The role of digital reading technologies in developing language and literacy skills

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Link to Digital Story

Abstract

EBooks and other forms of digital reading technology are becoming increasingly popular in classrooms due to their perceived ability to improve engagement and positively contribute to language and literacy skills. This research study seeks to answer the question: Can eBooks be utilized to help improve early literacy and language skills, and contribute to the engagement of readers? In an effort to answer this question data was collected from an online survey created using *Google Forms.* This survey data was further analyzed through an interview process. The survey data retrieved provides a surface level understanding of the perceived value of digital reading technologies. The data retrieved from this study indicates that digital reading technologies are convenient and can increase the accessibility of reading materials, but that further research is necessary to determine the specific role of digital reading technologies in improving early literacy and language skills.

Introduction

Literacy skills are some of the most fundamentally important skills that students will develop in their time at school. The development of language and literacy skills early on is essential to the immediate and future success of students, both in and out of school. Because these skills are so important, I am passionate about finding engaging and innovative ways to ensure the success of my future students. Through my participation with the Calgary Wee Reads program I have learned more about how I can facilitate the development of literacy skills in young readers, and I am interested in how educational technologies can be integrated to enhance this process. Through this study I hope to learn more about new teaching resources and tools available that can be helpful in facilitating the acquisition of literacy skills.

Schools are becoming more and more driven by technology. As a result there are an increasing number of technological teaching resources and tools available Ebooks and other digital reading technologies have become increasingly popular in schools as a result of this shift towards technology. I believe that certain kinds of eBooks could be a useful tool in teaching young students to learn to read, write, and develop verbal skills in an engaging and relevant way. The question I hope to answer in this research project is: Can eBooks be utilized to help improve early literacy and language skills, and/or contribute to the engagement of young readers?

Background

Technology is becoming an increasingly important tool in today's classrooms. A great proportion of teachers and students now have access to such devices as eBooks, tablets, interactive whiteboards, and smart phones as tools for both teaching and learning. The intended purpose of these educational technologies is to improve or enhance the educational experience of its users; but just how well do these educational technologies achieve their intended purpose?

The sources I reviewed for my research study aim to answer this question, as well as others, specifically regarding eBooks and digital reading technologies.

The article "Ebooks and 21st-century learning" by McKenzie (2009) provides a good background summary of the future of educational technologies, such as eBooks, in the classroom. The various benefits of integrating educational technology into the classroom are outlined; including: accessibility, the potential for collaborative learning and increased engagement and digital literacy skills (McKenzie, 2009, p. 27-28). The author describes the move toward educational technologies like eBooks as a positive and necessary one (McKenzie, 2009, p. 27-28).

The article, "Young Children's Engagement With E-Books at School: Does Device Matter?" by Burstein, Gray, & Roskos (2014) discusses a study done on the impact of eBooks on the engagement levels of early readers. The study, conducted by Burstein, Gray & Roskos, compares the engagement levels of preschoolers utilizing iPads, iPods, and touch screen computers to read both with and without an adult. Burstein, Gray, & Roskos (2014) suggest that the success of these digital reading technologies is related to the prevalent nature of technology in multiple aspects of life: "Increasingly young children recognize and use electronic devices as sources of information and entertainment. In an information age, the trend is irreversible" (p. 6). This study concludes that the use of eBooks in combination with iPads, iPods and touch screen computers can support engagement and motivation in early readers (Burstein, Grey, & Roskos, 2014, p. 1-9).

Burstein, Gray, & Rosko (2014) are not alone in their findings. Sheila K. Frye (2014) came to much the same conclusion about the impact of eBooks in her article entitled: "The Implications of Interactive eBooks on Comprehension." This article explores the impact of

eBooks on the reading comprehension of grade two students with reading difficulties. The grade two students were observed interacting with eBooks on iPads. Frye (2014) suggests that the role of teachers in selecting appropriate eBooks and learning materials is essential for the success of eBooks in the classroom (p.57). Frye (2014) notes that "[e]ducators should be trained on how to identify high-quality interactive eBooks that support literacy learning, and develop whole-group and small-group lessons and units that maximize the affordances of those eBooks" (p. 56).Overall the evidence from this study suggests that the eBooks improved the engagement and involvement of the students as well as their ability to develop their own understanding of the story (Frye, 2014, p.58-59).

