instruction a student receives, the more individualized support and direct language instruction with the iPad they will receive.

The ESL students in the district are divided into the following categories: 1) Newcomer, 2) Beginner, 3) Intermediate, 4) Advanced, and 5) Transitioning. The levels are based on the World Class Instructional Design and Assessment (WIDA Consortium) which is currently used in the state of Minnesota and levels of proficiency are described below (Minnesota Department of Education, 2015).

My Study	WIDA	English learners will process, understand, produce, or use:
5 Transitioning	6 Reaching	Specialized or technical language reflective of the content areas at grade level A variety of sentence lengths of varying linguistic complexity in extended oral or written discourse as required by the specified grade level Oral or written communication in English comparable to English proficient peers
	5 Bridging	Specialized or technical language of the content areas A variety of sentence lengths of varying linguistic complexity in extended areas or written discourse including stories, essays, or reports Oral or written language approaching comparability to that of English-proficient peers when presented with grade-level material
4 Advanced	4 Expanding	Specific and some technical language of the content areas A variety of sentence lengths of varying linguistic complexity in oral discourse, or multiple, related sentences, or paragraphs Oral or written language with phonological, syntactic, or semantic errors that do not impede the overall meaning of the communication when presented with oral or written connected discourse with sensory, graphic, or interactive support.

3 Intermediate	3 Developing	General and some specific language of the content areas Expanded sentences in oral interaction or written paragraphs Oral or written language with phonological, syntactic, or semantic errors that may impede the communication, but retain much in its meaning, when presented with oral or written, narrative or expository descriptions with sensory, graphic, or interactive support
2 Beginner	2 Beginning	General language related to the content areas Phrases or short sentences Oral or written language with phonological, syntactic, or semantic errors that often impede the meaning of the communication when presented with one-multiple-step commands, directions, questions, or a series of statements, with sensory, graphic, or interactive support
1 Newcomer	1 Entering	Pictorial or graphic representation of the language of the content areas Words, phrases, or chunks of language when presented with one-step commands, directions, WH-, choice, or yes/no questions or statements, with sensory, graphic, or interactive support Oral language with phonological, syntactic, or semantic errors that often impede meaning when presented with basic oral commands, direct questions, or simple statements, with sensory, graphic, or interactive support

Aside from the slight differences in names, the levels in my study's district correspond directly to WIDA's levels, with the exception of the most proficient students in Levels 5 & 6. These students do not have an ESL class but are observed and given the state ESL assessments until they are determined proficient by WIDA standards.

Participants

The students in this study were at the middle school level (grades 6-8, ages 11-14 years). They had been using the iPads for the longest amount of time (3 years) in this rollout, as the first school in the district to receive the iPads. This gave a wide enough range of students to work with, yet narrow enough to have defined surveys, interviews and observations.

There were five sections of ESL at the middle school. The classes were based on language ability level and grade level. The classes were as follows:

- ESL 8 Beginning
- ESL 8 Intermediate
- ESL 7
- ESL 6
- Newcomer (grades 6-8)

The student languages represented from greatest to least were: Spanish, Vietnamese, Arabic, English Creole, Bosnian, Chinese, and Hmong, with one student speaking the following languages; Somali, Amharic, Yoruba, Thai, Cebuano, and Urdu.

How the Study was Conducted

The study took place using three formats: surveys, interviews and classroom observations. Reasoning for using these formats are as follows:

Surveys. Author Susan Thomas states that surveys can provide information for many types of projects, such as the following: (Thomas, 1999)

- Identifying needs (needs assessment)
- Determining opinions, attitudes and beliefs
- Identifying interests
- Identifying feelings, perceptions
- Describing behaviors

The goal of the study was to identify what is working with using iPads in the classroom with ELLs, so all of the survey participants were ELLs and their teachers. Inquiry focused on the current reality of 1:1 computing in their school and what is or is not working for both students and teachers. A copy of each of the surveys as well as the teacher pre-interview questions are attached in Appendix A.

