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Blended Learning and Educational Technology: Using An Online-Digital Curriculum To Support Student Learning

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Using An Online-Digital Curriculum To Support Student Learning

Dissertation Submitted in Partial Fulfillment of the Requirements for the Degree of

Doctor of Education in Educational Leadership

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Dissertation Statement for Binding

This document is organized to meet the three-part dissertation requirement of the National Louis University (NLU) Educational Leadership (EDL) Doctoral Program. The National Louis Educational Leadership EdD is a professional practice degree program (Shulman et al., 2006).

For the dissertation requirement, doctoral candidates are required to plan, research, and implement three major projects, one each year, within their school or district with a focus on professional practice. The three projects are:

- Program Evaluation
- Change Leadership Plan
- Policy Advocacy Document

For the **Program Evaluation** candidates are required to identify and evaluate a program or practice within their school or district. The "program" can be a current initiative; a grant project; a common practice; or a movement. Focused on utilization, the evaluation can be formative, summative, or developmental (Patton, 2008). The candidate must demonstrate how the evaluation directly relates to student learning.

In the **Change Leadership Plan** candidates develop a plan that considers organizational possibilities for renewal. The plan for organizational change may be at the building or district level. It must be related to an area in need of improvement with a clear target in mind. The candidate must be able to identify noticeable and feasible differences that should exist as a result of the change plan (Wagner et al., 2006).

In the **Policy Advocacy Document** candidates develop and advocate for a policy at the local, state or national level using reflective practice and research as a means for supporting and promoting reforms in education. Policy advocacy dissertations use critical theory to address moral and ethical issues of policy formation and administrative decision making (i.e., what ought to be). The purpose is to develop reflective, humane and social critics, moral leaders, and competent professionals, guided by a critical practical rational model (Browder, 1995).

Works Cited

Browder, L.H. (1995). An alternative to the doctoral dissertation: The policy advocacy concept and the policy document. *Journal of School Leadership, 5,* 40-69.

Patton, M. Q. (2008). *Utilization-focused evaluation* (4th ed.). Thousand Oaks, CA: Sage.

Shulman, L.S., Golde, C.M., Bueschel, A.C., & Garabedian, K.J. (2006). Reclaiming education'sdoctorates: A critique and a proposal. *Educational Researcher, 35*(3), 25-32.

Wagner, T. et al. (2006). *Change leadership: A practical guide to transforming our schools.* San Francisco: Jossey-Bass.

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ABSTRACT

XYZ District has recently invested in a one-to-one technology initiative, providing each student in grades three through eight with an iPad. However, consistent integration of this new technology with classroom teaching strategy has been lacking, even though teachers were provided with a digital curriculum and guidance in blended-learning pedagogy through the XYZ Internal University. This may be due, in part, to the evolving culture in many schools, as well as teacher competencies and self-efficacy in using the technology. Given the potential for significant student learning gains through the proper implementation of this technology, two representative teachers were surveyed to gather data regarding iPad use in the classroom. The teachers were then provided training in use of the Odyssey supplemental digital curriculum, and surveyed again after one month's consistent use of the program. In a follow-up survey one month later, these teachers reported increased student content mastery and engagement from consistent use of the iPads and Odyssey curriculum.

PREFACE

The motivation for creation of this change plan was a desire to see more effective teaching and increased student learning outcomes through the consistent implementation of the digital curriculum. This would mean that the digital curriculum would be utilized in the way in which it was designed and intended to be delivered on a daily basis.

Oftentimes technology is simply added to the classroom, with little integration or fidelity. This could be the situation in XYZ District even though we have made significant investments in one-to-one iPads. However, the potential for their positive impact on student learning is great. These devices can allow teachers to improve personalized learning, as well as increase innovation in the classroom. It is my hope that through this research-based change plan, our teachers will be empowered to achieve the full benefit of this technology; if they do so, we will see the improvement in student learning and performance possible with such learning tools.

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SECTION ONE: INTRODUCTION

Statement of Problem

School districts across the country have been spending hundreds of millions of dollars on technology every year (Educational Testing Service, 1997). From my own professional experience, I have seen technology transform education and boost student learning when utilized correctly. Recently, many school districts, including my own, have implemented a 1:1 program, which involves giving every student a device to use at school. 1:1 technology is important in today's classroom because it can help teachers differentiate both the ways they teach and the ways students demonstrate their learning (Harris, Mishra, & Koehler, 2009). The possibilities are endless in a 1:1 environment if there is a shared understanding of technology integration and implementation. However, too often technology is imported into classrooms without the necessary changes to teacher practice and school organization to support them (Baylor & Ritchie, 2002).

Through the Board of Education's strategic plan, every child attending XYZ School District has an equal opportunity to excel in the fast-paced, ever-changing environment of the 21st century with a 1:1 program. As we continue to implement Personalized Learning Using Digital Tools (PLuDL) in the district, we have supported the rollout of new technologies with intensive professional development guided by both research-based methodologies and best practices in the field. Technology is used to enhance and support the curriculum, instruction, assessment, and professional development in our district so that we ensure our students are successful as they move on with their education (Partnership for 21st Century Skills, 2006).

XYZ School District was one of the first in our state to institute a 1:1 iPad

program, and our PLuDL program has been in place for three years. The Board of Education has invested a substantial amount of resources to fix and otherwise transform our network infrastructure to support the increase of mobile devices. Parents, teachers, and board members were told that having each student have their own device would support individualized learning (Foote, 2012). However, the excitement and luster of the 1:1 iPad program has begun to wear off, and we have quickly realized that we do not have a digital curriculum that is being consistently implemented to use with the student iPads.

At XYZ School District, we are committed to supporting a successful and safe learning environment in which creativity thrives and innovation challenges our students to become future leaders. Our students need to develop the knowledge and skills needed to succeed in the increasingly global, technology-infused 21st century workplace (Partnership for 21st Century Skills, 2006), and we recognize that it is important to plan digital curriculum enhancements in order to help them reach those goals.

