Journal of Literacy and Technology
Volume 21, Number 4: Fall / Winter 2020
ISSN: 1535-0975


# E-Books & Reluctant Readers: To Engage or Not to Engage

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Volume 21, Number 4: Fall / Winter 2020
ISSN: 1535-0975

**Abstract**

The ability to read is a pronounced gatekeeper for access to learning and success in the workplace and life. However, many students are reluctant readers who either do not like to read or have trouble with reading as seen in their academic performance (NAEP, National Center for Education Statistics, 2019). This study sought to learn how the use of digital reading materials changes reluctant readers' reading motivation, reading tool preferences, and reading improvement (de Jong & Bus, 2002) and how electronic reading materials equip pre-service teachers to teach reading in the 21st century (Lamb & Johnson, 2011). Study results suggest reluctant readers showed improved motivation to read and preferred using digital readers and e-books (Melinis, 2011) as well as pre-service teacher candidates improving their use of digital tools to support reluctant readers' progress in reading (Lei, 2009; Sadaf, et.al.,2012).

**Key words:** e-books, e-libraries, reluctant readers, Chromebooks, IPads, tutoring, assessments, new literacies, digital tools.

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ISSN: 1535-0975

## Introduction

A continued national concern is that many students in K-12 schools still struggle with reading, fluency and comprehension with reading scores dropping in 2019 as compared to 2017 (NAEP, National Center for Education Statistics, 2019). The lowest reading performers decreased in performance in both the fourth and eighth grades. Numerous interventions have been tried to improve students' reading ability, such as scripted reading, pacing guides, along with intensive test preparation activities but many students are still not performing at the desired reading accomplishment levels. K-12 students are technology natives, using technology is part of how they function and learn, and in the 21st century the definition of literacy has broadened to include students' interaction with technology, new literacies (de Jong & Bus, 2002). Yet much of reading instruction, particularly for struggling, reluctant readers, still reflect methods used 50 years ago. Movement to change how we engage students in the act of reading and reflects the tools these students use to learn about their world is essential and it begins with teacher preparation and instruction.

"Candidates (pre-service teachers) need to apply knowledge of learner development and learning differences to create a positive, literacy-rich learning environment anchored in digital and print literacies" (International Literacy Association, 2017, *Classroom Teacher standards* p. 5). Teachers can be more reluctant to engage in the use of digital tools for reading instruction than the students in their classrooms. Modern Society and its schools require children to master the level of spoken and written literacy considered right for their age. However, teachers in today's schools are finding it difficult to simultaneously respond to the varied needs of the diverse types of children sitting in the same heterogeneous classroom (Shamir & Korat, 2015). Digital tools can aid in meeting the varying needs in classrooms with the use of iPad, Chrome books and other electronic tools to access e-book libraries, e-dictionaries, and other interactive skills practices. Digital instruction using various educational technology tools has become part of our schools and how students are exposed to various forms of literacy and narratives is influenced by the combination of active learning with amusement (Thibaut and Curwood,

2014). Many reluctant readers need some type of motivation to read because the reading experience has been historically unrewarding. Motivation includes many pieces such as values, goals, interests, attitudes, self-efficacy, and others (Woods & Moe, 2015). Some students do not find reading e-books or on the web as academic "reading" and these same students who experienced continued reading struggles with traditional print book format, show to be more sophisticated readers when using digital reading tools (Conradi, 2014). Teachers and pre-service teachers must have an awareness of the discrepancy between literacy experiences, schools with print texts, pencil and paper, and electronic environment students experience in their daily lives outside of school (Lamb & Johnson, 2011). Is the e-book revolution just another gimmick in education, all glory one day and invisible the next? When used as a tool to engage reluctant readers could e-books be the key to improvement: A motivation tool?

## Literature Review

### Populations of Need

The academic progress of students of diversity and poverty in grades kindergarten through grade 12 continues to be of concern in education. The *Achievement Gap* (AG), described as the disparities of subgroups meeting the minimal levels of achievement compared to their privileged counterparts is also of great concern (Olszewski-Kubilius & Clarenbach, 2012), National attempts to close this achievement gap for students of diversity and poverty included federally funded programs such as, *No Child Left Behind (NCLB) 2002-2015, Race to the Top, American Recovery and Reinvestment Act of 2009, and* the *Common Core Standards 2009* (Holt Jennings, et.al.,, 2014). The common goal for each of these programs was to improve outcomes for all students, close the achievement gaps, increase equity, and improve the quality of instruction (Holt Jennings, et.al., 2014, 401-406). However, these attempts have yielded only slight progress in academic scores in the last decade for diverse children living in poverty.

