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The Experiences of Middle School Teachers with Integration of Digital Media into the Curriculum

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COLLEGE OF EDUCATION

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The Experiences of English Language Arts and Math Middle School Teachers with Integration of Digital Media into the Curriculum

by

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Doctoral Study Submitted in Partial Fulfillment

of the Requirements for the Degree of

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Abstract

Middle school teachers at a school district integrated digital media into the math and literacy curriculum by using programs such as Success Maker and Reading 180 in the classroom. Teachers received training on best practices for integrating digital media in their teaching. No research had been conducted to examine the experiences of these middle school teachers with the integration of digital media into the curriculum. The purpose of this qualitative case study was to address that gap. The research questions focused on teachers' outlooks on digital media as a teaching tool and the instructional strategies they used. The conceptual framework of this study was based on Bandura's social cognitive theory because students may achieve higher levels of academic achievement through the integration of digital media into the curriculum. Purposeful sampling was used to select 6 urban public regular middle schools teachers who taught either math or language arts and had integrated digital media into the curriculum. Face-to-face interviews were conducted. Archival documents on the school district's digital media use were also examined. Data were analyzed using thematic analysis. The findings revealed strategies that literacy and math teachers used to individualize instruction, make instruction relevant to students, and integrate digital media throughout their lessons on a daily basis. Study findings may offer insight on instructional strategies that middle school math and literacy teachers may use to integrate digital media into the curriculum. Such knowledge may help students at this school pass standardized tests and graduate.

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Dedication

I dedicate this study to my family. I would like to thank my family and friends for all the support and encouragement that you gave me throughout this long and arduous journey.

I would like to say a special thank you to my parents who although they are no longer here have been a catalyst in my quest to reach this goal. Without my father's constant reminder of how important education is and my mother's continuous unconditional love, this dream would never have been realized.

Acknowledgments

Thank you to my doctoral study committee members for helping me with this research. Special thanks to all who supported me throughout this process.

Table of Contents

Section 1: Introduction to the Study

Introduction

School district administrators of the school district that I studied integrated digital media into the math and literacy curriculum. Success Maker and Reading 180 were offered in the classrooms. Literacy and math middle school teachers received training on best practices for integrating digital media in their teaching. These administrators needed research-based evidence that the literacy and math middle school teachers had successfully integrated technology into the classroom as mandated by NCLB (2001).

Digital media has been integrated in middle school classrooms (Cransfield, 2012) because of the possible positive effect it has on middle school students (Pew Research Center, 2010). Middle school teachers use digital media as an instructional tool to enable students to construct their own learning (Buckingham & Martinez-Rodriguez, 2013). Using digital media, students build their own constructs from prior experiences and become problem solvers. Digital media can be used as a valuable resource in the classroom (Buckingham & Martinez-Rodriguez, 2013). Therefore, students' literacy and math skills may be improved with digital media.

Per the No Child Left Behind (NCLB) Act of 2001, which makes educational systems accountable for technology integration, teachers must successfully incorporate technology in the classroom to help students improve their proficiency in academic subjects. In passing this law, legislators asserted that student achievement could be improved via technology use. Two of the goals for NCLB were for every student to be

technologically literate by Grade 8 and to encourage effective technology integration into classrooms through teacher training and professional development.

Jacobsen and Forste (2011) focused on the use of digital media and its effects on academic achievement and social interaction of college students. Digital media included emails, social networking sites, cell phones, video games, television, and movies. The researchers surveyed approximately 3,000 first year college students and asked them to fill out time diaries. They wanted to better understand how students use their time and, also, compare students' semester grades to examine the impact of technology use on college students' academic achievement. Most of the respondents owned a cell phone, the majority of them had Internet access, and 62% of them reported using some kind of nonacademic electronic media either in class or when studying.

Researchers at the Pew Research Center (2010) found that 63% of middle and high school students in 2009 in U.S. used online sources and 75% of them had cell phones. The number of students who have access to electronic media continues to increase (Common Sense Media, 2012). As a result, teachers need to take into consideration the use of cell phones, tablets, MP3 players, and computers when preparing their lessons in order to make lessons more relevant and engaging.

Middle school teachers need to use technology-based strategies to prepare students to compete in the global economy. A. P., a district assistant superintendent, said that the school's students had not passed state tests in literacy and math. P. K., the district superintended, told me that district administrators mandated to teachers to integrate digital media into the curriculum in order to increase students' proficiency in

literacy and math. The school district that I studied integrated digital media into the math and literacy curriculum by using programs such as Success Maker and Reading 180 in the classroom. Literacy and math middle school teachers received training on best practices for integrating digital media in their teaching. At my research site, which is an urban public middle school in the district, however, no research had been conducted to examine the experiences of middle school teachers with the integration of digital media into the curriculum. District and school administrators needed research-based evidence that the literacy and math middle school teachers had successfully integrated technology into the classroom as mandated by NCLB (2001). The school district was accountable for technology integration based on NCLB and offered training to teachers for using digital media to help students pass state tests; however, the literacy and math scores at the district and state levels remained low, and students did not meet AYP benchmarks.I conducted a qualitative case study to examine the experiences of middle school literacy and math teachers with the integration of digital media.

Background of the Study

Students' creative thinking skills may be improved with digital media integration into the literacy and math curriculum. Lim, Lee, and Hung (2009) examined how students learn with digital media and reported that students' learning increased because the lessons were more relevant to the curriculum and students were more engaged in interactive lectures. According to Li and Ma (2010), digital media integration into the curriculum should be aligned with students' needs. However, teachers are concerned about the

degree to which digital media can be integrated into literacy, math, and pedagogy to help students improve their literacy and math skills (Chamberlin, 2010; Pittman, 2011; Van Steenbrugge et al., 2010) and find successful integration to be challenging (Manniger & Holden, 2009).

Students in Grades K-12 have integrated digital media into daily aspects of their lives for communication and homework purposes (Klopfer, Osterweil, Groff, & Haas, 2009). According to Common Sense Media (2012), the average time Grades 1-12 students spent on digital media is more than twice the amount they spend in school. Teachers contend that students' use of entertainment digital media benefits students' ability to find and explore information (CITE). I will more fully discuss this topic in Section 2.

Problem Statement

The research site is an urban public school district. Students are not passing standardized tests and as a result teachers integrated digital media into the math and literacy curriculum. At the school's 530 students (of whom 250 were boys and 280 were girls at the time that I conducted the study) come from single family homes and receive social assistance. Ninety percent of the students are African American; 5 % are Hispanic, and 5% are Caucasian. Middle school teachers at this school taught approximately 100 students per day. These teachers were state-certified. All math and literacy teachers used the same curriculum. They also used digital media in their classrooms to help students increase their proficiency in math and literacy. Four administrators—a school principal

and three assistant principals – were responsible for literacy and math outcomes at the school.

A. P., a district assistant superintendent, said that the school's students had not passed state tests in literacy and math and had not met AYP (personal communication, November 27, 2014). P. K., the district superintended, told me that district administrators implemented a policy 3 years ago requiring teachers to integrate digital media into the curriculum in order to increase students' proficiency in literacy and math (personal communication, November 30, 2014). My interviews led me to conclude that research on the district's integration of digital media into the literacy and math curriculum was needed to help administrators better allocate resources for the professional development of teachers with the ultimate aim of helping students pass state tests. I conducted this case study to understand the experiences of middle school literacy and math teachers with the integration of digital media into the curriculum in order to provide district administrators with research-based findings to make district-wide decisions.

Purpose of the Study

The purpose of this qualitative case study was to examine the experiences of middle school literacy and math teachers with the integration of digital media into the curriculum in order to help their students improve their proficiency in both literacy and math state tests. My goal was to examine the experiences of teachers who had integrated digital media such as Success Maker and Reading 180 into the curriculum with the intention of helping students make AYP. I interviewed the school's teachers face-to-face

during the 2011-2012 academic year. In carrying out this study, I sought to provide district administrators with research on the implementation of digital media integration. I also sought to provide data that they could use in making decisions on the purchase and use of digital media software programs such as Success Maker and Reading 180.

Nature of the Study

For this research study, I used a qualitative case study design to interview literacy and math middle school teachers to examine their experiences regarding the integration of digital media into the curriculum. My research site was a middle school within one urban public school district serving Grades K-12. The school's literacy and math middle school teachers constituted my study population. I requested permission to conduct this case study from the district senior administrator responsible for IRB approvals and from Walden University's IRB. Six literacy and math middle school teachers agreed to participate in face-to-face interviews. I asked participants to read and sign an informed consent form in order to participate in the study. I then invited those participants who had returned signed consent forms to participate in face-to-face interviews between May and September 2015. I provide a more detailed discussion of my method in Section 3.

Conceptual Framework

The conceptual framework that I used for this study was based on Bandura's social cognitive theory (SCT), which is widely used in the fields of psychology, education, and communication. Researchers using this framework hold that individual

can learn new knowledge directly related to observing others within the context of social interactions, experiences, and outside media influences (Ertmer & Ottenbreit-Leftwich, 2010),). I believe that interaction with digital media may provide students with a positive mechanism to apply literacy and math knowledge to standardized tests. SCT is relevant for examining the integration of digital media into literacy and math curriculum because students learn literacy and math by interacting with peers and the teachers when using digital media. Based on SCT, students may achieve higher levels of academic achievement through the integration of digital media into the curriculum because interacting with peers while using digital media students are more engaged in the lesson.

Definitions of Terms

Digital media: Technology such as Success Maker and Reading 180 that are integrated into the math and literacy curriculum to enhance learning and enable students to construct knowledge (Buckingham & Martinez-Rodriguez, 2013). When teachers integrate digital media into literacy instruction, they help students develop new literacy skills needed for reading, writing, and communicating in digital environments (Hutchison, Beschorner, & Schmidt-Crawford, 2012).

*Digital media integration***:** Teachers' use of digital media in the math and literacy curriculum. Integration is intended to enable students to construct knowledge by assisting them in drilling and practicing literacy and math skills (Buckingham & Martinez-Rodriguez, 2013).

*Social learning theory: S*tudents may achieve higher levels of academic achievement if their teachers integrate digital media into the curriculum. Students' interactivity with digital media may stimulate their learning (Ader & Ertkin, 2010). Teachers integrate digital media into the curriculum to improve student outcomes (Griggs, Rimm-Kaufman, & Merritt, 2013).

Strong self-efficacy: encourages perseverance to learn new skills and try new tasks (Griggs, Rimm-Kaufman, & Merritt, 2013).

Assumptions, Limitations, Delimitations, and Scope

I assumed that the literacy and math teachers gave me honest responses during the face-to-face interviews. I also assumed that the participating teachers had integrated digital media into the curriculum. Another assumption was that the professional learning of the participants included hands on examples on how to integrate digital media into the curriculum. I hoped that the interview responses were accurate with the focus on the interview questions.

A limitation of the study was that the research site was one public school district with a small sample of middle school teachers who were the participants teaching literacy and math. Another limitation was the experiences of teachers regarding the integration of digital media into the curriculum. Another limitation was the district policy regarding the integration of digital media into the curriculum.

The scope of this study was one middle school within a public school district. The research site was selected because teachers had integrated digital media into the

curriculum. I interviewed 6 participants who had been teaching at the proposed research site.

Significance of the Study

Findings from this study may help middle-school teachers identify instructional practices and other strategies for successfully integrating Success Maker and Reading 180 into the curriculum. They may also help teachers to identify areas for professional development (PD). Based on study findings, school administrators may be better able to develop policies, practices, and PD programs that improve teachers' experiences and success in integrating digital media into the curriculum. Implications for social change may include strategies to teach literacy and math students by integrating digital media into the curriculum. The use of digital media could help schools to meet AYP. School districts could integrate digital media into the middle school curriculum to help students pass standardized tests. Other implications for social change could include administrative support for instructional strategies to integrate digital media into the curriculum for students to pass standardized tests and graduate from school.

Summary

The research site is an urban public school district. Students are not passing standardized tests and as a result, teachers integrated digital media into the math and literacy curriculum. All math and literacy teachers use the same curriculum and digital media in their classrooms to help students increase their proficiency in math and literacy. I conducted interviews to help administrators better allocate resources for the

professional development of teachers with the ultimate aim of helping students pass state tests. I conducted this case study to understand the experiences of middle school literacy and math teachers with the integration of digital media into the curriculum in order to provide district administrators with research-based findings to make district-wide decisions. The purpose of this qualitative case study was to examine the experiences of middle school literacy and math teachers with the integration of digital media into the curriculum in order to help their students improve their proficiency in both literacy and math state tests. My goal was to examine the experiences of teachers who had integrated digital media such as Success Maker and Reading 180 into the curriculum with the intention of helping students make AYP. At the research site, no research had been conducted to examine the experiences of middle school teachers with the integration of digital media into the curriculum using a case study design. In Section 2, I review the literature. In Section 3, I describe the methodology for the study.

Section 2: Literature Review

Introduction

I conducted this study to understand the experiences of middle school math and literacy teachers in integrating digital middle in their curricula. To study this problem, I interviewed teachers at a middle school within an urban school district located in a small town of a Southeastern U.S. state. In researching the literature, I mostly sought peer-reviewed articles focusing on middle school math and literacy student achievement and one-to-one digital media conversion within the classroom. I searched for research studies about digital media and technology integration in middle school math and literacy classrooms because they include data on digital media integration into the context of student-centered pedagogies. I also sought studies that include best practices in digital media integration in middle school classrooms. I searched for studies that evaluated the overall achievement in math and literacy outcomes for those students who had been part of a digital media integration initiative (Crompton & Keane, 2012; Delen & Bulut, 2011; Light & Pierson, 2012; Maninger & Holden, 2009; Spekto-Levy & Granot-Gilat, 2012; Storz & Hoffman, 2012; Zheng, Warschauer, & Farkas, 2013). I used key terms such as *technology integration*, *one to one programs*, *digital media usage*, and *middle school math and literacy achievement* and databases such as Education Research Complete, Education: a SAGE full text database, ERIC, and ProQuest Central databases.

Conceptual Framework

Success Maker and Reading 180 are integrated into the math and literacy curriculum to enhance learning and enable students to construct knowledge (Buckingham & Martinez-Rodriguez, 2013). Teachers integrate digital media into literacy instruction to help students develop new literacy skills needed for reading, writing, and communicating in digital environments (Hutchison, Beschorner, & Schmidt-Crawford, 2012). Digital media integration is intended to enable students to construct knowledge by assisting them in drilling and practicing literacy and math skills (Buckingham & Martinez-Rodriguez, 2013). Students' interactivity with digital media may stimulate their learning (Griggs, Rimm-Kaufman, & Merritt, 2013). SCT applies to the integration of digital media into literacy and math curriculum. SCT is used when students are learning literacy and math in the context of an interrelationship between teachers with self-efficacy in digital media and students using digital media. Interaction with digital media provides students with a positive mechanism to apply literacy and math knowledge to learning, which may improve students' performance on standardized tests (Buckingham & Martinez-Rodriguez, 2013). When literacy and math teachers have a high degree of self-efficacy in digital media, then their expectations of being successful in teaching with digital media is higher (Griggs, Rimm-Kaufman, & Merritt, 2013). As a result, these teachers will be more likely to successfully integrate digital media into the curriculum.

