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How Can Primary Teachers Use Technology, Primarily IPads, To Differentiate Language Arts Instruction And Increase Comprehension

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HOW CAN PRIMARY TEACHERS USE TECHNOLOGY, PRIMARILY IPADS, TO

DIFFERENTIATE LANGUAGE ARTS INSTRUCTION AND INCREASE

COMPREHENSION

by

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CHAPTER ONE

Introduction

I graduated high school in 2006. The technology that was used in my schooling included transparency machines and the computer lab. Technology became a large part of my social life through instant messaging and emails. Despite the increase in technology outside the classroom, it was not implemented strongly in the schools. I saw this to be true in college as well. There was very little training on implementing technology. I started using iPads in my kindergarten classroom and noticed a change in student engagement and then I started wondering: How can primary teachers use technology, primarily iPads, to differentiate language arts instruction to increase instruction?

In chapter one, you will read about my journey through the world of teaching and how it relates to technology. You will learn how I was able to fund iPad devices for my kindergarten classroom and what I noticed the first two years of using them. I will also touch on why this project is relevant to the education world as well as my students, their families, and my fellow teachers. I will discuss the lack of research of technology in the primary grades. I will also discuss the opinions some may have on the impact of technology in the early years of schooling. My project is important as it will help fill a void in a fairly new area of research and it will be a resource for implementing technologies for primary teachers.

My School Years

I grew up on the cusp of technology. We visited the computer lab once or twice a week in my elementary school where we would play games that complemented our

classroom curriculum. We participated in keyboarding programs where we learned proper finger positions and how many words per minute we could achieve. My technology experience was pretty much the same throughout middle and high school. Despite advancements such as instant messaging, emails, and blog websites which were becoming an increasing part of our social life, technology was not implemented very much in my school years. Middle and high school was still filled with transparency machines and visits to the computer lab. Every once and awhile we would do research on the computers, otherwise it was saved for writing papers.

My college years were filled with a lack of technology integration as well. We were expected to complete assignments online at home or use the internet for research, yet we were mainly exposed to DocCams, transparencies, or PowerPoints. The same was true in the School of Education.

The teaching professors in my program did not incorporate how we could implement technology in an increasingly digital world. We had one class session that instructed us how to use a SMARTBoard. Other than that, using technology was not a part of our education. I feel like this was a huge deficit to the program. The students we teach are immersed in technology outside of school. They play on tablets, phones, or computers frequently. They text or communicate digitally and form problem solving skills through many different apps or games such as *Minecraft*. Our students are going to need to use technology for the rest of their lives. Michele Knobel and Colin Lankshear argue that today's students thrive while multitasking with digital and nondigital tasks which is a valued trait outside the school (p. 83, 2006). Technology not only allows for

students to build these 21st century skills that will be highly sought after in their world after their schooling, but it also allows for their learning to be individualized in a way that increases engagement and comprehension.

My First Years

I began teaching kindergarten in 2014. The only technology that I had included five outdated and slow laptops. Frustrated with this situation, I started letting students use my teacher iPad that was provided by the district and my personal iPad to engage in apps that would help reinforce literacy skills such as letter recognition. I began to see students get excited to practice letter recognition when they previously got anxious or bored. Not only were the students engaged with their work on the iPad, they were showing improvement.

The next school year I joined my school's technology team. I was learning more from my peers about what they had been doing in their classrooms with technology. These technologies ranged from iPads to desktop computers, from Google Chromebooks to interactive whiteboards. None of them, however, were teachers who taught kindergarten, first, or second grade. This got me thinking: just because students are young does not mean they cannot use technology to help meet their learning goals. A majority of students come in knowing how to unlock an iPhone or navigate a tablet more easily than using a computer mouse. Why not foster these skills and incorporate their real-life technology experiences in the classroom?

Funding

My school does not provide devices for each student. I swallowed my pride and set up an account on a classroom fundraising page. Through the funds I received from this program, I was able to purchase three iPad minis for my students. I wrote some grants and traded in the old outdated laptops for some more iPad minis. Through generous funding and grants, I was able to purchase 7 iPads for my class of 15 students. I was thrilled as this was something I was feeling excited and passionate about, but my school just did not have the funding to provide all the devices I would like.

With this amount of iPads, I was at about a 2:1 student to technology ratio. I was able to have students work on projects as partners or independently, mostly during guided reading time with iPads as an independent work choice. Students were then able to participate in activities at their learning level. The many different language arts apps that I found were beneficial for keeping the students engaged and excited about learning. This motivated them and helped them grow stronger in their curricular skills. These programs increased engagement along with comprehension.

Implementing Technology

I was amazed at what I observed during my first year of iPad use. I was able to individualize students' learning through different iPad programs. I could set their reading level so students could independently read e-books on the iPads. Students could self-select learning activities that they felt they needed work on. Also available were letter recognition apps or playing games using our sight words. They could use a storybook app to tell a story using just illustrations. Other students could use the storybook app to tell a story through writing and illustrations. Students could also record

themselves reading something so I could listen to it later. I was able to assign running records where students read a book on the iPad and then I would listen to and assess it later. Students were engaged and the lessons seemed meaningful, but I began wondering, are they comprehending what they are doing? How can I use technology to differentiate language arts instruction and increase comprehension?

Technology in the Primary Grades

I was asked to join my school district's technology team and began attending district meetings 4-5 times a year. The attitudes I observed from the middle and high school teachers on providing resources or funds to the elementary school for technology were very negative. I observed a lot of eye rolls and negative remarks stating that elementary schools do not need the resources like the middle and high school students do. This opinion has been one that I have seen, either stated bluntly or slyly, as my interest in technology in the classroom grew. Yes, these students are young. No, it is not developmentally appropriate for many of them to create their own Podcast or iMovie but they could still benefit from technology. There are many digital resources available for devices aimed at students in kindergarten-2nd grade, but I would like to find the ones that increase comprehension through differentiated learning activities.

A Lack in Research

Much of the research that I have seen on technology in the classroom has been in relation to students in grades 3-12, focusing most on the middle and high school years. This project will be meaningful because it is on a relatively new topic in the education world and its kindergarten-2nd grade focus will fulfill a gap in the research. This project

will highlight the benefits that technology can have on differentiating learning activities for students as well as increasing their comprehension.

Technology Today

This project will help teachers learn how to implement technology in a meaningful in their classroom. Technology is our students' present and their future. It is not going away. Technology does not need to be scary nor does it need to be more work. Students will be using technology in their everyday lives for the rest of their lives. Why not start teaching them digital skills now? How can students participate in learning at their level, building their language arts skills along with 21st century skills? Students will be expected to know how to navigate a tablet, the Internet, apps, and other digital formats as they go through school. Learning these skills at an early age will allow students to benefit from digital learning activities early on and become more digitally literate as they grow. Focusing this project at the kindergarten level will speak to teachers of the primary grades allowing them to take what I have done and adjust it to meet the needs of their classroom. This project will help primary educators recognize that technology can make things easier when differentiating instruction along with many other benefits. Technology does not have to be scary.

Summary

There seems to be a lack of research done surrounding technology and language arts education for the primary grade, kindergarten-2nd grade. This capstone project will help fulfill a need where teachers of these learners can find examples of how to use technology to differentiate language arts instruction to increase student comprehension.

I started using technology in elementary school to help reinforce curricular goals. While in college, there was a lack of study on how technology can be implemented in the classroom. It was during my teaching years, I saw a meaningful change in student learning when using iPads to meet curricular goals. I was able to individualize learning activities to a student's level through the use of technology.

While I began looking into the research surrounding technology and education, I noticed a lack of studies focusing on kindergarten, first, or second grade. This project will focus on these grades which will help fill a gap in research. When I joined my district's technology team, I recognized first hand the opinions teachers of middle and high school may have regarding technology in elementary schools. While they want students coming to them with the necessary digital skills, they do not want to share district funding or resources with the elementary school so teachers can teach these skills. This project will help education professionals, families, or students realize meaningful things can be done with young learners and technology. This project will also provide a deep analyzation using the SAMR model (Puentedura, 2014), The App Map (Israelson, 2015), and the dimensions of participatory literacy (Roswell & Wohlwend, 2016) regarding technology and technological resources in grades K-2 as it relates to differentiated instruction and increased comprehension.

Looking Forward

In chapter two, I will discuss the research that has already been done focusing on technology and education. An overview of the literature surrounding these topics will also cover differentiated education and comprehension. Chapter three will describe my

project of using technology to differentiate language arts instruction and increase student

comprehension. In the last chapter, chapter four, I will summarize the research, project,

and my final take aways.

