THE EFFECTS OF EREADERS ON SCHOOL LIBRARIES AND STUDENT ACHIEVEMENT

by

Courtney C. Trautweiler

An Abstract
of a research paper submitted in partial fulfillment
of the requirements for the degree of
Master of Science in Library Science and Information Services
in the Department of Educational Leadership and Human Development
University of Central Missouri

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The rise in the use of eReaders in schools and libraries raises the question of their effects on curriculum, student achievement, library media center management, and the role of school librarians. This research reviews the current literature on eReaders being used as educational technology. It attempts to discover the effects of mobile learning technology in schools and their library systems. The findings are threefold. First, statistics show that access to technology is increasingly widespread within student and educator populations, and these populations are motivated to apply this technology for learning and teaching. Next, school districts are transitioning their curriculums and technology plans to include eReading and mobile learning devices in an effort to adapt to the changing pace and delivery methods of classroom instruction and student learning. Finally, the role of library media specialist is evolving to include the domains of eReader specialist, digital content provider, and educational technology advocate.
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CHAPTER 1
INTRODUCTION

A digital revolution has occurred in schools and libraries across the globe. Since the year 2000, the Internet and digital devices have become essential in the day-to-day workings of learning, teaching, and communication. This revolution has created a digital environment throughout which technology has evolved to such a degree that librarians and their libraries have been forced to evolve and adapt quickly. Information and books are now so readily available in electronic formats that users often rely and insist upon instant access. Library media specialists are looking at their media center programs and restructuring their technology plans and collection development strategies to provide access to digital devices and content. The use of eBooks and eReaders in media centers and schools increases on a daily basis. It is the goal of this research to examine the complexity of the issues related to the effects of using eReaders in schools and library media centers and how this use of technology affects student achievement.

The influx of technology throughout society has created the need for data collection and statistical analysis of the trends in usage and the demographics of the users. Notable in this data collection process are the Pew Internet and American Life Project and Project Tomorrow’s national findings, gathered from their Speak Up 2010 surveys. In 2013, the Pew Research Center reported that about 3 in 4 (74%) teenagers aged 12-17 are mobile internet users, accessing the Internet through cell phones, tablets, and other devices (Madden et al. 4). Another striking statistic Pew reported was that 93% of teens have a computer or access to one (Madden et al. 5). Project Tomorrow found that the students have a concrete vision of how they can learn with technology. Students want to use technology in the classroom and library media center, as well as at home; furthermore, these students report a desire for learning to be social, mobile, and rich
in technology (Project Tomorrow “Students” 3). Teachers and administrators are also motivated to use technology in the classroom but are hindered by inexperience and small budgets. Librarians are in a position to provide leadership and technological expertise in tailoring their district’s curriculum to not only include mobile technology like eReaders, but employ digital content as well. Digital content includes, but is not limited to, eBooks, eTextbooks, and online databases.

The long-term effects of digital reading, learning, and communication are unclear. What is clear is that this digital environment is fluid and evolving. It is necessary to review current literature and continue the research and examination of the effects of eReaders and digital content on schools, media centers, librarians, and students. Data on schools and students are continuously collected in order to examine the quality of learning the students receive and if they can then apply it to their own lives. Librarians are investigating how to best apply mobile technology within their libraries and to continuously share their digital expertise with their students, teachers, and administrators. The effects of eReaders on schools, libraries, and student achievement are found through empirical examination of the pertinent data and conclusions borne of the librarian’s investigation process.

**Statement of the Problem**

The use of eReaders and mobile devices is steadily increasing in schools and library media centers. Students, teachers, and librarians have unprecedented access to technology both at school and at home. One of the challenges faced by schools, regarding integration of mobile devices for reading and learning, is based on the ability of the librarians and teachers to successfully incorporate this technology into the learning process without the technology becoming a distraction. Administrators face the challenge of steering their district into available technology while maintaining budgetary boundaries and state and federal curriculum guidelines.
Librarians face the challenge of restructuring their library media center programs to operate within strict budgets, while at the same time combining their print collections with eReading devices and digital content. Students do not see the new technologies as a challenge, but as the method with which they communicate. Most are motivated to employ technology for learning. Students face the challenge of learning how to use the digital devices for authentic learning, while managing any external distractions. Mobile devices and eReaders are creating challenges for students, teachers, administrators, and librarians alike. The problem this research addresses is twofold; in what ways are these challenges being successfully addressed by schools and media centers, and how are eReaders are affecting student learning outcomes?

**Purpose of the Study**

One purpose of this research was to examine the information in current literature that describes how eReaders and other mobile learning devices are currently being used in schools and library media centers. The literature review provides an examination of levels of access, usage by age groups, and reading preferences. Another purpose of this study was to examine the numerous challenges facing library media centers and schools. The research looks at the changing role of librarians and how eReaders are contributing to digital learning and evolving curriculums. Finally, this study seeks to learn how mobile learning devices and eReaders can improve the learning outcomes of students by examining survey data and scientifically based research studies.

**Research Questions**

1. What are the current trends in eReader usage in schools and library media centers?
2. How are eReaders affecting reading behavior and student achievement?
3. What are the effects of eReaders and digital content on schools and library media centers?

4. What are the effects of the broad range of devices and eBook formats on content management and user satisfaction in school libraries?

5. What are some examples of schools and media centers successfully embracing eReaders and digital content?

6. What effects do eReaders have on the role of school librarians in the 21st century?

**Limitations**

The restrictions of the study include the limited availability of data referencing specific, long term effects of eReaders on primary and secondary student learning outcomes. The research is therefore limited to short term, generalized effects based on the available research studies. The use of eReaders in schools and media centers is a relatively new phenomenon and the scope of the research studies does not exceed five years of collective data. The research is further limited by the fact that models of eReaders and digital devices are too numerous to all be included in this paper, therefore only those devices with the highest usage percentages were examined.

**Definition of Terms**

BYOD: (Bring Your Own Device) is a policy allowing users to bring their personal device(s) to school to be used to access online resources or facilitate communication and productivity.

Device: a piece of electronic equipment such as eReader, tablet computer, smartphone, or cellphone.
Digital content: Also known as digital media, is available in many forms, such as text, audio, video, graphics, images and animations. This content is available online for downloading or distribution to a digital device.

Digital native: someone born during or after the use of digital technology and who begins interacting with and mastering technology from an early age.

Digitize: to convert from the source form to a digital form.