Young children living in high-poverty environments have books read aloud to them far less often than children in affluent homes and schools; only 25 hours compared to 1000+ hours (Reutzel & Cooter, 2015). Children in homes with a variety of books, including those with Science, Technology,

Engineering, Arts and Math (STEAM) topics, with families who read and discuss those books together show higher literacy levels and higher levels of general academic knowledge than those whose homes are less literacy rich (Livingston & Wirt, 2003). The earlier the exposure and consistency in reading 15-20 minutes a day using a variety of literacy materials allows, children to make real-life connections to literature, which prepares them for motivation to learn, engagement in school content reading and related activities. Digital literacy is the most common exposure for children today as compared to 30 years ago. Consider from cell phone apps to actual mini- learning computers made available from toddlers' age group and up; today's, children are exposed and occupied by digital tools before they enter classrooms. As such, many children engage in digital practices within their homes early so educators need to recognize this resource as a tool to help students make meaning of text (Burnett, 2010; Hisrich & Blanchard, 2009). So, a child's disappointment and lack of engagement in reading a print copy, rather than a digital copy of a book in the classroom is understandable.

**Reluctant Readers**

Engagement plays a critical role in a student's success as a reader and a learner. Student engagement during the reading experience is a significant predictor of reading achievement, comprehension, vocabulary and reading speed (Anderson, et.al., 1988). The willingness to engage on the part of a reader can position them as reluctant readers. A reluctant reader could be one who reads but does not enjoy it or has trouble with reading and choses to avoid it (Gunter & Kenny, 2008). Once students have made this choice, the use of traditional tools has reduced success in helping them improve. However when students have access to high interest, low Lexile books at a suitable reading level allowing them to engage with dignity, as found in digital libraries, a hook to student attention is set up and their ability to interact with the content is found (2008).

**Technology as an Instructional Tool**

Information technology and especially the Internet have profoundly changed the ways of publishing and how people read. For several years, electronic versions of magazines, newspapers, and

electronic journals existed, for which there were no print equivalents (Clyde, 2005). Some other advantages of e-books include paper books disintegrate and go out of print (Johnson, 2004 as cited in Clyde 2005). They are expensive to produce, bulky to store, and strenuous to move. Although digital media can have their problems too, Coleman (2004) argues that a major advantage of electronic books is they provide "a better delivery mechanism" for text (p. 124). Students are more likely to consult a "book" if they can do it from a computer rather than by trudging over to the library (p. 124). It has been suggested that the comprehension scores for students using e-books may be influenced by the reader's need to have different skills compared to reading from a traditional text. However, e-books can supply a variety of support tools that could play a key role in student reading success. For example, digital tools may be helpful for the teacher of a diverse language student who needs to see (closed caption) or hear (audio book) text in his/her native language first or translation of work into English or native language translated from English for notes home for parents/caregiver with limited English. These tools include built in dictionaries which provides definitions and grammar usage, variable font size to assist with ease of viewing/reading, bookmarks to return to where one stopped reading, making notes on a page to mark important details or write questions to investigate later, highlighting vocabulary words in text, audio can assist with pronouncing words or reading aloud to developing readers and auto-scrolling which allows student to view the text without turning pages (Fasimpaur, 2004, Picton, 2014).

Matthews (1996) examined the impact of e-books on elementary student reading comprehension. Comparisons were made between electronic books and print texts to see if comprehension levels differed in response to these two formats. Some findings show reading comprehension had significantly higher mean comprehension scores with the use of e-books. However other studies found mixed results for comprehension scores (Higgins & Hess, 2000). But comprehension is not the only concern when examining reading improvement.

Vocabulary development is also a key factor in building student skills to become better readers. The effectiveness of e-books for teaching vocabulary was examined and found animations in e-books did

help vocabulary development. However, the need for use of supplemental vocabulary building activities was found as key to vocabulary development (2000).

**Preparing Teachers for the 21st Century**

As pre-service teacher candidates' transition to practicing teacher professionals there is the expectation that these freshly graduated teachers are "Day One" ready to teach. Colleges of Education are viewed as successfully preparing pre-service teacher candidates based on how well their graduates are ready to work starting on their first day as a teacher. Lewis, et.al., (1999) show less than half of the teachers feel well prepared to meet the demands of classroom instruction today.

In the case of reading instruction teachers, principals and school districts expect the new teachers to have mastered foundational reading concepts to deliver effective reading instruction that includes (a) multimedia instruction, (b) explicit content instruction, (c) course and program planning tools, (d) structured tutoring, (e) case studies and (f) video analysis (Sayeski, 2015). In addition, the Applied Value-Added Assessment of Teacher Preparation has been used to assign scores to teacher preparation program graduates, based on the test scores of their students; if students improve on state assessments then the new teacher is well prepared. With standards changing to reflect students using critical and creative thinking, taking part in discussions, and developing solutions to problems, teacher preparation programs must adjust their preparation practices to align to the expectations of these 21st century skills more closely.