CHAPTER TWO

Literature Review

Introduction

Chapter two is a culmination of research and resources that discuss technology and education. The topics covered are ones that guide my website into a meaningful resource as it relates to my question: *how can primary teachers use technology, primarily iPads, to differentiate language arts instruction and increase comprehension?*

The opening section will discuss how technology supports individualized instruction by reaching students with different learning styles, technological tools that can be used to differentiate, and strategies that can be used to differentiate instruction for all students. This research is relevant to my research topic as it discusses the benefits of differentiated instruction and how it can be implemented with technology. The next section of the literature review will introduce the SAMR Model, the App Map, and Dimensions of Participatory Learning, and how educators can use these models to guide their individualized digital instruction. These models will be a meaningful tool for teachers looking to implement technology in a meaningful way. The following section will discuss new literacies, what they look like, and how they benefit students. New literacies are multimodal sources and technologies that students and teachers can access to build skills in language arts. E-books, Web 2.0, and other digital resources will be covered next and how they can be used to help students participate in differentiated activities with technology. The closing portion of the literature review will discuss

different digital resources, how they relate to literacy, education, and individualized instruction.

Technology and Individualized Instruction

Differentiated instruction occurs when educators modify instruction based on the needs and interests of each individual learner. Teachers must adjust their teaching and learning activities to match the learning styles and zones of proximal development (ZPD) that are present in their classroom (Morgan, 2017, p. 181). Instruction above a student's ZPD may frustrate the student as it is too advanced for them to learn even if a teacher is helping or guiding them. If a student is teaching below this level, they are usually bored because they are not learning any new knowledge or skills. Teachers "need to provide challenging instruction and to facilitate it for learners experiencing difficulties," (Morgan, 2017, p. 181).

In their book, *Tap, Click, Read,* Lisa Guersney and Michael H. Levine (2015) state that apps and other technological literacy activities:

…usher in new possibilities for children who have developmental delays, learning difficulties, or other special needs that make reading difficult. They raise the opportunity for teachers to bring moments of practice and individualized instruction to students who would otherwise be lost and unfocused during segments of the school day when teachers' attentions are divided. (chapter 7, 5th paragraph).

Northrop and Killeen (2013) also saw the benefits of using technology to differentiate. Student participation in guided practice on iPad apps provided "…an

opportunity to offer differentiated instruction to the students based on their specific errors and misconceptions," (Northrop & Killeen, 2013, p. 535). Technology and content need to be student accessible as well as developmentally appropriate for his or her learning level. Hutchison, Beschorner, and Schmidt-Crawford (2012) saw the benefits of using e-books on the iPad over printed books as it allowed the reading to be "more individualized, interactive, and engaging," (p. 17). Hutchison et al. (2012) visited a classroom where students were able to easily access level-appropriate texts in electronic book form. They were able to listen to the story, follow along as text was being read, as well as click on words to hear it being read, give definitions, or learn more about it (Hutchison et al., 2012, p. 20). This allowed for individualized instruction and learning using technology.

Using technology to differentiate is something that is not only more engaging, but beneficial to the 21st century learners. Teachers are able to individualize instruction to best meet their students' needs as well as their interests. Using technology just to use it, however, is not the most meaningful way to help students learn. The SAMR Model can be used to help guide teachers when using technology in an innovative and meaningful way, rather than just substituting paper for a device.

The SAMR Model

The Substitution Augmentation Modification Redefinition (SAMR) Model is a tiered model that can be used to help guide educators to implement and use technology in the classroom. With "redefinition" at the top of the tiers as the most innovative use of technology, the levels go down to "modification," then "augmentation," and finally

"substitution." Each step is defined to help educators design a meaningful and innovative learning activity. Going from the top tier down, Redefinition transforms the learning. The technology in this category creates new tasks that were previously inconceivable. Modification is where technology redesigns the learning tasks. The next step down, augmentation, is when technology is an improved direct substitute. Substitution, the lowest, least innovative stage, is where "technology acts as a direct tool substitute, with no functional change," (Puentedura, 2014).

Redefinition and Modification align with Bloom's Taxonomy's Create, Evaluate, and Analyze levels. Augmentation and Substitution align with Bloom's Apply, Understand, and Remember. Puentedura (2014) stated in this blog post that educators should strive to use technology to meet the upper levels of the SAMR model as they do with Bloom's Taxonomy. This theory outlined a set of steps to help the teachers introduce technology in the classroom as well as use it to make meaningful activities for all students. Similar to much of the research already outlined, Puentedura (2014) argued that meaningful technology education existed in an environment where the teachers had curricular goals that the technology would help meet as well as activities that could help meet the learning goals. The higher tiers of the SAMR Model, similar to the higher levels of Bloom's, allow for deeper thinking and execution of knowledge by the students. The point is not to simply teach with technology, but use it to present information or learning activities in a way that is more powerful as well as efficient (Rosen, 2011, p. 14). Research has supported that using technology that is on the higher levels of the SAMR model enhances student learning (Israelson, 2015, p. 342). Teachers can also use the

SAMR model to "...specifically name their intended level of technology use and select apps that either redesign tasks, or create new, previously unimagined, learning tasks," (Israelson, 2015, p. 342).

Technology should not just be used because it is available, however. Teachers should strive to select technology activities at the higher levels of SAMR to add value to instruction, not just use it because it is there (Israelson, 2015, p. 342). The SAMR model is a great start to implementing technology in a classroom, but Israelson (2015) created an App Map to help teachers evaluate apps and their meaningfulness for literacy learning activities.

The App Map

Apps can be a great learning resource to help students meet their learning goals, but they can also be a distraction. Some apps may include components that distract the student from their literacy learning such as games that lead away from the literacy activity, distracting sounds, or distracting visuals (Israelson, 2015; de Jong & Bus, 2004, p. 154). The App Map was created based off of research to help educators choose "...quality apps for early literacy instruction," and "....guide teachers as they draw upon their knowledge of research-based best practices as they systematically evaluate apps, identify affordances, and consider value added to instruction," (Israelson, 2015, p. 340). In relation to the App Map, affordances are what literacy practices are offered in the apps (Beach & O'Brien, 2015, http://www.appsforlearningliteracies.com/chapter-1-p-2, "Affordances of iPads and smart phones" section, para.3.; Israelson, 2015, p. 341). Value added is how an app or other technology activity transforms a learning task, either

through student or teacher engagement, into something new that was not previously possible without that technology (such as a paper and pencil activity) (Israelson, 2015, p. 341).

The App Map (Israelson, 2015) provided an evaluation rubric for teachers to use when exploring new apps. There were four different categories: Multimodal Features, Literacy Content, Intuitiveness of App Navigation, and User Interactivity. The person filling out the rubric could rate the app on a scale of 1-4, 1 being the least beneficial and 4 being the most innovative and beneficial for that learning goal. Israelson (2015) gave specific criteria for each scale number (p. 344-345).

There were two steps to The App Map. The first step included the teacher planning for a literacy app. The teacher would outline the learning activity's goals or objectives, decide what literacy skills were being targeted, then identify the specific learning needs of the students. Teachers then evaluate the literacy apps by matching 12 literacy app types with "...research-based early literacy skills instruction they best support through specific learning affordances," (Israelson, 2015, p. 345). Step 2 is then where the teacher decides which categories the app fits into. Some apps may fit in multiple categories, therefore allowing them to be used for many different learning goals (Israelson, 2015, p. 345). Teachers then use a four point rubric to rate the app. The four research-based categories are: "multimodal features, literacy content, intuitiveness of app navigation, and user interactivity," (Israelson, 2015, p. 346). See Table 1 for the four point rubric.