DRM: or digital rights management, is the security mechanism built into eReaders and eBooks to prevent them from being used on unlicensed or unauthorized devices.

eBook: an electronic book, a document or book that can be read on an electronic reading device (see eReader).

eInk: or electrophoretic ink, is a proprietary type of electronic paper that in black and white, or grayscale, mimics the appearance of the printed page. It is viewable in direct sunlight.

ePUB: or electronic publication, is one of the digital formats used for electronic reading. It has been optimized for allowing content to be re-sized by the user. It can only be used on eReading devices that accept this format.

eReader: or electronic reader, is a mobile electronic device that allows users to store and read eBooks and digital documents. Examples: Amazon Kindle, Sony Reader, Barnes & Noble Nook, and Borders Kobo.

eTextbook: or electronic textbook, is a digital form of printed textbook, is often organized in the same manner as the original book. There are static and interactive varieties.

iBook: the eBook format used by Apple devices like the iPad and other iOS devices.

iOS: Apple’s mobile device operating system. Used by iPhones, iPads and iPods.
iPad: The iPad is a line of tablet computers designed, developed and marketed by Apple, Inc., primarily as a platform for audio-visual media which comprises books, periodicals, movies, music, games, apps, and Web content. Its size and weight fall between those of contemporary smartphones and laptop computers. The iPad runs on iOS, the same operating system used on Apple's iPod Touch and iPhone, and can run its own applications as well as iPhone applications. Without modification, the iPad will only run programs approved by Apple and distributed via the Apple App Store (with the exception of programs that run inside the iPad's Web browser).

iPod: a line of portable media players created by Apple, Inc.

Kindle: the eReader device created by Amazon. It provides access to eBooks in the Kindle format (see .mobi). It is a Wi-Fi enabled device providing Web access and multimedia content.

LCD: or liquid crystal display, is a flat panel screen that can be monochrome or color. It is used in electronic devices such as monitors, tablets, and eReaders. Most LCD screens are backlit, or transmissive, making reading easier.

Mobi: the electronic book format developed for the MobiPocket Reader. The format is currently used with Amazon electronic reading devices.

Mobile device: also known as a handheld device, is a small computing device typically having a touch screen or small keyboard, such as an iPod or cell phone.

Nook: an eReader device created by Barnes and Noble. It uses the ePUB format for eBooks and also provides Wi-Fi access to the Web and multimedia content.
PDF: or portable document format, is a proprietary document format developed by Adobe. It is a fixed layout, flat document. This format was developed to facilitate document accessibility independent of software, hardware, and operating system restrictions.

Public domain: the repository of items in which the intellectual rights have expired, been forfeit, or are inapplicable. It is a source of free eBooks and digital content for eReaders.

Smartphone: a mobile phone with mobile operating system that provides users with features like touchscreens, Web access, media players, digital cameras, GPS navigation, and Wi-Fi hotspot capabilities.

Tablet Computer: A tablet computer, or a tablet, is a mobile computer, larger than a mobile phone or personal digital assistant, integrated into a flat touch screen and primarily operated by touching the screen rather than using a physical keyboard. It often uses an onscreen virtual keyboard, a passive stylus pen, or a digital pen.

UDL: or Universal Design for Learning, is an educational framework that guides curriculum development such that all students have equal opportunities for learning.

**Research Design**

This study was developed after finding a need to provide new and substantial information to the field of library science regarding eReading devices and their effects on school libraries and student achievement. The existing literature was examined by accessing online databases through the ERIC, EBSCOhost and ProQuest search services. No independent research was conducted during this process except for the collection, analysis, and synthesis of current literature and research studies.

The terms used in the preliminary searches were ‘e-Readers,’ ‘eReaders,’ ‘school libraries,’ and ‘student achievement.’ Studying the results within ERIC provided some alternative search terms to use, such as ‘electronic reading devices,’ ‘handheld devices,’ and
‘educational technology.’ The databases searched were *Academic Search Complete, ERIC, MasterFILE Premier, Academic Search Elite, Applied Science & Technology Full Text (H.W. Wilson), Education Research Complete, Library Literature & Information Science Full Text (H.W. Wilson), Library, Information Science & Technology Abstracts with Full Text, MAS Ultra - School Edition, Academic Search Premier, Primary Search, Library & Information Science Source and ProQuest Central.* Using these databases the search terms were the same as mentioned previously in addition to the terms ‘textbooks,’ ‘librarians,’ ‘students,’ and ‘reading.’
CHAPTER 2
REVIEW OF THE LITERATURE

This literature review explores the issues relating to the use of eReaders in library media centers and classrooms and the effects of electronic reading devices on student achievement. The demographics of technology use such as gender and reading habits will be presented. Then, the effects on curriculum that are generated by the use of eTextbooks and eReaders in the library media center and classroom are examined. Next, the lending issues and budgetary concerns faced when purchasing digital devices and content are investigated. Finally, information is presented regarding how specific manufacturer’s models, proprietary formats, and the multiplicity of available devices influence the library media center’s potential to serve the school community. The literature presented herein seeks to demonstrate how eReaders are posed to change the methods by which libraries disseminate information and improve student learning success through higher levels of motivation to read and think critically.

eReaders and Students

This section presents the technology usage demographics, gender demographics, and reading habits of students with regards to eReaders. The analysis of technological demographics is composed of trends in eReader and mobile device usage, how the use of eReaders enhances learning quality, and how teens use technology as revealed in statistical data. The aspects of gender demographics presented include teen technology use and the effects of eReaders on male students’ reading motivation. The section on student reading habits explores the nurturing of readers in the digital age, a comparison of book formats read by various age groups, the influence of eReaders on reading behavior, and comparing reading processes on eReaders versus print books.
Trends in eReader and Mobile Device Usage

In order to grasp the effects that eReaders are having on school libraries and student achievement, it is necessary to develop a familiarity with the ways in which students use and learn with electronic reading devices. The demographics of eReader usage are based on surveys given to students in elementary, junior, and senior high schools.

In March 2012, Lauren Barack, the contributing Editor for *School Library Journal*, sent a technology survey to school libraries across the nation and received 1,250 responses. The models of eReaders that reported the highest amount of use in school libraries were the Nook (40%), the Kindle (37%), the iPad (24%) and the Nook Color (23%). Five percent or less of those respondents selected the Kindle Fire, Sony Reader, and Kobo Reader. Barack also reported that 16% were using mobile devices such as smartphones for access. The survey found that students are using a variety of devices for reading, with 63% using library media center computers, 17% using tablets for reading, and 21% employing dedicated eReaders (“League of Extraordinary” 27).

Barack reported an increase in the use of mobile devices devoted to learning in school. The survey found that 23% of schools allow students to bring their own devices, up from 13% in 2011. The high schools in this survey reported a rise in use of smartphone mobile devices as eReaders and online learning tools, from 29% in 2011 to 49% in 2012 (“League of Extraordinary” 27). From 2009 to 2010 student access to mobile devices increased 42% and school demographics like community type or Title I qualification was not a contributing factor to accessibility (Project Tomorrow “Students” 4).

Compass Intelligence, a market research firm based in Scottsdale, Arizona, has analyzed data that suggest an increase in funds spent on technology in the 2013 U.S. educational market
their calculations specifically showed an increase from the 2008 rate of $47.6 billion to the estimated $61.9 billion in 2013 (Rivero 1).

Using eReaders to enhance learning quality.