The impact of these digital reading technologies is not experience by students alone; teachers are also impacted by the introduction of educational technologies. The article "eBooks and Literacy in K–12 Schools" by Felvégi and Matthew (2012) explores the impact that the introduction of eBooks has on both teachers and students. Felvégi and Matthew (2012) affirm that eBooks can be beneficial in the classroom; eBooks can help develop digital literacy skills, improve vocabulary and increase the motivation of young readers (p.40-52). Felvégi and Matthew (2012) maintain that changes in educational technologies are transforming the way teachers teach literacy skills, and the way that their students learn them. Felvégi and Matthew (2012) state that "The transforming effects of technology on traditional definitions of reading and learning impact the purpose, processes, medium, and act of reading...The new technologies and the resulting new literacies "create an opportunity for reexamining the fundamental signatures we have so long taken for granted" (Shulman, 2005, p. 59)" (as cited in Felvégi, Matthew, 2012, p. 41-42). Educators need to adapt their pedagogy as these technological changes take place.

Although eBooks are viewed as a mostly positive addition to classrooms, digital reading technologies do have their drawbacks. The article "Are ebooks any good?" by Guernsey (2011) explores the educational value of eBooks in the classroom and the logistics involved in including this educational technology in classrooms. This article discusses the animated nature of eBooks and debates whether or not this feature adds or detracts educational value:

> [W]ithout the balance of children holding and touching and learning how to take care of a book, you run the risk of children losing a sense of what books are and how they feel," Miller says. "You lose the understanding of how they came to be." Scholastic's Newman dismisses anything with 75 percent animation, saying that at that point, "it ceases to be a book".
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> (Guernsey, 2011, p. 4)

The background literature that I reviewed indicates that there is great potential for eBooks and other digital reading technologies to be utilized effectively in classrooms. Teachers are a critical component of the successful implementation of these digital reading technologies in the classroom. As digital reading technologies are still an emerging technology, there is much to be learned about their precise impact on the reader.

Research Context

I have gathered the data for this research from three primary places: an online survey, observation from my classroom placement, and previously existing scholarship on the topic of digital reading technologies. I generated an online survey with questions regarding the perceived benefits and drawbacks of digital reading technologies. The majority of the responses collected from the survey came from teacher candidates in the Mount Royal University Bachelor of Education program, and a small portion of responses were collected from individuals involved in

informal education and professions unrelated to education. I have also been able to collect some observational notes in my field experience placements regarding real world applications of digital reading technologies. The pre-existing scholarship concerning the use of digital reading technologies has helped to inform my research and guide the questions I have sought to answer throughout this study.

The participants involved in this study are primarily the individuals who completed my online survey. In total, 12 people completed the survey. As aforementioned, these individuals include primarily second year teacher candidates and a few individuals who are not directly involved in education. In compliance with the ethics regulations involving children under the age of 18, I have not directly involved the students from my field experience in this study. Rather I have made general observations in the classroom and have used these notes to guide my study. All schools, students and teachers observed for this study have remained entirely anonymous.

Each individual involved in the survey component of this study has been made aware of the purpose of the study, and informed that their contributions will remain completely anonymous. This information was conveyed in both the email requesting completion of the survey, as well as in an informational blurb at the top of said survey. The participants of the survey were also given information to contact me with any questions or concerns they had regarding the study. The survey method of collecting data regarding digital reading technologies is very low risk and allows individuals to participate at varying levels of engagement while maintaining anonymity. In an effort to respect and protect the privacy of those I observed in a school setting, my observational notes remained anonymous and do not mention any specific schools, names of teachers and students, or genders of teachers and students. The teachers whose classrooms I was observing in were also made aware that I would be collecting observational

notes throughout my time in the class.

Methods of Investigation

For this study I have selected two main methods of data collection, the first being the use of an online survey, and the second being the collection of field notes in my field experience placement. Using multiple methods of data collection facilitated the assemblage of both qualitative and quantitative data and resulted in more informed findings and conclusions.

I have used *Google Forms* and *Word It Out* to analyze the data I have collected. Through the use of *Google Forms*, the raw spreadsheet data I collected was converted into a variety of graphs and charts to visually represent quantitative data. I utilized the program *Word It Out* to combine and visually represent the written survey responses. The visual representation of these written answers demonstrates some of the key ideas that emerged from the qualitative data. The observational notes included in this study were selected from the notes taken in my field placement based on their pertinence to this study.