Table 1- The App Map Rubric

	1	2	3	4
Multimodal features	**Distracting** Features only provide opportunity for entertainment or game-playing unrelated to literacy learning (Chou, Block & Jesness, 2012)	Features mostly entertainment or gaming; some literacy content	Features mostly engaging; some potential for distraction from literacy task	**Engaging** Features will yield "energized, directed and sustained action" (Skinner, Kindermann, Connell & Wellborn, 2009, p. 225)
Literacy Content	**Inaccurate** Examples: incorrect phonemes, misspelled words or incorrect informational texts	Multiple inaccuracies that potentially disrupt or inhibit literacy learning; for example, a letter name and sound app in which some letters are named when tapped and others produce the phoneme	Minor issues with literacy content that may not be problematic depending on instructional goals; for example, only includes short vowels	**Accurate** Examples: letters and phonemes correct, uses real words, correct spelling
Intuitiveness of App Navigation	**Confusing** Numerous "pop-ups," unclear how to start activity once app is launched	How to navigate and use app is not readily obvious; may have a few "pop-ups"	Generally intuitive and simple to navigate; some cues or symbols may be slightly unclear	**Intuitive** Tasks and options within app clearly displayed, easily used, offers user cues (symbols, etc.) for next steps, offers illustrative example of how to use app
User Interactivity	**None Interactivity** No interactive task, or task is minimally interactive	App task is minimally interactive, user cannot change or alter content (Lynch and Redpath, 2014); for example, simple practice of a skill like letter naming	App task is interactive and engaging; less opportunity for changing or manipulating content	**High Levels** Engages and maintains user *and* supports literacy learning (Cahill & McGill-Frazen, 2013); content may be changed/manipulated by user allowing more creativity and expression (Lynch and Redpath, 2014).

(Israelson, 2015)

Rowsell and Wohlwend (2016) responded to Israelson's App Map by creating a rubric that is "...based on participatory literacies," which allowed for participants or students to "...interpret, make, or share digital multimedia to connect with digital cultures," (p. 197).

This evaluation of apps was made considering "a child's whole experience" to go beyond time spent in school and included their time in the community and at home (Rowsell & Wohlwend, 2016, p. 198). This rubrics goal was to use a "child's lived experiences to make them active participants" in literacy and 21st century digital literacies (Rowsell & Wohlwend, 2016, p. 198). This rubric was created to teachers could "focus on dimensions that lead to deeper inquiry and more immersive learning to

consider how an app makes learners feel, think, share, and connect," (Rowsell & Wohlwend, 2016, p. 204).

Rowsell and Wohlwend's (2016) Dimensions of Participatory Literacy Learning rubric included six dimensions of participatory literacies and how they allow children to interact with the apps. These research-based dimensions were created to be used with a radar chart that allowed the evaluator to have a visual to compare different apps and how the user interacts with them. The dimensions include: Multiplayer, Productive, Multimodal, Open-Ended, Pleasurable, and Connected (Rowsell & Wohlwend, 2016). The evaluator gave each dimension a score 1-4, 1 being low, 2-3 medium, and 4 high. The rubric gave descriptions of each dimension and each score, relating to the App Map's process (Rowsell & Wohlwend, 2016; Israelson, 2015). The rubric is included in table 2.

Table 2

High = 3	Medium = 2	Low = 1	CCriteria	Enter App Rubric Score Here:
Accommodates 3 or more players	Accommodates 2 players	Accommodates 1 player	Multiplayer	1
Enables creative content additions rather than pre-set components (e.g., make or import own content)	Enables some original content; choices among pre-set images or texts (e.g., range of avatar clothing and features, original story action)	Limited original content, pre-set personalization element (e.g., insert 1 element to personalize; minimal choices for avatar design)	Productive	1
Enhances meaning through combinations of 4 or more modes: music, image, sound effects,	Enables manipulation and combinations of several modes: image, paint,	Primarily print word processing tools, supplemented with stamping or basic paint tools	Multimodal	3

animation; inspires play with real world materials	movement (animation), speech, music			
Open-ended storytelling with many tangents (e.g., hypertext, portals as in videogames)	Enables an alternate ending; supports revisions to insert additional events	Enables a single storyline in an unvarying sequence that proceeds from beginning to end	Open-ended	**1**
Saving and facilitated sharing on videosharing sites (e.g., youtube)	Opportunities to export films for saving and external emailing or posting	Internal network sharing only or proprietary formats that require website registration to view	Connected	**3**
Players choose the app voluntarily and stick with it; return and play again; talk about the app before or after playing	Players play the app once and appear to enjoy it	Players play app when assigned or to meet school expectation	Pleasurable	**2**

(Rowsell & Wohlwend, 2016)

Figure 1
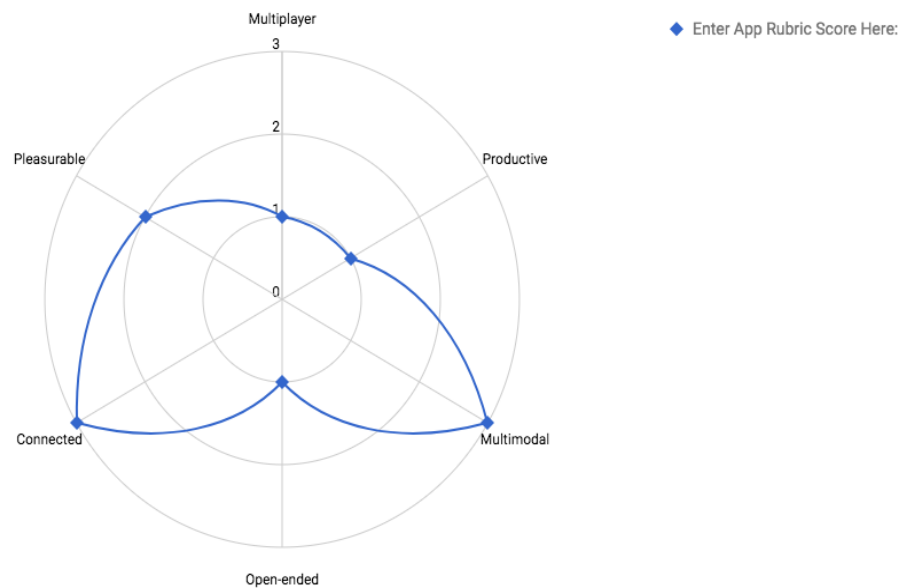
(Rowsell & Wohlwend, 2016)

The SAMR Model (Puentedura, 2014), the App Map (Israelson, 2015), or the Dimensions of Participatory Literacy Learning rubric created by Rowsell & Wohlwend (2016) are all different tools educators can use when evaluating the usefulness of technology in their classroom. When using technology to differentiate instruction and increase comprehension, Rowsell and Wohlwend's (2016) dimensions seem that they would help teachers implement technology in innovative ways that help meet learning goals.

These dimensions would reach the whole child and expose children to different experiences that could be accessed outside of school. The rubric would encourage educators to implement apps or other technology experiences that would allow children to access information that they may have experienced outside of school and connect to their real world experiences. These dimensions touch on the SAMR model (Puentedura, 2014) through the rating system as well as The App Map (Israelson, 2015) by assigning numbers based on a rubric. The Dimensions of Participatory Literacy Learning (Rowsell & Wohlwend, 2016) take them a step further, however, by assessing how the users participate and create content, helping them build and practice their higher-order thinking skills in literacy as well as build their 21st century skills.

New Literacies

What do teachers or students consider a text? This section will explore how the modes of text, writing, and other components of the language arts curriculum are changing in an ever increasingly-digital world. The New London Group (1996) coined the term "multiliteracies" as ones that "...overcomes the limitations of traditional

approaches by emphasizing how negotiating the multiple linguistic and cultural

differences in our society is central to the pragmatics of the working, civic, and private

lives of student," (p. 60). The authors stated that multiliteracies will help meet literacy

learning goals by building skills as related to the "...language of work, power, and

community…" as well as "...fostering the critical engagement necessary for them to

design their social futures and achieve success through fulfilling employment," (The New

London Group, 1996, p. 60).

Damico and Riddle (2006) stated that educators are compelled to recognize that

there are multiple literacies in our students' world. These multiple literacies may include,

"personal, home, community, and school-based literacies, including personal, home,

community, and school-based literacies, that vary across time and space," (Damico &

Riddle, 2006, p. 34). This section will explore the roles of social networks, print-based

texts, non-print texts, and ways students display their curricular understandings or ideas

"...using textual, visual, spatial, audio, and gestural modes," (Damico & Riddle, 2006, p.

34).

New literacies can take many different forms. These may include writing fan

fiction, blogs, or recording podcasts. New literacies may also be in photo form, such as

Photoshopping, posting and commenting on photos on Flikr, or creating memes.

Participating in group writing experiences are meaningful literacy activities as well.

These activities would allow for collaboration, participation, and students being involved

in their learning. Activities or resources that meet these criteria include Wikipedia or

online gaming. These new literacy practices are flexible and open to change instead of fixed learning experiences (Knobel & Lankshear, 2006).