Based on SCT, students may achieve higher levels of academic achievement if their teachers integrate digital media into the curriculum. Students' interactivity with digital media may stimulate their learning (Ader & Ertkin, 2010). The degree to which

teachers integrate digital media into the curriculum may depend on teachers' self-efficacy in using digital media and their expectations of improving student outcomes (Griggs, Rimm-Kaufman, & Merritt, 2013). The teacher participants use SCT while teaching math and literacy.

Students in math and literacy classes need teaching strategies to engage them in the lesson. According to Akin and Kurbanoglu (2011), anxiety is a feeling of tension and agitation in the classroom that comes about when a particular difficult concept of math or literacy is introduced. Subject anxiety can be a threat to students' self-esteem and create negative attitudes on the part of students toward subject matter (Akin & Kurbanoglu, 2011). Previous student achievement in a subject area influences achievement in later years; therefore, if students has had anxiety in the past using digital media, they may have low expectations for success in the classroom using digital media to learn math and literacy (Ader & Ertkin, 2010). Strong self-efficacy encourages perseverance to learn new skills and try new tasks (Griggs, Rimm-Kaufman, & Merritt, 2013). Add a closing sentence (in your own words).

Digital media self-efficacy of teachers is a determinant of perceived ease of use both before and after use of digital media in the classroom. The most significant predictor of self-efficacy is the frequency that students' teachers use digital media (Holden & Rada, 2011). Qin, Qiang, and Kanliang (2011) examined the impact of techno stress, which refers to the negative effects of technology on learning, and found that self-efficacy was a determining factor in the level of techno stress that their participants reported experiencing. Shu et al. (2011) concluded that improving digital media self-

efficacy decreases techno stress and helps teachers build confidence in using the many components of digital media. Fanni and Cantoni (2013) examined whether teachers' sense of technology self-efficacy correlated with their sense of efficacy as teachers. In Fanni and Cantoni's study, teachers expressed that a good teacher must possess self-efficacy in digital media. According to Baku (2013), there is a significant, positive relationship between attitudes towards digital media and self-efficacy in the use of digital media materials in education. Self-efficacy and personal experience determines whether or not a teacher uses digital media.

Digital Media

Student achievement is affected by education technology. Loch, Galligan, Hobohn, and McDonald (2011) found that students are more active learners and their performance improved when teachers use technology in the classroom. Bebell and Kay (2010) summarized the Berkshire Wireless Learning Initiative (BWLI), which was a 3-year pilot program that provided five Massachusetts middle schools with laptops and wireless Internet networks. Bebell and Kay concluded that that student achievement had been enhanced by the program. For example, some Minnesota teachers who use a flipped classroom model (wherein, teachers use videos to teach lessons when students are at home and then have students come in and complete homework in class) have been successful in raising student achievement and engagement in math classes (Fulton, 2012). In a 2–year study of upper elementary classrooms, students with one teacher teaching one classroom outperformed classrooms without digital media on English Language Arts assessments (Suhr, Hernandez, Grimes, & Warschauer, 2010). According to these

studies, students' proficiency may be improved when teachers use technology in the classroom.

Students' literacy and math proficiency may be positively enhanced by using educational software. According to Means (2010), teachers use automated assessments of students' literacy and math proficiency through the use of educational software to allow teachers to analyze the academic progress of students on a daily basis. Teachers are better able to individualize instruction based on students' needs. Teachers who have integrated technology into the curricula have been using differentiated instruction together with individual remediation to help students improve proficiency in academics (Levin & Schrum, 2013). Vahlberg (2010) found that 63% of middle school teachers used digital media to help students organize information effectively. Vahlberg (2010) used a survey about students and digital media. Similar to Vahlberg's findings, Hedberg (2011) reported that digital media helps students become active learning participants in the classroom and learn new skills. Conway and Amberson (2011) and Watson and Pecchioni (2011) agreed that when teachers use digital media to teach concepts, students' collaboration, critical thinking, and media literacy skills are enhanced. Add concluding sentence.

Literacy

Becoming literate is more than merely learning how to read and write today. Literacy incorporates learning how to use digital media in the classroom (CITE). McGrail and Davis (2011) completed a qualitative case study of 5th graders who participated in a blogging project to evaluate growth in students' writing skills. The participating students

became part of a blogging community that focused on writing in ways that differed from the other writing (e.g., essays) they did for class assignments.. As the school year progressed, students became mindful and connected to their audience, took ownership of writing, used opinions, humor, and expression in their writing (CITE). Using a coding system to evaluate the students' writing, the students' teacher and the researchers saw a vast improvement in students' writing ability and language usage; students performed at a level that was advanced for their age group (McGrail & Davis, 2011).

Teachers use games in the classrooms to engage middle school students. Shin, Sutherland, Norris, and Soloway (2012) used a game as part of an experimental study of 41 second-grade students. The researchers' control group used a paper game while the experimental group used a digital media game and received continuous and immediate feedback about their progress. The experimental group that used the digital media mathematics game outperformed the control group that used a paper game (Shin, Sutherland, Norris, & Soloway, 2012). In another study, Serin (2011) found that students who received technology-based instructions showed a statistically significant increase in posttest science achievement scores compared to students who received traditional instruction.

Integration of Digital Media into the Classroom

Research regarding technology integration has evolved continuously during the past two decades. Researchers have moved from a relatively simple view where they conceptualized integration as the supplemental use of computers to improve student achievement to a more complex view of digital media as an essential component of

effective teaching (Ertmer & Ottenbreit-Leftwich, 2010). According to Weston and Bain (need year), digital media should be integrated in every aspect of the teaching and learning process. When teachers integrate digital media into literacy instruction, they help students develop new literacy skills needed for reading, writing, and communicating in digital environments (Hutchison, Beschorner, & Schmidt-Crawford, 2012). Digital media allows teachers to facilitate students' interaction and collaboration with other people, both those who are in students' local communities and those who live in other parts of the world (Cator, 2010). Students who use digital media in their classrooms reported that using technology tools allows them to collaborate, clarify questions, and improve social communication with peers (Vaughan, Nickle, Silovs, & Zimmer, 2011).

Partly in response to NCLB (2001), the International Society for Technology in Education published National Technology Standards (NETS) prioritizing students' development of technological competencies (ISTE, 2007). Also, the National Council of Teachers of English (2012) stated that students must develop proficiency in the integration of digital media in the literacy curriculum. Add concluding sentence.

Barriers to the Integration of Digital Media into the Curriculum

Teachers may hesitate to integrate digital media into the curriculum. A number of researchers have conducted studies to identify barriers to digital media integration; they have found that teachers themselves are a barrier (Bebell & Kay, 2010; Crompton & Keane, 2012; Ertmer, Ottenbreit-Leftwich, Sadik, Sendurur, & Sendurur, 2012; Goktas, Yildirim, & Yildirim, 2009; Lawless & Pellegrino, 2007; Storz & Hoffman, 2012). Based on the review of recent literature, personal factors such as technology proficiency, beliefs

about the value of digital media, and personal philosophy of teaching determine teachers' use of digital media in their classrooms (Shapley, Sheehan, Maloney, & Caranikas-Walker, 2010). Teachers' technology proficiency and digital media beliefs are not the only factors influencing the integration of digital media into the curriculum. Teachers' teaching experiences also influence the integration of digital media into the curriculum. According to Almekhlafi and Almeqdadi (2010), teachers with less than 10 years of experience are more likely to use digital media than those who have been in education longer. The availability of school budgets for technology influences the integration of digital media into the curriculum. According to Potter and Rockinson-Szapkiw (2012), large school budgets have been dedicated to the purchase of digital media; however, district plans are often times short-sighted and do not meet the needs of the students or the teachers.

The type of school influences the integration of digital media into the curriculum. Perrotta (2013) surveyed 683 secondary teachers to analyze the factors that influence the use of digital media. Perrotta reported that those teachers who serve in lower performing schools are more likely to use digital media than teachers from higher performing schools.

Professional Development and the Integration of Digital Media into the Curriculum

Teacher professional development is both a key component for change within schools and a link between academic standards and student achievement (Miners, 2009). Integrating digital media into the classroom has emerged as a significant area of study for educational research. Professional development (PD) initiatives regarding digital media

integration could improve teaching and learning; however, the focus is on technological and equipment acquisition rather than successful classroom integration (Guzman & Nussbaum, 2009). The educational system perceives the need for action in response to the value of digital media as a tool for teaching and learning; however, the state of PD is inadequate (Lawless & Pellegrino, 2007). PD should help teachers build basic digital media skills on how to integrate digital media into the curriculum (Shapley et al., 2010). Thus, PD must be associated with the integration of digital media into the curriculum.

Summer workshops for teachers may influence the integration of digital media into the curriculum. Hartsell, Herron, Fang, and Rathod (2009) examined if a 4-week summer math workshop helped teachers integrate digital media into the classroom. The 4-week summer math workshop was offered to K-12 teachers to help them strengthen their knowledge, skills, and instructional applications of technology into math education. Hartsell et al. found progress was made through the course and that the participants had confidence in transferring what had been learned into the classroom. Thus, summer PD sessions could help teachers increase their confidence in digital media. Teachers should be confident in using digital media and applying instructional strategies (Abbitt, 2011). Bandura (1977) stated that an individual's actions and reactions in almost every situation are based on the beliefs a person has in their ability to be successful. According to Ertmer and Ottenbreit-Leftwich (2010), the ability to develop plans for teaching with software and selecting the appropriate computer applications to meet students' learning needs and curriculum instructional needs are integral parts of ongoing PD. According to Pan and

Franklin (2011), as teachers spend more time in professional development, their confidence in using technology increases as does their self-efficacy beliefs.

Bennison and Goos (2010) found that professional development participation related to greater confidence with digital media and more positive beliefs about the benefits for the use of digital media in the math classroom. School level professional development, access to technology in classrooms, and the teacher's educational level had positive effects on student use of digital media (Ritzhaupt, Dawson, & Cavanaugh, 2012). With the continuous change in digital media, school systems should provide job embedded professional development for teachers to successfully use digital media by applying research-based practices to meet the academic needs of their students (Wachira & Keengwe, 2011). As the skill set of instructional practices of teachers' increases, student proficiency can be improved.

According to Cosmah and Saine (2013), teachers must know how PD influences the integration of digital media into the curriculum. Professional development cannot be trial and error in a time where accountability is at the forefront, but must enhance current level of understanding and challenge teachers to find creative ways to utilize digital media. Professional development must consider the comfort level of teachers and provide training that is appropriate and valuable (Cosmah & Saine, 2013). According to Polly and Hannafin (2010), professional development should be learner-centered with teachers participating as learners in model lessons to gain understanding of the pedagogy as students, which will lead to reflection on best practices and ownership of those practices.

The success of a PD session may depend on the comfort level of teachers to integrate digital media into the curriculum

Integration of Digital Media into the Post-secondary Curriculum

Researchers have conducted studies on the integration of digital media at the post-secondary level by focusing on the various forms of digital media. Researchers found that social media had no negative impact on students' grade point averages (Harman & Sato, 2011; Muhammad, Muhammad, Aijaz, 2011; Paul & Gelish, 2011). Safar and Alkhezzi (2013) used a sample of 128 undergraduate students at Kuwait University and reported that students' proficiency increased when teachers used different pedagogical approaches. Post secondary faculty members and students use digital media as an educational tool (Chen & Bryer, 2012; Gerlich, Browning, & Westermann, 2010). Digital media could be used for online collaboration and educational resources to allow students to reach higher levels of academic achievement (DuBose, 2011). According to the U.S. Department of Education (2013), the use of digital media is as an integral component of a quality education.

Student Achievement in Math

Integration of digital media into the mathematics classroom has a positive impact on student acquisition of math skills (Gurevich & Gorev, 2011). Malley, Jenkins, Wesley, Donehower, Rabuck, and Lewis (2013), examined the integration of iPads into the math curriculum and students' engagement in math activities and reported that students' interest in math concepts increased when teachers integrated digital media into the curriculum. Eyyam and Yaratan (2014) examined the use of digital media in a Grade 7

math classroom where one cohort of students did not have access to digital media and the second cohort of students had access to digital media. Eyyam and Yaratan used posttest and pretest scores in math and reported that the posttest scores of students who used digital media increased. Teachers should be encouraged to integrate digital media into the math curriculum. Carr (2012) examined the effects of iPad 1:1 use in a mathematics class. In a comparison of the control group, which did not use iPads and the experimental group, which did use iPads, the experimental group increased their scores from the pretest to the posttest while the control group did not show gains (Carr, 2012).

In a study of 68 eighth graders split between a control and an experimental group, students who used digital media outperformed those in the control group on the posttest (Guven, 2012). Smith and Smith (2012) also completed a study with a pretest and posttest for a control and experimental group exposed to digital media where the experimental group scored the highest. Project Tomorrow (2010) is an organization that tracks schools and students who use smartphones to study math. The findings from Project Tomorrow (2010) indicated that these students are more likely to achieve proficiency on their end of course tests, feel more confident in their math abilities, and the majority will take more math courses. According to Hudson, Kadan, Lavin, and Vasquez (2010), teachers who use digital media to reinforce math skills see an increase in post intervention test scores with more students earning 70% or higher when compared to pre assessment scores. Bowers and Breland (2013) examined the relationship between student academic achievement and using digital media for fun. When all statistical testing and self-reporting were complete, the findings were both positive and significant on student

academic achievement in both reading and math (Bowers & Breland, 2013). Maloy, Edwards, and Anderson (2010) implemented a study of a digital media based math tutoring program in use in three rural Massachusetts schools. Problem-solving and test-taking skills are emphasized. For students who use the program, standardized test scores increased for 70% of the students (Maloy, Edwards, & Anderson, 2010). Kiger, Herro, and Prunty (2012) compared a group using digital media intervention using iPods and math software to a group using teacher drill and practice. On the post intervention test, Kiger, Herro, and Prunty (2012) concluded the students in the digital media intervention group outperformed students who did not have access to digital media. Shih, Kuo, and Liu (2012) evaluated a computerized adaptive diagnostic system, which allowed students to use mobile devices to learn math and solve problems at any time. Students who used mobile devices to solve math problems performed better than the control group in problem solving (Shih et. al., 2012). Schaffhauser (2013) explored how Khan Academy videos have influenced math achievement in the Los Altos school district and found that seventh grade math scores had improved with the use of digital media in the classroom. Bos (2009) completed a study on how interactive math technology promoted deeper understanding of math concepts and increased math achievement for 95 low achieving high school students who used this type of software. Digital media continues to have a positive effect on achievement in other areas such as English Language Arts (ELA).