The student survey had 12 questions and was distributed via paper worksheet during their ESL classes. There were a total of 29 student participants.

The teacher survey was taken by the ESL teacher as well as several mainstream teachers who had ELLs in their classes using iPads. The teacher survey had 10 questions and was sent through survey monkey online. There were a total of 12 teacher participants.

Interviews were chosen as a collection method because “qualitative research interview seeks to describe and find the meanings of central themes in what the interviewees say” (Kvale, 1996). Also McNamara indicates that “interviews are particularly useful for getting the story behind a participant’s experiences. The interviewer can pursue in-depth information around the topic. Interviews may be useful as follow-up to certain respondents to questionnaires, e.g., to further investigate their responses (McNamara, 1999).”

Prior to taking the survey, there was a pre-survey interview given to teachers who volunteered to respond to questions about the iPad roll out in the district. This was the smallest sampling with only 4 teacher participants and 1 administrator, but was enough to

shed light as to why they responded certain ways to the survey questions. It also gave further insight as to the challenges and changes seen throughout the 3 years of iPad use in the district.

Interviews were also used with ELLs who had a difficult time reading and/or understanding the survey questions. Interviews with students often took the form of rephrasing to clarify any language confusion or questions they had. The ESL teacher was also interviewed to gain a deeper understanding of her survey responses.

Observations. Dewalt called participant observation the process enabling researchers to learn about the activities of the people under study, in the natural setting through observing and participating in those activities. It provides the context for development of sampling guidelines and interview guides (Dewalt, 2002).

I observed students primarily in their sheltered ESL classes but selected a few mainstream classes where the ELLs were using iPads to further the findings. The classes observed are as follows: ESL 6-8, 8th grade math, 7th grade language arts, and a special education class. The observations were unobtrusive, following Mackey's definition of observations as "...sitting in the back of the classroom as a non- participant during the lessons taking careful descriptions of the classroom, teacher-student interactions, and student-student interactions" (Mackey, 2008). This was particularly important in this portion of the study to minimize the subject's awareness of the project and to not affect behavior. Specific observations of how teachers used the iPads for instruction and how students interacted with the iPads academically and socially were recorded.

Ethical Standards and Informing and Protecting Human Subjects

To ensure the ethics of this study it was necessary to: (a) obtain informed, signed consent from participants, (b) provide privacy of the research site and anonymity of the participants, and (c) receive approval from both my academic institution and the research site all by following the human subjects' protocols through Hamline University. When the study was concluded, all materials were recorded, paper copies were shredded, and on-line surveys were accessed through private account information which was deleted in its entirety when the study was concluded.

Conclusion

In this chapter research design and methodology were presented, including a discussion of the data collection protocol. Chapter Four discusses the data collected from the study and provides an analysis of it to determine what is beneficial for middle school ELLs while using iPads in the middle school classroom.

CHAPTER FOUR

Findings

This study asked the question “How can personalized learning devices be used to best support English Language Learners in the middle school classroom?” The research was conducted using four data collection instruments; a pre-survey interview for teachers, teacher and student surveys, interviews, and observations. There were a total of 12 teacher participants and 29 student participants. This is a relatively small sampling, but for this study’s purposes it was enough to consider the topic question from the perspective of those involved in the iPad implementation at this middle school.

Pre-survey Interview

The pre-survey interview was designed to discover what teachers and/or administrators thought of the iPad roll out and its development over the three years of use. The pre-survey interview questions had the smallest sampling of responses with only four participants, three middle school classroom teachers and one principal. The survey questions sought personal opinions on what has helped and what has challenged students and teachers while using the iPad during the past three years of initial implementation.