Studying survey results is a fast way to gauge how eReaders are being used to enhance the quality of learning within both the library media center and classroom environment. In 2010, the Speak Up National Research Project conducted a survey, with students being one of the groups of stakeholders, in order to explore the students’ vision of the trends in mobile learning, online learning, blended learning, and e-textbooks. Responses by students provide a “social, untethered and digitally rich” view of how they envision learning (Project Tomorrow “Students” 3). When surveyed, the response of parents likely to buy mobile devices for their children was 70% for grades 9-12, 69% for grades 6-8, and 63% for grades K-5 (Project Tomorrow “Students” 6).

A conclusion drawn from this survey indicates that students using mobile devices in the classroom are more engaged in learning and these learning opportunities continue outside the classroom (Project Tomorrow “Students” 7). The students envision mobile devices as having the potential to enhance their learning experience by allowing anytime, anywhere Internet research (68%); improve collaboration through text messaging (53%); and using audio and visual features to create and share documents, videos, podcasts (37%) and record class lectures for later viewing (35%) (Project Tomorrow “Students” 5).

Statistics on teen technology use.

In 2013, the Pew Internet and American Life Project authored a survey on Teens and Technology Use. The findings state that approximately 23% of teens, or one in four, has a tablet device, a comparable statistic to adult demographics (Madden et al. 2). Smartphone ownership for teens is 37%, an increase from 23% reported in 2011 (Madden et al. 6).
Approximately 74% of teens (ages 12-17) use their tablets, phones, and other mobile devices for Internet access (Madden et al. 2). “Eight out of ten teens have a desktop or laptop computer. Among the 20% of teens who do not have their own computer, two-thirds (67%) have access to one they can use at home. Taken together, this means that 93% of teens have a computer or access to one” (Madden et al. 5).

**Gender demographics.**

According to the research study, *Teens and Technology 2013*, the findings show 34% of older girls (14-17) are most likely to be ‘cell-mostly’ Internet users compared to 24% of older boys (14-17). This statistic was notable in light of the survey finding that both genders are equally likely to be smartphone owners. Fifty-five percent of older girls with smartphones reported using their phones for the majority of their Internet access (Madden et al. 2).

In 2010 a study was performed with 199 middle school students classified as reluctant readers and their use of eReaders in the classroom. The study found that there was a significant increase in the boys’ response to the value of reading while using the eReading devices, whereas the girls’ response was not increased. The authors reported that they will continue the study for a longer period to determine if the difference in gender preferences was a result of the original study time frame (Southern Methodist University 153).

**Reading Habits**

The rise in use of eReaders and their digital contents has prompted an examination of the reading habits of students in primary and secondary education. The first discussion presents information on what is necessary to encourage readers in a digital age. The second will examine the reading habits of these students using both electronic and print media.
Nurturing readers in a digital age.

Children who read interactive storybooks on eReaders have higher story recall and comprehension, and early readers show higher sight word recognition (Lamb and Johnson 59). Readers must first learn how to differentiate between different styles and structures of text in order to handle sources that are not linear and are possibly fragmented. Students need skills that allow them to identify integral and incidental elements in interactive reading, establishing their needs for audio and video elements in addition to narrative (Lamb and Johnson 60). Lotta Larson found that the second grade students using eReaders, in her research study, displayed new literacies like adjusting the font size, using the built-in dictionary and activating the text-to-speech feature to listen to difficult words. She also concluded that the students reading with eReaders were more engaged and displayed great control than when reading printed text (17).

The study, conducted in 2012 by the Pew Research Center, found that while 83% of the respondents, Americans under the age of 30, have read a book in the last year, eReading is not limited to dedicated eReading devices only. The use of cell phones (41%) and computers (55%) for eReading was significant. The use of dedicated eReaders was reported as 23% for Kindle and 16% for tablets (Zickuhr 3). The book formats read in the past year by respondents aged 16-17 was 77% for print books, 12% for E-books, and 10% for audiobooks. Those aged 18-24 reported reading behaviors as follows: 78% for print books, 21% for E-books, and 9% for audiobooks (Pew Internet 8).

Influences on reading behavior.

The 2012 Pew study found that reading behavior can be influenced by a variety of factors, such as book format (print or e-book), availability of the item in a library or as a download, and the purpose of reading the item. The statistics show that 47% of those
respondents between the ages of 16 and 29 read long-form electronic content such as books, magazines, or newspapers. Some 30% of these electronic content readers, including 40% of those under age 30, say that they now spend more time reading than they used to due to the availability of e-content (Pew Internet 9).

The survey found mixed responses to changes in reading behavior after the respondents began borrowing eBooks. Some respondents report that they visit the library less since they began using their eReading devices due to online availability, while others confirm they are still regular library patrons because they regularly use both print and electronic formats (Pew Internet 12). Lamb and Johnson report in a 2009 study that students preferred reading eBooks to print books. The eBook tools they noted as being most helpful were highlighting and note taking (61).

**eReaders and Curriculum**

With the rise in use of eReaders in schools and libraries, there is a need for the examination of how these devices will affect school curriculum. The specific areas of curriculum development that will be examined here are eTextbooks, budgetary concerns as a result of increases in eReader usage, and an examination of bring your own device (BYOD) programs versus eReader lending programs.

With regards to eTextbooks, this literature review will examine the changing definition of textbooks, sources of digital instruction, student preferences on textbook format, and the examination of an iPad-centered eTextbook pilot program. The budgetary concerns that are detailed include comparing the cost of eTextbooks and eReaders, accessing public domain content, and the comparison of ‘bring your own device’ programs versus eReader lending programs.
Redefining the Textbook

Douglas Levin describes how a number of states are actively engaged in redefining the term “textbook” to include digital content and the computer equipment to access the digital content. Once this definition has been changed at the state level, the path is opened up for conversion to a one-to-one learning environment (Levin 33). Indiana is leading the country in its acceptance of this revised definition and its commitment to increasing the use of digital content in their classrooms. Texas and California, who typically drive the textbook market, are also making changes to their textbook definitions to include digital content (Levin 34).

Bartholomew Consolidated School Corporation (BCSC) in Columbus, Indiana, decided, after a long look at disappointing textbook choices, to change the textbook requirement by creating a digital curriculum based on UDL (Universal Design for Learning) standards. UDL adheres to state standards, 21st century technology aptitudes, and variety. The school district rewrote the Social Studies curriculum and retrained the teachers to instruct the students using technology and digital resources via the Internet. The students reported higher engagement and interest in Social Studies and teachers reported higher student involvement and interest. The BCSC created a digital learning environment that benefitted both the students and the teachers (Van Horn 48).

According to the Speak Up 2010 national survey, some quantitative insights are emerging as interest develops in electronic textbooks. Administrators are interested in applying technology while simultaneously lowering or eradicating the expense of print textbooks. Parents are interested in reducing the weight of their children’s backpacks. Students are interested in learning in an interactive and digital environment (Project Tomorrow “Students” 3). The survey reported that 27% of middle school students and 35% of high school students are using online
textbooks or online curriculum. When asked about their ideas for an “ultimate school,” the majority of students envision using digital textbooks, as indicated by the following percentages: 48% for grades 3-5, 53% for grades 6-8, and 55% for grades 9-12 (Project Tomorrow “Students” 9-10).