An ideological model of literacy is one that understands that literacy for today's society takes many forms, including personal, home, community, and school-based literacies that vary across time and space. These multiple literacies can integrate print, visual, and audio texts that are multicultural (Damico & Riddle, 2006, p. 34).

These different types of text, writing, and other literary materials are available online. Forzani and Leu (2012) argued that the Internet was becoming increasingly important in literacy and that young children were being denied the preparation for these digital opportunities. The National Education of Young Children (NAEYC) stated that children "...learn best by actively constructing knowledge through complex experiences." These complex experiences can be found on the Internet and other digital forms, yet children were being denied the preparation for these digital opportunities (Forzani & Leu, 2012). Despite NAEYC's argument for young children and complex experiences, children are sometimes held back from Internet exposure until someone decides that they are "ready." This leads them to be already behind in preparation for a lifetime of digital opportunities (Forzani & Leu, 2012, p. 422).

It is absolutely beneficial for these young students to be exposed to the Internet and other forms of new literacies. Digital tools such as the Internet can benefit primary-grade students as they provided individualized instruction targeted towards their specific needs (Forzani & Leu, 2012). Not only did new literacies allow for

individualized instruction, they also responded "...immediately to a child's natural, exploratory, and interactive learning style," (Forzani & Leu, 2012, p. 422).

New literacies often included interactive features that support students' existing knowledge and skills and connect to their new learning, skills, and understanding (Forzani & Leu, 2012, p. 422). Texts that may be too challenging for young students (such as disciplinary texts) may have become easier with these interactive, digital learning activities. These digital texts allowed young readers to self-construct their texts through interactive features and the choices they make while reading. These choices included different hyperlinks they could click while reading which allowed for topic exploration and deeper understanding (Forzani & Leu, 2012, p. 422).

What do New Literacies look like?

The National Council of Teachers of English (NCTE) and International Reading Association's (IRA) *Standards for the English Language Arts* (1996) stated that students should not only read a variety of print and non-print texts to acquire new information; become meaningful members of society and the work environment; and for personal fulfillment, but they also stated what it looks like being literate in a contemporary society. NCTE and the IRA (1996) stated:

> Being literate in contemporary society means being active, critical, and creative users of not only of print and spoken language but also of the visual language of film and television, commercial and political advertising, photography, and more. Teaching students how to interpret and create visual texts such as illustrations, charts, graphs, electronic displays, photographs, film, and video is another

essential component of the English language arts curriculum. Visual

communication is part of the fabric of contemporary life… we cannot erase visual

texts from modern life even if we want to. (p. 5)

Students must be taught to analyze the texts they view critically as well as

integrate their visual knowledge with their preexisting or new knowledge of other

language forms. Students could then learn how to use visual media as another powerful

mean of communication (NCTE & IRA, 1996, p. 5).

Students can communicate and engage in higher-order thinking skills through

inquiry-based projects (Damico & Riddle, 2006). Students can also communicate and

build these new literacy skills through blogs, wikis, or e-mails where they can interact

with readers both locally and globally (Forzani & Leu, 2012, p. 423). One problem with

the current online structure of these digital learning structures, however, are that the

activities, materials, and learning are often limited to one class or one school year.

Students would benefit from a domain or website that they gain access to in

pre-kindergarten and follows them through post-secondary education. This would allow

students to be digitally literate individuals who are reflective on their learning, participate

in new literacy activities online, and build "...ownership, agency, and empowerment,"

(O'Byrne & Pyash, 2017, p. 499). This will be covered more in following sections

throughout this chapter.

A struggle with implementing new literacies and technology in school is the

pressures placed on teachers where they feel that they are bound down by curricular

requirements that define literacy as "encoding, decoding, and comprehension of

conventional texts and curriculum delivery as an orderly progression through an official program of texts," (Knobel & Lankshear, 2006, p. 82). Multitasking, however, is the norm for the digital youth today (Knobel & Lankshear, 2006, p. 82).

Whatever, Whenever, Wherever

Today's digital youth do not see smartphones, the Internet, and other technological devices as tools. To this group, these tools "simply are," (Rosen, 2011, p. 12). Technology is an expectation for the digital youth and it is expected to do whatever the user wants it to do. "Their WWW doesn't stand for World Wide Web; it stands for Whatever, Whenever, Wherever," (Rosen, 2011, p. 12). Rosen (2011) has labeled individuals who were born in the 1990s and beyond as the "iGeneration," where the i represents the types of digital technologies (iPhone, iPod, and others) along with "the highly individualized activities that these technologies make possible." This generation has been defined by how they used technology and media, electronic communication, as well as "their need to multitask," (Rosen, 2011, p. 12).

Rosen (2011) has studied media consumption of four different generations: Baby Boomers, Gen Xers, Net Generation, and the iGeneration. At the time of this study, the typical teenager sent and received 3,339 texts a month per the Nielsen company (Rosen, 2011, p. 13). This equated to more than 6 messages every waking hour. To this generation, a phone was not just a phone. It was a multi-faceted device that allowed students to communicate in many different ways, browse the Internet, and engage in numerous other activities (Rosen, 2011).

Schools were not keeping up. Schools required this generation to engage in one task. Schools required these students to listen to the teacher, write with a pen to complete a paper worksheet, or engage in other individual activities despite them being able to multitask very efficiently (Knobel & Lankshear, 2006; Rosen, 2011, p. 14).

The iGeneration was exposed to technology constantly (Rosen, 2011, p. 14). Engaging in one learning task at a time is foreign to the iGeneration. Multitasking was normal practice for the digital youth but it was and is not well adapted in today's classrooms (Knobel & Lankshear, 2006, p. 82).

Knobel and Lankshear (2006) shared an observation they participated in with a student named Zoe in an English class (p. 82). Zoe read a poem aloud for her class, responded to the teacher's questions, while simultaneously reading different blogs on her computer where she was laughing, commenting, and responding, as well as updating her own blog. She remained engaged in the class all the while doing these other tasks (Knobel & Lankshear, 2006, p. 82). These students are not engaging in learning activities that allow them to express their learning in a way that is meaningful for them or participate in the kind of activities that they are capable of doing. New literacy activities allow for students to engage in communication, reading, and writing activities that are meaningful to their real world.

Knobel and Lankshear (2006) saw the benefits and importance of new literacies (such as blogging, making a podcast, online gaming, and other collaborative activities) as they were collaborative, participatory, and flexible and open to change (p. 81). Making a Powerpoint or web page where students are recounting information is not interesting or

meaningful. These activities are "...just the same old same old classroom practice in digital 'drag'," (Knobel & Lankshear, 2006, p. 81).

New literacies and meaningful digital activities are important. In settings outside of school, including workplaces, the ability to multitask is often regarded as an important life or work skill (Knobel & Lankshear, 2006, p. 81). Effective multitasking is often paired with "greater efficiency" and being digitally proficient (Knobel & Lankshear, 2006, p. 83). Embracing the technology and multitasking that students possess is important for teachers. This will allow them to differentiate their instruction to increase language arts comprehension based on their students needs and interests.

So how do educators best meet the needs of their digital students? How can teachers incorporate their increasingly digital lives that helps meet literacy goals, engages students, and promote higher-order thinking? As we learned earlier, new literacies can take many forms. This will be discussed in the following section.

E-books, Web 2.0, and Other Digital Resources

Students in middle or high school may be able to operate and use digital devices, social networks, or new literacies, but what about the young learners? This section will explore different digital resources for students in kindergarten, first, and second grade and how they allow for differentiation in literacy as well as increase their comprehension. These resources include first graders posting in a class blog and second graders using Twitter to communicate their understandings and engage in conversations about their learning (Kist, 2010).

The second section will discuss how e-books allow for individualized learning and increased comprehension. E-books often include interactive aspects such as narration, animated pictures, sound effects, and other functions that were found to improve, "...students' emergent literacy, including vocabulary, word recognition, and phonological awareness," (Huang et al., 2012, p. 705).

Devices

In an interview, Karen Cator, who was the director of the Office of Educational Technology, stated that as schools were transitioning into a digital learning environment and students would soon need their own digital device (Scherer, 2011). Cator thought that a digital device would become as essential as a pen and binder in each classroom. Technology would make it easier for students to make choices about their learning and ensure that assignments are at the student's appropriate learning level. Technology would also allow for students to meet digitally with tutors, witness integrated simulations, visualize math and science concepts, view animated demonstrations and videos. The use of devices and other digital learning activities would allow students to participate, interact, and collaborate with students in their classroom or in different parts of the world (Scherer, 2011).