The major findings from this interview are as follows: All three teacher participants felt that there was little guidance or support in the first year of the iPad roll out. They also said they received no specific training, aside from the general operations of the iPad itself. In the first year, teachers said that they felt that the iPad “replaced paper” and “no one felt confident in using them.” Similar to the research findings of (Schmoker, 2011), (Lanir, 2012) and (Hu, 2007), teachers said the iPads “were a huge distraction for students.” Teachers felt that iPads were “a quick fix, but not a long-term solution.”

In the second year teachers felt that they had more knowledge of how to use the iPad, and therefore were able to create more in-depth lessons. Now in its third year, teachers feel that the iPad is simply a tool to enhance their teaching.

The three teachers had similar feelings about the iPad and its use with the students. They felt that the iPad allowed for more options for the students and teachers, but that the biggest problem was the distraction the devices caused in the classroom. The administrator had similar opinions in regards to the distractions that the iPad can cause, but said that classroom teachers are the ones responsible for whether students found success while using the iPads in class. Further, the administrator noted that the same teachers who had classroom management issues prior to the iPad roll out are the ones who still have those issues in the third year of the roll out.

Student Survey

Interestingly enough, the results from the student surveys aligned with the thoughts of the teachers when it came to the distractions the iPad causes. There were 29 students who took the survey, all of whom were English Language Learners in grades 6 through 8. Of the 29 student participants, 11 students agreed that they were distracted by the iPad and nine students said they were somewhat distracted because of the iPad.

Adverse to this, the students reported that even with the distractions, overall they felt that the iPad was helping them do better in school. Twenty-one students reported that iPad use is beneficial to their learning, seven students said iPad use is somewhat useful, and only two students said they do not believe the iPad is helping them do better in school.

To clarify this interesting discrepancy, students were asked to explain what they meant. They said that although the district has blocked almost all of the sites the students are interested in going to, they still want to use it to play games, check grades, or draw in the notebook application (app) which are all available for use. They also stated that there are ways to get around most of the blocked applications if they really want to do so. They reported that in some classes it was easier than others to wander into other websites depending on the teachers' policies. There were yet to be school-wide policies in place for iPad use at the time of the study. A little over half (17 of the 29 participants) said that it was difficult to go to other websites in class. This aligned with the administrator's belief that the teachers hold the power over how and when the iPads are being used.

Overwhelmingly, students agreed that they use the iPad in all of their classes (23 of the 29 participants) with the remainder of the students (six) saying they use them in three of their five classes. Perhaps this was based on the particular classes they were enrolled in at the time of the study. Students also seemed to believe that their parents or guardians were happy that their child had an iPad (22 of 29 participants). Those who answered that their parents did not like the iPad reported that it was because their child was using them at home to play games and not for educational purposes.

This prompted the next question: what do the students themselves like and/or find beneficial about having an iPad, and what do they find challenging about having and using the iPad? The results from these two questions led to more diverse responses listed from most common to more original responses. Students reported that they liked the iPads for homework, particularly having the homework listed in one place. They liked not having to carry textbooks because all of their textbooks are on the iPad. The students also said that they like the ability to do research easily for their projects, that they can contact their teachers from home if they have questions, that everything is in one place, and of course because they are kids, many reported enjoying the music and games they can access at all times.

The challenges that students reported were also varied. The biggest challenge reported was again the distraction that the iPad causes. This was followed closely by students being frustrated with the technology itself. Many students reported the following issues while using the iPad at school: slow Internet, blocked websites and

other restrictions and not being charged enough and therefore shutting down during class. A few students mentioned “being sick of using the iPad all the time” and “liking paper copies of assignments and homework better.”

The question was asked if the iPad was helping the students learn or improve their English. About half of the students said they believed it was because they could listen to or watch others speaking English on certain apps, and because they could use translation apps to look up words they did not know and the pronunciation of those words. The apps they said were the most beneficial were: Google Translate, Notability (drawing and note taking app), and Schoology (app that contains all of their grades, homework, teacher’s information etc.). Schoology was also mentioned as the way teachers most often used the iPad for instructional purposes, with online textbooks a close second. A few students said they were unsure if the iPad was helping with their English, and five students reported that no, it was not helping because they were too distracted by other websites.