Amanda Mulvihill reports that eTextbooks comprised 3.4% of the global textbook market. In 2013 this is expected to increase to 18.3% of the market use. The widespread increase in the use of mobile devices is believed to be the moving factor in the projected rise in eTextbook use. Students are also reporting that they seek the benefits of both electronic and print formats. They like print’s accessibility as well as eBook’s portability and interactive tools. Students also want affordable books. Publishers, as a result of the diverse set of user requirements, are finding it difficult to work and produce content in such a ‘hybrid’ print and mobile environment (34).

John Waters describes a growing eTextbook company named Inkling. Their goal is make eTextbooks available to students at an affordable price and in a format that surpasses the student’s expectations with digital content. The electronic book “must provide a significant value over the print experience” (35). Inkling is striving to not perpetuate the book metaphor with their eBooks, by moving away from unnatural page transitions and by means of audio, video and animations, create an “interactive digital experience” (34).

In 2011, Morrisville State College in New York implemented a pilot program where one section of a systems analysis course was selected to try using a loaned iPad with access to a digital version of the course’s textbook. The eTextbook was a just a digital replica of the print book and it was not interactive. However, the students could apply bookmarks, highlighting, and extensive notes. Roberta Sloan, the paper’s author and classroom teacher, found the following
data points from the surveys and data gathering of the pilot program. Integration of the eTextbook into the course was easier than the integration of the iPad. Full integration of the iPad would require a course redesign (Sloan 15). The survey responses indicated a blurry line between the eTextbook itself and the iPad device. The author hypothesizes that eReaders and eTextbooks will become more tightly integrated. The students preferred the eTextbook to the printed book, however their grades were not significantly higher than those in the other section using the print book, and only slightly higher than previous semesters. Sloan recommends offering students the option to choose an eBook or a printed book (Sloan 16). The study reported higher levels of student engagement in class when the projection of the e-textbook, highlighting, and note taking occurred simultaneously with the lecture (Sloan 17).

**Budgetary Concerns**

The increase in the usage and availability of eReading devices in schools has generated a number of budgetary concerns. The concerns examined here focus on a cost comparison of print and electronic textbooks, the use of eReaders and public domain content, and the comparison of BYOD (Bring Your Own Device) versus Lending Programs. Textbooks are a standard tool for learning in school, but the new perspective involves investigating electronic textbooks and other sources of digital content in order to meet curriculum requirements.

Librarians can make small budgets work for eReaders and content by being informed about the usefulness of public domain content and allowing students to bring their own devices. The knowledge that eBooks and digital content typically come with a price tag may encourage librarians and teachers to explore less expensive avenues of accessing eBooks, via the collections of public domain titles available online. The use of BYOD programs can benefit school libraries.
simply for the reason that the school district would not be spending money on devices or the related support and maintenance (Project Tomorrow “Educators” 7).

**Comparing costs of eTextbooks.**

Jason Tomassini examines a variety of different school districts across the country in a movement toward digitizing access to textbooks and classroom curriculum. His analysis presents a wide spectrum of results, ranging from those districts that have been very successful to those whose laptop carts are gathering dust due to a lack of teacher training once the technology was installed.

The recurring theme is that school districts are motivated to explore and adopt e-textbooks and digital curriculums; however, there are often roadblocks with funding sources. Critics are quoted as not wanting to have a generation of students whose education might not be totally up to par because they are being placed in experimental programs aimed at one-to-one technology access. The final conclusion is that with so many districts across the country in different economic demographics, it is every district for itself in finding funding and implementing e-textbook programs. Those who are succeeding now and those who do so in the future will be looked to as trailblazers (Tomassini 5). Phillip Barron describes how the use of eReaders in the classroom can be cost efficient. He notes that by employing digital devices for reading, paper is saved and, on average, eBooks cost less to produce than their print counterparts. The lower cost of production is passed on the consumer in a lower purchase price for digital content (Barron 135).

**eReaders and public domain content.**

Lamb and Johnson suggest, in light of the explosion in eReader content, that librarians must consider the details of licensing agreements and how these agreements affect the ability to
share content across multiple devices. Next, Lamb underscores that librarians and teachers also have unlimited access to the Internet Archive (archive.org) and Project Gutenberg (Gutenberg.org) as sources for free public domain e-books for eReaders (58).

Public domain materials use the open EPUB or PDF format which can be read on most devices. Titles like *The Call of the Wild*, *Pride and Prejudice*, and *The Adventures of Huckleberry Finn* are all available in this open, free format. This knowledge gives the librarian the ability to curtail some of the costs that can be associated with owning and stocking content on eReaders. One librarian notes that she began working with the teachers by demonstrating how they could locate many of their titles through public domain sources. The teachers appreciated the efficiency of the search and annotation features of eReaders. The goal here was to show how a public domain title could replace copyright protected titles specified by the curriculum (Stephens 2).

**Implementation of eReader lending programs.**

Travis Jonker, an elementary school librarian, received grant funding to purchase eReaders for his library media center to create an eReader lending program. He describes the process he went through beginning with procuring the grant to technical difficulties he encountered while rolling out the program. Jonker considers his first foray into eReader lending programs to be positive because he achieved the goals outlined in his grant synopsis: providing access, increasing reading enthusiasm, and offering customized reading opportunities. He was able to receive the grant to purchase three devices and then, when the waiting lists kept growing, he increased the device inventory to a total of five. He successfully increased reading enthusiasm by creating eye catching displays and advertising the eReaders on his school’s daily video announcements. Next, he was able to offer the students the customized reading experience
of using the titles available through his media center or having the option to download eBooks from the local public library. His most noteworthy achievement in this lending process was reported as the excited response he received from the students and their eagerness to read using eReaders. He lists some problems as well, describing technology glitches, time investment for configuration, and his small supply of devices. It was a successful implementation according to Jonker, one that he will continue to improve and expand (33).

Buffy Hamilton, the Unquiet Librarian, has also implemented an eReader lending program at Creekview High School in Canton, Georgia. Her experience with this project is detailed on her prolific blog, noting the following challenges: the media center catalogue’s inability to manage the recordkeeping of large numbers of eBooks on each device, the issue of titles needing to be associated with specific devices, the need to hack MARC records and repurpose fields to manage which books are on which device and the establishment of comprehensive loss and damage policies (Yelton 22).

**Bring Your Own Device Programs**

A difference in opinion exists regarding whether students should be allowed or encouraged to bring their own mobile devices to school for learning purposes. Administrators who said no to the BYOD model numbered 65% of the respondents in a survey conducted by Project Tomorrow “Students,” while 70% of high school parents reported that they were willing or likely to purchase a mobile device for their child to use in school. The percentages were similar for Grades 6-8 (69%) and Grades K-5 (68%) (6).

The implementation of BYOD device programs is not a simple application. Numerous factors must be taken into account besides the idea that the district is not being required to outlay money for eReaders or other devices. The remaining factors to consider include current network
capabilities, licensing structures from eBook vendors and the inability to control personal devices for a standard level of security, including malware, viruses, and content filtering (Lamb and Johnson 56-57).