After the research data was collected and organized it was analyzed collaboratively. In an effort to form a more developed and informed conclusion I interviewed informal educator and public programmer for TELUS Spark, Meghan Durieux. We found that there was a trend in the survey participants having limited knowledge or experience, and as a result there were a lot of personal preferences and fewer experiential conclusions recorded. The level of experience that users have with digital reading technologies is a factor that needs to be considered when asking questions about their effectiveness. One of the takeaways from this study was that the effectiveness of digital reading technologies, like most other teaching tools and strategies, is dependent on the individual child. Understanding the type of student reading technologies might help or hinder is key to understanding the role of digital reading technologies in the classroom.

By analyzing the survey data we were also able to determine how we might be able to improve the survey and achieve data of better quality. The survey questions asked were too broad. Breaking questions into small categories may have provided us with responses that worked towards answering the research questions more effectively. Asking questions that require specific real life examples could be a more effective way of collecting more specific information. Encouraging participants to share specific real life examples or stories may have also been helpful in obtaining specific information, especially because a large percentage of the survey participants were teacher candidates. Having even more questions to assess actual knowledge instead of self analyzed knowledge regarding digital reading technologies could be another useful iteration of this survey.

Findings

The findings were gathered from my online survey are reported below. Twelve people completed this survey. 83% of survey participants were education students from Mount Royal University, and the remaining participants belonged to other professions. The questions asked in this survey were used to gauge: the experience participants had using different forms of digital reading technologies, the perceived benefits and drawbacks of utilizing digital reading technologies, and the perceived implications of using digital reading technologies in the classroom.

I am a(n):
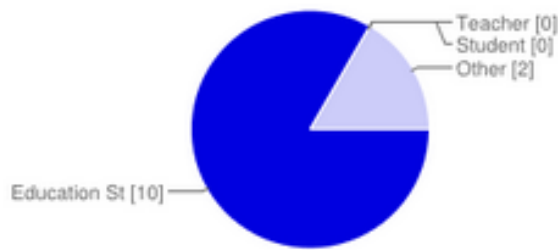
Education Student	10	83%
Teacher	0	0%
Student	0	0%
Other	2	17%

Figure 1. Demographics of survey participants

Which of the following do you feel were hindered from your use of a digital reading technology?

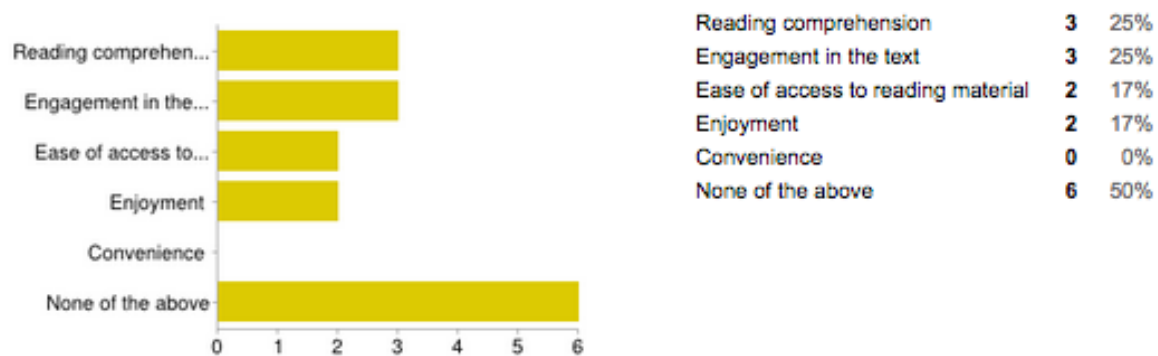|		
Reading comprehension	3	25%
Engagement in the text	3	25%
Ease of access to reading material	2	17%
Enjoyment	2	17%
Convenience	0	0%
None of the above	6	50%

Figure 2. Factors that were perceived to be hindered from the use of digital reading technologies by survey participants

The data from Figure 2 indicates that survey participants found reading comprehension and engagement were hindered by the use of digital reading technologies. 50% of the participants indicated that another unspecified factor was hindered. 0% of survey participants found that using a digital reading technology inconvenienced them in anyway. This data suggests that digital reading technologies may be more convenient for users than traditional reading methods.

How do you feel that the use of digital reading technologies in the classroom impacts learners?