With these ever-changing instructional tools for classroom use, pre-service teacher candidates must be comfortable and equipped to use the technological tools their students expect and are ready to use. This includes the use of e-Books, Chromebooks, IPads, CD-ROM & Web reading to name just a few. Schools across the country are moving toward paperless, electronic books and tools to support learning.

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ISSN: 1535-0975

Teacher preparation programs must incorporate these current tools in their teacher preparation programs to graduate the best and most ready for day one teachers.

**New Teacher Needs**

Pre-service teachers need to develop knowledge in three critical areas: reading materials, teaching techniques, and instructional pacing (Morris, 2011). In addition, educators teaching today and, in the future, must develop digital literacy skills to be able to prepare their students for the information/media processes of the future. Use of electronic reading materials and websites represent one side of the information highway, K-12 students' use and are expected to have ability in using it to meet the demands of work in the 21st century. New teachers must have multiple opportunities to design and teach lessons that incorporate information and media in an integrated manner; using electronic resources in place of physical resources to meet the learning needs of students. For example, pre-service teacher candidates need to be able to craft and implement lessons that ask students to read electronic books /internet periodicals, use the web to find more information on assigned topics to create a product that reflects both digital and print resources (The Partnership for 21st Century Learning, 2015). This demands different types of planning and outcome choice on the part of a teacher and it is imperative pre-service teachers have the opportunity to not only use electronic teaching tools but to plan and deliver lessons reflecting the incorporation and interdisciplinary development expected for information and media literacy in the 21st century.

Schools across the nation are shifting the book format available to students to reflect technological advancements. E-books are becoming more common in elementary school libraries (Thibaut and Curwood, 2014). IPads, Chromebooks and Kindles are used as the tools for students to access texts that may or may not be physically in the library / classroom or their homes. Public libraries and classrooms are supplying more access to e-books as a vehicle for reading in the 21st century.

Research on e-books has shown mixed results for the improvement of comprehension and vocabulary development of children; supplemental vocabulary activities are needed to support the

development of students as readers. These inconsistencies expose the need for more research to better figure out the impact e-books can have on student's reading comprehension and experimental vocabulary knowledge and the development of students into successful readers.

**Summary**

The preparation of teachers to meet the needs of K-12 students to be reading for the world of work in the 21st century requires different tools and different strategies than in the past. Supporting pre-service teachers in knowing, exploring and being able to use digital information tools required for the future, methods courses must supply more opportunities to plan, teach and reflect to build expertise and confidence in these future teachers. This study gathered data to figure out the impact of electronic reading materials on student reading instruction and how the use of these materials can better prepare future teachers is much needed.

## Research Question(s)

The questions driving this study are

1. How does the use of digital reading materials impact (1st-8th grade) students' reading engagement and progress?
2. How do electronic reading materials equip pre-service teacher candidates to teach reading in the 21st century?

## Methodology

**Participants**

Participants were undergraduate pre-service teacher candidates and Master of Arts in Teaching (MAT) candidates enrolled in a required diagnostic reading assessment methods course and first through eighth grade students enrolled in the reading center's tutoring sessions over three semesters. Consent permissions were collected from teacher candidates and parental consent forms were collected for the tutees during a parent meeting prior to beginning of each semester tutoring session. The number of

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ISSN: 1535-0975

participants varied each semester based on teacher candidate and MAT candidate enrollment in the reading methods course.

**Instrumentation**

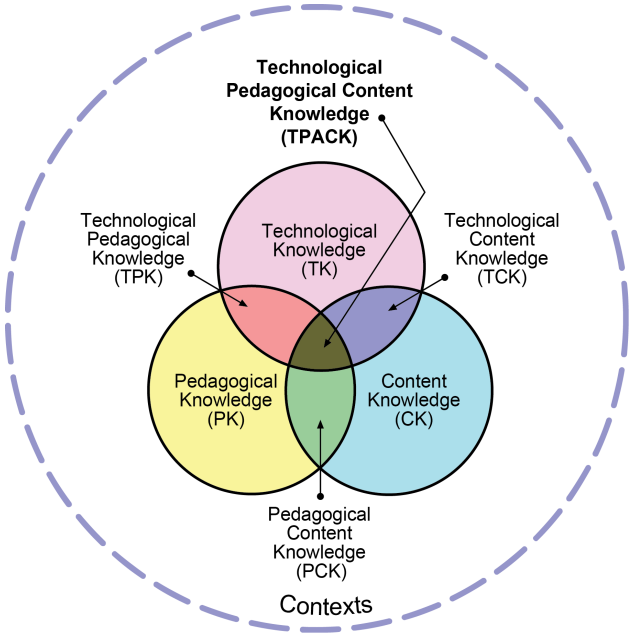
The study began with a pilot semester to decide on any needed modifications followed by three semesters yielding three rounds of implementation. Data were collected using a pre/post questionnaire, Technological Pedagogical Content Knowledge (TPACK) (See Appendix A) completed by teacher candidates (voluntary), classroom observations conducted during each tutoring session was completed by one of the researchers (See Appendix B) and an exit questionnaire reflecting on the tutoring experience completed by the tutees (See Appendix C).