Teacher Survey

The theme of distraction continued when results from the teacher surveys were analyzed. Twelve teachers took the online survey. Several teachers reported that the students saw the iPad as a toy and not a tool. Many teachers also reported that their biggest challenges because of the iPad stem from students going to other websites, specifically games. Other challenges for the teachers were technology based: students forgetting their iPad, forgetting to charge their iPad, Internet access being unavailable so always having to have a back-up lesson plan organized, and students downloading

inappropriate apps. Other challenges for the teachers were students rushing to finish an assignment so they could play games or draw on the iPad, and classroom management difficulties because of the iPads. “It is difficult to see what students are doing at all times on the iPad so I have had to alter my classroom management strategies.” The most interesting comment uncovered from the teacher surveys was “The iPads have actually widened the student divide because those students who have more technology knowledge have a far easier time navigating the iPad for school and social purposes.” This would be an interesting issue to look further into.

Although the teachers reported many challenges with the iPads, overall they reported more benefits. The biggest benefits reported by the teachers were increased student motivation and engagement. Many teachers believe that game-based learning motivates certain students, particularly the 6th graders. Teachers also reported that students seem to like that they have more control over their learning, can access the outside world for more resources, that lessons can be more easily differentiated for learners’ needs, that students seem to be more organized and have a higher homework turn-in rate because of the iPad, and that students now communicate with teachers more because they have 24 hour a day access to teacher emails through Schoology. When asked how their instruction has changed because of the use of iPads, several teachers said that it has not changed drastically; it has simply been enhanced.

Interestingly however, that with the many benefits the iPad offers only one teacher answered positively to the question that asked if students are improving

academically because of the iPad. Teachers who responded with “no” or “somewhat” to this question explained that, although more homework was turned in because of the access from home, the work itself has not improved. Surprisingly they said that test scores have not improved either. (It is unclear if they were referencing unit/classroom assessments or statewide tests). The principal disagreed with this comment and stated that state mandated tests have improved in the three years that the iPads have been used. Most also believe that iPads are not significantly better than other forms of technology such as laptops or computer labs

Classroom Observations

Four middle school classrooms were observed during the study: ESL 6-8, 8th grade math, 7th grade language arts, and a special education class for learning disabilities 6-8. Each observation was about 20-30 minutes in length; not a long amount of time but enough to give a general idea of how the iPads were being used during the third year of the roll out. Each classroom had a unique feel to it and the teachers had varying ways of using the iPads. In Math the students used the iPad to read their textbooks and practice their problems. In Language Arts the students were reading a novel and answering comprehension questions about the novel on a worksheet that could be accessed through Schoology on the teacher’s website. In the Special Education classroom the students were using Schoology to check their grades and missing assignments. And in ESL, the students used the iPads to play an educational game to practice their vocabulary words.

The ESL teacher also helped them navigate Schoology and allowed the students to ask questions about anything that needed clarification.

General Observations

In observing the teachers using the iPads, it did not seem that the teaching itself was much different from previous years. For example, rather than hard copies of books and printed materials, texts and worksheets were on the iPad, grades were given on the iPad instead of on report cards, and communication with students and parents was given through Schoology rather than through paper form. It did seem that for the teachers the iPad was generally a replacement tool for previous resources, whereas with the students, things seemed quite different.

In each observed class many students entered the room with headphones on, listening to music on their iPad. Several students entered the classrooms quietly and immediately sat down and played games or drew in the Notability app. A number of students went to Schoology to look at their grades or homework assignments. It seemed as if there was far less socializing between students as they were occupied by the iPad.