Negatively	1	8%
Neutral (no impact)	1	8%
Positively	5	42%
Other	5	42%
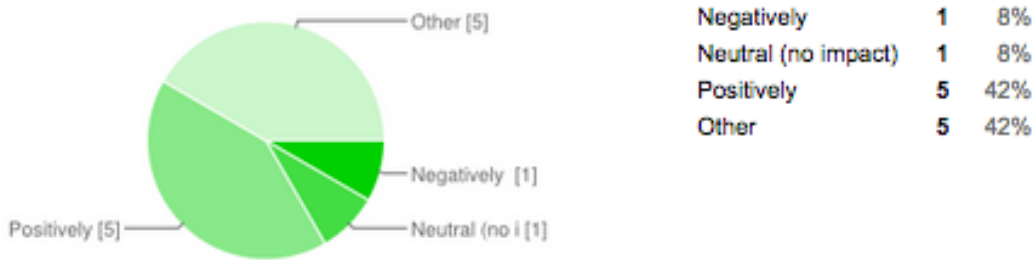
Figure 3. Impact of digital reading technologies on learners in the classroom as perceived by survey participants
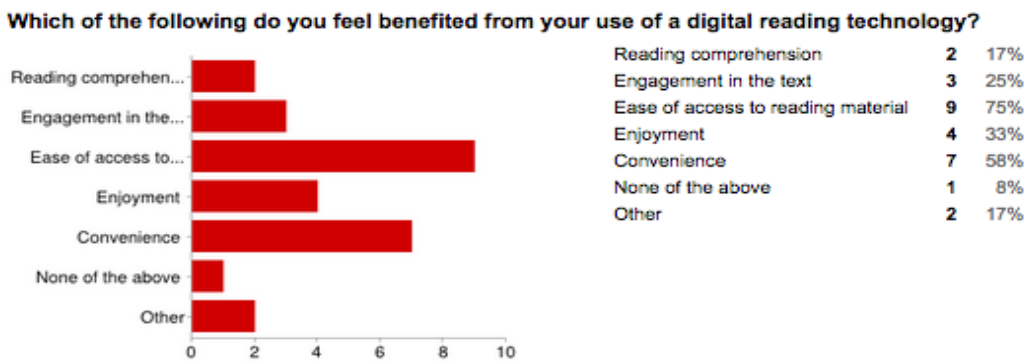
42% of survey participants believe that digital reading technologies have a positive impact on learners, and another 8% of participants believed that digital reading technologies would not impact learners at all. This information suggests that 8% of participants believe that digital and traditional methods of reading can be used interchangeably in the classroom with similar or identical results for learners. 42% of survey participants thought that using digital reading technologies would impact learners in other ways that could not be classified as positive, negative, or neutral. It is possible that participants who responded in this way feel the impact of digital reading technologies depends on the ways in which reading technologies are implemented in the classroom, and therefore the impact on learners cannot be predetermined.

What level of personal experience do you have using eBooks or other digital reading technologies?

No experience	2	17%
Some or limited experience	9	75%
Extensive experience	1	8%

Figure 4. Level of personal experience survey participants have using digital reading technologies

The data from *Figure 4.* suggests that most participants are not well versed in the use of reading technology. This result could be dependent on the ways that participants interpreted the term "digital reading technologies." As most of the participants of this study were education students, this data suggests that teacher candidates and new teachers may need some training or professional development in the area of digital reading technologies in order to utilize them effectively.

Which of the following do you feel benefited from your use of a digital reading technology?

|		
Reading comprehension	2	17%
Engagement in the text	3	25%
Ease of access to reading material	9	75%
Enjoyment	4	33%
Convenience	7	58%
None of the above	1	8%
Other	2	17%

Figure 5. Benefits of digital reading technologies as perceived by survey participants

Figure 5 suggests that convenience, and ease of access to materials, are the most widely perceived benefits of digital reading technologies. This data implies that digital reading technologies have the potential to be useful tools in classrooms as ease of access and convenience are two factors that could be important to teachers. This data also indicates that digital reading technologies could be especially useful for teachers who do not have access to a large selection of traditional reading materials.

How do you feel that young students literacy skills would be impacted by using digital learning technologies?