*Questionnaires*

After consent was secured, teacher candidates completed the pre-test TPACK questionnaire to find their levels of understanding in using electronic tools to teach reading (Mishra & Koehler, 2006). TPACK is a technology integration framework that identifies three type of knowledge teachers need to combine for successful EdTech integration of **T**echnology, **P**edagogical and **C**ontent Knowledge; Pedagogical Knowledge (PK), Technology Knowledge (TK), Content Knowledge (CK) with four additional overlapping components: Pedagogical Content Knowledge (PCK), Technology Content Knowledge (TCK), Technological Pedagogical Knowledge (TPK) (See Figure 1). This assessment is used to examine "fit" between curriculum focus, pedagogical strategies, and digital/non-digital technologies, as well as measure changes in pre-service teachers' knowledge and attitudes toward

technology as they adopt new technological understanding, learn new instructional strategies and media use.

*Figure 1: TPACK*






After completion of the TPACK questionnaire, teacher candidates began the tutoring process with their assigned student, including reading pre-assessments (oral, silent, expository, and listening comprehension) and vocabulary development, interest inventories and attitude surveys and introducing Chromebooks as a reading tool. During the tutoring sessions, tutor and tutees read e-books, reading a minimum of 30 minutes per 90-minute (1 and a half hours) session), used online dictionary, changed size of the font to support reading, and during the reading clinic's eight sessions, tutees completed an electronic pre/post reading assessment (Renaissance Learning, Inc.). STAR Reading Assessment is a software program for assessment of students' skills in reading / ELA abilities for 1st-12th grade, in a

"closed" multiple-choice format. The software provides various reports to help with lesson planning and growth reports calculating pre/post test results for each student.

At the end of the series of tutoring sessions, tutees completed an exit questionnaire to figure out how they responded to using the electronic reading tools. In addition, teacher candidates completed the TPACK as a post-test to decide if any change in their understanding occurred.

*Observations*

An observational protocol (See Appendix B) to document student read aloud data was conducted and used for collection; with the purpose to document student engagement and if any performance differences occurred when using reading technology. Observations were designed to watch the number of minutes of engagement, including tally frequencies of eyes on text during reading and if this changed over the course of the eight tutoring sessions.

These observations were to be conducted using Flex-Cat, a monitoring device allowing the observer to hear the conversations between the tutee and tutor without the outside influence of observer effect. An observational protocol was used to document the conversations and reading interactions during the tutoring session.

An outside researcher or research assistant, including the administration of all questionnaires and all observations, conducted all data gathering.

*Tutee Survey*

Tutees who attended the tutoring sessions, completed a Likert scale survey sharing their beliefs of how the use of e-books and Chromebooks affected their reading experience. There was one free response question, allowing the tutee to share their ideas in their own word. The survey was used to better understand how the tutees responded to the use of digital literacy tools.

## Data Analysis

Data were analyzed using mix-methods procedures to show frequencies of responses and patterns and themes within and across participants (Frankael, Wallen & Hyun, 2019). Pre/post questionnaires were

coded for patterns and themes in behaviors showed during the tutoring sessions, questionnaires frequency of responses for each of the questions and compared to find changes in responses based on using the electronic reading tools. Observation analysis was conducted using open coding, to label concepts, defining and developing categories based on the properties of the responses to find patterns (Creswell, 2012). Double coding, having two researchers coding the same data set, was used to aid in the clarity of themes as well as serving as a reliability check (Miles & Huberman, 2014).

## Procedures

The Technological Pedagogical Content Knowledge (TPACK) was administered as pre/post questionnaires during the spring 2018, summer 2018, and 2018 semesters to pre-service teachers and MAT candidates.

During each of the three semesters pre-service teacher candidates taught their assigned tutee (ranging from first through eighth grade) using Chromebooks and electronic reader including sharing on how to find e-books of interest at the tutee's instructional reading level within each e-book library: Lightsailed, Epic and Tumble Books, during their eight-week reading clinic sessions. Pre-service teacher candidates used Chromebooks to address identified reading difficulties with the students: pre/post-assessments, vocabulary development, fluency, measurement of comprehension using expository, and narrative text during the tutoring sessions (Woods & Moe, 2015, Johns et al, 2017). Pre-service teachers completed the TPACK a second time, post tutoring and tutees completed a Likert survey to document their belief of the digital literacy experience.