Compass Learning, a learning acceleration company specializing in digital curriculum development, produces the Odyssey Learning Program, which is a comprehensive, web-based English Language Arts and mathematics program for K–8. This program supports individualized learning and curriculum differentiation. Compass Learning's Odyssey software platform provides students with project-based activities that promote inquiry and problem solving using critical thinking skills (Moss, 2015). This software presents a learning platform that is rich in audiovisual and intellectual stimulation to engage and motivate all types of learners. The platform differentiates instruction by automatically assessing students and placing them into their appropriate

learning paths, while giving students opportunities for guided work and exploration to improve their mastery and understanding of content. Additionally, Compass Learning's Odyssey platform has shown evidence of benefiting administrators, instructors and students by improving their implementation of individualized, research-based instruction that does not require extensive preparation time by the teacher (Moss, 2015). "This allows a seamless blending of theories that tend to complement each other when combined through technology. Such a wide utilization of methods to meet individual student needs would be impossible without the aid of computer-based curriculum" (Moss, 2015, p. 50).

Two years ago, teachers began asking for a supplemental digital curriculum that follows the Common Core Standards and provides an opportunity for our students to utilize the student iPad for individualized learning. As district technology curriculum coordinator, I was assigned the task of creating a supplemental digital curriculum for grades K–5 utilizing the Odyssey Learning Program during the 2014–2015 school year. I created folders and activities aligned to our units of study that were stored in the Instructional Planner (Doe, 2013) in the Odyssey Learning Program for teachers to utilize. The Instructional Planner (IP) is a computer-based program produced by Collaborative Learning. This program helps teachers plan, archive, and track their lessons. Through our digital curriculum, teachers will then be able to assign folders that contain activities for every student so that each may practice the subject content that is currently being taught in the classroom. Teachers can also use this online digital curriculum to ensure that every standard is reinforced. Students who complete the folder with a score of 80% or better have demonstrated overall mastery of the lesson content.

In addition to what is part of Odyssey, I was also asked to build formative assessments into the curriculum, since giving students these assessments to inform instruction is considered best practice (Stronge, 2005). These assessments are important because they provide information that teachers use to adjust teaching and learning. I helped create formative assessments through the Odyssey Learning Program for each grade level (K–5) in reading and math for each Common Core Standard. This will support individualized learning because students will be assessed at their own ability level.

By adopting this new digital curriculum and sharing it with all teachers, we believed that student learning would increase and test scores would rise. However, we are not currently seeing the student gains that we were promised. Therefore, we must begin to actively look at the reasons behind the lack of growth.

With any new program, if it is not implemented with accuracy in the classroom, then you will not see the results the program is meant to achieve. As we move forward, we will be looking at the barriers in our classrooms that keep teachers from using this program regularly with their students. Removing these barriers will help teachers be more effective and in turn, increase student achievement. The student outcomes from the use of the supplemental digital curriculum will provide us with data that would support blended learning, which can provide a 24/7 connection to the learning community (Abbey, 2008).

In District XYZ, we are also working toward implementing a blended-learning model in the classroom that personalizes learning, which also requires the implementation of a digital curriculum with fidelity. This will in turn lead to the

automatic and seamless use of the digital resources in the classroom.

Implementing blended-learning programs, which would use a combination of technology and traditional face-to-face learning in a classroom, takes time, planning, and buy-in, which is why we have begun this process this year. It entails a significant shift in instructional strategy that impacts teaching and learning; school management; technology; facilities and infrastructure; and professional learning (Tucker, 2013). With this type of model, students will learn, at least in part, through both the online delivery of content and instruction through a supplemental digital curriculum. They would therefore be able to control the time, pace, and place of their learning. However, this means that the district must have a separate supplemental digital curriculum that supports and reinforces what is being taught in the classroom that is being used consistently with students. This needs to occur before we can fully implement a blended-learning model of instruction. However, since the district is struggling with the integrity of implementation of the current digital curriculum, it is important to examine ways to improve implementation before blended learning is fully underway.

If teachers were to implement the supplemental digital curriculum with fidelity, this would facilitate a smooth transition of digital resources to the classroom. Additionally, the benefits for student learning would be significant and this would aid the district by improving test scores and supporting a blended-learning instructional model. This would also benefit stakeholders because it would show the positive impact technology has on student achievement and justify the expensive investment in these resources. Finally, this would benefit students, as it would support individualized learning, allowing students to learn and progress at their own pace, to explore things on

their own and be in charge of their own learning (Tucker, 2013). Moreover, the Partnership for 21st Century Skills's Framework for 21st Century Readiness emphasizes technology skills as a mean of ensuring students are prepared to compete in our global economy (Partnership for 21st Century Skills, 2006). By utilizing technology consistently in the classroom, this will only help to ensure that our students are qualified and able to earn college degrees at our nation's top universities.

This change plan examines how District XYZ can increase the reliability of implementation of the digital curriculum in our district using our 1:1 devices. This would only help to enhance the learning experiences we provide for all of our students.

Rationale

I chose to focus on the lack of implementation of an online supplemental digital curriculum for several reasons. To begin with, our district is looking to implement a blended-learning model in our classrooms, which involves students using an online supplemental digital curriculum. For that reason, we need to make sure that the district has a system in place to implement these curricula in the way that they were constructed to be delivered. This new model of learning would benefit our students both academically and socially in the classroom. At the beginning of last year, I was asked to take on the role of technology curriculum coordinator for the district, and part of my responsibilities was to create a supplemental digital curriculum for students in grades K–5. I also taught in a 1:1 classroom in our district last year. My team had to re-create and develop lessons that followed the Common Core Standards every day and fit with the student use of an iPad. This was extremely time-consuming. However, this is something that I started to enjoy doing, because I saw the positive impact it had on my students. I

loved watching my students get excited about learning again. The majority of my students indicated that they were more excited to attend school and were more organized in their learning when they got to use the iPad every day than in previous years. I am very passionate about technology and what it can do to improve student learning.