Student Achievement in Reading and English Language Arts

Digital media use in English Language Arts classes (ELA) allows students to use databases for research, design digital presentations, and e-books that are student-centered methods that promote deeper understanding of material (Tay, Lim, Lim, & Koh, 2012). In a comparison study between three groups in which one group did not read independently at all, the next group used the textbook, and the final group used digital media to teach reading, Cuevas, Russell, and Irving (2012) reported that students who used digital media increased their proficiency in ELA.

Digital media may help students in reading. Figen (2012) analyzed the effect of a type of digital media – animated figures – on students reading achievement levels. Students were divided into four groups with three groups using computer animated figures software while the control group did not. Both groups were given a pre and posttest reading comprehension test. On the posttest, there was a significant improvement in scores of the experimental groups using digital media (Figen, 2012). In a study that used a pre and posttest design to determine whether digital media aided or had no effect on 90 tenth grade students' reading comprehension, Hussain, Niwaz, Zaman, Dahar, and Akhtar (2010) found a significant difference in both the high and low achiever group members of the experimental groups' posttest scores on reading comprehension and knowledge application. According to Glassett and Schrum (2009), urban students who were part of the MINTY program which equipped classrooms and students with digital media scored significantly higher on the state criterion referenced tests in reading and math. Cobb (2010) found that the reading achievement scores of African-American

students from low income families increased significantly with the use of digital media software. In an analysis of Maine writing scores, Holcomb (2009) found that students who used digital media to complete the writing process scored higher than 75% of students who did not use digital media. Digital media may help students pass state tests. Digital media tools are core elements for survival in the digital world, which has over 230 careers that require digital media skills (Cornelius, 2011). Today's communications integrate Web links, words, images, videos, and audio. Application of digital media communication skills increased student grammar and language usage scores at the Walter Cronkite School of Journalism and Mass Communication and an Arizona urban school district (Cornelius, 2011). The integration of digital media into the curriculum could help students increase their proficiency in literacy.

According to Laverick (2014), a survey of K-12 teachers who implemented a technology based reading and assessment program during a summer reading program significantly improved students' reading proficiency. Vasquez and Slocum (2012) examined an interactive online reading program that provided continuous feedback for at-risk 4th grade Philadelphia students. Gains in oral reading fluency were evident for all participants (Vasquez & Slocum, 2012). Motivating children to read is a key component for students to be successful in school. Using interesting strategies to make classroom texts more engaging and relevant are pivotal in instilling a love of reading in children (Ciampa, 2012). According to Ciampa (2012), online digital media such as interactive electronic books are an effective tool in promoting literacy skills. In this qualitative study, students observed during eBook reading sessions were always on task and highly

engaged. Ciampa (2012) noted that previously reluctant readers looked forward to using the computer during reading time, students were more willing to voluntarily answer questions about text, parents' surveys noted that their children used the program at home increasing their reading time and reading skills, and student interviews revealed that students' attitudes had changed about the importance of reading and future success.

Pedagogy

Evolving digital media creates flexible teaching methods to reach diverse students through multiple formats to allow them to express themselves while demonstrating learning (Adesola, 2012). According to Attard and Northcote (2011), when good pedagogy drives the integration of digital media into mathematics teaching and learning, there is potential to build fluency and increase motivation, which leads to improved student performance. When students used iPads in geometry classes, Liv and Lee (2013) surveyed students and found the students felt the concepts became clearer, understanding of material was deeper, and the students felt in charge of their own learning. According to Lin and Jou (2013), in a study that focused on the influence of digital media in the classroom, students responded positively to the use of these tools and felt motivated as well as having a better grasp of subject concepts. Assistive technologies such as talking books, electronic books, text-to-speech software, and screen readers empower students and promote self-efficacy and independence (Ruffin, 2012). In an examination of a 3-year video reading program for 147 middle and high school students, Gunter (2012) surveyed previously reluctant readers and found that these students developed a positive attitude towards reading and were able to transfer their reading gains to other subjects.

When teachers integrate digital media into the curriculum, students may be more motivated to learn.

In a study of four elementary schools, Rosen and Beck-Hill (2012) found that the 1:1 laptop initiative was successful when interactive learning activities were incorporated that increased teacher-student interaction which was initiated by both teachers and students. In a survey about digital media use completed by core subject teachers, Inserra and Short (2012) found that teachers used more collaborative methods to promote problem-based learning and to develop critical thinking and questioning skills. Digital media rich spaces are only effective when paired with student-centered classrooms that use active learning and collaborative pedagogies. In a comparison study of instructors who used teacher-centered methods and those who used student-centered methods with digital media, instructors who used digital media in a student-centered classroom produced statistically greater learning gains than conventional teacher-centered methods (Lasry, Charles, Whitaker, Dedic, & Rosenfield, 2012). Lafee (2013) defined a flipped classroom as pushing basic learning outside the school walls while using class time to create more personalized instruction with deeper understanding. In a flipped classroom, teachers converted lectures to some form of digital media and used school hours for face-to-face instruction and students shared responsibility for their own learning. With a flipped classroom, teachers were able to use project-based learning, differentiate instruction, and personalize instruction (Sams & Bergman, 2013). When working with digital media, teachers surveyed felt that students were better able to make correlations to education targets along with an improvement in their attitudes (Saridaki, Gouscos, &

Meimaris, 2010). According to Saul and Wutke (2013), assessment is personalized through digital media. Questions are adapted based on previous responses from students. This eliminates questions that are too easy or too difficult and gives an accurate account of student knowledge.

Mobile devices are small, smart, portable, easy to use, and give learners access to information about anything, anytime, anywhere. In an effort to help students with language acquisition, Liu and Ming-Kuan (2013) asked five Taiwanese students to use their phone to complete writing assignments based on their school campus. Students' reflections regarding mobile writing experience included positive comments about having a spontaneous learning environment, learning flexibility, and being active in learning and not passively receiving knowledge (Liu & Ming-Kuan, 2013). With the use of digital media, information is readily available and the learner actively constructs knowledge. Teachers may integrate digital media into the curriculum to help students with writing assignments.

Differentiated Instruction

With the inclusion of students with disabilities into regular education classrooms as well as a wide range of learning levels, digital media allows teachers to use software that helped differentiate instruction (Kuhn & Dempsey, 2011). Software can be used to differentiate assignments to the ability level of students along with giving immediate feedback to students to show strengths and weaknesses (Bouchard, 2014). Teachers use digital media to engage students by varying instruction and the degree of difficulty (Stanford, Crowe, & Flice, 2010). According to Phillips and Popovic (2012), over 60% of

teachers stated that digital media games made it easier for them to teach students with different ability levels and to personalize instruction while capturing real-time data.

According to Valiande and Tarman (2011), digital media is used to accommodate differentiated teaching. Both Demski (2012) and Duncan (2013) agreed that digital media is efficient in meeting the interests of individual students. Richardson (2012) stated that embedding digital media into the curriculum has the potential to connect teacher expectations to student passions/interests, which both differentiates and personalizes learning.

In an examination of survey answers given by middle school students about their expectations of using iPods in class, Campbell (2013) concluded that students felt that this type of digital media would help the teachers individualize their instruction based on personal academic levels. A large urban school in Cleveland used a reading software program to increase minority students' reading achievement through differentiated instruction (Cobb, 2010). When surveyed, the Cleveland teachers answered that the most profound advantage of using the software program is that instruction is differentiated for varying ability levels and students work at their own pace and level (Cobb, 2010). Song, Wong, and Looi (2012) analyzed the learning goals of 37 students in a 1:1 smartphone study. The smartphone is the learning center where students observed, documented, collected data, and reflected on learning. The students' usage was updated in real time and teachers continuously monitored student progress. According to Song, Wong, and Looi (2012), students maintained their own learning portfolios, and determined their own learning goals and pace leading to deeper understanding.

Privacy, collaboration and communication, organization, learning styles, choices, and project-based activities are characteristics of digital media that allowed for ease of differentiated instruction (Kara-Soteriou, 2009). Email allows communication without fear while digital media management systems can keep a student organized, choose assignments based on interests, and works easily with peers using project-based assignments. Through digital media, teachers can plan using purposeful data analysis and assessment looking for particular trends in assignments in order to plan for all ability levels (Kara-Soteriou, 2009). Bowman (2012) conducted a study of middle school students broken down into a control and treatment group. One group had access to a digital media animated pedagogical agent and the other group did not. An animated pedagogical agent is a lifelike animated computer character that is part of the computer program and is available for help at all times (Bowman, 2012). According to Bowman (2012), the treatment group had different ability levels and students had access to individualized instruction and one on one tutoring at all times. Through digital media, serving the needs of students of every ability level becomes possible through the use of adaptable software, collaborative assignments, communicating without fear, tapping various learning styles, and immediate feedback that gives teachers needed information to plan for individual students' needs.

Barriers to the Integration of Digital Media into the Curriculum

Teachers remain the major barrier to digital media integration (Bebell & Kay, 2010; Ertmer, Ottenbreit-Leftwich, Sadik, Sendurur, & Sendurur, 2012; Goktas, Yildirim, & Yildirim, 2009; Lawless & Pellegrino, 2007; Storz & Hoffman, 2012). Based on the

review of recent literature, personal factors such as technology proficiency, beliefs about the value of digital media, and personal philosophy of teaching determine teachers' use of digital media in their classrooms (Shapley, Sheehan, Maloney, & Caranikas-Walker, 2010). Teacher attitudes, beliefs, and the culture of the school affect the use of digital media in the classroom (Lau & Yuen, 2013). Student attitudes, colleagues' attitudes about digital media use, along with personal thoughts about what it means to understand math may also be barriers to using digital media (Pierce & Ball, 2009). In a questionnaire filled out by pre-service teachers, their concerns about digital media included classroom management, technology availability and support (Cullen & Greene, 2011). Factors that influence teachers' integration of digital media into their classrooms are training, administration encouragement, and their perceptions of instructional effectiveness of digital media (Shihkuan & Ping-Yin, 2013).

Kowalczyk (2014) surveyed 102 educators and concluded that the barriers to digital media integration are inadequate training, lack of self-confidence, lack of technical and administrative support, possible security breaches, and peer resistance to digital media. Lack of resources, lack of knowledge and skills, lack of time and leadership and high stakes testing are all barriers to integration (An & Reigeluth, 2011).

In order to reduce barriers, teachers and school administrators must collaborate to plan how to give teachers the necessary planning time, professional development, and both technical and administrative support (Bingimlas, 2009). According to Sabzian, Gilakjani, and Sodouri (2013), teachers need a high level of support from digital media experts to keep hardware running smoothly and to learn new software and new tools.

Peer mentoring and peer workshops are ways to inspire and support teachers who are integrating digital media into the classrooms. Clear expectations for digital media usage along with positive institutional attitudes towards digital media are important in removing obstacles to integration. Sabzian et al. (2013) concluded that digital media integration must be a mindset and ideology of a lifelong process and not a set of skills to be acquired, but viewed as a method of helping to create the classroom to become a human community that prepares students to live in the real world. In order to complete digital media integration into the classroom, barriers must be removed through continuous and sustainable professional development. Digital media integration has to be viewed as a way to open new horizons for both teachers and students and not as an obstacle to overcome.

According to Almekhlafi and Almeqdadi (2010), teachers with less than 10 years of experience are more likely to use digital media than those who have been in education longer. Large budgets have been dedicated to the purchase of digital media; however, the district plans are often times short-sighted and do not meet the needs of the students or the teachers (Potter & Rockinson-Szapkiw, 2012).

Professional Development on Digital Media

Teacher professional development is both a key component for change within schools and a link between standards and student achievement (Miners, 2009). Integrating digital media into the classroom has emerged as a significant area of study for educational research. Professional development (PD) initiatives recognize that digital media integration can improve teaching and learning; however, the focus is on

technological and equipment acquisition rather than successful classroom integration (Guzman & Nussbaum, 2009). K-12 educators perceive the need for action in response to the value of digital media as a tool for teaching and learning; however, the state of PD is inadequate (Lawless & Pellegrino, 2007). PD should help teachers build basic digital media skills into the curriculum (Shapley et al., 2010). Hartsell, Herron, Fang, and Rathod (2009) examined a 4-week summer math workshop to help teachers integrate digital media into the classroom. The workshop was offered to K-12 teachers to help them strengthen their knowledge, skills, and instructional applications of technology into math education. Hartsell et al. found progress was made through the course and that the participants had confidence in transferring what had been learned into the classroom.

Teachers should be confident in using digital media and applying instructional strategies (Abbitt, 2011). Bandura (1977) stated that an individual's actions and reactions in almost every situation are based on the beliefs a person has in their ability to be successful. According to Ertmer and Ottenbreit-Leftwich (2010), the ability to develop plans for teaching with software and selecting the appropriate computer applications to meet students' learning needs and curriculum instructional needs are integral parts of ongoing professional development. According to Pan and Franklin (2011), as teachers spend more time in PD, their confidence in using technology increases as does their self-efficacy beliefs. Silvernail and Buffington (2009) examined a 2-year PD program designed to improve teachers ability to use digital media in teaching mathematics and stated that continuous PD was effective in changing instructional strategies and improved student performance on state math tests. Bennison and Goos (2010) found that PD

participation related to greater confidence with digital media and more positive beliefs about the benefits for the use of digital media in the math classroom. School level PD, access to technology in classrooms, and the teacher's educational level had positive effects on student use of digital media (Ritzhaupt, Dawson, & Cavanaugh, 2012). According to Martin and Strother (2010), high quality PD regarding digital media leads leads to higher student achievement. With the continuous change in digital media, school systems should provide job embedded PD for teachers to successfully use digital media by applying research-based practices to meet the academic needs of their students (Wachira & Keengwe, 2011). As the skill set of instructional practices of teachers' increases, student proficiency can be improved.

Integration of Digital Media into the Post-secondary Curriculum

Researchers have conducted studies on the integration of digital media at the post-secondary level by focusing on various forms of digital media. Researchers found that social media did not have a negative impact on students' grade point averages (Harman & Sato, 2011; Muhammad, Muhammad, Aijaz, 2011; Paul & Gelish, 2011). Safar and Alkhezzi (2013) used a sample of 128 undergraduate students at Kuwait University and reported that students' proficiency increased when teachers used different pedagogical approaches. Post-secondary faculty members and students use digital media as an instructional tool (Chen & Bryer, 2012; Gerlich, Browning, & Westermann, 2010). Digital media could be used for online collaboration, real-world simulations, and numerous educational resources to allow students to reach higher levels of academic achievement (DuBose, 2011). According to the U.S. Department of Education (2013), the

use of digital media is an integral component of a quality education. In a survey of faculty and students, Lam and Tong (2012) found that digital media enhanced motivation, helped student with ability to apply course knowledge, and increased overall academic achievement.

Digital natives are today's college students who think and process information fundamentally different than their predecessors. These students are not passive consumers of media, but active participants who make meaning of their culture (Bullen, Morgan, & Qayyum, 2011). This generation of college students is digitally literate, socially conscious, always connected to people, multitaskers, goal oriented, and experiential learners who prefer doing than receiving (Bullen et al., 2011). The way information is delivered to them in a college classroom must take into account all of these factors.