When teachers were ready to begin the lesson, most students obliged and put their iPads away; however, in every class there were a few students that fought doing so. The approach observed that best appeared to solve this was the teacher walking over to and speaking quietly to the students about putting the iPads away. In the larger classes, math and language arts, there were some students who wandered off to play games. The teachers walked around to monitor this, but often other students warned their friends of

the teacher's approach so the students were able to switch the screen back to the correct page before the teacher noticed. In the smaller classes it was much more obvious when a student was off task on the iPad so the students could not get away with it as often; however, these students seemed to try more frequently to wander to different websites and apps. In one of the ESL classes a few students were chatting and wandering to another website. Upon closer view it was discovered that the students were actually on a translation website and discussing their discoveries in Spanish. In the mainstream classes there was no particular note of ELLs having more or different uses with the iPad. They were doing all of the same things as the other students with the exception of a few of the newcomers getting help navigating the iPad itself.

iPad Apps for ELLs?

Aside from the ESL teacher at the middle school, most teachers had little knowledge of apps especially suited to English Learners or if the iPad was helping ELLs. They knew of apps in their content areas that were helpful to ELLs but not ESL apps themselves. For example, a math teacher mentioned apps called Prime Smash and Sumdog that have good visuals. A Language Arts teacher mentioned that there are flashcard apps with good visuals and voiceovers. Otherwise sites such as Google Translate and Notability were the only ones they knew of. Many teachers left the question about iPad apps for ESL blank. The ESL teacher had more specific ESL apps such as Brainpop ESL (animated movies, study tools, quizzes, and games), Imagine Learning (language and literacy software program for ELLs), and Kahoot (game based

learning app), which are more geared to the reading, writing, speaking, and listening needs of ELLs. When asked, teachers said they discovered applications specific to their subject area by spending time researching on the Internet and the iPad itself and asking other teachers, specifically the district experts (staff who were first to use and teach with an iPad). Most felt that they did not have enough time or guidance to feel prepared, particularly mainstream teachers who had to differentiate for special education and ESL students in their large classes.

Discussion

It seems that now in year three of the iPad roll out at the middle school teachers have adapted to, or at least accepted the fact that iPads will remain as their computing tool, at least until the next wave of technology. The majority of teachers who took the survey currently use the iPads every day in their instruction. In year three of the roll out these teachers have come up with tools to help support students while they are using their iPads in class. With distraction in class listed as the biggest problem while using the iPads, teachers have had to develop different classroom management strategies from previous years. Common themes of management were communicating clear expectations and routines for the students, requiring frequent student-teacher check ins, having instructions for specific apps readily available, enforcing rules such as leaving the iPad face down or under their desks when not in use, and monitoring student use by walking around the room to ensure the students were on the proper page or activity.

As for the issues with the technology hardware, classroom teachers managed this by keeping extra chargers available, maintaining back up lesson plans for students, and often having paper copies of the lessons on hand “just in case.” The school and district were very fortunate to have an excellent technology department. If a student forgot their iPad or needed a charger they were allowed to borrow one from the technology department in their schools’ library. As for lost or stolen iPads, each student had a security code that went with their iPad, as well as an insurance plan. During the first year a few iPads were reported lost or stolen, but now in year three, there have been no such reports. It appears that at least some of the concerns about cost and liability have been favorably addressed at this school.

Conclusion

Many of the educational gains of 1:1 computing occurred in this small, qualitative study of middle school English Language Learners. Students enjoyed the iPads, being better organized and having their materials in one place. However, there are certainly challenges that are still prevalent, particularly surrounding the role of teachers and their abilities with classroom management while using the iPad and the considerable issue of distraction. This chapter has presented the results and the analysis of those results. The fifth and final chapter of this capstone considers major findings, study limitations, recommendations for future research, and reflections on the research.

CHAPTER FIVE

Conclusion

Introduction

The previous chapter included the results of my surveys, interviews and observations, as well as a discussion of the findings. This information was gathered in hopes of answering the question, "How can personalized learning devices be used to best support English Language Learners in the middle school classroom?" This final chapter considers major findings, study limitations, recommendations for future research, and reflections on my research.