Positively	5	42%
Neutral (no impact)	3	25%
Negatively	1	8%
Other	3	25%
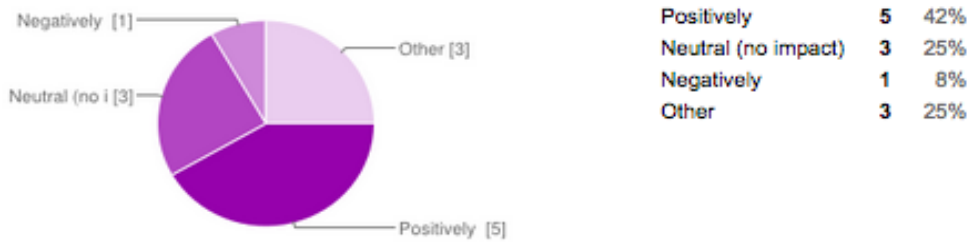
Figure 6. Impact of digital reading technologies on students' learning skills as perceived by survey participants
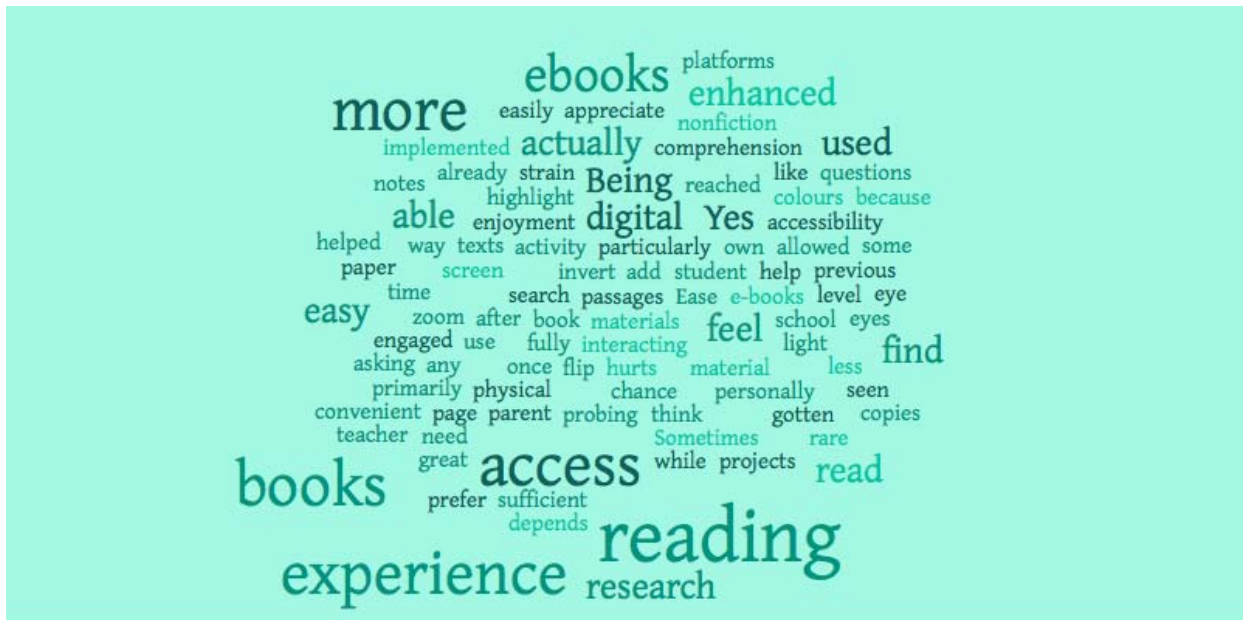
Figure 7. World cloud summarizing survey participants response to the question: Do you feel that the use of an eBook or other digital reading technology enhanced your reading experience? How so?
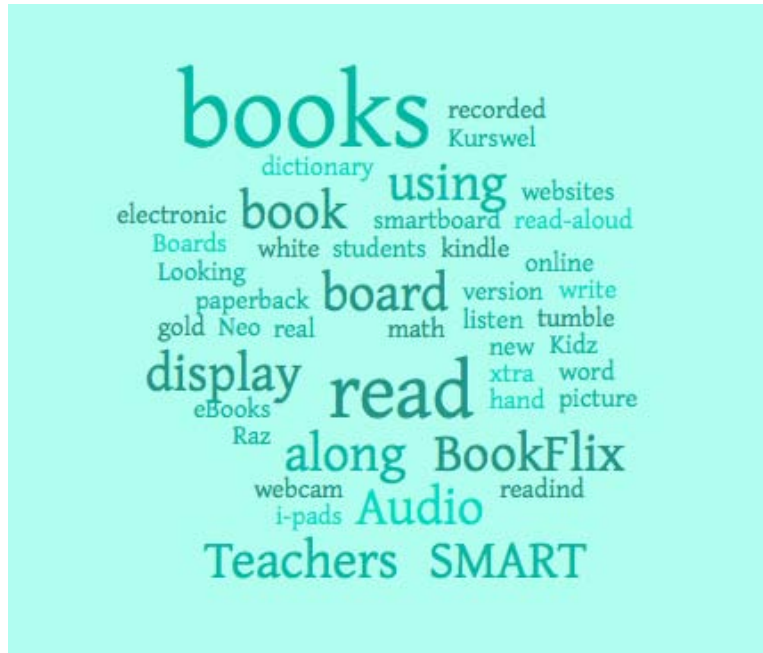
Figure 8. Word cloud summarizing survey participants response to the question: What are some examples of digital reading technologies you have seen implemented in classroom settings?