## Results

Three data sources gathered over three semesters were examined to determine if and how the use of digital literacy tools can influence the engagement in the act of reading by reluctant readers as well as how teachers' view their preparedness to use digital literacy tools after working with e-books and Chromebooks in an eight-week tutoring experience. The TPACK

asked pre-service teachers to share their level of comfort in using digital tools with data gathered before using e-books and Chromebooks and at the end of the semester following their use of these tools. Pre-service teacher candidates shown several of the elements found within the TPACK instruments were more in place after the tutoring experience with e-books and Chromebooks than prior.

**Spring 2018**

*TPACK (n=16 teacher candidates)*

The TPACK results show an increase in belief from the pre to the post-test with an increase of 50% or greater for the following elements on the part of undergraduate pre-service teacher candidates.

The beliefs showing an increase of 50% or higher include

- I am familiar with common student understandings and misconceptions
- I can teach lessons that appropriately combine language arts, technologies, & teaching approaches
- I can teach lessons that appropriately combine literacy, technologies, & teaching approaches
- My literacy education professors appropriately model combining content, technologies, & teaching approaches in their teaching
- I can assess student learning in multiple ways

MAT candidates (n=4) responses show little to no notable change from pre to post test for any of these elements.

**Summer 2018**

*TPACK (n=11 teacher candidates)*

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The results of the pre-service teacher candidate' responses to the pre/post TPACK assessment indicate an increase in perception about the following elements with a 50% or greater increase:

- Solve their own problems
- Have many ways and strategies of developing their understanding of literacy
- Assess students' performance in the classroom
- Adapt teaching based upon what students currently understand or did not understand
- Assess student learning in multiple ways
- Use a wide range of teaching approaches in multiple settings
- Is familiar with common student understandings & misconceptions
- Choose technologies that enhance the teaching approaches for a lesson
- Choose technologies that enhance students' learning for a lesson
- Increased belief of their teacher education program causing them to think more deeply about how technology could influence the teaching approaches used in the classroom
- Choose technologies that enhance the content for a lesson
- Can teach lessons that appropriately combine literacy, technologies, & teaching approaches
- Increase in their beliefs of their literacy education faculty modeling the

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**Fall 2018**

*TPACK (n=19 teacher candidates)*

Pre-service teacher candidates' responses to the TPACK pre/post test showed little variance in responses. The changes in responses reported for two of the elements with 50% of the candidates reported an increase in their familiarity with common student understandings and misunderstandings and an increase in their range of teaching approaches in multiple settings.

**Observations**

Observations were conducted each of the eight tutoring sessions during each semester to document use of the digital literacy tools by the tutors and the level of engagement behaviors shown by the tutee.

*Spring 2018 (n=16 tutors and n=16 tutees)*

The tutors worked with sixteen tutees during the eight-week reading clinic. The common theme in the observation interactions between the tutor and tutee included shared focus on the e-book and behavior suggesting interest in using e-books and e-readers. The tutees showed focus on the e-book as

measured by eye contact during paired reading and following paired reading time the tutees were able to share facts and ideas from the reading passage through comprehension (See Table 1).

Table 1 Observation results for Spring 2018 (n=16 tutees and n=16 tutors)

| **Focus** | **Response number** | **Percentage** |
|---|---|---|
| Tutee/Tutor focus/interest | 13/16 | 81.25% |
| Tutee focus | 14/16 | 87.5% |
| Tutee facts/ideas | 15/16 | 93.75% |
| Tutor activity connection | 12/16 | 75% |
| Tutor Confidence | 10/16 | 65.5% |

*Summer 2018 (n=11 tutees and n = 11 tutors)*

Comparable results to Spring 2018 were found in Summer 2018. Observations show both the tutee and tutor had an interaction with a shared focus and interest in using the Chromebook and e-books. The tutee showed focus on the e-books during paired reading and proved the ability to share facts and ideas from the reading passage during comprehension checks. The tutor showed the ability to use pre-assessments to find instructional reading levels of tutee and showed confidence in using reading technology to access book sites and guiding students to use support tools (See Table 2).

Table 2 Observation results for Summer 2018 (n=11 tutees and n = 11 tutors)

| Focus | Response number | Percentage |
|---|---|---|
| Tutee/Tutor focus/interest | 11/11 | 100% |
| Tutee focus | 11/11 | 100% |
| Tutee shares fact/ideas | 10/11 | 90.9% |
| Tutor Confidence | 7/11 | 63.3% |
| Tutor pre-assessment use | 7/11 | 63.3% |

*Fall 2018 (n=19 tutors and n=19 tutees)*

The trend of tutee focus, facts and ideas, and tutee/tutor focus/interest remains in fall 2018 as a frequent observation. This session's data did show more overt connections between text content and an activity as well as teacher confidence in using technology (See Table 3)

Table 3: Fall 2018 Observations (n=19 tutors and n= 19 tutees)

| Focus | Response number | Percentage |
|---|---|---|
| Tutees focus | 19/19 | 100% |
| Tutee shares facts/ideas | 10/19 | 53% |
| Overt connections | 10 /19 | 53% |
| Tutor confidence | 9 /19 | 47% |
| Tutee/Tutor focus/interest | 15/19 | 79% |

**Tutee Exit Questionnaire**

The third data point asked the tutees to respond to a 9-question survey on a 5-point Likert scale with one free response question on how the tutee viewed their experiences reading with e-books and Chromebooks. Due to some students attending clinic multiple semesters it was

noticeable that their responses were consistent across the semester's attendance. Responses were analyzed to find mean and mode of the tutee responses over the three semesters (See Table 4).