Major Findings

Many of the findings from my study are consistent with what others have found through their research.

- The benefits include more student engagement and motivation particularly with programs that capture student interest such as game based learning activities as indicated by the New Media Consortium.
- As Mouza found, the students in this study are also turning in more homework and communicating with teachers more readily because of their access to the Internet at all times.

- Also consistent in my study and others' findings, such as the One to One Institute, is the importance of teacher training and knowledge of what is available through their PLDs for instructional purposes.
- Additionally, as found by Bebell & Kay, my study concluded that teachers hold much of the power as to the use and success of PLDs in the classroom.

Some of the challenges that others discovered in their research of PLDs in the classroom were not discovered in my study. For example, many schools and districts had issues revolving around the cost and liability of 1:1 programs. In year three of the iPad roll out, my study concluded that there were no issues in this area and any kinks there might have been in year one and two of the program in the district have dissolved.

However, many of the challenges that others noted in their research are consistent with what was found in my literature search. Many teachers reported that the iPad was seen as a toy and not an educational tool. This touched upon the largest challenge noted in others' research as well as my study: distraction. Overwhelmingly, students and teachers agreed that the iPad causes distractions in the classroom. Simply by their presence, students want to venture into other applications or onto the Internet, and therefore are not paying attention to the teacher or working on the lesson. Out of necessity, teachers have had to challenge their former ways of thinking and ways of managing their classroom.

Major findings in regards to PLDs and ELLs were less fruitful. Teachers had little knowledge as to what is available to them with their iPads to aid ELLs. They

commonly knew of translation applications but otherwise had little or no differentiation for the ELLs in their classes while using the iPad.

Study Limitations and Recommendations for Further Research

With any study there are limitations. With this study, those limitations included a relatively small sampling of participants with 29 students, 12 teachers and one administrator. The study was done solely at one school and only with middle school level students and staff. A larger study at multiple grade levels and more schools would give a wider range of results and more specific information on what might be beneficial to ELLs. Also, aside from the classroom observations, only ELLs participated in the student surveys and interviews. A larger study that included mainstream students could be beneficial in terms of comparing the results.

The Apple iPad was the only form of a personal learning device studied. Comparative results with middle schools and ELLs using another type of PLD such as an android, laptop or streaming windows tablet could provide additional results because of the possibilities of more advanced software applications. Apple has a history in education, with their efforts over the years to provide computers to schools and universities.

Also of interest would be to look at schools and districts that have been using PLDs for a longer amount of time to see if the benefits still outweigh the challenges, as well as looking into schools and districts that have a higher ELL population. Perhaps

those schools and districts have more knowledge of specific ways to aid ELLs while using PLDs in school.

Other recommendations for further research are to look at state-wide standardized tests. Are the schools using PLDs doing better than those without them? Are the teachers from my study correct that the scores in their school have not improved, which contradicts the opinion of the administrator? On a similar note and of more personal interest, are reading scores for ELLs improving due to the introduction of the iPad or is it similar to the commercial reading program I was a part of implementing that proved unsuccessful? Furthermore, it would be interesting to see what impact teacher communication via the iPad with students and families has on student achievement. As one teacher noted in the survey, does the incorporation of technology in a classroom actually widen the achievement gap rather than narrow it particularly for our students of color?

Lastly, through my observations I noted that students interacted less in the hallways and upon entering the classroom with their focus on the iPad. Does the implementation of 1:1 computing impact student/peer connections in school and if so, how?

Reflections

Although the study proved interesting, timely and relevant I feel that there is much that needs to be learned about using PLDs (in this case iPads) specifically with ELLs. The fact that only the ESL teacher seemed to know of a variety of applications

relevant to those particular students is somewhat surprising to me, and I am left wondering how ELLs, particularly those with very limited English skills are being serviced in mainstream classes while using the iPad. During my observations in the classrooms, there was little differentiation for the ELL population. It would be beneficial to have the ESL teacher share her expertise more broadly if given an opportunity.