Arizona State University (ASU) is the largest public university in the United States and is trying to educate a large number of students who are not prepared for college work. In order to provide a more efficient method of helping students through entry-level math courses, ASU now uses digital media to give students individualized and affordable instruction (Fletcher, 2013). In order to aid students review course concepts, professors are providing supplementary course materials such as audio/video podcasts and other lecture-capture video files (Holbrook & Dupont, 2011). Due to the flexibility of video files, students can review concepts at their own pace and in turn raises achievement levels. Wiki is a web page that any user on the Internet can change and create content in an open, public forum (Hughes & Narayan, 2009). According to Hughes and Narayan

(2009), wiki web pages help engage students and promote collaboration. Students in two college classes who used wiki pages felt that wiki pages promote collaboration and engagement. In a study of the introduction of iPads into three college classrooms with 47 participants, Mang and Wardley (2013) found that students had a positive view of using digital media in classes due to several reasons. Students liked the anonymity of posting comments electronically, the availability of information and digital tools for class discussion and work. In their survey, Mang and Wardley (2013) reported that the introduction and use of digital media in the classroom setting facilitated a deeper degree of interaction between instructor to student and student to student. Higgins, McGarry-Wolf, and Torres (2013) surveyed a class of university students who had been participants in a class that used a social media platform that linked their California classroom with a classroom in Ireland where both classes contributed to a discussion board. Higgins et al. (2013) stated that 86% of participants felt they learned from their classmates, found the experience rewarding, and reported their critical thinking and writing skills had improved due to this type of classroom. Through the use of digital media, an international learning environment was created for these students that would not have been possible in traditional classroom.

Transition Statement

In this review, I examined the degree to which digital media was integrated into the curriculum. I described the framework of this research study. In Section 3, I discuss the methodology and procedures that I used to collect the data.

Section 3: Research Method

Introduction

In this section, I explain my research design, approach, materials, and instrumentation. I also present and describe my sample, data collection methods, and data analysis methods I used a qualitative method because, according to Creswell (2009), it provides a researcher with a more complete picture of a problem than possible using quantitative means. At the research site, a small, urban middle school that is a part of a public school district in the southeastern United States, math and literacy teachers had integrated digital media into the curriculum in order to increase students' proficiency in literacy and math as mandated by the school district. However, students at the school are not passing state tests in literacy and math and are not meeting AYP. (Students had scored below the proficiency level in both areas for the past 5 years.) Believing that research was needed, I sought to examine the experiences of literacy and math teachers regarding the mandated integration of digital media into the curriculum.

Qualitative research allows the researcher the flexibility to delve into the issue based on the perspective of the participants. I used a particular type of qualitative method, a case study, to answer my research questions regarding how middle school literacy and math teachers experience the integration of digital media into the curriculum and what instructional strategies do middle school literacy and math teachers use when they integrate digital media into the curriculum. I conducted interviews with three middle school math and three literacy teachers at my study school who had integrated digital media into the math and literacy curriculum. I conducted face-to-face interviews with

these teachers. The focus of these interviews was on digital media integration into the math and literacy curriculum. In this section, I more fully describe my decision to use a case study method. I also describe the measures that I took in order to protect my participants.

Research Design

At the research site, the school district administrators had mandated that teachers at the middle school integrate digital media into the math and literacy curriculum. Administrators provided students with a personal laptop with the expectation that students' teachers would extensively use digital media in their teaching. According to Creswell (2009), in order to understand a phenomenon, a qualitative research design is appropriate for the researcher to explore the topic.

I selected the case study as my method because I wanted to gather information and explore the experiences of middle school math and literacy teachers currently using digital media in their classrooms (Creswell, 2007). According to Cohen et al. (2000), interviews are used as the primary principle means of gathering information. Glesne (2011) stated that the special strength of interviewing is that it gives the researcher the opportunity to understand underlying concepts of what is not seen and to understand in more depth what is seen and observed. In choosing my method, I did not select narrative research because I did not focus on the stories of teachers who used digital media (Creswell, 2007). I did not select ethnography because I did not study a cultural group in a natural setting over a prolonged period of time. I did not select grounded theory because

I did not develop a theory (Glesne, 2006). According to Merriam (2009), case studies are a holistic description and analysis of a phenomenon. In this case study, my focus was on developing a picture of the experiences of middle school teachers using digital media in the math and literacy classes. I interviewed three math and three literacy teachers at the school about their experiences integrating digital media during math and literacy instruction. I conducted semi structured face-to-face interviews that consisted of open-ended questions. According to Glesne (2011), qualitative researchers begin with interview questions, but remain flexible in adding questions, deleting questions, or rephrasing questions based on the direction of the interview. I requested archival documents from each participant to assist in validating data that I collected (Yin, 2014). I reviewed several different types of documents. These included documentation describing how teachers had integrated digital media into the middle level math and literacy curriculum and documentation on district policies and procedures regarding the integration of digital media into the curriculum. These documents helped me understand teachers' perceptions as they relate to students' achievement in middle schools (Merriam, 2009). I coded and analyzed all archival documents, removing identifiable data as I did so.

Research Questions

Senior district administrators needed research-based findings on the integration of digital media into the literacy and math curriculum to make decisions on the allocation of

human and capital resources to help students pass state tests. I developed the following research questions to guide my investigation:

RQ1: How do middle school literacy and math teachers experience the integration of digital media into the curriculum?

RQ2: What instructional strategies do middle school literacy and math teachers use when they integrate digital media into the curriculum?

Context of the Study

At the research site, the integration of digital media into the middle level math and literacy curriculum had not been examined. Administration, math coaches, literacy coaches, mentors, and teachers needed research-based evidence to support the integration of digital media in mathematics and literacy classrooms. The research site had 513 students in Grades 6-8. Forty-five percent of the students were African American, 42% White, and 11% Hispanic or Latino. American Indian and Asian or Native American students each comprised 1% of the student population.

On the annual state report card during the last 5 consecutive years, the school had been scored *below average* (MBSD, 2014). This score puts a school at risk of not meeting standards for progress toward the 2020 performance vision (MBSD, 2014). The focus of this benchmark is on all students being able to compete in a global economy, participate in a democratic society, and be contributing members of society. Approximately 50% of students in Grades 6-8 at my study school did not meet state standards in either in math or language arts.

Population, Sample, and Selection Criteria

According to Glesne (2011), in case study research, the researchers' strategy for selecting research participants depends on how deeply the researcher wants to understand the problem. I used a purposeful sampling strategy because I wanted to gain insight into teachers' use of digital media in middle school math and literacy classrooms. This type of sampling focuses on participants who are rich in topical information and will best help the researcher understand the problem and the research question (Creswell, 2009). For this case study, my study population was the school's middle-level math and literacy teachers ($N = 70$). I selected three math and three language arts middle level teachers from the research site. I selected participants based on the following selection criteria. Each participant (a) was a certified math or literacy teacher, (b) had taught middle level math or language arts for at least 3 years, (c) had integrated digital media into the math or literacy curriculum, and (d) had signed a consent form agreeing to participate in the study. I invited all participants meeting the selection criteria to participate in the study.

Ethical Protection of Participants

I sought and obtained IRB approval from Walden University. After I obtained IRB approval, I contacted the school district administrators at the research site by mail, telephone, and email to discuss the purpose of the study and request a meeting to seek their approval to conduct the study and to collect data. In these communications, I discussed my role and responsibilities during the research process. I requested archival documents regarding teachers' integration of digital media into the middle level math and

literacy curriculum. These documents included district policies and procedures regarding the integration of digital media into the curriculum. I also contacted the school principal to request the names and work email addresses of all middle level math and language arts teachers at the school.

During teachers' monthly meeting, I described the study and requested teachers' participation. I also stated that I will not reveal names of teacher participants to the district administration or include their names in my findings. Then, I asked potential participants to confirm that they understood and consented to participating in the study by signing a consent form. I informed those interested in the study that their participation was voluntary and that failure to participate had no bearing on their teaching position or job performance. I promised the participants confidentiality. In order to protect participants' personal information, I assigned a code to each participant, which I used on my notes and in data entry and reporting (e.g., Participant 1).

Role of the Researcher

Although I have neither been employed by nor held any professional positions at the research site, I recognize that my thoughts regarding the school that may have influenced my research. I sought to minimize any potential bias as I developed the research design, interview questions, data collection procedures and instruments, and data analysis protocol. I strove to separate any prior knowledge and experience of teaching in middle schools I have had about teaching from the participants of this study.

During the interviews, I attempted to control my facial expressions, aural tone, and body language. Although I made eye contact with the participants and showed interest in their responses, I tried not to interject my personality into the interviews. I maintained a pleasant yet neutral facial expression in order to not indicate approval or disapproval of responses provided by participants. I used a normal conversational tone and delivered each question and probed without emphasizing any keywords or concepts. During each interview, I focused on building a rapport with each participant being interviewed prior to asking any research questions. I built rapport through general introductory conversations not related to the topic of this project study. Thus, I minimized the potential for bias during the data collection process by not asking any leading questions related to this study prior to and during the interview process.

Data Collection and Instrumentation

According to Creswell (2009), qualitative researchers collect multiple forms of data including interviews, observations, and documents, which they then review, make sense of their findings, and identify themes. Researchers focus on learning the meanings that participants have in regards to the issue researchers are examining. Qualitative researchers interpret what they see, hear, and understand (Creswell, 2009).

After I decided to use a case study design, I methodically and carefully considered which data collection methods would best allow me to gauge the perceptions of teachers regarding the use of digital media in the classroom. Understanding teachers' perceptions was critical. How teachers perceive technology use affects student academic achievement

in math. I decided to use semi-structured, one-on-one interviews and archival analysis as my primary means of data collection.

According to Yin (2014) and Creswell (2012), data collected via interviews provide the most important sources of information that cannot be gathered during observations. Creswell (2012) also maintained that a disadvantage of conducting interviews is the information disseminated through the lens of the researcher, which leads to uncertainties as to whether the individual being interviewed is providing responses that are honest and whole versus providing responses that may be what the researcher wants to hear (Creswell, 2012).

Upon IRB approval, the interviewing process began. All participants who signed a consent form participated. In the consent form, I included information on the nature of the study, explained the rights of participants, and provided my contact information. Grade 6-8 math and literacy teachers were asked to complete and submit their forms. For the purposes of this study, I conducted 6, one-on-one interviews during non-instructional time. Using data collected from multiple semi-structured interviews allowed me to compare and illuminate the perceptions of each participant. I asked open-ended questions to solicit responses specific to the purpose of this study. Merriam (2009) maintained that interviews are conducted when there is an interest in past events that may not be able to be replicated. Having multiple respondents increased the accuracy of the research study because the information came from more than one individual (Yin, 2014).

The semi-structured interviews were guided by a pre established list of open-ended interview questions. The interviews were scheduled via email prior to observations

at a mutually agreeable date, time, and location for each participant. Prior to asking any interview questions, I was able to establish a brief rapport through concise, general introductory conversations not related to the topic of this study. In addition to protecting confidentiality, participants were reminded that their participation was voluntary and that they could withdraw from the study at any time, without consequences. The semi-structured nature of the interview questions allowed the participants the flexibility to respond to the open-ended questions that were not leading and did not solicit yes/no only responses (Creswell, 2012; Merriam, 2009).

Using the guided interview questions, participants were asked to express their perceptions regarding digital media. Probes were used in an unbiased nature to elicit additional information that may be relevant to my study and to allow the participants to enhance or clarify their own responses (Creswell, 2012). Each participant interview was audio recorded and only labeled with the assigned numeric pseudonym.

All interview data were transcribed, verbatim, so that an electronic case study database of the data was easily coded, analyzed, and stored or retrieved post research (Yin, 2014). Using an audio recording and interview protocol helped minimize any anticipated ethical issues that might bring harm to the participants, such as risks, confidentiality, deception, and informed consent (Creswell, 2012; Yin, 2014). Member checking was used to further validate the accuracy of each transcribed interview data and minimize any ethical issues. Meticulously organizing the data into a case study database when multiple individuals were interviewed was the most effective and efficient way to

keep track of the collected data during the analysis processes, which were triangulated with archival documents.

I interviewed three math and three language arts teachers who completed and returned the consent forms and met the selection criteria. Those teachers who returned signed consent forms participated in the study. No participants withdrew from the study. Six participants were interviewed for about 1 hour each giving 6 hours of interviewing time. During the interviews held in a private room at the library teachers were asked open-ended questions. Using a digital recording device and with the participants' permission, I recorded each interview. All interviews were conducted in accordance with the agreed upon time and location between each participant and I. I used the interview protocol for the interviews.

According to Creswell (2009), data analysis involves peeling back the layers of information and developing a deeper understanding of the problem. Data were saved on both a jump and hard drive secured with password protection. Audio taped data were transcribed within 5 days. The Atlas.ti 7 qualitative analysis coding program was used to aid me in identifying themes. Interview transcripts were coded to identify a method to sort or group the data as well as maintain privacy for the participants (Merriam, 2009). Coding included positive and negative experiences with the integration of technology into the math and literacy curriculum (TML). For example TML+ positive or TML- negative. I reviewed each interview transcript. All interview transcripts were analyzed for emergent themes using a thematic analysis (Creswell, 2012). Themes were specific for the topic of this study.

Discrepant cases were considered. According to Creswell (2012), discrepant information runs counter to the themes. Discrepant cases may include teachers' opinions regarding the quality of the digital media integration into the middle school math and language arts curriculum in the district. Discrepant cases are presented in the findings.

Evidence of Quality, Reliability, and Validity

Qualitative research requires the researcher to become directly involved with the research process. Qualitative validity means the researcher has used procedures to check for accuracy while qualitative reliability ensures the researcher's approach and methodology is consistent across different researchers and projects (Creswell, 2012).

Following the initial analysis of the interview transcripts, participants were contacted by phone to provide feedback on the validity of the findings (Stake, 1995). Member checking contributed to the credibility of the findings by minimizing investigative bias (Stake, 1995). According to Creswell (2012), member checking uses participants to determine if the themes or descriptions are accurate. The findings were member checked with each participant. The participants indicated that the interview transcripts were accurate. The interview transcripts were not changed.

According to Merriam (2009), in order to transfer the results of a qualitative study to another setting, a highly descriptive presentation of the setting, participants, and findings is used. Transferability was ensured through a comprehensive description of the context of the school in which the study was conducted. I used evidence from the

interviews to create a description of the context of the study in order to help the reader see the similarities.

Summary

I discussed the qualitative research method, which was a case study. My goal was to present the experiences of middle school math and language arts teachers with the integration of digital media into their curriculum. I presented the population – middle school math and language arts teachers and the sample – three middle school math and three language arts teachers. I discussed the data collection, which was face-to-face interviews with the teachers and review of archival documents regarding digital media. The data analysis procedure included thematic analysis of the transcribed interviews and the archival documents regarding digital media. I report findings in Section 4.