Table 4 Reading Clinic Tutee Questionnaire Results

| Question | SP18 (n=16) | SU18 (n=11) | FA18 (n=15) |
|---|---|---|---|
| I want to read more when I use Chromebooks | x=3.8 (88%) Mo=4 | x=3-8 (91%) Mo=4 | x=4 (88%) Mo=5 |
| I want to read more when I use E-books | x= 3.6 (88%) Mo=5 | x=3.6 (91%) Mo=4 | x=3.1 (94%) Mo= 4 |
| I'm more focused on reading when technology is used | x=3.5 (88%) Mo=3 | x=3.4 (91%) Mo=3 | x=3.3 (94%) Mo=5 |
| I read for longer periods of time when using Chromebooks | x=3.4 (88%) Mo=4 | x=3.4 (82%) Mo=4 | x=3.4 (94%) Mo=4 |
| I read for longer periods of time when using E-Books | x=3.29 (94%) Mo=3 | x=3.4 (91%) Mo=3 | x=2.9 (94%) Mo=4 |
| 6. I comprehend more details from the reading passages when using Chromebooks | x=3.7 (88%) Mo=5 | x=3.8 (82%) Mo=5 | x=4 (94%) Mo=5 |
| 7. I comprehend more details from the reading passages when using E-books | x=3.65 (88%) Mo=4.5 | x=3.6 (91%) Mo=5 | x=4.1 (94%) Mo=5 |
| 8. I use technology equipment Easily | x=3.65 (88%) Mo=4.5 | x=3.6 (92%) Mo=5 | x=3.9 (94%) Mo=5 |

The free response questions on the tutee exit survey allowed for their personal thoughts on using computers and electronic books to read and complete a variety of reading response/reflection activities

were all incredibly positive. Due to some students attending clinic multiple semesters it is noticeable that their personal statements were consistent across the three semesters. Statements shared were tallied as to sharing similar ideas for each semester (See Table 5).

Table 5: Tutee Free Responses on Questionnaire

| Comment | SP18 | SU18 | FA18 |
|---|---|---|---|
| Reading on laptops is more fun | 3 | 3 | 3 |
| I like reading on laptops | 6 | 6 | 6 |
| Computers are successful | 1 | 1 | 1 |
| I don't like reading on computers. | 1 | 1` | 1 |
| Computers help me read | 4 | 4 | 4 |
| Computers make it easier to read | 1 | 1 | 1 |

## Discussion

The digital age is here and students in K-12 classrooms, as technology natives, expect the presence of technology in activities and instruction. In addition, studies show motivation is key in making and improving performance in reluctant readers (Oakley & Jay, 2008; McGuire, 2012). By using e-readers and e-libraries, a group of pre-service teachers and reluctant readers in grades 1-8 were given the opportunity to address reading challenges use a digital format. While large gains were not achieved for all tutees, the study shows a first change in how these students performed when given the opportunity to read and work on reading skills digitally (Melinis, 20011). The level of engagement as shown by body language, eye placement and lack of misbehavior suggests the use of e-books around interest and reading on an e-reader was improved (Larson, 2008; Moody, er.al, 2010). The ability for tutees to recall facts and

ideas from their e-book experience shows comprehension goals were a growth area (Korat, et.al, 2009; Grimshaw et al., 2007, Doty et al., 2001).

The tutee comments suggest they found reading e-books and completing activities on the electronic devices to be helpful in keeping them more focused and engaged. Tutees showed greater motivation, engagement and satisfaction when using the e-books as this book medium may have greater value to the students (Gunter & Kenny, 2008).

During this study, pre-service teacher candidates were exposed to the use of e-books and Chromebooks, learning to navigate digital tools to support the reluctant reader. This experience suggests pre-service teacher candidates need to learn to use digital tools as instructional devices as they are essential to meeting the varying needs of learners (Wang, et.al, 2014). The TPACK pre/post responses showed an increase in confidence and use of these tools because of this experience (2014). The responses suggest pre-service teachers candidates are generally confident in using technology but may feel pressure to use them as a teaching tools and are in need of modeling on successful technology integration within their teacher preparation program (Mulder, 2017) Thus, more opportunities are needed to help pre-service teacher candidates, digital natives in social communication, and learning activities as students, to gain more experiences in how to integrate technology. One of the roles of teacher preparation programs to help these pre-service teacher candidate digital natives to include and use technology in useful and meaningful ways to support k-12 learners in today's schools (Lei, 2009; Sadaf, et.al, 2012).