E-Books

Research regarding electronic books, or e-books, has mixed results. de Jong and Bus (2004) did not find that e-books were efficient in supporting student internalization of story content. They argued that the attractive options, such as games, hyperlinks, and other distracting options of the e-books they used, diverted the students' attention from

the text (de Jong & Bus, 2004, p. 154). Some e-books may include hotspots that offer additional information and interactive activities (Cahill & McGill-Franzen, 2013). de Jong and Bus' (2004) findings seem to be at odds with the Dimensions of Participatory Literacy Learning (Rowsell & Wohlwend, 2016) who favor interaction with apps. Rowsell and Wohlwend (2016), however, may not find the e-books studied by de Jong and Bus (2004) meaningful. Rowsell and Wohlwend (2016) argued that literacy apps "...should develop more than tight framings and isolated skills," including print literacy leading to avid reading, writing, and being engaged with different types of texts including informational and literary pieces (Rowsell & Wohlwend, 2016, p. 203-204). Apps, they argued, should also help develop children's participatory literacies where students would be able to participate in online communities in cross-curricular experiences (Rowsell & Wohlwend, 2016, p. 204).

Do to their results with their groups reading paper books with an adult compared to students reading e-books, de Jong and Bus (2004) argued that electronic books are "...not a replacement for regular book-reading sessions but a valuable supplement." Suitable e-books are ones that include "overlapping and complementary experiences with the written form of words and the story content," (de Jong & Buss, 2004, p. 154).

Yueh-Min, Tsung-Ho, Yen-Ning, & Nian-Shing (2012) found that e-books did not increase accuracy rates, they stayed the same. Their study did not study the effects that the multimedia effects may have (Yueh-Min et al., 2012). Cahill and McGill-Franzen (2013) found that e-books did, however, positively influence student learning. Students

that interacted with e-books improved language and literacy learning, comprehension skills, and reading strategies (Cahill & McGill-Franzen, 2013, p. 32).

In a literature review, Huang, Liang, Su, and Chen (2012) reviewed Ofra Korat's work who found that "students' emergent literacy, including vocabulary, word recognition, and phonological awareness, were improved by reading with e-books," (p. 705).

Cahill and McGill-Franzen (2013) argued, however, that using e-books to allow students to interact in quality instruction positively affected students. Not only did high-quality e-books encourage motivation and engagement for students, they also helped students build traditional literacy skills. E-books particularly helped build a student's vocabulary development and trans-literacy development (communicating and comprehending across different modes and platforms) (Cahill & McGill-Franzen, 2013). High levels of interaction were found to be important to make an e-book a meaningful learning activity (Cahill & McGill-Franzen, 2013; Roswell & Wohlwend, 2016). Quality e-books are also multimodal and open-ended (Cahill & McGill-Franzen, 2013; Roswell & Wohlwend, 2016). In such e-books, students may participate in literacy activities where they can create their own stories within a story, create personalized stories using students' names, record their own reading of a story with their voices, and other interactive activities (Cahill & McGill-Franzen, 2013, p. 32).

Due to low-quality e-books and their little positive impact on reading or other literacy skills (de Jong & Bus, 2004), teachers need to select quality digital picture books (Cahill & McGill-Franzen, 2013; Zipke, 2013). In order to select quality digital picture

books, educators could use the dimensions for participatory literacy (Roswell & Wohlwend, 2016), and take different criteria into account. This criteria should include writing, images, narration, and interactive functions (Cahill & McGill-Franzen, 2013). Quality writing in an e-book include well developed characters, an engaging story line, "interesting but comprehensible" words, and language rhythm that "...is pleasing to the ear and evokes imagery," (Cahill & McGill-Franzen, 2013, p. 32). The writing should also provide opportunities for discussion, reflection, and help young readers build comprehension skills through the reading and effects such as animations and narration (Cahill & McGill-Franzen, 2013; Zipke, 2013). The amount of text on a page should also be relevant to a student's learning level and learning needs (Cahill & McGill-Franzen, 2013; Zipke, 2013).

Images are important in quality e-books, as well. Beginning readers often use pictures to help decipher meaning when reading words or comprehending a story. Therefore, "quality images is as important as the quality of the words used," (Cahill & McGill-Franzen, 2013, p. 34).

Quality narration is important in e-books to help enrich a reading experience instead of distract from the reading. It is important that narration is fluent and expressive and free from distracting sounds (Cahill & McGill-Franzen, 2013). Interactive functions are also important as they help develop traditional and new literacy skills (Cahill & McGill-Franzen, 2013; Roswell & Wohlwend, 2016; Zipke, 2013). These interactions allow for unique learning experiences and should enhance rather than distract. Some digital texts could include interactive activities that disrupt or distract from the text,

therefore disrupting the reading, language, or comprehension skills that are being built (Roswell & Wohlwend, 2016).

Zipke (2013) created a rubric that touched on similar criteria. This criteria reviewed an e-book's educational features: interaction with the characters, interaction with the language, sound, navigation, and specific skill and instruction (Zipke, 2013, p. 380).

One of the most important things to keep in mind when evaluating e-books or any other language app or technology activity is how it will meet instructional need. Keeping these aspects of quality e-books in mind when evaluating apps could tie in nicely with the SAMR model (Puentedura, 2014), The App Map (Israelson, 2015), or the dimensions of participatory literacy (Roswell & Wohlwend, 2016).

Blogging

Kist, Doyle, Hayes, Horwitz, and Kuzior (2010) presented real-life examples of teachers using different technologies in grades 1-5. Kelly Doyle, a first grade teacher in Ohio described implmenting a blog with a first grade class.

Doyle set up a class blog through 21classes.com. During the first couple weeks that the blog was introduced, the teacher modeled how to access and log on to the blog using their username and password. The blog was open for public viewing but only those with a username and password could post comments, which allowed for digital safety for the students. Parents were provided instructions on how to access and use the blog at home, but for equity's sake, Doyle also provided plenty of opportunities for students to blog at school in case they did not have Internet access (Kist et al., 2010).

Doyle created different categories for students to write about. The first one was a simple, open-ended category called, "Let's Blog." In this category students could write about anything that ranged from saying hello or writing about their weekends. The informality of this activity helped students overcome any insecurities that they may have had about writing or spelling capabilities (Kist et al., 2010, p. 64).

Students took ownership in their writing as they checked the blog as a class daily. The class enjoyed reading others work and the writers enjoyed sharing. Doyle also found that the students were very engaged. Parents of struggling readers reported that their student spent long periods of time reading the blog at home (Kist et al., 2010).

Students were able to use the blog for many different content areas. The blog was used for creative writing, book talks, reader responses, and book recommendations. Students also blogged to write and solve math stories as well as number riddles. Doyle used the blog for assessments when students blogged their knowledge on different curricular topics, especially in social studies or science. Struggling writers were able to construct meaningful sentences relating to these topics while writing on the class blog (Kist et al., 2010). In a fifth grade classroom, students were observed using higher order thinking skills in their class blog. They were synthesizing information across different digital and nondigital texts, creating blog posts about it or answering prompts, and synthesizing information from their classmates' comments (Zawilinski, 2009). The students were also excited to make home and school connections. They expressed interest in writing about what they were reading at home and sharing poems they had wrote (Zawilinski, 2009).

Not only can blogs be beneficial for students demonstrating their knowledge in curricular areas, but they also showed students focusing on writing phonetically instead of focusing on writing and spelling correctly which is grade-appropriate for kindergarten, first, and second grade (Kist et al., 2010, p. 64). Doyle stated that, "In this computerized world, it is not only important for beginning readers to learn to read from books, but it is also necessary for them to decode words off a screen," (Kist et al., 2010, p. 64).

The blog was not only meaningful for academic work and 21st century skill building but also socially. Doyle noticed that "...children really gain a sense of belonging and autonomy by seeing their own work published on the Internet," (Kist et al., 2010, p. 64). Students became less egocentric and open to what others were sharing as they were eager to read others' writing. Students who were passive or shy used the blog as an outlet to share their thoughts, opinions, and stories without being overpowered by children with stronger personalities (Kist et al., 2010, p. 64).

Twitter

Kist et al. (2010) included Jeff Horwitz, a second grade teacher, and this classes use of Twitter in the classroom. Horwitz noticed many benefits from using Twitter including communication with parents, learning 21st century skills on how to be safe and appropriate on the Internet, and authentic and meaningful communication (Kist et al., 2010). Teachers have also used it to collect data in the form of a digital exit ticket (Amaro-Jiménez et al., 2016).