The iPad can be a valuable asset in education. Students can access digital resources that can support and enhance what is being taught in the classroom. When my students used the iPad in the classroom I noticed there was a higher level of engagement, including richer, deeper conversations from students. There was also a higher level of collaboration and creativity. For example, they would use their iPads to create storybooks and iMovies. In other words, students were able to demonstrate learning in new ways.

If the digital curriculum is implemented with fidelity this would in turn lead to the flawless use of digital resources throughout the school day, there will be many benefits to our community, school district, and stakeholders. Recent studies (e.g., Watson, 2008; Rosen & Beck-Hill, 2012) have noted that student achievement will increase due to students accessing an online digital curriculum that supports and reinforces the Common Core Standards on a daily basis. Through online learning, students will be able to learn more in less time. Therefore, if the digital curriculum is used consistently in our classrooms, it will have an impact on changing teachers' teaching practices toward providing more cooperative learning and less direct instruction. The technology proficiency of our students and teachers will improve, along with the intellectual rigor of the lessons being presented.

With a well-implemented system for digital curricula, our district can take

advantage of blended-learning models. Blended learning, through combining the best elements of online and face-to-face education, is likely to provide more support to students who may need extra assistance in the classroom. Therefore, the teacher will be able to devote more attention to each student and their individual learning style. Our school district will benefit from a well-structured system for the implementation of digital curricula because we are currently working on developing a blended-learning model with our curriculum committee for all classrooms to begin implementing during guided reading and guided math time in the fall of 2016.

Furthermore, if our teachers were utilizing our supplemental digital curriculum with consistency, our PLuDL program would be enhanced. By increasing student achievement and engagement, the positive results of 1:1 technology would be demonstrated to our stakeholders and surrounding community. Having a quality 1:1 program in our schools helps to set us apart from the rest of the school districts and towns in the area. Our district will become a model for other districts to follow for student achievement and academics.

Students will likely show more positive attitudes toward learning and a higher level of engagement when participating in blended learning environment (Wong, 2014). Students will be self-motivated, show persistence, and put forth more effort when working within the digital curriculum. Ultimately, online learning encourages self-direction and independent learning, which are important factors for student engagement and motivation.

Students will be using their own device to access a digital curriculum that supports what is being taught in the classroom and track their own learning. By

accessing the digital curriculum consistently, student academics, responsibility, and self-awareness, all important life-skills, will increase. These skills will benefit students as they move on to college and careers beyond high school (Milken Exchange on Education Technology, 1999). Students entering college are more likely to succeed if they have good grades, are responsible, and have self-management skills (Conley, 2008).

Goals

The delivery of instruction has changed drastically in the past few years from direct instruction, in which the teacher is always front and center, to a more flexible style in which the teacher is the "guide on the side." Working with small groups of students and meeting them at their individual instructional level is prevalent in today's classroom (Celli & Young, 2014). This also ensures that all students will receive what they need. Our district has made the promise to our community that 1:1 technology would increase individualized learning and help teachers effectively personalize learning for every student. While the teacher is working with small groups of students, the rest of the class needs to be engaged in individualized instruction, such as by using the Odyssey Learning Program and the online digital curriculum that was created to support classroom instruction. In a blended classroom, teacher-directed instruction would be combined with digitally delivered content, practice, and assessment. This will help reinforce knowledge of the content, and in turn improve student achievement (Bauer, 2014).

Today's classroom is full of students with multiple ability levels, which makes teaching very difficult since all students are not on an equal playing field. The goal of this project is long-term, to ensure that a blended-learning model, which combines

classroom learning with online learning utilizing the supplemental digital curriculum, can be implemented with fidelity in our classrooms by creating a plan to do just that.

If we were able to do implement the digital curriculum consistently, blended learning has the potential to completely transform teaching and learning. For this to happen, we must have students access the supplemental digital curriculum on a daily basis. However, this not currently happening in all of the classrooms in District XYZ. To gain more insight into the issues around this, I will be examining how the digital curriculum is being implemented in two classrooms in the district and the benefits that come with using the program consistently.

Setting

When instituting any type of change plan in a school district, it is important to begin by looking at how the district has changed over time. Anyone can certainly learn a lot about a district by reviewing the enrollment, low-income percentage, ethnicity, and test data. In order to ensure the success of a change plan, one must first understand the context in it would take place. In other words, the change plan needs to be contextualized.

In 2014, according to the Illinois Interactive Report Card (IIRC), the total enrollment of XYZ School District was 2,374 students, with 41.5% coming from low-income households. The ethnicity of the district is currently 63.1% Black, 20% White, 11.2% Hispanic, 4.2% two or more ethnicities, and 0.2% Asian. The district has changed drastically since 2000. In 2000, only 5.5% of our students came from low-income households. Also, at that time, 53.3% of our students were White, 38.8% Black, 4.9% Hispanic, and 2.9% Asian. Additionally, last year 59.5% of our student population met

or exceeded standards on the ISAT, compared to 2000, when 71% of our student population met or exceeded standards. As you can see, the student population has changed drastically since 2000, and so have student needs.

Currently our district also has an advanced technology program. The district has invested millions of dollars into our 21st Initiative Program. This unprecedented level of investment in educational technology has raised the expectations of taxpayers who are now looking for returns on this investment and therefore are asking for evidence regarding the efficacy and cost-effectiveness of technology in our schools.

At the start of our district's 21st Century Learning Initiative, a professional team was developed and responsible for the ongoing evaluation of the rapid evolution in digital devices to make sure our PLuDL program keeps pace with changes for the 21st century.