Section 4: Results

Introduction

At the research site, an urban public middle school in the southeastern part of the United States, students were not passing state tests in both literacy and math for 5 consecutive years. My purpose in conducting this qualitative case study was to examine the experiences of middle school literacy and math teachers with the integration of digital media into the curriculum in order to help students improve their proficiency in both literacy and math state tests. Using a case study design, I focused my research on one school setting.. I conducted interviews with three of this school's middle school math and three of its literacy teachers who had integrated digital media into the curriculum beginning in the 2011-2012 school year. I also reviewed archival documents from teachers and the school district regarding digital media.

Research Questions

The research questions that guided this study were:

RQ1: How do middle school literacy and math teachers experience the integration of digital media into the curriculum?

RQ2: What instructional strategies do middle school literacy and math teachers use when they integrated digital media into the curriculum?

Data Collection and Verification

After I obtained IRB approval from Walden University (number 05-15-15-0274138), I met separately with the district administrator and the principal of the research site. I explained the purpose of my research study and my procedures for participant selection. I asked and received permission from the district administrator to attend meetings with middle school teachers. I left an Invitation Letter explaining my study with the school district research administrator. Teachers who were interested in participating in the study contacted me via email and/or phone. I subsequently met with each teacher who expressed interest in participating in my study and who met my selection criteria (i.e., that a teacher be highly qualified and state certified, have 3 or more years of experience teaching math and literacy, and have experience integrating digital media into the math and literacy curriculum). We met in the private conference room of the school library. During these meetings, I gave participants an Informed Consent form that explained the purpose and nature of the study, the time commitment involved, the rights of the participants, and the possible risks associated with the study. Six participants, three math and three literacy teachers, returned informed consent forms.

I asked each participant open-ended questions based on the Interview Protocol in order to answer the research questions. I conducted the interviews, each of which lasted approximately 1 hour, in a private conference room in the library at the research site. No participant asked to meet elsewhere. I would have accommodated such requests if I had received them. To provide confidentiality, I assigned each participant a number between

one and six because only six teachers agreed to participate in the study. I requested and received permission from all participants to digitally record their interviews.

During the course of the interviews, I also took hand-written notes during and after data collection and throughout data analysis, and created a field log. The field log consisted of my notes during the interviews. I reviewed these notes many times in an effort to ensure that I had fairly represented the participants' responses in my research findings. I also kept a journal to record teacher's experiences regarding digital media, to offer more descriptive detail about the interview process and participants, and to offer my personal response to, and reflections on, the interviews. I continuously reviewed the participants' answers as I was analyzing data, and my notes and journal to reduce any biases in my findings.

I saved all interview data, my notes, and journal on a hard drive and a jump drive and secured both drives with a password to which only I have access. I electronically transcribed audiotapes within 5 days of each interview and uploaded the files into Atlas.ti 7, a software program that identifies recurring themes, patterns, and categories of qualitative data. During this time, I read interview transcripts numerous times and identified emergent themes. The coding categories that I used were digital media and technology, math, literacy, and integration (TMLI + positive or TMLI – negative). I considered discrepant cases and included them in my findings. Discrepant cases focused on the lack of technical support for students and teachers.

After each interview, I asked each participant to assist me in reviewing and verifying his or her data. I met with each participant to do this checkingin a private

conference room in the school library at a time and date of their choice. During member checking, I provide each participant with a summary of his or her transcribed interview. I held these meetings in a private conference room in the school library.

In order to provide a more balanced and detailed picture of digital media integration within the middle school math and literacy curriculum, I also verified data using other means. I took notes during each interview to remember points of emphasis from the interview. I kept these notes and records of other observations I had made in a field log. I reviewed these records immediately after each interview and added information as needed. In a journal, I also reflected on, and responded to, each interview and the interview process. I wrote these reflections on the day of the interviewI continually reviewed my field notes, journal, and the interview audiotapes during the data collection and analysis phases of my study.

Findings

Interview Questions and Responses

Add topic sentence. The first interview question was, "Tell me how you integrate digital media into the math or literacy curriculum." Participant 1 stated, "I first make sure that students have their online textbooks. Within the book, there is a video tutorial for each lesson that gives alternate assignments for the same concepts. There is a self-check system that I use for formative assessment." Participant 1 also stated, "*Khan Academy* and *Excel Math* are used to introduce lessons to get students' attention and to use as an extension of the lesson for those who may need more practice or for those who may need

more advanced work." *Khan Academy* is a website that uses micro lectures to introduce math concepts and provides practice exercises. *Excel Math* is a math software program that provides video lessons and practice lessons. Participant 1 also used various websites and posts on lesson plans. Participant 1 stated, "*Edmodo* is a social learning network that I use to send my lesson plans to students each day and the students can be prepared for the next day or at least know what to expect in class." *Edmodo* is a social learning network where both students and teachers are members. This is a virtual space for communication between teachers and students about assignments. Information and feedback can be posted. Participant 1 also used the resource *Pinterest* that has ideas for using digital media that can be incorporated into the classroom. *Pinterest* is a personalized media platform that has information about a plethora of subjects. Members of this website virtually pin areas of interest. Add concluding sentence offering your own critical analysis and perspective.

Participant 2 stated, "I use numerous digital resources to plan and support my daily lessons. *Pinterest a*nd web quests along with the online textbooks, and *Khan Academy* are a few of the resources that I use to provide remediation and an extension of the lesson." Participant 2 allowed students to take notes using their Macbooks if they pass a competency test. Participant 2 also stated, "Because of classroom management issues associated with the Macbook, students do not use their devices on a daily basis. There are many days that I project the websites or math tools on the interactive board and not have them look things up individually." Add concluding statement.

Participant 3 used digital media as an educational tool to teach students to access information. Students used digital media in this teacher's class for presentations, research, and planning. Participant 3 stated, "With digital media, students get the most updated research whereas books have a shelf life. Digital media takes out the middleman or the library and gives students access immediately."

Participant 4 responded, "I integrate digital media into the classroom through the use of *Kahoot,* which is an online game based program that I use to give a formative assessment to my students to check for understanding which then drives our daily instruction. I also use *Edmodo* to post assignments for students to complete and respond." Participant 4 integrated digital media by using interactive board, computer, and LED projector.

Participant 5 integrated digital media through web quests, *Quizlet*, and *Comic Life*. *Quizlet* is a website that allows students to create their own test review and test preparation materials that include flashcards and study games. *Comic Life* is software where students can create comic strips, which is a medium that uses text, images, and cartoons to express ideas. Participant 5 reported, "These programs allow me to assign projects using software to create comic strips, flyers, and brochures. Digital media also allows me to have my students research facts about the literary works studied in class and to create games for study purposes."

Participant 6 incorporated digital media into the classroom by using video journals. Participant 6 responded, "Students answer questions or ask questions using their video recording program. Then, I check their understanding of the material by watching

their individual videos." Participant 6 also used *Edmodo* for assigning work and for getting student feedback. Participant 6 used *Quizlet* as a vocabulary and study resource for students. Students created their own flashcards and study games to help them learn the material and perform well on both school and state tests. Thus, digital media was used as an educational tool in the classroom.

Helping Students Use Digital Media to Learn Math and Literacy

The second interview question asked participants to respond to the following statement: "Tell me how you help your math and literacy students use digital media to learn math and literacy." Participant 1 responded, "I use a number of online resources with students in order to integrate digital media into the math curriculum. First, I demonstrate to students how to download their online math textbook." *Khan Academy* was another tool that this teacher took advantage of for classes. Participant 1 reported, "*Khan Academy* has helpful tutorials and quick formative assessments that help drive my instruction. Many times, I use *Khan Academy* tutorials to flip my classroom by introducing my lessons as homework and then students can discuss and ask questions the next day in class." Participant 1 said that tutorials and a flipped classroom helped to customize instruction. A flipped classroom is a learning centered instructional strategy that delivers instructional content usually online outside of the classroom (CITE). Class time is dedicated to deeper and more meaningful exploration of topics.

Participant 1 also ensures that all students have an *Edmodo* account set up. Students are then able to view their assignments at any time and ask questions of their

teacher or classmates. Participant 1 stated, "I use *Edmodo* as a place for students to work on projects together outside of school without actually having to physically meet." Participant 1 emphasized that many students do not have access to personal transportation and do not have Internet access. For these reasons, the teacher said that *Edmodo* helps in implementing problem-based learning activities. because students can download the program before leaving school and, then, continue to work on problems after school. Participant 1 emphasized, "This type of connectivity outside of school helps take socioeconomic status out of the resource availability equation and puts all students on a level playing field."

Participant 2 stated, "I enjoy digital media and feel that there is a time and place for digital media; however, I cannot find a way to integrate digital media on a daily basis that is student led." Participant 2 also reported, "My students enjoy their interaction with me, so classroom digital media integration is teacher led in many cases." Participant 2 used a number of online resources such as *Virtual Nerd, Khan Academy,* and *Illustrative Math* as an extension to the lesson. Participant 2 answered, "My students use the digital media resources as they are intended when I am the manager of how the resources are used." Participant added, "I am also working towards a flipped classroom and I have used both *Khan Academy* and *Virtual Nerd* to introduce lessons to students at home and then ask questions the next day in class." *Virtual Nerd* is a video math tutorial program. Participant 2 used the K-12 social learning site *Edmodo* in class. Students went to this site for daily assignments and vital information postings. Participant 2 also said, "With *Edmodo,* I am able to give individual feedback on a daily basis and this helps me make

contact with those students who do not ask questions or seek attention." Participant 2 emphasized that digital media had become a tool in the development of a rapport with all students.

Participant 3 stated, "I find it difficult to teach literacy in a digital format because students see their personal computer as a tool for entertainment; however, I have begun to find methods that seem to be working with even the most challenging students." Participant 3 used web quests to get students involved in a particular research topic. "I give students a set of questions that lead to a research topic and then students must carry out tasks based on their research. I use this as both an individual and group project. Students like working at their own pace." Digital media also played a role in class through the use of video streaming. Participant 3 stated, "In order to grab students' attention, I will often show a clip of a text to be studied. Students will then discuss the clip and I give them guiding clues to tease them and peak their interest in the literature." Participant 3 also stated, "I do not use many paper books in class due to the vast number of books available in online libraries. Students read assigned readings and have the ability to highlight important information using their school issued computer. I can assign different books based on reading levels of students." The teacher believed students working on their own level had helped with classroom grades and with classroom climate. "My students are not afraid of participating in groups because they have confidence in their academic abilities. Their assignments are based on their individual strengths and weaknesses." Participant 3 also said that the integration of digital media in the teaching of grammar has been the biggest success in the classroom. Participant 3

stated, “Because students are on a variety of levels in this area, I can also individualize teaching grammar. I assign individualized lessons from interactive websites that also allow me to monitor student progress.” Students are not repeating the same lessons from the year before. When they finish a concept, they can move on or if they need more help, that is also available.

Participant 4 integrated digital media into the classroom by flipping lessons. Participant 4 responded, “I introduce the daily lessons using *Public Broadcast Service Learning Media* to introduce the daily standards and lessons and then students bring their questions to class the next day. This helps me to zero in on problems or issues of each student and I can customize the instruction.” *Public Broadcast Service Learning Media* is a website that has educational resources for teachers. Participant 4 stated, “The most difficult part to flip the class is making sure that all students download the necessary videos before leaving class each day due to the fact that many students do not have internet access outside of school.” Participant 4 also had all students access and save their online textbook. The textbook software included an online tutor that students can individualize for themselves. Participant 4 commented, “Students enjoy using this feature and many have even made up names for their personal tutor. This tutoring session is interactive ad allows me to move around the classroom and focus on individual questions and needs.” Participant 4 stated, “The software allows me to be proactive in my lesson planning and allows me to know when to challenge my students and when to give more explanation and help.”

Participant 5 stated, “I work diligently to integrate student led digital media into my classroom. Students began the school year by accessing 20 novels of their choosing based on personal interests.” The student literature book is an online text that can be read to students. Participant 5 stated, “Every student has activated the read aloud component at some time during the school year.” This participant also used two programs - *Quizlet* which allows students to create study guides for vocabulary and *Socratic,* which is a website where students can ask educational questions and receive feedback from other students. Participant 5 used *Edmodo* to post assignments and give individual feedback. The teacher used the video-making component of student’s school device to record students’ role-playing various characters, speeches, or discussion questions. Students critique and discuss. Participant 5 commented, “Throughout the year, students become quite comfortable filming themselves and others. This has helped students to learn the program and also make sure their creation is the best work possible because they know others will be watching.” Another positive aspect of video assignments was that it allowed those students who are intimidated by their classmates to participate without the stress. Participant 5 used a software program to illustrate concept mapping. Students had access to various shapes, colors, and many other features of this program; however, Participant 5 emphasized, “In order to use this program, the basic standard knowledge still must be there.” Participant 5 stated, “Digital media has pushed me to become more creative in my lesson planning along with giving me the opportunity to formatively assess my students in a myriad of ways without ever pulling out a red pen.” Participant 5

reported that digital media allowed the teacher to provide more meaningful and relevant instruction that is based on the needs of individual students.

Participant 6 integrated digital media using videos from *Teachertube* and *Learn360.* Both of these are video sharing websites that provide resources for educators. Participant 6 stated, "I use *Teachertube* educational rap songs to introduce and reinforce the literacy standards. These videos have given my classroom an atmosphere of fun and lightheartedness where students can be themselves and feel safe." Participant 6 added, "Digital media has helped make the material relevant to the student's world. They can relate to the videos I show and they become engaged in the topic." Participant 6 has begun to make music videos with students about various texts they read. Participant 6 stated, "The students have to have a thorough knowledge about the subject if they are going to perform." Participant 6 used the online textbook and online library books. This teacher is attempting to flip her classroom by posting videos of the lesson. Participant 6 stated, "I have to be organized in order to make the videos and individualize the message for each class. I am also better able to understand students' needs." Participant 6 had over 10 years of experience and emphasized that digital media had made the participant a better teacher due to constantly learning new methods to reach students.

Strategies to Integrate Digital Media into Math and Literacy Curriculum

The third interview question asked participants to respond to the following question: "What strategies do you use to integrate digital media into the math and literacy curriculum?" Participant 1 responded, "I integrate digital media into my classroom

through having students collaborate on projects that require research and interaction with each other both inside and outside the classroom." Participant 1 used a number of tutoring websites and an online program to communicate with students about their assignments. In order to be successful in the class, students had to participate in the usage of these digital media resources. Participant 1 looked for resources that had an interesting component for students such as music, sports, or celebrities. Participant 1 stated, "Through digital media, I feel as though I can relate my lessons to what students find appealing."