An exit ticket, or exit slip, are short reflections that students turn in at the end of a class. These allow for students "...to think about what they learned, how they learned it,

what they need to find out next, and how they will use what they have learned,"
(Amaro-Jiménez et al., 2016, p. 306). Educators have used these exit tickets to drive
instruction by finding out what students think is important, misunderstood, and what they
should learn next (Amarao-Jiménez et al., 2016, p. 306). Using Twitter for students to
tweet their exit slip criteria allowed for students to learn 21st century skills. Some learned
how to use Twitter for the first time and others learned how to use Twitter in an academic
context. The educators were able to conduct formative assessments more conveniently
through digital text instead of many pieces of paper and Twitter served as a record of
student learning (Amaro-Jiménez et al., 2016).

Twitter can also be used to promote communication, writing skills, and other
content-area knowledge. Horwitz posted different prompts where students were able to
respond. The class also communicated with other classrooms all over the world. Students
were able to learn about these classes "...organically by asking their own questions," (Kist
et al., 2010, p. 65). Horwitz noted that students were being taught to communicate,
collaborate, and use technology to create networks and that will help them become more
successful in the 21st century (Kist et al., 2010, p. 65).

Tweeting can pose some challenges. Some users may be hesitant due to the fear of
leaving digital footprints or other fears that may come with being active on social media
(Amarao-Jiménez et al., 2016). Confidentiality or privacy may also be a concern. In order
to protect students' identities and help ease their concerns, teachers should guide students
in creating usernames that may not include their name, upload content that does not
include names, faces, or other identifying factors, and create private accounts and lists

allowing only trusted accounts to view their tweets (Amarao-Jiménez et al., 2016; Kist et al., 2010).

Proposed Models

As it can be seen, there are countless technology tools that students can use to participate in differentiated learning that can increase comprehension. Rahimi, van den Berg, and Veen (2015) discussed personal learning environments (PLEs) and proposed a model to allow students to self-regulate their learning, build upon student's control theories and concepts, on how their learning can be supported by Web 2.0 and technology (Rahimi et al., 2015, p. 780). Research has found that while there were many different learning opportunities for students and learning activities (Twitter, Facebook, YouTube, Google, Skype), teachers were left without a clear map on how to use these to meet students' needs (Rahimi et al., 2015, p. 781).

Rahimi et al. (2015) argued that "...Web 2.0 PLEs should improve the student's cognitive and metacognitive abilities and redefine his or her epistemic practices," allow the student to use PLEs as a means for learning therefore redefining the pedagogical process, "...combine the redefined epistemic and pedagogical elements…" and use what Web 2.0 has to offer to create technology-enhanced activities that allow students to make decisions about their learning (Rahini et al., 2015, p. 782). Rahini et al., (2015) created a six block model that is based off of these arguments. This model included the student's control dimensions, learning affordances of Web 2.0 tools and technologies, the learning process, the technology-enhanced learning activities, student-driven PLEs' development process, and the increased student's control in educational process block (Rahini et al.,

2015, p. 783). These blocks allowed students to take control of their learning as well as be social, self-motivational, and build technological choices (Rahini et al., 2015). Students were encouraged to reflect, work on scaffolded activities, and choose from teacher-selected choices that allowed students "...to define their learning aims and methods," (Rahini et al., 2015, p. 783).

O'Byrne and Pytash (2017) also argued that there needs to be a program to help meet students' learning needs in a digital world. Students need a digital place "...online where they can create, build, and modify digital artifacts that represent their identities as learners," (O'Byrne & Pyash, 2017, p. 499).

It was discussed that teachers, especially in high school, often used digital tools such as Google Classroom or Edmodo (O'Byrne & Pyash, 2017). The downfall of these programs, however, were that students often lost access to these programs once the class was over. They lost their learning materials, work, and other resources that may have been posted in these digital environments. This could teach students that learning is done in stages that are disconnected from one another. It also did not teach students the digital literacy skills that they need on the Internet (O'Byrne & Pyash, 2017).

O'Byrne and Pytash (2017) suggested an online tool that could prevent this. They suggested that there be one domain, one online address, that is created under the school's name. O'Byrne and Pytash (2017) note this as "A Domain of One's Own." A Domain of One's Own would be introduced to a student in pre-kindergarten and would follow them through their higher education careers. This would allow students to build literacy skills where they can read, write, build, edit, revise, and participate in learning activities like a

digital portfolio (O'Byrne & Pyash, 2017, p. 499). This is important, they argued,

because it could help students build a sense of ownership over their learning, agency, and

empowerment. This website should be open-source software such as WordPress.

Teachers could use this resource as an art portfolio where students could add to it year

after year, students could post stop-motion animation movies, and other new literacies

activities (O'Byrne & Pyash, 2017, p. 501). This process helped students become

reflective learners as this is something that they can continually look back on, reflect, or

modify (O'Byrne & Pyash, 2017, p. 501).

Reactions

The research included in this literature review was interesting to me and brought

up some new ideas. I had not thought of the multitasking skills that today's digital youth

have, for example. I was encouraged when reading more about the the SAMR model

(Puentedura, 2014), The App Map (Israelson, 2015), and the dimensions of participatory

literacy (Roswell & Wohlwend, 2016) and how they seem to be useful tools that teachers

could use when implementing technology into their classroom. I was a little surprised at

the murkiness of students using e-books in the classroom. I have personally used e-book

programs where I have informally observed and collected data that suggests students are

comprehending these books well. This is, however, a program that specialized in e-books,

did not include games, and was leveled to a student's particular need. I really enjoyed

reading the different ways Web 2.0 tools and other digital programs, devices, or networks

were used in classrooms and the results that they were yielding. O'Byrne and Kyash's

(2017) work was of particular interest to me as A Domain of One's Own seems to be something that could be extremely useful but is missing from the digital market today.

Summary

In this literature review, I began by discussing using technology to help differentiate instruction and learning activities. Researchers and scholars noted the benefits of digital differentiation and how they benefitted the students through individualized learning. I also discussed the SAMR model (Puentedura, 2014), The App Map (Israelson, 2015), and the dimensions of participatory literacy (Roswell & Wohlwend, 2016) and how technology should be used to reform technology, not use it just to use it. New literacies were then discussed and the many different forms these can take. Literature is no longer solely paper, pencil, and printed book. New literacies can take the form of a video, song, or text online. New literacies and the Internet may be complex, but as several of the researchers and NAEYC suggest, it is beneficial for young students to access and participate in these learning environments.

I then went into what teachers were implementing in their classrooms relating to new literacies, Web 2.0, and other technology activities. Examples of clasrooms that implemented blogs and Twitter were discussed. Research discussing e-books was included though different researchers have come to different results. Finally, two different suggestions of how to implement digital learning were included. In my eyes, Rahimi et al. (2015) and his PLEs along with O'Byrne and Pytash's (2017) A Domain of One's Own would really benefit teachers and students alike. Something combining the two of these programs would provide educators with a roadmap on how to best meet the needs

of their 21st century learners along with allowing these students to be reflective, build

literacy skills, and a learning portfolio that would be accessible for their entire schooling

career. The next chapter will discuss a website dedicated to helping primary teachers use

technology, primarily iPads, to differentiate instruction and increase comprehension.

Chapter three will include the research approach that will be used to guide the website

and project as well as an outline of my website.

CHAPTER THREE

Project Design

Introduction

Chapter three is an overview of the website that was created to help answer my

research question: *how can primary teachers use technology, primarily iPads, to*

differentiate language arts instruction and increase comprehension?

This chapter will discuss the research approach guiding in the creation of this

website. Next, it will provide a brief description and rationale of the website's

framework. The remaining portion of chapter three will discuss the setting and audience,

project description, timeline, and finally, a brief look at chapter four.

Theoretical Design and Project Approach

This section will discuss the design of my project and the approaches I took to

create the website that will help teachers use technology, primarily iPads, to differentiate

language arts instruction and increase comprehension. Previous research, the SAMR

model (Puentedura, 2014), The App Map (Israelson, 2015), and the dimensions of

participatory literacy (Roswell & Wohlwend, 2016) guided my project design and

content.