**eReaders and the School Library Media Center**

Studies and surveys show that eReaders play and will continue to play a vital role in the school library media center. Librarians leverage their leadership to advocate for the continued and increased use of eReaders and digital devices in their libraries and school districts. Studies show dramatic student interest in using these devices, not only for entertainment but also learning. The following section will examine a number of aspects of eReaders and the school media center. The first aspect is how digital formats are impacting the role of the school librarian and the subsequent challenges a librarian can expect in an eReader implementation program. The second aspect is the stance of teachers and librarians on digital content in the library media center and classroom. This includes advocacy for purchasing and using eReaders.

**Digital Formats and the Impact on the Role of Librarians**

Wetschler discusses the challenges faced by school librarians as they navigate the digital environment that has become commonplace. He describes librarians as media experts and the frustrations born of high digital demand and low operating budgets (24). This consistent movement into the digital world is shaping the environment of the media center by creating learning commons and even flagship digital libraries like the Cushing Academy in Massachusetts (23). In 2009, the Cushing Academy transformed its library into a digital learning center by providing access to information in a predominantly electronic format. Notably, it replaced most of its print volumes with eBooks and eReaders. Librarians now realize that purchasing print encyclopedias is a thing of the past, since online encyclopedias, databases, and electronic
formatted materials can replace them in a constantly updated form and with less environmental impact (27).

Kristin Fontichiaro, of the University of Michigan School of Information, proposes that the role of school librarians be tailored to include the championing of eReader content creation. She details the strategies that can be used to create PDFs, convert Web content into .ePUB or Kindle format using browser extensions and creating eBooks using Bookrix.com. Bookrix creates and hosts eBooks for free. The creative possibilities for librarians, teachers and students are limited only by the user’s imaginations and content not restricted by copyright law (Fontichiaro 2011).

During the School Library Journal’s 2010 Leadership Summit the session that caught everyone’s attention was "Adding Value to eReaders for Classrooms and Libraries," presented by guest speakers Andrés Henríquez of the Carnegie Corporation of New York, Professor Catherine Snow from Harvard, and University of Oregon Assistant Professor Gina Biancarosa ("Full Speed" 40). The three experts attended the summit in order to evaluate input from the librarian attendees to help them finish their draft of “E-Reading Technology and the future of Academic Reading.” This report details how important is for librarians to train their fellow educators in eReader technology for classroom use. "If teachers can experience firsthand how the technology improves their ability to acquire and retain new content and strategies, they will naturally want to use it with their own students," the draft reads. And one way to reach this goal is for "libraries to become laboratories for piloting, demonstrating, and supporting instructional uses of e-reading technology” (“Full Speed” 41).
Challenges Faced by School Librarians in eReader Implementation

The challenges that librarians encounter when implementing eReader devices in their libraries include device interoperability, administration of devices, availability of desired titles, and the cost of both devices and eBooks. Librarians tackle the problems of different devices working together, of being able to share content between and across devices, and how the devices interact with the library media center’s information system. Another aspect to consider is that with numerous devices to choose from, one runs into the problem of facing platform lock-in issues when devices are strongly tied to their manufacturers, and how to find common operating ground when each device has different sources for content. Administering large quantities of eReaders can be challenging when the manufacturers are geared towards consumer support and not large scale group support (Watters 38).

According to Watters, another challenge is the ability to combine print and digital materials in the library media center catalogue. The goal is to create a catalogue that will easily denote whether an item is a print item or a digital format. In addition, there is frustration with not having a cloud-based solution to provide digital storage of items and limits to numbers of devices that can share a book. In essence, without a central location to store eBooks in the school library media center, the automation system is unable to maintain proper records of the eBook’s location and usage. Finally, the cost of the devices, as well as the eBooks themselves, can be prohibitive without the involvement of volume purchasing power (38).

Teachers’ and Librarians’ Stance on Trends in Digital Content

In 2011, Project Tomorrow conducted a parallel survey to their student and parent centered research study, questioning librarians, teachers, and administrators. According to their ‘Speak Up’ survey, the teachers were more eager to adopt digital content in their classrooms
after being motivated by their administrator’s philosophy on learning. The role of the librarian has been expanded to include the skill of being able to locate and make available any digital tools for learning that will better involve the students in the learning process (Project Tomorrow “Teachers” 16).

**eReaders: The Devices and eBook Formats**

In order to be fully informed on the topic of eReaders, and their place in school libraries, and their effect on student achievement, librarians must become familiar with the variety of available devices, as well as the different formats in which eBooks and digital content are now available. The following section will examine the aspects of the EPUB and PDF digital formats; and some of the eReader options available to librarians. These options include accessing eReader usability and user satisfaction studies, accessing comparisons of Kindles and iPads, and examining the rationale regarding the cell phone as a fundamental addition within the toolbox of learning devices.

**EPUB, PDF and Kindle Digital Formats**

Eric Brunsell writes of the various eBook formats that students and teachers will encounter when exploring the world of digital content. The formats used when reading eBooks include, but are not limited to, PDF, EPUB, MOBI, and iBook. While some are device specific, notably Apple’s iBook, others can be converted to different formats for use on multiple devices. Both the Android and iPad devices have apps available that will read Kindle, Nook, and Google Play Books (Brunsell 8).

A popular format, the ‘vendor-independent’ EPUB, is compatible across reading devices and is ‘reflowable’ to fit to changes in screen size, while PDFs are fixed. A PDF (portable document format) e-book is the simplest format, looking like a word processed document. Both
formats are readable on free programs easily downloaded from the Web, Adobe Digital Editions, and Adobe Reader, respectively (Brunsell 8). Griffey notes that that the EPUB is the current standard file format for eBooks vendors and publishers (18).

The genesis of the Kindle format came about from Amazon’s purchase of the early eBook vendor and distributor, Mobipocket in 2005. As a result of this acquisition, Mobipocket’s file format became the better known .azw, or Kindle format. In addition to a proprietary file format, Amazon also employs a proprietary DRM locking mechanism which requires all Amazon purchased content to be played on Amazon sanctioned devices (Griffey 18).

**Reading Processes on eReaders Versus Print Formats**

Siegenthaler *et al.* performed a study in 2011, comparing the reading processes experienced when reading eInk readers versus LCD readers. An eInk reading device presents text in a black and white or grayscale color scheme. This type of reader attempts to mimic the printed page, only in electronic format. The study found that based on legibility and reading speed that reading behavior is very similar when readers used the two types of electronic devices. In addition to the comparison of the eInk and LCD readers, reading speeds on print books were also measured. The results showed no difference in reading speed between eInk devices and paper books. This is noteworthy as Siegenthaler *et al.*’s results are in contradiction to a 2010 study by Jakob Nielsen who found reading speeds on print books were higher than on eReaders (qtd. in Siegenthaler *et al.* 6).