My hope was to see that now with three years of iPad use teachers and students would be doing unique and challenging activities and that ELLs would be learning English in creative and engaging ways. The benefits I discovered for ELLs (in a middle school classroom while using a PLD) are primarily the use of visuals, listening to different people speaking English, having the ability to contact a teacher with questions that they were unable to or afraid to ask in front of peers, and easy access to translation tools.

There are definitely slight improvements but in general, the iPad proved to be both a distraction and a kind of replacement tool for negative behaviors and outlets in the mainstream classes. In many cases, the iPad even seemed to allow ELLs to hide how confused they were, and they were able to make themselves look busy and as if they were working.

Initial discussions about this project led to a supposition that the findings would be “all about apps” but that was not the case. We continue to find that it is “all about the teachers.” And considering how fast technology is changing and the day-to-day impact of implementing a 1:1 computing environment, I realize that teachers are flying through

the basics of the technological resources with little time left for anything outside of their immediate needs in the classroom. Perhaps it is just too early in the process for curricular apps (applications and mini programs) that specifically help ELLs or even for research on it, since 1:1 implementation is so recent. And, I also must remind myself that ELL help in mainstream classes has always been a challenge and frustration for both ESL and mainstream teachers.

In terms of the logistics of the project, it was a particularly fulfilling capstone to me personally because I was easily able to enter this setting, as well as have a context for developing the questions and context because I had actively participated in this school, in ESL, just prior to my personal leave from teaching, but before the iPad rollout occurred. As a researcher, it brings to mind what Dewalt said about observation. I had a richer understanding of the project because of my history with it and understanding of the issues. (Dewalt, 2002).

Conclusion

I look forward to implementing what I have learned. My initial hope was that the implementation of personal learning devices would have become an especially helpful tool for English Language Learners because of the innate possibilities that individualized and personalized learning devices could offer for students who come to class with such a variety of backgrounds and range of abilities. I see there is still a distance to go in getting to that point. Perhaps it is still a little early in the implementation of these technological devices, but I continue to believe there is particular added value for this population.

I believe 1:1 computing is in schools to stay. In a “paperless world” it is perhaps inevitable. Considering the advantages it has to offer, it would be inconceivable not to keep up with the rest of the world.

I plan to explore this newer technology for what it available to ESL teachers and students, as well as mainstream teachers so they have tools to aid ELLs learn the subject matter while improving their English skills. I also intend to communicate the results of my findings through discussions with other educators and stake holders as well as implementing what I have learned upon returning to teaching.

APPENDIX A

Consent Forms

Teacher and Administrator Consent Form

April 3, 2015

Dear teachers and administrators,

I am a graduate student completing my master's degree in education at Hamline University. As part of my graduate work I need to complete a capstone research project. The research is public scholarship and the abstract and final product will be cataloged in Hamline's **Bush Library Digital Commons**. The purpose of this letter is to inform you as a potential participant in this project.

The goal of my research is to discover how iPads are benefitting English Learners in the classroom. As a participant you will take a 10 question survey on the computer through Survey Monkey sent to your district email address. You can also do a brief 10-15 minute interview about the iPad roll out, development over the past three years, and the benefits and challenges of using the iPads. You may withdraw from the project at any time. There is no risk to you as the survey and interview will be anonymous and the results will solely be used for a summary of results.

I have already received permission to do this research from the principal of [REDACTED] School, [REDACTED] as well as from Hamline University Graduate School of Education.

If you agree to participate in the survey and/or the interview please indicate this with your initials and signature on the attached page and return it to me by email.

If you have any questions please email or call. Thank you for your consideration.