Rationale

Cresswell (2014) described qualitative research as one that "...involves emerging

questions and procedures," as well as the researcher interpreting data (p. 4). I used data

and past research to guide my final project. I collected research to increase the

understanding of my topic (Mills, 2014, p. 84). I used qualitative data collection

techniques that fell under Creswell's (2014) "Examining" category that included

collecting and analyzing archival documents, audio recordings and video recordings, and

artifacts (p. 99). I was also guided by the SAMR model (Puentedura, 2014), The App

Map (Israelson, 2015), and the dimensions of participatory literacy (Roswell &

Wohlwend, 2016) in the evaluations, explanations, and content that was included on my

website. I analyzed technology apps, websites, and other technological resources using

the above mentioned criteria.

The Constructivist Worldview

Creswell (2014) explains that social constructivists "...develop subjective

meanings of their experiences," (p. 8). These meanings can vary from participant to

participant (Creswell, 2014, p. 8). My research project aligns with social constructivism

as individual educators and students may have different views on this topic, and what

may work for them based on their learning styles, preferences, teaching techniques, or

experiences with technology. I am approaching this project with the constructivist

worldview to be open-minded and consider many different viewpoints surrounding my

topic. I will be including the SAMR model (Puentedura, 2014), The App Map (Israelson,

2015), and the dimensions of participatory literacy (Roswell & Wohlwend, 2016) in my

analyzations of technological resources because they are all relevant in the current

educational technology realm and educational professionals may be familiar with one

model more so than the others. The different models may also touch on different uses that

may or may not be relevant to a teacher's needs.

Project Design

For the project design, I used some student artifacts and the findings from my literature review to develop a website that provides analyzations of technology resources for teachers. This website will help K-2 teachers use technology, primarily iPads, to differentiate language arts instruction and increase comprehension. This project addresses the need for an in-depth analyzation of technology resources for young learners that are meaningful in meeting learning goals. This project also addresses the need of more research and resources focusing on young learners and their use of technology.

Project Description

My capstone project is a website that provides resources and ideas for primary teachers to use technology, primarily iPads, to differentiate language arts instruction and increase comprehension. The primary grades can benefit from additional resources regarding technology and these young students. This website will add to the need of technology and language arts resources for primary teachers. I used the research that was discussed in chapter two to guide the information and resources that are presented on the website. This resource was also influenced by some student artifacts using technology showing what innovative ways students can use technology in a way that was not previously possible, thus redefining the learning activity as described on the SAMR model (Puentedura, 2014). Screenshots of an app or website and resources I created were also used on the website to give visuals and ideas on how to use said resource in a classroom.

The final project lists different language arts skills and technology resources that will help the primary learner master or show comprehension in that area. The site

discusses the different technologies, how they can be used to differentiate and increase comprehension, possible downfalls, and visuals. It also includes the rubrics of the SAMR model (Puentedura, 2014), The App Map (Israelson, 2015), and the dimensions of participatory literacy (Roswell & Wohlwend, 2016). This web page is meant to be a useful and realistic tool for teachers to use as a resource to inspire and help with technology implementation and language arts instruction.

Rationale

This website highlights innovative ways that technology can be used to meet each individual student's needs using the SAMR model (Puentedura, 2014), The App Map (Israelson, 2015), and the dimensions of participatory literacy (Roswell & Wohlwend, 2016). Through the use of these rubrics and different technologies, teachers will be given ideas on how to use technology to help students make progress and meet their individual learning goals.

I chose to create a website since technology is always changing. Creating a website will allow for me to maintain and update the site as new research, tools, or technologies become available. The information found on this site will therefore be updated and relevant to the viewers. A website is also easily accessible by a large amount of people. This website will be aimed at primary teachers who teach language arts and are looking to implement technology in a meaningful way.

Setting and Audience

The culmination of my capstone project is intended to reach educators who are looking for resources when implementing technology in their classrooms. The website

will be available online for any users to view. While this site is aimed at primary teachers who teach language arts, it also can be relevant for teachers who teach other grades or curricular areas. It is my hope that teachers will be able to take the tools and resources directly into their classroom, or use it as motivation and adapt the content to best fit the needs of their learners.

The mission for this website is to create a relevant resource that teachers, especially those who teach the primary grades, can access and use in their classroom. This website will guide teachers in implementing differentiated technology learning activities on the top tiers of the SAMR model (Puentedura, 2014), The App Map (Israelson, 2015), and the dimensions of participatory literacy (Roswell & Wohlwend, 2016). This site will also be beneficial for teachers who are and are not familiar and comfortable with technology.

This site included different sections as they relate to language arts and technology. Each page on the website includes information on the particular tool. It gives my rubrics and scorings for the tools and the SAMR model (Puentedura, 2014), The App Map (Israelson, 2015), and the dimensions of participatory literacy (Roswell & Wohlwend, 2016). I then discuss why that digital resource encourages differentiation and supports comprehension, possible downfalls of the resource and how to tackle those downfalls, and screenshots, images, or products that were made with that app, website, or digital tool.

Project Outline

Main Page

Main Idea: This page gives a general overview of what can be found on the website.

● Introduction of the creator and why the website was created

● What can be found on the website

Analyzing Technology

● Describes and outlines the SAMR model (Puentedura, 2014), The App Map (Israelson, 2015), and the dimensions of participatory literacy (Roswell & Wohlwend, 2016)

Letter Recognition

Main Idea: There are also students who need to build their phonemic or phonological awareness and are not yet ready to read books independently. Apps and resources that would help students build these pre-reading skills will be included on this page. These pre-reading skills are important to help students read independently and comprehend what they are reading later on.

● Starfall ABCs

● Montessori Crosswords

Listen to Reading

Main Idea: For students who may not be ready to read independently, students can use technology to build reading skills through listening to others read.

● Storyline Online

● Just Books Read Aloud

● Barnes & Noble Storytime

● YouTube and Safeshare

Reading

Main Idea: Using e-readers in a meaningful way to differentiate instruction and increase comprehension.

- StoryChimes

- Kids A-Z

- Epic!

- Unite for Literacy

Writing

Main Idea: Students can use technology to participate in differentiated writing activities, building skills, demosntrating knowledge, and increase comprehension.

- MyStory

- Writing Wizard

- Blogging

- Google Docs

Applying Knowledge

Main Idea: Students will be able to demonstrate their knowledge in a way that is meaningful to them. These activities are individualized, interesting, and that allow for student-choice where students can share their comprehension and understanding of the materials.

- Seesaw

- Padlet

- Pic Collage

- Photos

- Video

- Sock Puppets

- ChatterPix Kids

- EduCreations

- ExplainEverything

- Twitter

Organization

Main Idea: This page will offer different options for young students and how to access

these technologies independently.

- Symbaloo

- QR Codes

- Picture Directions

- Apple TV

SUMMARY

This chapter began by discussing the rationale, audience, and setting for this

website discussing how technology can be used to differentiate language arts instruction

and increase instruction. This website will hopefully be a meaningful resource for

primary teachers to use to implement technology into their curriculum in a way that

redefines their instruction instead of substituting in place of a pen and paper activity.

I chose to create a website so the site can stay up to date with technology, tools, and research. The website will be easier for me to maintain and update as needed as the needs in schools change. This will also be easily accessible for teachers or other individuals interested in using technology with their students.

The remaining portion of chapter three is the outline of my website. The main page will consist of a brief description of who I am and why the website was created. It then goes into the different sections and the topics, apps, or tools that will be included on that portion of the website.

Chapter four discusses the conclusions I have made after creating this website. This chapter will discuss the future of the website as a tool for the education world and conversation around technology and literacy. It will also discuss the experiences I had in this process, what I have learned, and what will make this website successful with teachers and students.

CHAPTER FOUR

Reflection and Conclusion

Introduction

I have created a website that answers my question: how can primary teachers use technology, primarily iPads, to differentiate language arts instruction and increase comprehension? This section will provide a discussion of my website. The first section will provide context surrounding my capstone project and the learning I came across from my research and website creation. I will review the most influential research that guided my website as well the implications and limitations of my website. The next section will be recommendations for future research either by myself or another researcher, and what my website will benefit from. I will discuss the additions I would like to include in my website and how I will communicate my resource to others.

Context

This project was built around the question of how primary teachers can use technology, primarily iPads, to differentiate language arts instruction and increase comprehension. I created a website that teachers can use as a resource to find digital apps, websites, or activities for students to engage in. The goal of these digital resources was to be used to meet each learner's unique needs through differentiation, therefore increasing comprehension of a content goal or text.