Moving forward, one of the changes that need to be made to advance our PLuDL program is to apply a blended-learning model in the classroom, which utilizes an online supplemental digital curriculum. Therefore, the overall goal of this plan is to implement the digital curriculum with fidelity, since we will soon be adding the blended-learning model to our classrooms in the next school year (Horn & Staker, 2012).

Our students would benefit from a blended-learning model in the classroom, which has been shown to be especially beneficial to disadvantaged student populations (Innosight Institute, 2011). Blended learning increases the flexibility and individualization of student learning experiences, but also allows teachers to expand the time they spend as facilitators of learning. It combines face-to-face instruction with an online learning program. In a split-class blended-learning model, the teacher can zero in on a topic that half the class may be struggling with while the other half works

independently on their tablets. This would lead to teachers having a genuine and comprehensive understanding of their students. In turn, this would lead to an overall more successful school experience for our students (Wang, Wang, Wang, & Huang, 2006).

SECTION TWO: ASSESSING THE 4 Cs

Anytime a change is proposed, it is important to use a model to analyze the type of changes you would like to see take place. The Arenas of Change provides a framework through which one can analyze the work of school change and serves as a guide for educators who are engaged in the work of change agents. The Arenas (or 4 Cs) are as follows: Culture, Conditions, Competencies, Context (Wagner et al., 2012). All four are defined below and applied to District XYZ in the appendix.

Culture

Culture in this context refers to professional satisfaction, morale, and effectiveness, as well as to student learning and fulfillment. To truly be outstanding, schools need to learn how to create a school and district culture that cultivates, supports, and rewards innovations and initiative (Wagner et al., 2012).

Currently, the culture in XYZ School District is evolving. Based on my experiences within the district, I have noticed that many of the teachers are overwhelmed with the numerous changes that have been taking place, not only within the district, but in the field of education as well. Teachers' plates are full, and because of mandates from the state, more work is being put on them each year. Our population continues to change and students become more challenging. Teachers are being pulled in several directions at once, which leaves them feeling overloaded, distracted, spread thinly, and without focus.

There are 23 new initiatives currently and it may be difficult for teachers to find the time to devote to using Odyssey Learning in their classrooms. When the district purchased Odyssey Learning, we assumed that all teachers would begin using this in their classrooms. Unfortunately, this did not occur. Teachers had to work with their principals

to come up with an Odyssey Learning Usage Plan, which outlined the number of minutes students were going to be on Odyssey daily. Some teachers felt like they were being forced to use the program, and automatically began to have negative feelings toward it.

However, we are very fortunate to have a 1:1 program in this district. Administrators, teachers, and students have access to many wonderful forms of technology. We have been awarded the Apple Distinguished Program Award for three years in a row for our 1:1 program. Teachers and administrators have been provided an extensive amount of ongoing professional development in the area of technology. Additionally, through our Parent University, ongoing training opportunities have been provided to parents/guardians and community members. Some session titles include: Digital Tool Orientation; My Student Has an iPad, What Should I Know?; Digital Citizenship at Home; Helping My Child Study Using a Mobile Device; and Online Tools to Extend Learning Beyond the School Day.

We currently have four instructional coaches. Therefore, teachers receive job-embedded support on a consistent basis. The instructional coaches engage our teachers in acquiring 21st century instructional practices and shifting to personalized learning design through modeling, co-planning, co-teaching, and reflection in teaching practices.

However, according to the teachers, they feel that the implementation of our 1:1 program was rushed. Many districts across the state that have started a 1:1 program spent years planning it. They visited other districts and spoke with teachers and administrators who already had this in place. In our case, we spent a few months talking about the program (summer and fall) and then the students were given their first set of iPads when they returned from winter break.

In my professional opinion, we should have waited an entire school year before distributing the student iPads. Teachers could have taken this time to prepare and plan for the implementation of technology in their classrooms. This also would have been a wonderful time for them to get used to their teacher iPads so they in turn could teach an entire classroom of students effectively utilizing the device.

As with all technology initiatives, whether in industry or education, the goal is not simply to deploy the technology, but to harness its power to change or improve the environment in which it is launched. Implementing technology for technology's sake is sure to fail (Chambers, 2014). I have heard staff members in my school ask why we are doing this, or what our goal is (Ward, 2013). I feel that we are unable to answer these questions at this point. Unfortunately, not all staff members share the same vision of technology integration (Salerno & Vonhoff, 2011), and iPad usage varies between each school and classroom.

Conditions

It is imperative that every school district create the right conditions (e.g., time, space, resources [Wagner et al., 2012]) for every program or new initiative to be successful. As we move into the fourth year of implementation, we need to continue to revisit our PLuDL program to ensure that it is on track. Once iPads have entered the school environment, it is imperative that schools provide the tools and support necessary to alter pedagogy (Salerno & Vonhoff, 2011).

XYZ School District has worked hard to provide teachers with the tools necessary to change their teaching practices; however, I continue to see the same type of instruction occurring in the classroom day after day. Teaching and learning should happen

differently with iPads. Unfortunately, at this point, I only see this going on in a few classrooms as we head into year four of our technology initiative. The addition of 1:1 technology should support a constructivist learning environment in which there is an emphasis on knowledge construction instead of knowledge reproduction. Students should learn through authentic tasks, collaboration, and reflection. This would help students construct new knowledge from their experiences (Huffman, Goldberg, & Michlin, 2003). By having students access a supplemental digital curriculum on a daily basis, instruction will move away from teacher-centered to student-centered because students will be more responsible for their own authentic learning.