**Librarians’ Opinions on the Devices**

In response to the increasing levels of eReader and digital content usage being seen in library media centers, the librarian is at the center of much of this activity. The first section presents the levels of user satisfaction reported to librarians with current eReader technology.
The next section examines those instances of librarians advocating for eReader usage, followed by a comparison of Kindles and iPads. The final section presents findings on the use of cell phones as mobile learning devices.

**eReaders and user satisfaction.**

John Richardson and Khalid Mahmood examined five of the industry’s leading eReader devices to determine user satisfaction and usability levels. The devices analyzed in the study are the Amazon’s Kindle, Apple’s iPad, Barnes and Noble’s Nook, Border’s Kobo, and Sony’s Reader. Eighty-one students in an information studies program were polled on whether or not they owned a specific eReader, their likes and dislikes, and any issues they felt worthy of mentioning. Volunteers were requested from the group to participate in an ethnographic study where they were allowed to live with the eReaders for multiple days (170).

Richardson and Mahmood reported a number of findings. First, the Kindle was the most popular device. Second, the students liked the transportability and capacity to store multiple titles simultaneously (176). The participants disliked the navigation features, the inability to cite passages, and the inability to share an item with certain readers. The final major issue was in regards to the licensing of titles versus outright ownership (177).

**Librarians advocating for Kindles.**

Lauren Barack presents a number of different examples of librarians and their advocacy for the use of eReaders in their media centers. These librarians, including Buffy Hamilton, detail factors that support these programs, including the ability for students to get high interest books instantly, the privacy a reader is allowed to enjoy when others around them are unable to see what they are reading, and how reluctant readers are not being intimidated by book size any
longer. All of these factors contribute to a large increase in student enthusiasm for reading and visiting their libraries.

Barack describes how Katherine Miller, a junior high librarian, used grant monies to purchase iPads to add to the Kindles the library media center had already acquired. Having both types of devices allows her to offer choices to her students. Miller is also using informal assessments by tracking how students are using the devices, in an effort to gauge the effects of these devices on student achievement (“Kindles are Coming” 59).

Miller finds that there are advantages and disadvantages to both the Kindle and the iPad. Notably, the Kindle is able to accommodate multiple users on the same device, while the iPad is not. She praises the iPad’s iTranslate feature that assists her ‘English as a second language’ students. Miller also mentioned the Kindle’s inability to print wirelessly, while the iPad can do this (Barack “Kindles are Coming” 60).

**Cell phones as mobile learning devices.**

Elizabeth Maroux explains that the existence of the cell phone in the library media center and classroom can be viewed from a perspective of how they can be used as tools for learning. Cellphones are being leveraged in education as survey devices, as instant communication facilitators, and as eReading devices. She notes that according to the Pew Internet and Life Project’s “The Future of the Internet,” the cell phone will become the primary Internet connection tool by 2020 and will be the ‘mobile device of choice.’ Her advice is for librarians and teachers to embrace the technology and find ways to use it as a learning tool and a vehicle for communication with students.

In 2009, Lucianne Brown provided quantitative data supporting the use of mobile phones as learning devices in the classroom. Her study reported that as a result of using cellphones in
the library media center and classroom, comprehension increased during vocabulary activities. Another of Brown’s findings shows that electronic learning devices like the cellphone increased the motivation to learn over standard, non-technical delivery (100-101).

**Conclusions**

The review of current literature details the growing use of eReaders in school media centers and classrooms and the effects of digital devices on student performance and motivation. In order to grasp the depth and breadth of technology usage in schools, the demographics of teen technology access and usage was presented. The literature reports widespread access to computers, cell phones, and most recently, dedicated eReading devices and tablet computers. Librarians and teachers are reporting an increase in their motivation to use electronic reading devices to provide access to digital content in their classrooms because it increases the students’ motivation to learn. Administrators are seeking ways to incorporate technology throughout the school district and find financial balance in integrating this technology into their district’s budgets.

Current literature is reporting the rise in the use of eTextbooks and digital content centered curriculums as schools are moving to more technology centered learning. School media centers are leading the way with eReader implementation programs, with some districts encouraging students to bring their own devices, while others are lending school-funded eReaders to the students. The data shows that students are still reading, but the quantity of readers is rising when eReaders are available for student use. The mobility, uniform size and shape, and features like font size and dictionaries add to the user friendliness of eReading devices.
Librarians are aware of the shift in momentum towards digital access and electronic content. This shift is reflected in the current literature and leading them to plan wisely. They are beginning the transformation of their libraries from housing print collections to collections that are fusions of electronic and print formats. Students are asking for digital content and librarians are answering by getting eReaders into their libraries and finding ways to get eBooks into the hands of the students. The result of this shift towards digital content is motivating students to learn and also motivating librarians and teachers to provide electronic learning opportunities.

The eReaders and other mobile learning devices like cell phones and tablets are fixtures in the 21st century digital landscape, and the students are digital natives. Librarians are accepting this and shifting how they help students read and learn by purchasing eReaders. They find that through providing access to eBooks, they are reaping the benefits of watching students read, learn, and come back for more.
The landscape of reading and books has changed. The rise of eReaders and eBooks has transformed the way that schools and their library media centers are approaching how they teach their students. Students are growing up in a digital environment that is so prolific that they could arguably be the first generation of full-fledged digital natives. Librarians in both school and public libraries are facing the challenges of guiding their libraries through an evolutionary process of moving from print collections to the digital and print hybridization and then planning for the inevitable fully digitized collections.

This paper explores the current state of eReader use and how it is affecting schools, their libraries, and their students’ achievement. This exploration was framed by this series of questions: What are the current trends in eReader usage in schools and media centers? How are eReaders affecting reading behavior and student achievement? How are schools and media centers being affected by eReaders and digital content? What are the effects of the broad range of devices and eBook formats on content management and user satisfaction in school libraries? What are some examples of schools and media centers successfully employing eReaders and digital content? What effects do eReaders have on the role of school librarians in the twenty-first century? The answers to these questions provide guidance to those currently involved in a digital transition or planning to begin their digital evolution.

**Trends in eReader Use in Schools and Media Centers**

When investigating eReaders and accessing digital content, it quickly becomes apparent that while dedicated eReader devices are being used, they are not the only avenues available for electronic reading. Surveys have shown that in addition to dedicated eReading devices like the Nook, the Kindle, and iPad, as well as other devices like computers, tablets, and smartphones are
being used as electronic reading devices. With this variety of technology to use, schools and media centers have a number of ways to provide students with access to electronic reading opportunities. Statistics show that students, many of whom have access to smartphones, are using these personal devices in school for access to digital content.

Current surveys show that students have unprecedented access to technology, both at home and at school. The most common form of digital access held by students is their smartphone. This access is reported to be spread throughout urban and rural areas, and throughout the socio-economic spectrum. About three in four teens access the Internet on mobile devices. About eight in ten teens have, or can access, a desktop or laptop computer. These statistics are putting the idea of a widespread digital divide to rest, at least in relation to technological access. Students are reported to envision their digital learning environment as involving social learning, untethered access, and full of digital content.