Participant 2 emphasized the need for embedding procedures and instructions regarding digital media into the classroom beginning on day one of class. Participant 2 reported, "Beginning the first day, I demonstrate to my students how to use *Edmodo*. This is the site I use to post assignments and feedback." Participant 2 stated, "I use digital media for collaboration and research on various math projects. I also have my students use digital media to create study aids such as brochures and study guides that use visuals." Participant 2 used digital media to differentiate instruction based on learning styles and interests. Participant 2 allowed students to pick topics that were important to them for projects. Participant 2 emphasized that students were more engaged when they chose the topics.

Participant 3 integrated digital media into the literacy curriculum through having students use their computers to read novels and highlight important information. Participant 3 responded, "I use digital media to teach literacy because I can individualize assignments based on students' needs. Students seem to respond more positively. They

enjoy working at their own pace and take ownership for their learning." Participant 3 emphasized that digital media is interactive, engages students in the learning, and allows the teacher to individualize assignments.

Participant 4 stated, "Digital media makes my classroom instruction student led versus teacher led. Most days in my classroom students work in groups with established collaborative roles and norms. The problems they engage in are based on real life scenarios of middle school students." In this classroom, the teacher emphasized that students work together to master skills in order to solve these various problems and the skills build on each other. Participant 4 stated, "Many times my classroom is more about finding and sharing information with each other and less about the correct answer. My role is a facilitator," responded Participant 4. In this classroom, digital media has fostered a student led classroom.

Participant 5 integrated digital media on a daily basis in the beginning and then increases its' use as the year progresses. Participant 5 stated, "I use digital media with my students in a creative format such as creating videos, using the read aloud component of the textbook, and communicating with each other and me about assignments using email or *Edmodo.*" Participant 5 placed emphasis on the relevancy of assignments through the integration of digital media. Current information was used to develop the curriculum and engage students.

Participant 6 stated, "In my classroom, we use a number of online resources to try and grasp various literacy concepts. We watch student made videos that explain various concepts. My students in turn make their own videos to explain various concepts."

Participant 6 used *Quizlet* to have students compete with each other for vocabulary study. Students created guides, flyers, and comic strips using *Comic Life*. Participant 6 stated, "I use web quests for research and also have students compare and contrast various literary works using research skills." Digital media allowed the teacher to have access to a library in the classroom setting.

Resources to Integrate Digital Media into the Curriculum

The following question was asked to teacher participants: "What resources have you been using to integrate digital media into the math and literacy curriculum?" Participant 1 stated, "I use *Khan Academy* and *Excel Math* to introduce math lessons to students and then they can ask me questions individually. I use *Pinterest*, which offers educational ideas for digital media and I use *Edmodo*." Participant 1 was consistently searching for resources and trainings that provided resources.

Participant 2 used a number of online tutorials to introduce math concepts and to help students grasp those concepts. Participant 2 stated, "I use the website *Teachers Pay Teachers* which is an excellent resource for lesson plans, and resources." Participant 2 responded, "I also use *Khan Academy* videos to help students with various lessons and it frees me up to walk around and look for issues."

Participant 3 used an online library for novels. Participant 3 stated, "Students use their personal devices to read novels and to highlight important passages. I also use an interactive literacy website that allows me to assign lessons based on software pretests. All students work on what they need and not a generic lesson." Participant 3 previewed

software programs weekly to try and find the most engaging digital media for the students.

Participant 4 responded, “I use *Kahoot* to take quick assessments to see the level of understanding my students have about whatever standard we are studying. I also use *Edmodo* to post daily notes, assignments, and to communicate with my students.” Participant 4 used the online textbook and teacher videos from *Teachertube* . Participant 4 stated, “I am always learning of new resources from my colleagues and from my students.” Participant 4 stated that colleagues were an excellent resource for new ideas.

Participant 5 responded, “I use *Quizlet* weekly. This is an excellent method for reviewing content with my students. They work together to develop their own test reviews and have fun while studying.” Participant 5 used *Edmodo* to communicate assignments. Participant 5 used other teachers as a resource and observed other teachers who had integrated digital media.

Participant 6 stated, “I use videos from *Teachertube* and *Learn360* on almost a daily basis. I find that it settles down the students and gets them focused on what we are doing for the day.” Participant 6 used *Quizlet* and *Edmodo* for studying and for posting information to students. Participant 6 stated, “I use an online textbook and I have students use the highlight feature on their computer to pick out important information. I use a number of online resources to enhance my instruction.”

Extent of Digital Media Integration in Math and Literacy Curriculum

The final question posed to the participants: "To what extent do you integrate digital media into the math and literacy curriculum?" Participant 1 integrated digital media on a daily basis in the classroom. "Our textbook is online and we use it daily. I also use videos and tutorials from various websites to introduce and enhance lessons every single day," stated Participant 1. "Digital media is used consistently in my classroom. I believe that it helps me individualize my instruction, prepare students for the real world, and keep students focused on the lesson," responded Participant 1.

Participant 2 answered, "I do use digital media on a daily basis, but I access digital media by showing the website on my board. They do not access it individually. I demonstrate how to navigate the program." Participant 2 liked the discussion that took place about the websites with students and thought that it appealed to different learning styles.

Participant 3 stated, "Digital media is a cornerstone in my classroom and in the literacy curriculum. I use video streaming for class discussions, online libraries, and I use a literacy software program." Participant 3 commented, "Students know that in order to be successful in my class, they must come to class with a fully charged battery ready to work." Participant 3 emphasized, "Digital media helps my classroom become more individualized. I can manage differentiating assignments with digital media." Participant 3 stated that digital media was the main resource used in the class.

In response to this question, Participant 4 stated, "I use digital media daily in my classroom. Because we use an online textbook, my students must access it on their

computers each day. Participant 4 consistently used a program for video lessons and for assessments. Participant 4 stated that students responded positively to digital media instruction.

Participant 5 stated, "I have my students use their personal computers on a daily basis. Students take notes, create presentations, watch teacher made videos, create video journals, and anything else that I can find for their use." Participant 5 used several educational software programs to test, review, and post assignments. Participant 5 reiterated that students know digital media is the main learning resource.

Participant 6 stated, "In my classroom, digital media is used extensively. We use digital media to create videos, create games, play review games, and discuss assignments. In every literacy class, digital media is a main resource and tool." This teacher also repeated that students responded well to this type of instruction and that digital media made learning relevant for students.

Summary of Interviews

For the first research question, I asked how participants integrated digital media into the math and literacy curriculum. All of the participants stated that they used a digital media to teach a lesson. Two participants use online textbooks for students. Two participants use tutorial software to introduce lessons and then have students ask questions. A social learning site is used to post assignments and communicate with students by three of the participants while two mentioned a program that provides quick assessment information on the computer screen for their students. Two participants use a

program for review and to create study resources. All participants used digital media for research and presentations.

Three of the participants use an online website for projects and assignments. Two participants use an online library that students have access at all times. One participant flips the classroom using digital media. Students view the lesson at home and bring in questions to class the next day. More time is spent in class on the work and not the presentation. All participants used digital media in one or more of the following ways: to introduce lessons through video clips, to explain the lesson of the day and provide individualized learning, to create a product, or to provide feedback on student performance.

Strategies used to integrate digital media into the math and literacy classroom included collaboration between students, problem solving, research, and online resources such as textbooks and libraries. Participants used software programs for creating brochures and videos. Formative assessment programs and review programs were also used by participants as a means to guide instruction that was relevant and meaningful to students' needs. Digital media was used as a means to flip the classroom with class time used as time for individual help sessions. Two participants used digital media as a creative tool for video making and all showed video clips throughout their classes for various reasons. Novels that had been downloaded by students were used by two participants. Both stated that students could read novels based on their interests. Participants also integrated digital media into the classroom through the use of grammar

software that helped individualize lessons. One participant used more teacher led digital media and walked students through the websites and did not allow them to explore.

In response to the question about use of resources to integrate digital media, participants' answers focused on websites that featured videos to introduce content. Three participants used *Edmodo* to communicate with students about assignments. Two participants used a website for review and study games while two use an online textbook.

For the last interview question, participants responded regarding the extent to which digital media is integrated into their classroom. Each of the six participants used digital media on a daily basis. Five of the participants used both teacher and student led digital media integration while one participant's classroom was more teacher led digital media use.

Emergent Themes

Theme 1: Individualized Instruction

All participants used digital media as a format to individualize instruction. Participant 1 used a flipped classroom and *Edmodo* to individualize instruction. Students were able to ask their individual questions in class. Participant 2 also used the flipped classroom method and stated that all students received help. Participant 3 used digital media for research and allowed students to work at their own pace. Participant 3 also used an online library and assigned books based on the reading level of students. Participants 4 and 6 used a flipped classroom. Both participants felt that individual needs of students were better met through this type of digital media instruction. Participant 5

used the online textbook that has a read aloud component that can be activated based on student needs. Participant 5 also used digital media to frequently formatively assess students and individualize the content and instruction.

Theme 2: Relevant Instruction

All participants reported that digital media made their instruction more relevant to students. Participant 1 assigned projects based on students' interests and looked for resources that incorporated these interests such as sports, music, and celebrities. When students worked on a project, Participant 2 allowed students to pick their own topics and then the teacher helped students figure out how their topics could become part of the research project. Participant 3 used interactive software to teach grammar skills that had videos and music embedded within the program. Participant 4 used collaborative problem based learning that used real life scenarios for middle school students. Participant 5 integrated news events into daily lessons that would engage middle school students. Participant 6 allowed students to make videos to explain concepts and used a number of digital media resources to create a product for class.

Theme 3: Positive Experience with the Integration of Digital Media

Participants 1-6 integrated digital media throughout their lessons. All agreed that digital media had become one of the main resources that was used in their classrooms. All participants incorporated videos within the lessons either as an introductory component, as part of the lesson, or as a student assignment. All participants had an

interactive board, projector, desktop, portable device, and all students had been issued a school device. Participants 1 and 2 used *Khan Academy* and *Edmodo,* as online resources for lesson planning and lesson development. Participant 1 also used *Pinterest* as a resource for classroom ideas. Participant 2 enhanced lessons through the programs *Illustrative Math* and *Virtual Nerd.* Both Participant 3 and 5 included video clips and an online library in their digital media integration. Participant 5 also used a number of study websites such as *Quizlet* and *Socratic*. Participant 4 integrated digital media into the math class via an online textbook and tutoring software. Participant 6 used videos to introduce various lessons and had students make music videos to explain various concepts.

Theme 4: Digital Media Integration in Math and Literacy Classrooms

All participants used digital media in their classrooms on a daily basis. All participants used digital media tools – interactive board, projector, desktop, and portable device – each day in each class. All participants embedded videos in the lessons during the week. All participants included various websites and/or software programs in their math and literacy curriculum. Most participants embedded videos every day within the class period. Two participants and their students accessed an online textbook daily.

Theme 5: Helping Math and Literacy Students Learn Digital Media

All participants used digital media in the math and literacy curriculum. All participants reported that before students accessed a program, participants demonstrated the components of the program. Participants showed students how to access programs, how to navigate through the programs, and then encouraged students to explore the

programs. All participants used a number of digital media resources in the math and literacy curriculum with the expectation that all students utilize these resources for classroom projects, communication, assignments, and assessments.

Theme 6: Digital Media beyond the Classroom

All participants capitalized on the social learning network, *Edmodo,* which the district chose for student communication. All participants used this site as a way of communicating with students about classroom activities. All participants used *Edmodo* to post assignments, post feedback, or post comments to students. *Edmodo* had been used by all participants as a means of discussion between teacher and student.

Summary of Themes

Within the interview responses, there were patterns that surfaced. All participants identified individualized instruction as a key value in the integration of digital media in the math and literacy curriculum (Theme 1). Each participant stated that digital media played helped them make instruction relevant to students (Theme 2). All study participants had a positive experience in the integration of digital media throughout the lessons (Theme 3). All participants integrated digital media on a daily basis (Theme 4). All participants helped students learn digital media through demonstrating and modeling digital media components (Theme 5).

Individualized Instruction:

P1 **-** Used flipped classroom

P2 - Used flipped classroom

P3 - Assigned books based on individual reading level

P4 - Used flipped classroom

P5 - Used formative assessments to guide instruction

P6 - Used flipped classroom

Relevant Instruction:

P1 **-** Assigned projects based on students' interests

P2 - Allowed students to choose their own research topics and then helped with research

P3 - Used interactive literacy software that had embedded videos and music

P4 - Used collaborative problem based learning with real life scenarios as problems

P5 - Integrated news events that were relevant to middle school students

P6 - Used videos to explain concepts

Positive Experience with Digital Media Integration

P1 - Used *Khan Academy* and *Edmodo* for lesson planning and development

P2 - Used *Illustrative Math* and *Virtual Nerd* as tutorials for lessons

P3 - Used online library and video clips

P4 - Used online textbook and tutoring software

P5 - Used online library and video clips

P6 - Used videos to introduce lessons and had students make music videos about the concepts

Extent of Digital Media Integration

P1 - Digital media used daily

P2 - Digital media used daily

P3 - Digital media used daily

P4 - Digital media used daily

P5 - Digital media used daily

P6 - Digital media used daily

Helping Math and Literacy Students Learn Digital Media

P1 - Demonstrated how to access, use, and navigate through various classroom programs – *Khan Academy, Excel Math, Edmodo, Pinterest, online textbook*

P2 - Demonstrated how to access, use, and navigate through various classroom programs – *Teachers Pay Teachers, Khan Academy, Edmodo, Pinterest, online textbook, Virtual Nerd, Illustrative Math*

P3 - Demonstrated how to access, use, and navigate through various classroom programs – *Literacy software, online library, Edmodo, online library*

P4 - Demonstrated how to access, use, and navigate through various classroom programs – *Kahoot, Teachertube, Edmodo, Public Broadcast Service Learning Media, online textbook*

P5 - Demonstrated how to access, use, and navigate through various classroom programs – *Quizlet, Socratic, Edmodo, online library*

P6 - Demonstrated how to access, use, and navigate through various classroom programs – *Teachertube, Learn 360, Quizlet, Comic Life, Edmodo, online textbook, online library*

Use of Social Learning Site

P1 - Used *Edmodo* to communicate with students about classroom activities

P2 - Used *Edmodo* to communicate with students about classroom activities

P3 - Used *Edmodo* to communicate with students about classroom activities

P4 - Used *Edmodo* to communicate with students about classroom activities

P5 - Used *Edmodo* to communicate with students about classroom activities

P6 - Used *Edmodo* to communicate with students about classroom activities

Discrepant Data

Discrepant data were considered because discrepant information is counter to the themes. Discrepant data are included in this research study for education stakeholders to use to help teachers at the research site. Each participant had a vast amount of information to share about the integration of digital media in the math and literacy curriculum that did not fall into any category or theme. Participants 1 and 3 did not use digital media to motivate students. Participant 4 did not use digital media for formative assessments. Participant 5 used educational games to motivate students. Participants 5 and 6 did not fully integrate digital media into the curriculum and their students used only video recording for specific assignments to record and disseminate information.