In April, I presented to a group of teachers through our XYZ Internal University on how to access lessons and folders that I created to align to our units of study for math and ELA in Odyssey K–5. The purpose of XYZ Internal University is to ensure that every teacher has the capacity to provide an enhanced environment for children that is rigorous and engaging. I then received feedback for my class through a Google Doc that the training participants were required to fill out and submit. The comments were very positive! I also met with our instructional coaches the next week, and they stated that the teachers presented the information that they learned from the XYZ class in the staff meetings at their elementary schools. Also, the information was presented in our district grade-level meetings and PLC meetings. Of course, I was very happy about the positive response, but so was the assistant superintendent of curriculum and instruction, who asked me to present additional trainings in June and August.

Competencies

For a program to truly thrive, we must be able to rely on our accomplished,

efficient teachers to establish its foundation. We define competencies as the "repertoire of skills and knowledge that influences student learning" (Wagner et al., 2012, p.99). Competent adults are a foundation of this work. Therefore, everyone must work together to ensure our PLuDL program flourishes.

During an informal meeting with the instructional coaches, we discussed the fact that not everyone is on the same page with technology use in their classrooms. Some people are using the technology we have to enhance good instruction, while some are just using the iPad for busy work or not using it at all. Some are still using the old worksheets that they used 10 years ago and not using the iPads to personalize instruction. Old habits are hard to break. Also, our staff has varying degrees of knowledge of technology and comfort with the tool. Currently, we do not have a technology expert that is directly in charge of the iPad program. Having a senior teacher, someone who is an expert in technology and directly responsible for this program, would be key for this program to be successful.

As the technology curriculum coordinator, my job is also to review the reports submitted from teachers in the Collaborative Learning Suite (CLS). The CLS is an educational computer software company that helps educators integrate the standards with lesson plans and assessments. The information entered into the CLS program shows that some teachers do not use the IP program at all. We can only speculate that this may be a sign that they may either not be very comfortable with navigating the tool or choose not to access the program at all. Other teachers will submit very detailed reports, and again we can only speculate that this means that they are more comfortable with navigating the program and completing what is expected. Again, the use of technology can only be

effective if teachers themselves possess the expertise to use technology in a meaningful way in the classroom.

Furthermore, the expectations vary from school to school, depending on the principal. Every teacher uses the technology differently in the classroom. In my professional opinion, having everyone on the same page would help to increase technology use. Having clear-cut expectations would help all teachers embrace it.

Based on my observations, I have come to the conclusion that many staff members are not comfortable using Compass Learning's Odyssey Program. Additionally, we have some teachers who are afraid to give up control. They cannot deal with students working on different activities simultaneously rather than everyone working on the same one at the same time.

The staff in the district has shared that they are having a hard time creating formative assessments to use with their grade level in math and reading. They complain that they are not assessment writers. Additionally, when a formative assessment is given, they are not using their PLC time to really go through the data and use it to inform their instruction. With the digital curriculum, formative assessments are built into the program. If teachers were to implement the digital curriculum in their classrooms with fidelity, formative assessment data could be utilized to drive instruction.

Context

It is important in today's society to understand the reality of what goes in our community and its history. We must do our best to help each one of our students to meet these expectations. By context, I am referring to "skill demands" all students must meet

to succeed as providers, learners, and citizens in the community that the school or district serves (Wagner et al., 2012).

My family has a long history with XYZ School District, as my grandparents moved into the area in 1940. My father and all of his siblings attended the district schools, and when he grew up, he moved his family to a house right around the corner from his childhood home. Therefore, my siblings and I attended these same schools, as well.

I have spent 12 years as an employee in this district, six as the principal of the elementary school my father and I attended. The school that I was principal of has wonderful test scores and is always considered the "crown jewel" of the district. I believe that this school earned such great scores because our students came prepared to learn. They came from very affluent homes and attended strong preschool programs. The other three elementary schools in our district did not have the same good fortune as we did. Many of the students who attended these schools were actually going to school for the first time in their lives. A high percentage of them were on free/reduced lunch and there was a high mobility rate. Additionally, these schools had a high percentage of ESL students. The students who attended the "crown jewel" of the district all had iPads at home and were very familiar on how to work and take care of the iPad. Most of the students who attended the other three elementary schools have never owned an iPad or may not have much experience with them.

As we continue to look at the context of how our change plan came about, it is important to note the current relationship between the union and administration. There has been a long history of distrust between the two parties. This relationship has become

even more strained with all the changes that have occurred throughout the years with staff. Currently, the teachers' union, administration, and school board are working toward creating a culture of shared planning, decision-making, and respect in the district. This partnership would benefit the district and our students because more would be accomplished in a timely fashion. Many new initiatives have happened over the years, and implementing 1:1 technology is a huge change. Any type of systematic change requires the collaboration of both the teachers and administration. This must occur for this program to be successful.

SECTION THREE: METHODOLOGY

My study focuses on implementing technology and 1:1 learning with iPads in a way that has fidelity. 1:1 technology is important in today's classroom because it helps differentiate both the way teachers teach and how the students demonstrate their learning (Abbey, 2008). While our district has been using 1:1 technology for three years, we find ourselves still struggling with the lack of implementation of a real digital curriculum and a shared vision for technology integration.

Research Design Overview

All of the students in grades three through eight in our school district have an iPad that was issued to them at the beginning of the year. During the 2014–2015 school year, I created an online supplemental digital curriculum to use with the Odyssey Learning Program that followed the lesson plans entered into the Instructional Planner. Additionally, I created formative assessments that follow the digital curriculum. The teachers were then instructed on how to access and use the digital curriculum and formative assessments in April of this year through our XYZ Internal University.

Overall, I gathered feedback on the characteristics of a successful iPad program and classroom technology integration through research, observations, interviews, and surveys. In addition to the items mentioned above, I also reviewed our district's technology usage reports. After analyzing and synthesizing the data, I concluded that our digital curriculum was not being implemented consistently in the classrooms because of certain barriers that kept this from taking place. Based upon my prediction, I investigated the obstacles that may keep teachers from the seamless use of technology in the classroom. Finally, after collecting and processing the data, I was able to verify my

findings and develop a framework for how to improve the fidelity of implementation of the digital curriculum in our district.