Teachers and administrators are represented in these surveys as well. Both groups report using mobile and online technology on a daily basis to connect with peers and parents, but only one third report using technology to connect with their students. There is an obvious disconnect in the philosophy and practice of communicating with the students in the manner most acceptable to them. Teachers report an active interest in employing mobile technology in the classroom, but also report a lack of knowledge in how to accomplish this without the devices becoming a distraction.

School librarians report widespread access to mobile technology as well. Surveys show a roughly 5% increase per year, since 2011, of librarians reporting the use of eReading devices in their libraries. Librarians are also reporting a steady rate of increase in the use of eBooks and
other mobile devices also. While usage is increasing, media specialists are also reporting challenges in finding time to be able to teach students and teachers about the new technologies.

**Effects of eReaders on Reading Behavior and Student Achievement**

With access to eReading technology readily available to students, both at school and at home, the statistics show the eReading is happening on more than just dedicated eReaders. Students use their laptops, desktops, tablets, and smartphones as well. When investigating reading behavior, a number of aspects should be considered. These include book format, whether the item is available in the library or online, and the reason for reading the book. Surveys are reporting that the use of eReaders and eBooks have mixed results. While many respondents are actively using their eReaders and borrowing eBooks from their library or purchasing them outright, the respondents are still reporting regular visits to their library branches. Students report that while borrowing an eBook can be done easily and efficiently, they still like to visit the library media center to access print books also.

Several interesting points to consider are the results of two studies that were done comparing the levels of legibility and reading speed on two different types of eReaders, an eInk (black & white) format, and an LCD color tablet format. Siegenthaler *et al.* found that the legibility of both types of eReader displays to be strikingly similar. However, both Siegenthaler *et al.* and Nielsen agreed that reading speeds are faster on the LCD eReader than on the black and white eReader. Nielsen’s study was referenced in the Siegenthaler *et al.* report. Additionally, they disagreed on the comparison of reading speed on eReaders versus print books. Nielsen found print reading to be faster than electronic reading, while Siegenthaler *et al.* found no difference. This is a topic that invites more investigation.
There was a small research study done where 200 middle school students, classified as reluctant readers, were given access to eReaders and eBooks to be utilized at school and at home. The results of this study reported that the male subjects showed higher levels of interest and found more value in reading while using the eReader technology than did the female subjects. While an interesting study, it should be noted that the researchers qualified the results in saying that it is possible for the short time frame of the study to affect the gender differences. They plan on continuing the study long term to determine if the results coincide with the first study.

In using eReaders in schools and libraries a number of factors contribute to enhancing the learning quality of the students. Students and teachers both feel that learning is enhanced through the use of eReaders and mobile devices because it increases the level of engagement experienced by the students. Higher levels of engagement lead to an increase in critical thinking and can spur independent learning. Using eReaders and mobile devices also benefits learning quality due to there being a constant connection to the World Wide Web, increasing opportunities to move the research process from start to finish. Mobile technology also allows the lines of communication to remain open between teachers and students and students and their peers, before, during, and after school. The results of this availability of easy communication are higher levels of collaboration and enhanced learning quality.

**Effects of eReaders on Schools and Media Centers**

At present, the number of schools striving to increase technology access in their districts is increasing at a steady pace. Technology standards are raising the bar for schools across the country. Education standards and benchmarks are being edited and updated to reflect the need for students to be information and technologically literate. Librarians and media centers are being called upon to teach their students how empowering it is to access information, analyze
their findings, and be able to create a product in either print or digital form that expresses what they have learned. In the light of this brave new digital world, schools and media centers are facing challenges that are requiring them to stay technologically informed, get creative, and learn from trial and error. The use of eReaders and digital content is affecting curriculums, textbook policies, and budgets.

The curriculum in a school district is the backbone of their learning philosophy and practice. Administrators, teachers, and students are all bound by this extensively detailed guide for learning. The introduction of eReaders and mobile devices is creating an opportunity for administrators and teachers to re-envision how teaching and learning can be accomplished. Administrators and teachers agree that mobile learning and electronic reading opportunities will increase student motivation, improve communication, and extend the learning day. However, administrators see that teachers require more training and better skill sets to be able to apply this technology in the classrooms. Teachers are reporting a desire to incorporate technology into their curriculums, but many are hesitant because it is such unexplored territory for them. Their concerns include the level of distraction caused by the use of mobile devices, the possibility for cheating, digital equity among students, locating age appropriate sources, and finally their lack of knowledge in how to integrate this technology into their curriculum.

A logical solution to this “how do we get from point A to point B,” where point A is the status quo and point B is a technologically savvy learning system, is for the school librarian to step up to the plate. As a learning leader, the library media center can be a clearinghouse of information on current technology and the librarian a leader on methods for teaching information literacy. A school with a strong librarian presence and active media center creates higher
achieving students. eReaders and mobile devices do not need to cripple or frustrate a curriculum; they can be included successfully with the right expertise and patience.

There are a number of states that are leading the charge in looking at the relevancy of print textbooks and the use of eTextbooks. School districts have tackled the issues of selecting and purchasing textbooks to align with their curriculums and their budgets. The eReader has given rise to the re-examination of print textbooks and the future of these heavy volumes. In order to create a new framework for digital learning, the idea of the textbook is being reinvented to encompass not only print material, but electronic versions of said textbooks and enhanced digital versions as well, replete with multimedia and interactive capabilities. Students foresee using and are currently requesting eTextbooks in school. Administrators are intrigued by the thought of lowering textbook budgets while at the same time introducing eReaders and digital content to their students. Parents are excited with the idea of making their children’s backpacks lighter. Pilot studies have been conducted replacing print textbooks with eTextbooks and have reported positive results. Students reported satisfaction in being able to highlight, bookmark, add notes electronically, and, overall reported a preference for the eBook to the print version. However, student grades did not change noticeably regardless of the book format. Teachers reported higher student interaction in classes when eTextbooks were employed. The use of eTextbooks and digital content in schools is in its preliminary stages; however, the results of current users indicate that it will not be long before eTextbooks are a mainstream commodity.

Finally, it necessary to consider the budgetary aspects of eReaders on schools and library media centers. eReaders have specific price tags with some being higher than others. It is necessary for librarians to do the research on the eReader that will best fit their district’s budget and technology vision. Once the devices are available, the next step is to have access to content
for the users to read. Schools and libraries are faced with tight budgets so this is when being well informed on sources of free public domain content comes in handy. Publishers are providing access to eBooks; however librarians are required to understand the licensing guidelines and regulations related to using titles across multiple devices. There are some districts whose media centers are implementing eReader lending programs and reporting their successes and failures. Another avenue for access is the “bring your own device” proposition or BYOD, for short. This idea, while enticing to students and supported by parents, has not been as quickly embraced by administrators. They cite lack of teacher knowledge for the myriad of devices available and security issues of adding unmonitored devices to a school’s network. In all the new territory that is being explored, it is up to librarians to help pave the way towards a successful integration of eReading technology through advocacy and communication.