## Limitations

This study had limitations affecting the ability to make generalizable conclusions. First, the number of participants in the study was small as the clinic venue supports a limit on the number of students served each semester as the facility has an occupancy capacity.

The second limitation was one of the e-book vendors changed their account manager four times during our first semester. This included the person with whom contract negotiations were made. This

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ISSN: 1535-0975

continued change affected the ability to fully know depth of tools available and use these tools in the first implementation semester.

Third, challenges occurred in obtaining access for teacher candidates and tutees into one of the e-book systems used in the study. There was a "bug" causing this challenge, which was finally detected by a tech support person. Once this was rectified, full access was achieved. This limited access may have affected attitude or belief about using reading technology during instruction by teacher candidates.

**Summary**

Students who attended the reading clinics over the course of three semesters appear to have benefited as a result of their exposure to a wider variety of materials, educational games, and books that addressed their areas of interest, use of e-readers, e-dictionaries and videos with the capability of changing font to aid in their reading process. These tools provided opportunities for these reluctant readers to improve their level of engagement in reading with technology. For those using the e-books / e-readers and other electronic tools, once the "novelty" of the tool passed, it became natural, and served as a guide in the preparation of future teachers in ways to meet the needs of reluctant readers (Akbar, et al 2015).

Over the course of the three rounds of this study, pre-service teacher candidates presented a level of increased use of the digital tools including supplying age/ability appropriate and creative lessons using technology. The tutees have no challenge in moving from print texts to e-books as natives to technology (McGuire, 2012).

Based on conversations with the parents of the tutees attending the reading clinic over the course of three semesters, parents said an interest in the possibility of using e-books and e-readers with their children. One parent asked if it made a difference in her child so she could buy an e-reader and e-books to keep him reading. The results of this study show the potential impact on reluctant readers when digital

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tools, student interests are considered, and reading materials are respectful of the students' age, not their reading level. Continued research in how digital literacy tools con impact reluctant readers is needed.

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## Appendix A TPACK

Thank you for taking time to complete this questionnaire. Please answer each question to the best of your knowledge. Your thoughtfulness and candid responses will be appreciated. Your individual name or identification number will not at any time be associated with your responses. Your responses will be kept completely confidential and will not influence your course grade.

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**DEMOGRAPHIC INFORMATION**

1. Your ID#

2. Gender
    a. Female
    b. Male

3. Age Range
    a. 18-22
    b. 23-26
    c. 27-32
    d. 32+

4. Major
    a. Early Childhood Education (ECE)
    b. Elementary Education (ELED)
    c. Other (identify)

5. Area of Specialization
    a. Art
    b. Early Childhood Education
    c. English & Language Arts/ Reading
    d. Foreign Language
    e. Health
    f. History
    g. Instructional Strategist: Mild/Moderate (K8) Endorsement

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h. Mathematics

i. Music

j. Science-Basis

k. Social Studies

l. Special Education

m. Speech/Theater

n. Other

6. Year in College

a. First-year students

b. Sophomore

c. Junior

d. Senior

e. Graduate student

f. Alternative Certification / Add-on Certification Only

7. Are you currently enrolled or have your completed a practicum experience in a PreK-12 classroom?

a. Yes

b. No

8. Are you currently employed in a PreK-12 classroom?

a. Yes

b. No

Technology is a broad concept that can mean a lot of different things. For this questionnaire, technology is referring to digital technology/technologies. That is, digital tools we use such as computers, laptops, IPads, handhelds, interactive whiteboards, software programs, etc. Please answer all of these questions

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and if you are uncertain of or neutral about your response you may always select “Neither Agree or Disagree”