The data from this survey suggests that the perceived benefits of utilizing reading technologies, for both personal use and in the classroom, slightly outweigh the perceived negatives of utilizing non traditional methods of reading. The collected data did not indicate a strong preference for the use of traditional reading technologies over digital ones. The majority of participants in the study also indicated that their level of experience with digital reading technologies was limited. As a result, the data collected from this study can not be used to develop any concrete ideas regarding the benefits and drawbacks of digital reading technologies. It appears that more needs to be learned about the use of digital reading technologies and their specific advantages and disadvantages before they can be effectively utilized in classrooms.

Conclusions and Recommendations

The data from my survey regarding the impact of digital reading technologies on beginning readers remains inconclusive. The majority of survey participants indicated that their

experience with digital reading technologies was limited. As a result, the collected data may not accurately reflect the actual benefits and disadvantages of using digital reading technologies with beginning readers. If more of the survey participants had been experienced users of digital reading technologies, the results may have been more conclusive. The data collected does not provide a clear picture of the role of digital technologies in cultivating literacy skills in learners. Rather, the data collected helps to indicate the ways that inexperienced users may have interacted with digital reading technologies before. This information is useful in that it indicates the necessity of further information regarding these technologies and professional development to implement digital reading technologies in ways which are effective.

In order to improve this study, and it's resulting data, there is a need for a larger sampling for the survey. A greater number of participants could have provided more diverse and conclusive data regarding the use of digital technologies. In order to collect better data, the survey sample should be increased to at least 20 participants. The survey created for this study was a good starting point to collect general data about the perceived benefits and disadvantages of digital reading technologies. In order to get a more concise, clear picture about the role of digital reading technologies in developing literacy, more in depth questions need to be asked. Examples of such questions might include: What types of digital reading technologies are best utilized in the classroom? How can digital reading technologies best be used in the classroom? How exactly do digital reading technologies benefit/disadvantage students? What aspects of literacy and language are improved through the use of digital reading materials? Encouraging the sharing of personal stories is also a good way to gather information regarding the implementation of these technologies.

This study has allowed me to deeply consider the incorporation of digital reading

technologies in the classroom. Although eBooks are becoming increasingly popular, there are still gaps in knowledge considering the concrete benefits of digital reading technologies in terms of developing language and literacy skills. Methods of best practice still need to be developed for incorporating non traditional reading technologies into the classroom. Before fully incorporating digital reading technologies into a literacy program, I would need to learn more about the specific ways that these technologies benefit learners. I would also need to engage in professional development to obtain the resources and skills necessary to effectively incorporate this new technology into a classroom. At this time, digital reading technologies lend themselves as enhancements to developing literacy skills, rather than a ubiquitous platform I think this would lend itself to using digital tech as an enhancement, rather than a ubiquitous platform for an entire classroom.

The best approach to digital reading technologies appears to be a balanced one. The role of traditional reading materials and methods is still one of importance. The use of digital reading technologies in combination with traditional ones allows educators to experience the known benefits of traditional reading methods and the emerging benefits of digital reading technologies.

References

Burstein, K., Gray, E., & Roskos, K. (2014). Young Children's Engagement With E-Books at School: Does Device Matter?. *SAGE Open,* 4 (1), 1-9.doi: 10.1177/2158244013517244

Felvégi. E., Matthew, K. (2012) eBooks and Literacy in K–12 Schools, *Computers in the Schools: Interdisciplinary Journal of Practice, Theory, and Applied Research*, 29:1-2, 40-52. doi: 10.1080/07380569.2012.651421

Frye, S. K. (2014). The implications of interactive eBooks on comprehension. (Order No.

    3613594, Rutgers The State University of New Jersey - New Brunswick). *ProQuest*

    Dissertations and Theses, 86. Retrieved from

    http://search.proquest.com/docview/1504644338?accountid=1343. (1504644338).

Guernsey, L. (2011). Are ebooks any good? *School Library Journal*, 57(6), 28-n/a. Retrieved

    from http://search.proquest.com/docview/868683543?accountid=1343.

McKenzie, D. (2009). Ebooks and 21st-century learning. *MultiMedia & Internet@Schools,*

    16(1), 27-28. Retrieved from

    http://search.proquest.com/docview/229765394?accountid=1343