**Effects of eReaders on Content Management in Media Centers**

The variety of eReading and digital devices on the market today is too numerous to list. There are two popular models marketed by the country’s most well-known book sellers, Amazon’s Kindle and Barnes and Noble’s Nook. Sony, an electronics company has produced the Sony Reader. Finally, Apple has created and marketed the iPad, conceivably the most popular tablet on the planet. Following along with a variety of devices, also comes a variety of file formats, some proprietary, that work on the above mentioned devices. The EPUB file format is compatible across devices and only requires access to Adobe Digital editions to be able to be read. Another cross platform format is the PDF, or portable document format, that is able to be read using free Adobe Reader software. Both the Kindle and the iPad have created proprietary file formats that can only be read on their devices or through the aid of a helper application.
With these devices also comes the issue of digital rights management, DRM, which is the security mechanism that prevents content from being copied to or read by unauthorized devices.

When a library media center has eReaders and eBooks to circulate among the students and staff, content management issues arise. When equipment or materials, either print or digital, are added to a library media center’s collection, policy requires them to be entered into the media center’s cataloguing system so they can be inventoried and located easily. The issues that occur involve difficulties in getting the cataloguing software to link titles correctly to devices, the inability to manage which titles can only be linked to specific devices, and the anatomy of the MARC record having to be redesigned to accommodate digital content. Another content management issue revolves around managing the technology inventory, especially with multiple types of devices that can be used. With the use of technology also comes the requirement for technical support, so librarians are often on the front line of receiving requests for help when devices start misbehaving.

**Media Centers on Embracing eReaders and Digital Content**

In the new realm of library media centers on the forefront of technology, there are numerous examples of librarians and media centers showing other educators in a school the path ahead. In line with the librarian’s role of technological leader, there are media specialists who are creating eReader lending programs, advocating for the use of eTextbooks, and even divesting themselves of their print collections to serve their patrons only digital content and eBooks.

Librarians such as Buffy Hamilton and Lauren Barack are leading by their examples of technological implementation. Buffy Hamilton, the Unquiet Librarian, has documented her experiences and the challenges she faced while implementing an eReader lending program at her school district on her blog at [http://theunquietlibrarian.wordpress.com/](http://theunquietlibrarian.wordpress.com/). She describes the
overhead of the eReader rollout, the time consuming process of cataloguing the technology as well as the eBooks, the technical support time required, and the success she saw after all of her hard work.

Travis Jonker (http://www.thedigitalshift.com/author/tjonker/) wrote grants to purchase eReaders for his media center lending program. He hoped to increase the reading enthusiasm of his students through technology integration. His experience can be used as a roadmap for current and future librarians who want to explore the field before they take their own leap of faith. An interesting angle that Jonker brought up was the accessing of eBooks through book jobbers, like Follett, publishers like Baker and Taylor, and eBook suppliers like Overdrive. His insights are a treasure trove for the inexperienced or newbie to the eReader field.

The Fisher-Watkins Library at the Cushing Academy in Ashburnham, Massachusetts, in a bold move, replaced its print books with a mostly digital collection. Students can access database content and thousands of Web-based electronic books directly on their laptops. The library media center also provides students with access to download hundreds of thousands of titles available use on their 200 eReaders or the student’s own device. This move has transformed Cushing’s library media center into a true digital learning hub. This flagship library can be used as a model for the successful application of embracing the new digital information age.

**eReaders and the Role of 21st Century Librarians**

Twenty-first century librarians have multiple roles to play in the arena of their school district and their media centers. The four most easily identifiable roles are that of teacher, instructional partner, information specialist, and program administrator. The interweaving of eReaders into the various roles of librarians has produced some marked effects. In the role of
teacher, librarians are in a position to teach both students and staff the benefits of learning to use eReaders and digital technology for information consumption, both academically and leisurely.

In the role of instructional partner, librarians can show how eReaders are able to be linked to the curriculum and identify learning outcomes that can be enhanced through electronic reading and digital content. This role also allows the librarian to focus on developing practices that will include the application of eReaders and eBooks to enhance student’s information and communication skills. Librarians as instructional partners will be able to show teachers how eReaders and digital devices can be used for assessments and learning moments that truly engage the students. This role is one where librarians can and will share their knowledge of eReaders by offering training to other educators.

In the role of information specialist, the librarian’s task is multi-layered. When advocating for the integration of electronic reading and digital content, the librarian has an opportunity to prove their leadership capabilities in acquiring and evaluating the resources to be accessed. This is also an opportunity for media specialists to model the use eReaders and eBooks and their abilities and to help students access and evaluate the information they have located. The modeling and teaching of the ethical use of information, whether in print or digital format, is a crucial layer of this role.

A librarian as program administrator is working with the building administration to provide support for the media center and give insights to improve the knowledge, vision, and leadership to continue moving towards the future. Library media center administrators successfully manage staff, equipment, and budgets, which includes the training, inventorying, and purchasing of eReaders and electronic content. As an administrator, the librarian is leading and advocating for his or her program and being asked to justify why the program deserves to be
continued. The future of eReaders and mobile devices in library media centers will be an energetic one for both students and librarians.

**Conclusions**

Even though librarians have been exposed to electronic reading and digital content for a handful of years, it is still a movement that is young. It is a conclusion that, just like a child must learn how to walk, librarians must learn how to best incorporate eReaders and eBooks into their programs, philosophies, and visions for the future. Students are growing up in a digitally saturated environment and the thought of hanging on to the romantic idea of print books and how wonderful they might smell has lost its luster for many progressive librarians.

The focus of young librarians learning their trade has already shifted towards the digital horizon. It is up to the technologically enlightened librarians to show students, teachers, and administrators the ways in which eReaders and eBooks can enhance the student’s learning experience and the teacher’s teaching experience. When both groups experience the success of achievement and can feel the excitement returning to the learning process, the work of the librarian’s advocacy for digital reading and learning will have come full circle. While this vision is admittedly idealistic, it is certainly achievable.

The number of librarians and schools adding eReaders and digital content to their curriculums and libraries is growing at a steady pace each year. Students desire to have access to more technology, to be able to bring their own devices to school, to read electronic textbooks, and read the latest novel from their favorite author with ease and simplicity. Administrators and librarians are tackling tough issues of frizzled budgets and technology plans that did not foresee such a tidal wave of change. The demographics of economic environment, rural versus suburban locations, and gender do not show bias related to accessibility of technology.
Students and teachers want access to technology. Teachers want to engage their students more, but do not want them to be distracted by technology. Administrators want to support their teachers and students but are unsure how to combine the new deluge of technology with successful learning and teaching. Librarians want to share their knowledge of information and technology with their students and fellow educators but are often bound by time constraints and budget shortfalls. The way for everyone to successfully reach their goals is through partnership, communication, and following the leadership of those who have a distinct vision to be creative and try something new. For libraries and librarians this future offers eReaders and digital content, accessible 24 hours a day from anywhere on the planet. It is not time to fear the future; it is time to enjoy it.
Works Cited