I included a description of the resource, scores that I assigned an app based off of the SAMR Model (Puentedura, 2014), The App Map (Israelson, 2015), and The Dimensions of Participatory Literacy (Roswell & Wohlwend, 2016). I only assigned

scores based off of The App Map's rubric (Israelson, 2015) and The Dimensions of Participatory Literacy (Roswell & Wohlwend, 2016) for apps, not for websites. I then included how an app, website, or other digital resource allowed for differentiation and helped students increase their comprehension. Screenshots from an app or website were included so viewers were able to have a quick view of a resource to see if it would be something they would like to incorporate into their classroom.

Learnings

I came across many new or different learning while creating this website. When reviewing resources, I found myself really reflecting on the benefits or potential downfalls of using said resource in my classroom. I was able to reflect on the resource's scores based off of the SAMR Model (Puentedura, 2014), The App Map (Israelson, 2015), and The Dimensions of Participatory Literacy (Roswell & Wohlwend, 2016). These scores helped me realize how the different technologies help students reach learning goals, if they are simply substituting a traditional print activity, or if they are innovative and allowing students to create something or engage in a learning activity that would not be possible without technology.

This project encouraged me to think deeper into how to use technology to differentiate and increase comprehension. Through the research that was used in chapter two, I was able to better distinguish how and why a resource may be used to differentiate. The literature review provided research-based information that I incorporated into my rationales for differentiation and comprehension.

My resource reviews on the website also led me to some new resources that I have not used before. I was able to think outside my teaching bubble and find new apps, websites, or technologies that will allow for more engaging and meaningful learning opportunities for my future students. I have never used Unite For Literacy, for example, but found that it will be beneficial for learners who can and cannot read independently. As a researcher, I found that there is so much to a topic than meets the eye. I found many different resources that included so much depth and knowledge that may have agreed or not agreed with my preconceived notions. The research led me to different rubrics and evidence-based procedures that I was able to use in my project.

Writing the chapters of this capstone was more difficult than I originally had thought it would be. I constantly found myself double checking research to make sure I was representing it correctly. I put in a lot of thought on how I was presenting research and applying it to my project, and if I was doing so in a credible way. Citations were time consuming but very important. I am thankful for this process as it helped me become a better researcher and writer. It helped me synthesize information and apply it to my topic as well as my classroom.

This process helped me grow as a teacher, researcher, and writer. I feel that I learned many new skills and made a lot of growth. This project encouraged me to engage in higher order thinking, synthesize information, and apply my knowledge in a credible and professional manner.

Literature

The research that was included in chapter two was much of what influenced the resources and content that was included in my website. When I first began drafting the idea of my website, I envisioned using much of what I had informally observed or experienced as a teacher who implemented technology. I envisioned using information based off of my students performances or preferences. I quickly realized, however, that this is only a portion of the puzzle. What I have experienced is not something that I have researched in a credible manner. These were not based off of formal research that I had conducted, but informal experiences that I have seen the past two years in my classroom. I quickly realized that my website needed to be backed by credible professionals who conducted research to add to the world of education and technology.

The biggest influences of my project were the SAMR Model (Puentedura, 2014), The App Map (Israelson, 2015), and The Dimensions of Participatory Literacy (Roswell & Wohlwend, 2016). These three rubrics allowed me to reflect on the technology I use, but include criteria that will help teachers think about how and what they are implementing in their classroom. While using these three rubrics, I found that most of the technology apps I scored were not as high as I had hoped. Many of the e-books or letter recognition resources did not allow for students to demonstrate their knowledge in an innovative way. Students, for example, were not given opportunities to demonstrate their independent knowledge of a letter sound in Writing Wizard. Instead, they were given practice tracing, and exposure to the letter name and sound, but they did not get to practice writing it on their own. This could be an opportunity for a teacher to use Seesaw

or Explain Everything and ask the student to record themselves writing a letter, stating the letter name, sound, and a word that starts with that letter.

While some many of the e-books did not allow for multimodal use or student creations that are important in The Dimensions of Participatory Literacy (Roswell & Wohlwend, 2016), I included them in my website as research found that they are beneficial for students to build reading skills. E-books were found to be beneficial in building vocabulary skills, increased motivation and engagement, and built skills to communicate and comprehend information across different platforms (Cahill & McGill-Franzen, 2013).

The research that was included in my literature review had a major impact on my website. I used this research to create a teacher resource that will give primary teachers ideas on what and how to implement these technologies to better serve their students.

Implications and Limitations

This resource could lead to a more technologically innovative school setting. A teacher, administrator, or other education professional could use this resource to get ideas on what apps are beneficial to language arts, differentiation, and comprehension. Professionals in the education fields could also use the information from this website to further educate themselves on the SAMR Model (Puentedura, 2014), The App Map (Israelson, 2015), and The Dimensions of Participatory Literacy (Roswell & Wohlwend, 2016) and use these rubrics to rate the features of digital resources in their classroom.

My website will hopefully help teachers of all ages feel more comfortable with implementing technology in their classrooms. While it is aimed at primary teachers, the

content can be used and adapted to students of any age or learning level. This website

will provide teachers with digital resources and how to implement them in a way that

promotes differentiation and increased comprehension.

The content from my project's website may be limited based on resources that

teachers or schools are able to provide. All of the resources and activities on my website

require either a tablet, smart device, or computer. Many of them also require Internet or

Wifi access. This resource may generate little meaning to those who do not have access to

the Internet or any of these devices.

This capstone project and the resources included may also be limited if a school

does not have strong or reliable Internet connections. If a school does not allow for social

media or blog postings by students, some of the resources may not be meaningful. Some

of the resources components, such as Seesaw being accessible by families, may not be as

desirable or innovative if many of the families do not have the Internet or digital devices

accessible to them. A school or a teacher may decide to update their policies on social

media, get parent permission, or take other precautions to protect themselves and their

students when navigating these digital resources.

Future Research

This project will benefit from some further research. In the future, I envision

incorporating more resources that are in the Redefinition phase of the SAMR model

(Puentedura, 2014) and score higher on The App Map (Israelson, 2015), and The

Dimensions of Participatory Literacy (Roswell & Wohlwend, 2016) in the language arts

curricular area. I would love to search for or create a resource that exposes students to

concepts, such as letter name and sound recognition, and allow for independent practice and student creations within the app or digital resource.

I would also love to include technologies that allow for differentiation and increase comprehension in other curricular areas such as math, science, and social studies. This would allow the website to be more well-rounded and apply to many different teachers and student needs.

A recommendation based off of this resource would be for teachers to use the SAMR model (Puentedura, 2014), The App Map (Israelson, 2015), and The Dimensions of Participatory Literacy (Roswell & Wohlwend, 2016) when analyzing resources and figuring out if or how they would be used in a classroom. I hope that this site would encourage them to look for apps, websites, or other technological resources that score higher in these rubrics. This would result in higher student engagement and higher-order thinking skills. Students would be able to engage, create, and share their work. They would be able to learn with and from each other, self-assess their work, and learn 21st century skills that they will need throughout the rest of their lives.

These recommendations for future research or use will help teachers best meet their students needs. One benefit of this website is the ability to update the content as new research or resources arise. Another benefit may be the ability to add other curricular areas to meet the needs of a larger population of teachers, professionals, schools, and students. Finally, one of the biggest benefits of creating this website will be the ability to communicate my findings with other educators.

Communication

This website will be a great way for me to communicate and share my results. This site will be available through search engines. I also plan on promoting this site through social media and a teaching blog. I envision sharing this site with colleagues or my school or district's tech team. This would be a great way to brainstorm with other professionals and see what resources they are implementing. This way would also be great for teachers to share what they would like to see on a website to help guide my research and content.

I will use my results and the findings of my future research to guide the implementation of technology and resources in my language arts curriculum. I will also use my findings to implement technology in other content areas. Students will benefit from resources to learn 21st century skills and use them in real-life situations. My class members will also benefit from digital activities that rank high on the SAMR model (Puentedura, 2014) and The App Map (Israelson, 2015). In order to ensure students are participating and creating content and implementing their learning, I will also work harder to provide technologies that rank high in The Dimensions of Participatory Learning (Roswell & Wohlwend, 2016).

I am optimistic for this website's effects on students and teachers. I have learned a lot through this process and feel more confident with implementing technology in my classroom in an innovative and meaningful way. As this project has described, technology can be used to differentiate instruction and increase comprehension. Students will be using 21st century skills throughout their educational and professional careers, and it primary students are capable and will benefit from technology implementation.

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Appendix

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