Sincerely,

Laura Franke

Lhector01@hamline.edu

Parent/Guardian Consent Form

April 3, 2015

Dear Parent or Guardian,

I am a graduate student completing my master's degree in education at Hamline University. As part of my graduate work I need to complete a capstone research project. The research is public scholarship and the abstract and final product will be cataloged in Hamline's Bush Library Digital Commons. The purpose of this letter is to get permission for your child to participate in this project.

Your child will take an anonymous 14 question written survey about using iPads in the classroom. My goal is to discover how iPads are benefitting English Learners. The survey will be done in their classroom with their ESL teacher present. If a student needs any clarification about the survey questions I will restate them in a more comprehensible manner. I may ask them a few questions if I need more information about their responses. There is no risk for your child. The surveys are anonymous and voluntary and will solely be used for a summary of results.

I have already received permission to do this research from the principal of [REDACTED] School, [REDACTED] as well as from Hamline University Graduate School of Education.

If you agree that your child may participate, keep this page. Fill out the agreement to participate on page two and return it to your child's ESL teacher, [REDACTED]. If you have any questions please email or call.

Sincerely,

Laura Franke

Lhector01@hamline.edu

APPENDIX B

Survey and Interview Questions

Pre-survey Interview Questions for Teachers and Administrators

1. How was the iPad rollout facilitated in year #1? What training and curriculum planning time was put in place?
2. Was there specific training on how they might serve ELL students, or the unique circumstances that might need to be taken into account? Was it enough? What else did you need?
3. How were the iPads used that first year?
4. In the second year, what did you strive to do differently, if anything?
5. What did you add to the student experience that you didn't know how to do or have time for the first year?
6. Please share anything specific about how you saw ELL students interacting with iPads in the curriculum.
7. In the current year, how has iPad use evolved?
8. What do you notice in the classroom with students?
9. Can you think of a story of a student who excels with the iPad? Someone who struggles?
10. How has the 1:1 iPad initiative impacted your teaching?

Teacher Survey (via Survey Monkey)

1. What grade do you teach?
6 7 8

2. What subject/s do you teach? Check all that apply.
Math Science Language Arts Social Studies
Other _____

3. In a typical week how often do students use their iPad in your classroom?
Once Twice Three times Four times Every Day

4. Do you believe your students are improving academically because of the iPad and its capabilities? For example, better grades, higher test scores, more homework turned in, etc...
Yes No Somewhat
Other _____

5. Overall, do you believe that iPads are better for your students than other forms of technology (laptops, computer labs, etc...)
Yes No Somewhat
Other _____

6. How has the iPad helped your students? Check all that apply.
Motivation Engagement Attendance Homework Test Scores
Other _____

7. What challenges do you have with students using iPads in your classroom?

8. How has your classroom instruction changed with the use of the iPad?

9. Please list any iPad applications that you have found useful for ELs and how you use them with your students?

10. What benefits have you seen with students using iPads in your classroom?

Student Survey

1. What grade are you in?
6 7 8
2. What language/s do you speak other than English? Check all that apply.
Spanish Vietnamese Hmong Bosnian Chinese
Somali Oromo Other/s _____
3. Do you think having an iPad has helped you do better in school?
Yes No Somewhat
Other _____
4. Do you or other students find it easy to go to other websites like Instagram, Twitter, Snapchat, etc.... in class?
Yes No Somewhat
Other _____
5. Do you get easily distracted from the teacher's lessons because of the iPad?
Yes No Somewhat
Other _____
6. How often do you use the iPad in a school day?
Once class Two classes Three classes Four classes All classes
7. How do your parents/guardians feel about you having an iPad?
They like it They don't like it
Other _____
8. What do you like about having an iPad? Please explain.
9. What do you find challenging about using the iPad for school? Please explain.
10. Do you think the iPad is helping you learn or improve your English?
Please explain.
11. How do your teachers use the iPad for instruction?
12. What iPad applications do you find helpful or like using? Why?

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