First and foremost, my goal was to examine the ways the digital curriculum is being implemented in the classroom and the direct benefits that come with using the program consistently. Our district is moving toward a blended-learning model of teaching and learning in the classroom, and having a digital curriculum is a huge part of making sure this is successful. However, the current reality is that our teachers are not using the digital curriculum or 1:1 technology on a regular basis with students.

I first noticed this through my own observations during the 2015–2016 school year. Reviewing the district's technology usage reports was part of my responsibilities as the district technology curriculum coordinator. I then would report my findings back to our assistant superintendent. My concerns about the lack of implementation of our digital curriculum were only confirmed during my interview with the assistant superintendent.

Additionally, the benefits of using the digital curriculum on a consistent basis were firmly established after I reviewed the results from the teacher survey completed by teachers who consistently used the digital curriculum with their students in the classroom. Also, the surveys helped me become more informed about what the district would need to do to improve the consistent implementation of our digital curriculum.

Our district has made a large investment in online learning and 1:1 technology, and we need to ensure that the tools that we are providing students and teachers are being utilized. For this reason, I looked at the barriers preventing our digital curriculum from being implemented with fidelity. Specifically, my study will use qualitative data obtained from our district administration and teachers through interviews and surveys.

The questions will focus on technology, blended learning, online digital curriculum, implementation with fidelity, student engagement, and Odyssey Learning. The data that I obtain from the surveys and interview will give me a clearer picture of where we currently are with implementing the digital curriculum to support blended learning and 21st century learning in our classrooms. Moving forward, it will also help me to become better aware of what we need to do to get the digital curriculum fully implemented in all of our classrooms in District XYZ.

Participants

For this study, the teachers who participated in XYZ Internal University were asked to participate by providing feedback on the program and structure through an online survey regarding the digital curriculum. To begin with, I asked four teachers to pilot the online supplemental digital curriculum in their classrooms during the 2015–2016 school year. Two of the four teachers agreed to participate. Both of the teachers are intermediate teachers (i.e., grades 3–8), and have been teaching in the district for more than eight years. I selected these teachers because they were the only ones who attended the initial training in April 2015. The feedback will specifically help us to analyze the barriers to successful implementation. Ultimately, I would like to create a plan that will help remove the barriers for consistent use of the supplemental digital curriculum.

Data Gathering Techniques

I first interviewed our assistant superintendent on the digital curriculum, technology, fidelity of implementation, and blended learning in October 2015. In the same month, the two teachers filled out a survey through our Google Docs system that assessed the current need for a digital curriculum implemented with consistency in our

classrooms. The teachers filled out a follow-up survey in November 2015. The purpose of the follow-up survey was to gather feedback after the teachers had utilized the supplemental digital curriculum in their classrooms on a consistent basis.

Data Analysis Techniques

I analyzed the data by looking at the changes in responses between both surveys. I looked to see what common themes emerged and the similarities between the assistant superintendent interview and teacher surveys. Specifically, I observed the relationship between what the assistant superintendent assumed should be occurring in the classrooms in regards to the digital curriculum and what the teachers actually reported. I looked for similarities between the two and patterns that emerged from the feedback I received from both parties. Finally, this information will be shared with our assistant superintendent in January 2016.

Currently, our school district is reviewing the digital resources that are provided to our teachers. Odyssey Learning is a pricey program, and our district does not know if they will continue to purchase this program if teachers are not using it consistently in their classroom. We were told that this program would increase student achievement, but if teachers are not using the program the way it is intended, we will not see the results the program was meant to produce. This change plan provides a framework for how to improve the fidelity of implementation to get a better understanding of how it can be used in the classroom.

SECTION FOUR: LITERATURE REVIEW

When studying the implementation of a 1:1 curriculum with fidelity, it is important to understand the literature that supports differentiated instruction using educational technology, technology-based formative assessment, and academic growth and achievement in the 21st century. Section Four provides a review of the literature on classic learning theory, educational technology and blended learning, educational technology and differentiation, and growth and achievement in the 21st century. This chapter also provides a balanced discussion of alternative viewpoints regarding research in the field of education.

Theoretical Framework

The rapid development of technology has implications for the constructivist approach in the teaching and learning process. According to Bainbridge and Macy (2008), constructivist theory advocates that learners construct meaning through activities that encourage social and verbal interactions. Technology would help facilitate these interactions. Social constructivism described the idea that knowledge is constructed from experience to create personal meaning for the student (Powell & Kalina, 2009).

Technology offers students and educators instant access to information, creative tools, and a variety of learning environments and functions for communication. These new and evolving technological tools give students the opportunity build on previous knowledge in an engaged and meaningful setting (Morgan, 2014).

Dewey (1902) summarized the concept of learning as the result of facts acquiring meaning for the learner. Students acquire meaning as a result of creating relations to other ideas and concepts. Dewey theorized learning as a series of personal connections to

the functions, consequences, and causes of ideas and the student's ability to transfer these understandings to new knowledge. This theorist also posited understanding as transferability, the ability of the student to arrive at conceptions because the newly created meanings become general and applicable to a variety of concepts in spite of their differences, because the learner is able to attach new knowledge to current points of reference (Dewey, 1902).

The ability to transfer one's learning is an essential skill, because teachers can only help students learn a limited number of ideas and skills. For this reason, learners will be more successful when they are able to transfer this limited learning to other settings, issues, and problems (Dewey, 1902). Through 1:1 technology, each student will be able to demonstrate their learning in new and creative ways that will help to reinforce the ideas and skills they have learned in the classroom. They will be able to transfer their skill set to solve real-world problems and issues in different real-world settings.