Participants 1, 2, 4, and 5 did not focus on using online tutorials to differentiate instruction. Participant 3 used an online library and grammar software to meet the academic needs of few students. Participants 2 and 3 did not use digital media in their classrooms as facilitators but as traditional teachers focusing on teacher-led instruction.

Evidence of Quality, Reliability, and Validity

Qualitative research requires the researcher to become directly involved with the research process. I was the researcher for this qualitative case study. Qualitative validity means the researcher used procedures to check for accuracy while qualitative reliability ensures the researcher's approach and methodology is consistent across different researchers and projects (Creswell, 2012). I established credibility by continuously documenting the procedural steps and by being the research instrument (Creswell, 2012). Member checking contributed to the credibility of the findings by minimizing investigative bias (Stake, 1995). Each participant reviewed the accuracy of their transcript. Member checking lasted 1 hour for each participant. According to Creswell (2012), member checking uses participants to determine if the themes or descriptions are accurate. Transferability was ensured through a comprehensive description of the context of the school in which the study was conducted. According to Merriam (2009), in order to transfer the results of a qualitative study to another setting, a highly descriptive presentation of the setting, participants, and findings is used. I used evidence from the interviews to create a description of the context of the study in order to help a reader see the similarities.

Transition Statement

The findings of my qualitative case study have been presented. I interviewed six math and literacy middle school teachers who had been teaching at least 3 years, were state certified and highly qualified in math and literacy, and who had integrated digital

media in the math and literacy curriculum. In Section 5, I discuss all findings and interpretations.

Section 5: Discussions, Conclusions, and Recommendations

Introduction

In Section 5, I discuss the findings of my qualitative case study.

Summary of Findings

When I coded and analyzed my data, I identified six themes encompassing the experiences of middle school math and literacy teachers with the integration of digital media. The first theme that emerged was that all participants used digital media in the classroom. Participants used flipped classrooms, online textbooks, online libraries, and assessment programs to give students individual instruction and content. The second theme that emerged was that participants said that digital media made their classroom instruction more interesting to the students. By using interactive software, videos, and collaborative projects, teachers said that they were able to make class more interesting and enjoyable for students. All participants had a positive experience with digital media integration, which was the third theme. Participants' use of various software programs, online textbooks, and videos the classroom interesting and interactive for them as teachers, as well. The fourth theme was related to the extent that digital media was integrated into the classroom. All participants used digital media daily through the use of projectors, interactive boards, computers, and software programs. The fifth theme that emerged from the interviews was that all participants helped their students learn digital media by demonstrating and modeling how to use the different programs first. Then, they allowed students the opportunity to explore and learn the programs on their own. The

sixth and final theme that emerged was that all participants used Edmodo as the social learning network for communication with students. Teachers and students posted assignments, comments, questions, and feedback on this site. The six themes were common among all participants: (a) all participants used digital media to individualize instruction (Theme 1); (b) all participants used digital media to make instruction relevant to middle school students (Theme 2); (c) all participants had a positive experience with digital media integration (Theme 3); (d) all participants used digital media on a daily basis (Theme 4); (e) all participants helped students learn digital media (Theme 5); (f) all participants used *Edmodo* to communicate with students (Theme 6).

Interpretation of Findings

I used Bandura's social learning theory (1977) in order to understand teachers' experiences with, and perceived success in, demonstrating effective and successful uses of digital media to their students in the classroom. In my interviews with teachers, I learned that teachers' sense of self-efficacy in using digital media increased the more they continuously used such technology. Teachers with a high level of self-efficacy integrate digital media into the math and literacy curriculum. Students learn how to effectively use digital media. The interrelationship between the teachers and students is how students effectively use digital media that may translate into an increase in math and literacy scores on state tests. Next, I address what I found in regard to the first research question.

RQ1: How do middle school literacy and math teachers experience integration of digital media into the curriculum?

I found that all participants used digital media such as interactive boards, LED projectors, *Edmodo*, and computers in their math and literacy classes on a daily basis. Participant 1 used an online textbook and math tutorial programs. Participant 1 stated, "My students and I use digital media to communicate to a large extent outside the classroom." For example, students used Edmodo to contact the teacher during evening office hours to ask questions about assignments.

Participant 2 stated, "I use online resources for students, but I search for teacher resources to help me be a more effective teacher." Participant 2 used *Pinterest* and *Teachers Pay Teachers* as resources to help with curriculum planning. Participant 2 used math tutorials to introduce math concepts. Participant 2 used digital media each day in class with an online textbook.

Participant 3 used online library and literacy software several times a week and often times daily in the classroom. Participant 3 commented, "Digital media is current and helps me keep my project topics current." Participant 3 reported that when assigning collaborative projects in the past, the resources of the library played a role; however, this was lessened with digital media. Participant 3 used the Internet for research projects for literacy students. Students worked individually and in groups to complete assignments. Participant 3 used videos to introduce lessons and grab the attention of students. An interactive and individualized grammar software was used that allowed the teacher to monitor each student's progress.

Participant 4 used an online program *Kahoot* for formative assessments. Participant 4 stated, "With the easy accessibility of this program, I am able to assess concept understanding and differentiate instruction as needed." Participant 4 used this program several times per week. Participant used an online textbook daily with students. Participant 4 used a flipped classroom using a web-based program to introduce the lessons at home and then follow up the next day with individualized help in the classroom. Students in this math class used an online tutoring program for extra help.

Participant 5 used an online library for students to choose novels based on their interests and reading levels. Students made videos for role-playing that their classmates then critiqued. Participant 5 allowed students to review with *Quizlet* and create study games and guides. Participant 5 stated, "Creating review games has helped students learn the material." *Edmodo* was the method for posting assignments and giving student feedback.

Participant 6 used videos from *Teachertube* and *Learn 360* to introduce and reinforce literacy standards. The students become engaged in the topics based on the videos. Participant 6 used an online textbook and online library books. Participant 6 stated, "The online books give accessibility to literacy any time and place." Participant 6 made and posted videos of her lessons for her students.

Participants 5 and 6 used an online library weekly or sometimes more often in class. Both participants stated that students accessed books of their own choosing. Both Participants 5 and 6 reported that students read and discussed the books because of their personal interests in the reading material. Participant 1 demonstrated to students how to download

their math textbook and how to set up an *Edmodo* account for assignments and communication.Both participants used online programs on a weekly to daily basis.

Participant 1 and Participant 2 used a flipped classroom model where students watched video tutorials from *Khan Academy* which introduced them to new topics at home. Students then spent class time asking questions and receiving individual help from teachers. Participant 1 used math tutorial programs,*Khan Academy* and *Excel Math.* Participant 1 used an online textbook. Participant 1 stated, "*Khan Academy* engages students and gets them invested in the learning, then I can build on that." Participant 2 used an online textbook and math tutorial programs – *Teachers Pay Teachers, Virtual Nerd,* and *Illustrative Math.* Both Participant 1 and Participant 2 accessed *Pinterest* as a resource for teaching ideas.

In conclusion, Participant 3 used literacy software and an online library. Participant 4 used an online textbook, *Kahoot,* and *Teachertube* as digital media resources. Participant 5 used *Quizlet* and *Socratic* websites to enhance the lessons. Participants 5 and 6 used an online library. Participant used *Teachertube, Comic Life, Learn360,* and *Quizlet* as digital media resources. Participant 6 used an online textbook as part of the literacy curriculum. Participant 6 stated, "I am always looking for resources and ask my colleagues for suggestions for resources." All participants used the social learning site, *Edmodo,* to post assignments and communicate with students.

RQ2: What instructional strategies do middle school literacy and math teachers use when they integrate digital media into the curriculum?

Participant 1 used online textbooks, math software and videos. Participant 1 frequently used a tutorial program for assessment to guide instruction. Participant 1 used an interactive board, LED projector, and computer on a daily basis. Participant 1 used students interests related to music and pop culture to help construct assignments. This teacher viewed collaborative projects between students as an integral teaching strategy that was used in this classroom. Participant 1 stated, "Projects have become student-centered instead of teacher-centered." Participant 1 used online tutoring programs to help students inside and outside the classroom.

Participant 2 used an interactive board as an educational tool to demonstrate various software programs and websites to be used in class. This participant used an online textbook along with the *Khan Academy* website and *Pinterest* to plan lessons and to introduce concepts. Participant 2 emphasized that an important strategy in the integration of digital media was teaching and demonstrating procedures to be used. The teacher uses *Edmodo* extensively and models to his students how to navigate within this site. Participant 2 stated, "Demonstrating how to use the resources has been key to their use." Participant 2 used collaborative projects with an emphasis on visual aids. Participant 2 worked diligently to teach students with different learning styles.

Participant 3 stated, "Digital media has become the media center for my students." Participant 3 used digital media for research, planning, and for presentations. Participant 3 integrated digital media into the curriculum by requiring students to read

novels on their computers and highlight information read. Participant 3 reported, "Integrating digital media has allowed me to use differentiation strategies." Participant 3 used a literacy program that allowed students to work at their own pace with individualized assignments.

Participant 4 integrated digital media into the math curriculum through the use of an online survey program called *Kahoot* and the use of *Edmodo* to post assignments. Participant 4 stated, "*Edmodo* has allowed students to have access to help from me or other students while at home and that has helped grades." Participant 4 stated that digital media had made the classroom where students lead discussions instead of teachers-leading classroom discussions. Participant 4 integrated digital media into the curriculum through collaborative projects that were based on real life scenarios. Students worked together to find the solutions using their school devices.

Participant 5 used web quests, *Quizlet,* and *Comic Life* software to enhance projects by having students being creative. Participant 5 used *Edmodo* extensively in the classroom. Students had to use this learning site for classroom assignments and communication with the teacher. Participant 5 stated, "Finding and using relevant sources for classroom lessons is essential for student engagement." Participant 5 used the access to portable devices to research news events that held interest for students.

Participant 6 incorporated digital media into the curriculum through the use of video journals to respond to assignments. Students in class used software to create flashcards and review games. Participant 6 used various software programs that helped students develop projects that were creative and research based. Another strategy that

Participant 6 used was having students make videos that explained different concepts that they were learning. Next, I present the themes.

Themes

Theme 1: Individualized Instruction

All participants reported using digital media as a means to individualize instruction in the middle school math and literacy curriculum. Participants 1, 4, and 6 used a flipped classroom that allowed for deeper exploration of subject matter. Students watched tutorials of the lesson at home and brought questions to class the next day. The teacher worked closely with individual students during class. Participant 3 used an online library with books based on individual reading level. Participant 5 used an online assessment program to differentiate and individualize classroom instruction.

Theme 2: Relevant Instruction

All participants reported that digital media made their instruction more relevant to students. Participant 1 assigned projects based on students' interests. Participant 2 allowed students to pick their own topics and then the teacher assigned a project correlated to the topic. Participant 3 used interactive literacy software, in which videos and music were embedded within the program. Participant 4 used collaborative problem-based learning that used real life scenarios for middle school students. Participant 5 integrated current events into the lesson. Participant 6 allowed students to create videos and products.

Theme 3: Positive Experience with the Integration of Digital Media

All participants agreed that digital media had become one of the main resources that were used in their classrooms. All participants incorporated videos within the lessons either as an introductory component, as part of the lesson, or as a student assignment. All participants had an interactive board, projector, desktop, portable device, and all students had been issued a school device. Participants 1 and 2 used *Khan Academy* and *Edmodo,* as online resources for lesson planning and lesson development. Participant 1 also used *Pinterest* as a resource for classroom ideas. Participant 2 enhanced lessons through the programs *Illustrative Math* and *Virtual Nerd.* Both Participant 3 and 5 included video clips and an online library in their digital media integration. Participant 5 also used a number of study websites such as *Quizlet* and *Socratic*. Participant 4 integrated digital media into the math class via an online textbook and tutoring software. Participant 6 used videos to introduce various lessons and had students make music videos to explain various concepts.

Theme 4: Extent of Digital Media Integration in Math and Literacy Classrooms

All participants used digital media in their classrooms on a daily basis. All participants used digital media tools – interactive board, projector, desktop, and portable device – each day in each class. All participants embedded videos in the lessons during the week. All participants included various websites and software programs in their math and literacy curriculum. Digital media was an integral classroom resource and tool for both teachers and students.

Theme 5: Helping Math and Literacy Students Learn Digital Media

All participants used digital media in the math and literacy curriculum. All participants reported that before students accessed a program, participants demonstrated the components of the program. Participants showed students how to access programs, how to navigate through the programs, and then encouraged students to explore the programs. Participants modeled the use of the programs before allowing students to use the programs.

Theme 6: Use of Social Learning Site

All participants capitalized on the social learning network, *Edmodo,* that the district chose for student communication. All participants used this site as a way of communicating with students about classroom activities. All participants used *Edmodo* to post assignments, post feedback, or post comments to students. *Edmodo* was used by all participants as a means of discussion between teacher and student.

Summary of Themes

Within the interview responses, there were patterns that surfaced. All participants identified individualized instruction as a key value in the integration of digital media in the math and literacy curriculum (Theme 1). Participant 1 used *Edmodo* to answer individual questions and post individual feedback. Participants 1, 2, 4, and 6 used the flipped classroom concept to work with individual students' issues about math concepts in class. Participant 3 used an online library and assigned novels based on the reading

level of students. Participant 5 used a software program to assess individual students and determine assignments from the assessment.

All participants identified relevant instruction as a positive characteristic of digital media integration (Theme 2). Participants 1 and 2 assigned projects based on student interests. Participant 3 used an interactive literacy program that had relevant videos and music for middle school students. Participant 4 assigned projects that contained relevant subjects for middle school students. Participant 6 used vides that were relevant and meaningful to students.

Participants 1-6 integrated digital media throughout their lessons. All agreed that digital media had become one of the main resources that were used in their classrooms. All participants indicated that their experience with digital media was positive (Theme 3). All participants incorporated videos within the lessons either as an introductory component, as part of the lesson, or as a student assignment. All participants had an interactive board, projector, desktop, portable device, and all students had been issued a school device.

All participants used digital media in their classrooms on a daily basis (Theme 4). All participants used digital media tools – interactive board, projector, desktop, and portable device – each day in each class. All participants embedded videos in the lessons during the week. All participants included various websites and software programs in their math and literacy curriculum. Most participants embedded videos every day within the class period.

All participants used digital media in the math and literacy curriculum. All participants reported that before students accessed a program, participants demonstrated the components of the program (Theme 5). Participants showed students how to access programs, how to navigate through the programs, and then encouraged students to explore the programs.

All participants capitalized on the social learning network, *Edmodo,* that the district chose for student communication (Theme 6). All participants used this site as a way of communicating with students about classroom activities. All participants used *Edmodo* to post assignments, post feedback, or post comments to students.

In conclusion, emergent themes and patterns were common in the responses by the six participants: (a) all participants individualized instruction in the middle school math and literacy curriculum through digital media integration (Theme 1); (b) all participants made the math and literacy curriculum relevant to the students through digital media (Theme 2); (c) all participants had a positive experience with digital media integration into the middle school math and literacy curriculum (Theme 3); (d) all participants integrated digital media into the math and literacy curriculum on a daily basis (Theme 4); (e) all participants demonstrated to students how to use digital media in the middle school math and literacy curriculum; (f) all participants used *Edmodo* to communicate with students (Theme 6).