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| | Strongly Disagree | Disagree | Neither Agree or Disagree | Agree | Strongly Agree |
|---|---|---|---|---|---|
| TK (Technology Knowledge) | | | | | |
| 1. I know how to solve my own technical problems | | | | | |
| 2. I can learn technology easily. | | | | | |
| 3. I keep up with important new technology. | | | | | |
| 4. I frequency play around the technology | | | | | |
| 5. I know about a lot of different technology. | | | | | |
| 6. I have the technical skills I need to use technology. | | | | | |
| Literacy (Content Knowledge) | | | | | |
| 7. I have sufficient knowledge about literacy. | | | | | |
| 8. I can use a literacy way of | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| 9. I have various ways & strategies of developing my understanding of literacy | | | | | |
| PK (Pedagogical Knowledge) | | | | | |
| 10. I know how to assess student performance in a classroom. | | | | | |
| 11. I can adapt my teaching based-upon what students currently understand or do not understand. | | | | | |
| 12. I can adapt my teaching style to different learners. | | | | | |
| 13. I can assess student learning in multiple ways. | | | | | |
| 14. I can use a wide range of teaching approaches in a classroom setting. | | | | | |
| 15. I am familiar with common student understandings and misconceptions. | | | | | |
| 16. I know how to organize and maintain classroom management | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| TPK Technological Pedagogical Knowledge) | | | | | |
| 17. I can choose technologies that enhance the teaching approaches for a lesson. | | | | | |
| 18. I can choose technologies that enhance students' learning for a lesson | | | | | |
| 19. My teacher education program has caused me to think more deeply about how technology could influence the teaching approaches I use in my classroom. | | | | | |
| 20. I am thinking critically about how to use technology in my classroom. | | | | | |
| 21. I can adapt the use of the technologies that I am learning about to different teaching activities. | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| 22. I can select technologies to use in my classroom that enhance what I teach, how I teach and what students learn. | | | | | |
| 23. I can use strategies that combine content, technologies, and teaching approaches that I learned about in my assignments in my classroom. | | | | | |
| 24. I can provide leadership in helping others to coordinate that use of content, technologies, and teaching approaches at my school and/or district. | | | | | |
| 25. I can choose technologies that enhance the content for a lesson. | | | | | |
| TPACK(Technology Pedagogy and Content Knowledge) | | | | | |
| 26. I can teach lessons that appropriately combine language arts, technologies, and teaching approaches. | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| 27. I can teach lessons that appropriately combine literacy, technologies, and teaching approaches. | | | | | |
| Models of TPACK (Faculty, PreK-12 teachers) | | | | | |
| 28. My literacy education professors appropriately model combining content, technologies, and teaching approaches in their teaching. | | | | | |

*Please complete this section by writing your responses in the boxes.*

29. Describe a specific episode where a professor or instructor effectively demonstrated or modeled combining content, technologies, and teaching approaches in a classroom lesson. Please include in your description what content was being taught, what technology was used, and what teaching approach (es) was implemented.

30. Describe a specific episode where one of your PreK-12 cooperating teachers effectively demonstrated or modeled combining content, technologies, and teaching approaches in a classroom lesson. Please include in your description what content was being taught, what technology was used, and what teaching approach (es) was implemented. If you have not observed a teacher modeling this, please indicate that you have not.

31. Describe a specific episode where you effectively demonstrated or modeled combining content, technologies, and teaching approaches in a classroom lesson. Please include in your description what content

you taught, what technology you used, and what teaching approach (es) you implemented. If you have not had the opportunity to teach a lesson, please indicate that you have not.



## Appendix B Observation Protocol

| Observation Element | Observed | Not Observed | Comments |
|---|---|---|---|
| 1. Tutor administers pre-assessment (Star Program) to identify instructional level | | | |
| 2. Tutor administers interest inventory to guide selection of E-books | | | |
| 3. Tutor allows for font size change based on tutee need | | | |
| 4. Tutee is encouraged to use the E-dictionary for words not known | | | |
| 5. Tutor guides student to select new | | | |

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books when complete a text or needs to reselect due to disinterest

6. Tutee demonstrates focus on e-book through eye placement and during paired reading
7. Tutee shares facts/ideas from the reading passage during comprehension checks
8. Tutor makes overt connections between the literature based activities and the E-book content
9. Tutor displays confidence in consistent use of reading tech, i.e., navigating the different book sites, guiding students to use different reading support tools
10. Tutee demonstrates comfort in taking Star assessments using Chromebook
11. Interactions between tutor/tutee suggest a shared focus and interest using the Chromebook/E-books

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**Appendix C Tutee Post Clinic Questionnaire**

Please give your honest opinion as you answer the following questions. The questions have different levels of response.

Level 1 = Strongly Disagree

Level 2 = Disagree

Level 3 = Neutral

Level 4 = Agree

Level 5 = Strongly Agree

Mark your answer by circling the number that gives your opinion the best.

1. I want to read more when
   I use Chrome Books 1……2…..3…..4…..5
2. I want to read more when
   I use eBooks 1……2…..3…..4…..5
3. I stay more focused on reading
   when technology is used 1……2…..3…..4…..5
4. I read for longer periods of time
   when using Chrome Books 1……2…..3…..4…..5
5. I read for longer periods of time
   when using eBooks 1……2…..3…..4…..5
6. I comprehend more details
   from the reading passage when
   using Chrome Books 1……2…..3…..4…..5
7. I comprehend more details
   from the reading passage when
   using eBooks 1……2…..3…..4…..5

8. I use technology equipment

easily 1……2…..3…..4…..5

Please describe your view of using technology to read books.