Dewey (1902) focused on environment, experience, and democracy. Environment is a fundamental organizing principle of acquiring knowledge. The ability of a student to understand depends on Dewey's discussion of environment as the alteration of the physical learning environment to merge learning with things that are important to the student. Also, Dewey described the educative environment as a place of simplified order, a place that is more balanced than a student's individual or social environments. According to Dewey, it is the educator's responsibility to incorporate the environment into the students' experiences. Dewey theorized that these experiences create a purpose for active learning that is demonstrated by the sharing of experiences in social groups. Dewey's concept of democracy united the individual and social aspects of learning as a

mode of communicated experiences, and that a student should learn how to be a good citizen as a benefit to both the individual and society. Thus, Dewey believed that good education should have both a societal purpose and a purpose for the individual student.

Dewey's concepts are supported through 1:1 technology because we as educators are responsible for providing students with valuable experiences. By instructing students on how to utilize technology, we are preparing them to be able to contribute to our society and be more successful in the global economy. By giving all students the same device, we are ensuring that everyone has access to equal technology and thus has equal opportunities to be profitable. By utilizing technology as a tool for delivering quality instruction in the classroom, we are incorporating two entities that are of value to our students and society.

Building on Dewey's (1902) theories, Piaget (1953) posited students learn as a result of the individual construction of knowledge. Piaget's theory of cognitive development proposed that individuals cannot receive information that they immediately understand and use; instead, students must construct their knowledge through a process of assimilation that occurs through four different stages of cognitive development: the sensorimotor stage, preoperational stage, concrete operational stage, and formal operational stage. 1:1 technology supports student-centered learning environments in which students are directly involved and invested in the discovery of their own knowledge. Through collaboration and cooperation with others, students engage in experimental thinking that is authentic and challenging (Hannafin & Land, 1997).

Vygotsky (1962) emphasized the importance of social interaction in learning and supported the theory that children learn more with social support. According to

Vygotsky, social constructivism supports the practice of cooperative learning, giving students the opportunity to work one-on-one not only with the teacher, but also with other students. The teacher's role in the constructivist classroom is that of a facilitator, encouraging the active dialogue of instructional material to improve students' critical thinking about what they are learning. Teachers facilitate the process of assimilating new knowledge with previously acquired information, and recognize that learning occurs at a different rate for every student. "Connecting new knowledge with prior knowledge in meaningful ways is an indication of a successful learner" and educational technology can provide tools for students to do this kind of work in relevant and authentic applications (McDonough, 2012, p. 31).

Introducing technology into the learning environment encourages cooperative learning and student collaboration. 1:1 technology supports the variety of ways learners construct their own understanding and reinforces Vygotsky's Zone of Proximal Development (Rice & Wilson, 1999). Therefore, if a student is given a device, this will provide the appropriate assistance to help them achieve any task they set their mind to complete. 1:1 technology promotes individualized learning, which leads to students being able to construct their own thinking. They become their own teachers, responsible for their learning.

As you can see, these classic theories that were developed more than one hundred years ago are still applicable in education today and reinforce the use of 1:1 technology in classrooms to enhance and individualize student learning.

However, not every educational theory would support 1:1 learning. There is research that supports non-technology schools where computers are not found anywhere

(Ferguson, 2005). These schools focus only on hands-on learning and discourage technology use until the later grades. In fact, some of the top executives from Apple, Google, Yahoo, eBay, and Hewlett-Packard send their children to these schools. They center on the philosophy that teaching is a "human experience." Technology is a "distraction when we need literacy, numeracy, and critical thinking" (Richtel, 2011). These schools support the Waldorf pedagogy, which emphasizes the role of imagination and creativity in learning. The Waldorf schools are part of one of the largest independent school movements internationally. Rudolf Steiner, who founded these schools, believes in learning through movement, hands-on interactions, books, and socialization with other students (Childs, 1991). Parents of students at Waldorf schools believe that technology can interrupt the learning process and inhibit human interaction and attention spans.

Currently, there are 160 Waldorf schools in the United States, which is a relatively small number compared to the total amount of schools nationwide. That means that most of the schools in our nation have their students utilize technology. In fact, the world is moving toward technology at a breakneck pace. Technology will be used in every aspect of the professional lives of our current students. That means that upon graduation, whether the next step is college or career, technology will be used daily. Why not use it daily in our schools?

Additionally, the yearly tuition for the Waldorf schools is $8,500. That means that the students who attend these schools come from very affluent homes. The families that send their children to these schools are not worried about exposure to technology because they have an abundance of these tools at home to utilize. However, this is not the case for students that come from disadvantaged homes. These students don't have

access to technology at home and the lack of exposure at school would put these students further behind. In fact, students who use technology in low-income schools gain significant skills and advantages in the learning process. Using the same technology is an equalizer for disadvantaged students. That means that no matter what kind of economic background a student may come from, they will have access to all of the same educational resources.

As you can see, there are different philosophies when it comes to using technology in schools. However, it has been noted that there are clear advantages to doing so, as prepares our students for the future. Additionally, technology levels the playing field for all students. It allows all students to access the most up-to-date information, helping them acquire skills for today's job market.

Educational Technology and Blended Learning

The delivery of instruction has changed drastically in the past few years, from direct instruction, in which the teacher is always front and center, to a more flexible style of delivery of instruction, in which the teacher is the "guide on the side." Working with small groups of students and meeting them at their individual instructional levels is prevalent in today's classroom (Camahalan & Ruley, 2014). The classroom model that supports this type of instruction is blended learning. Blended learning has been explained as combining computer-based or web-based instruction with traditional face-to-face instruction, along with a teacher, and has been considered to be one of the most promising teaching and learning strategies in today's classrooms (International Association for K–12 Online Learning, 2013). Internationally, schools have been implementing many types of blended-learning models and have evidenced several levels

of academic success (Graham, 2006).