All participants individualized instruction to fit the needs of students. Participants 1, 2, 4, and 6 integrated a flipped classroom that allowed for deeper understanding of the subject matter. Participant 3 used an online library and based novel selection on reading

levels. Participant 5 assessed students using a software program. The teacher then planned instruction based on assessment results.

All participants stated that digital media had allowed teachers to make instruction relevant. Participants 1, 2, and 24 assigned projects based on student interests. Participants 3 and 6 used software and videos that were relevant to middle school students.

All participants indicated that their experience with digital media was positive. All participants incorporated videos within the lessons either as an introductory component, as part of the lesson, or as a student assignment. All participants had an interactive board, projector, desktop, portable device, and all students had been issued a school device.

All participants used digital media tools – interactive board, projector, desktop, and portable device – each day in each class. All participants embedded videos in the lessons during the week. All participants included various websites and software programs in their math and literacy curriculum.

All participants reported that before students accessed a program, participants demonstrated the components of the program. Participants showed students how to access programs, how to navigate through the programs, and then encouraged students to explore the programs. All participants capitalized on the social learning network, *Edmodo,* used this site as a way of communicating with students about classroom activities. Students had access to the teacher to ask questions or ask for clarification outside the hours of the school day.

References to Outcomes in Section 4

The findings of this qualitative case study revealed that middle school math and literacy teachers used digital media to a large extent in their curriculum and classrooms. Digital media played an essential role in teaching and learning in the math and literacy curriculum of the six participants. All participants used projectors, computers, and interactive boards daily. Math and literacy videos, software, online textbooks, online libraries, and a social learning site were all used to help students understand math and literacy concepts.

All participants used digital media to individualize instruction for math and literacy students. Participants used flipped classrooms to offer individual help inside the classroom while other participants used online libraries and interactive software to individualize assignments. All participants stated that digital media helped make their instruction relevant to students by allowing students to have choices and the software programs were interactive and interesting to students. Participants demonstrated and modeled the use of the software programs to help students utilize the programs successfully.

Math and literacy teachers could use professional development in several areas of digital media integration. Classroom management with digital media is different than with students using a textbook. Teachers need instruction in the most efficient methods of keeping students on task while using digital media. Professional development focused on the use of different types of Apple software programs such as *Keynote, Pages, Comic Life,* and *Garage Band* would be helpful because students and teachers at the research

site have access to these programs; however, the utilization of the programs by teachers is minimal. Developing a professional development plan that included the following topics would be helpful in the integration of digital media: (a) collaboration; (b) real world problem based learning; (c) video production; (d) learning styles; and (e) formative assessment. The findings disclose that math and literacy teachers use digital media to a large extent; however, an emphasis on the above areas, software training, and management training would help teachers become even more successful in the integration of digital media in the math and literacy curriculum.

Bounded by Evidence

After I received IRB approval, I interviewed six middle school math and literacy teachers. The interviews took place at the research site at a date and time that was chosen by the participants. The interviews lasted approximately one hour. I audio taped all interviews and took notes. I wrote a reflection in a journal after each interview. All interviews were transcribed within five days.

Participants returned for a second interview at the research site that lasted an hour. During this second interview, I conducted member checking with each participant. I reviewed the findings from each interview with individual participants.

I examined the experiences of middle school math and literacy teachers with the integration of digital media into the curriculum. Data analysis revealed six emergent themes from the interview data. These themes emerged from patterns from answers from all six participants. All participants used digital media to individualize instruction (Theme

1). All participants used digital media to make instruction relevant to middle school students (Theme 2). All participants had a positive experience with digital media integration (Theme 3). All participants used digital media on a daily basis (Theme 4). All participants helped students learn digital media (Theme 5). All participants used *Edmodo* to communicate with students (Theme 6).

The teaching strategies and resources that this study has identified are important to math and literacy teachers in the implementation of digital media in the curriculum. The findings are research-based and could help improve pedagogical practices.

Relationship of Findings to the Literature

All participants in my study emphasized that students were more engaged when digital media was integrated. Student achievement is affected by education technology. Loch, Galligan, Hobohn, and McDonald (2011) also found that students are more active learners and their performance improved when teachers use technology in the classroom. Flipped classrooms that use videos to teach lessons when students are at home and then have students come in and complete homework in class are showing success in student achievement and engagement in math classes in a Minnesota school district (Fulton, 2012). In a 2–year study of upper elementary classrooms, students with 1:1 classrooms outperformed classrooms without digital media on English Language Arts assessments (Suhr, Hernandez, Grimes, & Warschauer, 2010).

One of the themes in my study was that digital media helps teachers individualize instruction based on software assessments. According to Phillips and Popovic (2012),

over 60% of teachers stated that digital media games made it easier for them to teach students with different ability levels and to personalize instruction while capturing real-time data. Literacy and math proficiency could be positively affected by educational software (Kiriakidis, 2013). According to Means (2010), automated assessments of both literacy and math are provided through the use of educational software to allow teachers to analyze the academic progress of students on a daily basis, which could also be used for teachers to apply individualized instruction given students' needs. Teachers who have integrated technology into the curricula have been using differentiated instruction together with individual remediation to help students improve proficiency in academics (Levin & Schrum, 2013). The National Council of Teachers of English (2012) stated that students must develop proficiency in the integration of digital media into the literacy curriculum. When students are competent in using digital media, instruction could be differentiated to meet the needs of the students (Hur & Oh, 2012). Students should focus on using digital media for personalized learning experiences (Project Tomorrow, 2013). Zucker and Light (2009) stated that teachers could use a variety of specific educational applications of computers in the classroom. Conway and Amberson (2011) and Watson and Pecchioni (2011) agreed that when teachers use digital media to teach concepts, students' collaborative skills, critical thinking skills, and media literacy skills are enhanced.

In my findings, teachers used digital media to allow student collaboration and to learn different software applications.

Bandura (1977) stated that an individual's actions and reactions in almost every situation are based on the beliefs a person has in their ability to be successful. According to Ertmer and Ottenbreit-Leftwich (2010), the ability to develop plans for teaching with software and selecting the appropriate computer applications to meet students' learning needs and curriculum instructional needs are integral parts of ongoing professional development. According to Pan and Franklin (2011), as teachers spend more time in professional development, their confidence in using technology increases as does their self-efficacy beliefs. In study conducted by Silvernail and Buffington (2009), middle school teachers participated in a 2-year professional development program designed to improve their ability to use digital media in teaching mathematics. Continuous professional development was effective in changing instructional strategies and improved student performance on state math tests. Bennison and Goos (2010) found that professional development participation related to greater confidence with digital media and more positive beliefs about the benefits for the use of digital media in the math classroom.

According to Baku (2013), there is a significant positive relationship between the attitude towards digital media and the self-efficacy for the use of digital media materials in education. Their experience with digital media integration was positive. Fanni and Cantoni (2013) investigated to determine if teachers' sense of technology self-efficacy correlated with teachers' personal perception of being an effective teacher with findings concluding that the participants felt that a good teacher must possess self-efficacy in digital media. In the findings of my study, the participants were confident in their ability

to integrate digital media into the math and literacy curriculum, but wanted to continue to receive training on the latest educational software. Professional development must take place if digital integration is to be successful.

Practical Application of the Findings

School and district administrators could use the findings to guide professional development for math and literacy teachers that may help teachers become more confident in their ability to implement digital media into the curriculum. With improved self-efficacy in digital media integration and the use of best teaching practices, teachers could help students improve scores on math and literacy state tests.

School and district administrators could focus on purchasing math and literacy teachers in math and literacy software programs that are interactive and will engage students. The school and district budget should include the cost of the software programs and the cost of trainers to work with the teachers for successful digital media implementation.

Students at the research site were not passing state tests in math and reading. The findings revealed that the participants of the study had a positive experience with digital media integration and reported many positive aspects of using digital media in the curriculum. The school and district administrators could use the data to guide professional development programs that focus on successful instructional strategies that were reported by participants. Both school and district leadership could use these practical findings to support math and literacy teachers, to support funding for software

programs, to support funding for training, and to garner support for these programs from parents, staff, and policy makers. Through this support, math and literacy teachers may be able to help students perform better on state tests.

Implications for Social Change

Six themes were identified in the research findings: (a) individualized instruction; (b) relevant instruction; (c) positive experience with digital media integration; (d) extensive use of digital media integration in math and literacy classroom; (e) help math and literacy students learn digital media; (f) use of social learning site. The findings regarding the experiences of middle school literacy and math teachers with the integration of digital media into the curriculum could help teachers with strategies on how to successfully integrate digital media into the curriculum. The findings have professional application for the successful integration of digital media into the curriculum to help (a) teachers improve their teaching practices, (b) school administrators develop policies and practices regarding digital media, and (c) provide district administrators with recommendations for a design of professional development initiatives for literacy and math teachers on how to integrate digital media into the curriculum.

Implications for social change include (a) strategies to teach literacy and math students by integrating digital media into the curriculum and for schools to meet AYP, and (b) school districts to integrate digital media into the middle school curriculum, and (c) administrative support for teachers to improve their instructional strategies to integrate digital media into the curriculum for students to pass standardized tests and

graduate from school. The aforementioned implications are based on the findings from this qualitative case study to help teachers, school, and district leaders create programs that focus on successful instructional strategies for digital media integration.

A professional development plan for teachers should include the instructional strategies that the participants identified that were successful. Modeling, demonstrating, using digital media consistently, collaboration, flipped classrooms, and individualized instruction were all strategies that were discussed by the in the interviews. The professional development plan should also include training on various software programs that were identified in the research study; however, other programs should be included.

School and district administrators should build on these strategies to train teachers on digital media integration. Using data collected in this study helps the school and district leaders have a professional development plan based in research and proven pedagogical practices. The findings could also help school and district leaders provide professional development that models research based instructional strategies for digital media integration and provide training on math and literacy software programs.

Recommendation for Action

Teachers

Math and literacy teachers, school and district administrators, and policymakers regarding digital media could use the findings of this qualitative case study. These teachers could use software programs to help students pass state tests and graduate. The findings revealed that middle school math and literacy teachers had a positive experience

with digital media integration. The findings could help teachers with other core content and grade level teachers willingly attempt digital media integration with confidence.

Software Programs

The integration of digital media into the middle school math and literacy curriculum could include software programs for math and reading to help students master the curriculum. Graduates from high school could join the workforce or attend post secondary institutions.

Professional Development

Professional development within the school and within the district could be planned based on the strategies that were successful in the integration of digital media in the math and literacy middle school curriculum. Professional development for math and literacy teachers should focus on instructional strategies for the successful integration of digital media into math and literacy curriculum.

School and District Administrators

Findings from this study could encourage school and district administrators to help teachers integrate digital media into the curriculum. School and district administrators should provide training in math and literacy software programs and the application of using portable devices within the classroom to help integrate digital media into the curriculum. School and district administrators could use the findings to determine

personnel and capital resources. In order to provide necessary professional development, training costs must be included in the budgeting process. School and district administrators may also use the findings to discuss the infrastructure of the schools to support digital media integration and the costs associated with upgrades. Findings from this study are pragmatic and could be transferred to other middle school teachers and other middle schools that are in the process of integrating digital media into the math and literacy curriculum. Next, I discuss recommendations for further study.

Recommendations for Further Study

This qualitative case study could be a starting point for other types of research studies based on the premise of digital media integration in the math and literacy curriculum. A quantitative study comparing state math and reading scores before and after digital media integration could be conducted to determine the effectiveness of digital media. A mixed-methods design could be used to interview and survey math and literacy teachers regarding the effects of digital media integration for a mixed-methods research study that would gather data from two different sample populations.

Recommendations for further study include using a larger sample of teachers from one or more schools or from one or more school districts. Students, parents, and administrators could be the participants for a qualitative, quantitative, or mixed-methods study. The impact of professional development on digital media integration and teaching strategies could also be examined using a mixed-methods research study. The impact of

specific math and literacy software programs on achievement and performance could be examined. Next, I discuss my reflection about the research study.

Author's Reflection

For my study, I interviewed six middle school math and literacy teachers about their experiences with integrating digital media in the classroom. Before this study, I had never conducted formal research; however, I had gathered informal research information about various educational programs that my school was piloting and had presented the findings to the staff and school administration. Interacting with the participants was stressful for me because I was afraid of missing some important piece of information even though the interviews were recorded. I did not want to miss the eye contact or the body language as thought there could be something to be learned from these two non-verbal forms of communication as well as the interview answers. Listening to the audio taped interviews repeatedly helped me to learn how to listen with a purpose to identify patterns and themes. Interacting with the participants was the most rewarding part of this process because each individual was eager to help me in my research in hopes of helping other educators with digital media integration.

The strategies and resources discussed in my research could help districts and school leaders regarding digital media integration into the curriculum. I hope that school and district administrators uses the findings of this research to help develop a professional development plan that will help classroom teachers identify teaching strategies to integrate digital media successfully in the classroom and curriculum.

Summary

At the research site, which was an urban public middle school, no research had been conducted to examine the experiences of middle school teachers with the integration of digital media into the curriculum. The instructional strategies of middle school teachers had not been researched using a case study design to collect qualitative data on digital media integration into literacy and math curriculum to understand if the integration had helped students increase their proficiency in literacy and math. At the research site, middle school students were not passing state tests in literacy and math. Schools at the research site did not meet AYP. Senior district administrators needed research-based findings on the integration of digital media into the literacy and math curriculum to make decisions on the allocation of human and capital resources to help students pass state tests. The purpose of this qualitative case study was to examine the experiences of middle school literacy and math teachers with the integration of digital media into the curriculum in order to help students improve their proficiency in both literacy and math state tests.

I interviewed six literacy and math teachers who had been mandated to integrate digital media into the curriculum. I conducted this case study to understand the experiences of middle school literacy and math teachers with the integration of digital media into the curriculum.

The findings revealed six themes that were common among all participants: (a) all participants used digital media to individualize instruction (Theme 1); (b) all participants used digital media to make instruction relevant to middle school students

(Theme 2); (c) all participants had a positive experience with digital media integration (Theme 3); (d) all participants used digital media on a daily basis (Theme 4); (e) all participants helped students learn digital media (Theme 5); (f) all participants used *Edmodo* to communicate with students (Theme 6).

The findings revealed that middle school math and literacy teachers used digital media as a daily teaching and learning resource. The participants used interactive boards, LED projectors, computers, software, websites, online textbooks, and online libraries. The integration of digital media into the curriculum gave students and teachers greater access to each other for communication. The use of software allowed teachers to individualize assignments and instruction.

The findings from this study could help teachers with digital media integration. School and district administration should develop professional development opportunities that focus on new educational software and their compatibility with state standards. Both human and capital resources that are needed for the integration of digital media should be included in the budget.

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