Alijani, Kwun, and Yu (2014) examined the cognitive processes, relevant factors, and benefits of using blended-learning models within KIPP (Knowledge is Power Program) in New Orleans, Louisiana. They surveyed 186 teachers at nine schools and showed that 48% of the respondents agreed that they believed blended learning was more effective than traditional face-to-face instruction. Moreover, they found that 94% of the respondents believed that blended learning increases a school's academic success (Alijani, Kwun, & Yu, 2014). The results of this study also indicated that the transition to a blended-learning model benefitted students by allowing them to learn at their own individual paces, and teachers by allowing them to provide increased individual attention when needed. This study supports the use of blended-learning models in schools, providing tools to improve student achievement and teacher effectiveness.

In support of Alijani, Kwun, and Yu's (2014) work, Camahalan and Ruley (2014) conducted research focusing on using blended learning for middle school writing instruction. This study used 16 Midwest seventh-grade students. Half of these students participated in blended-learning activities and the other half received traditional face-to-face instruction. The students who participated in the former showed a gain of 39.5% from the pre-test to the post-test, while the students who received traditional face-to-face instruction showed a gain of 34.25% over a two-week instructional period. As a result, Camahalan and Ruley found student learning showed higher growth with the use of a blended-learning environment (as cited in Alijuni, Obyung, & Yanjun, 2014).

Koedinger, McLaughlin, and Heffernan (2010) examined a web-based math system that was designed to measure a student's individual learning level in real time

while simultaneously providing instruction. This quasi-experiment evaluated the use of technology and blended learning's effect on improving middle school students' end-of-year math scores. The study's usage analysis showed that the students' use of this technology was related to greater academic growth, and that it was useful as an effective technology-based tutoring system. Additionally, it was also found that teachers were more likely to adapt their instruction based on their students' performance within the system. This study indicated the potential for using technology to differentiate instruction and give students timely feedback on student progress, which resulted in the teachers' use of more effective instructional strategies in the classroom (Koedinger, McLaughlin, & Heffernan, 2010).

Saul and Wuttke (2013) studied a personalized electronic education system that identified and supported students' individual learning by electronically evaluating the their individual strengths and weaknesses. This study determined that effective use of blended learning should be based on a variety of adaptive methods. These methods should consider students' strengths and weaknesses to support the implementation of flexible adaptation strategies (Saul & Wuttke, 2013)

Technology plays a very important role in the life of students. Many schools have found that they cannot meet the needs of their students through regular classroom instruction alone. Blended learning has become increasingly popular in schools because it balances regular face-to-face instruction and online learning to support the lesson content. Studies have shown that a single lesson delivery mode limits a student's learning (Graham, 2006), while blended learning engages students and puts them in control of their own learning. It extends learning beyond the regular school day. This

new model has also been shown to optimize learning outcomes and increase the achievement of the learning objective.

Reiners, Dreher, and Dreher (2011) also noted that the use of educational technology can offer many benefits for teachers in a blended learning environment because they have the ability to provide students with tools that offer immediate feedback during the teaching and learning process. Reiners, Dreher, and Dreher (2011) also purported that educational technology can save school districts money by providing teachers with more accurate planning tools, reducing staff time needed for grading, and giving students increased self-esteem. Newer technology has been developed to support students' ability to work within their cognitive domain by automatically adapting to the individual student's level and by providing annotation of responses with formative qualitative feedback (Reiners, Dreher, & Dreher, 2011). These types of technology-based approaches will improve students' development of 21st century skills, giving them the opportunity to work with interpretation of information and problem-solving skills (Reiners, Dreher, & Dreher, 2011).

However, when planning to begin utilizing a blended-learning model, you must have several items in place before you move forward. It is imperative that each student have access to a 1:1 device. Additionally, you must have a digital curriculum and assessment system in place that follows the learning objective that students can access on their own device. There must be professional development for the teachers and strong technology support in the school to troubleshoot problems. Students will rotate through different stations, which vary from small-group instruction and collaborative work to independent practice and online activities throughout the lesson (So & Brush, 2008).

Educational Technology and Differentiation

Many challenges associated with implementing differentiated instruction can be addressed with the effective use of educational technology. For example, teachers who may feel unprepared or stressed in meeting the individual needs of their students can use technology to have immediate access to instant options because of the availability of a wide range of technological tools. Technology can provide teachers with additional input to content and can provide pre-made learning activities to help teachers work smarter, not harder, in the classroom. Also, because students come to school with a predisposition for seamlessly using technology, it can become a bridge between the student and the teacher, giving students what they need in a tool that they are comfortable and familiar with using (Stanford, Crowe, & Flice, 2010).

Originally, differentiated instruction meant the planning of instruction based on strategies that accounted for children's significant differences in age, cognitive development, and learning styles. The term differentiation now encompasses everything that makes children unique, such as their culture, personality, and special needs or developmental delays (Schiller & Willis, 2008). Tomlinson (1999) suggested that differentiated instruction should be designed with the identified learning objective's content, process, and product in mind. Tailoring teaching environments and practices to create appropriately different learning experiences for different students is at the heart of curriculum differentiation (Rock, Gregg, Ellis, & Gable, 2008).

Kara-Soteriou (2009) supported the use of educational technology to differentiate instruction based on individual student needs. According to Kara-Soteriou , educational technology can provide teachers with tools that target learning and provide meaningful

data analysis and assessment. These technological tools help all students meet their individual needs and potential. Teachers need to utilize frequent online formative assessments to determine the needs of each student and then leverage technology to tap into their individual learning styles.

Moss (2005) emphasized the important role that technology plays in the teaching and learning process. Technology can assist educators in creating effective learning environments and will support student growth and achievement when appropriately used. The implementation of 1:1 technology in education provides students with a platform in which their work can be individualized to meet their needs. Technology also motivates student engagement and gives them the opportunity to make connections with the real world. Moss (2005) also stated that the effective use of technology in the classroom gives students practice in manipulating data and in generating deeper understanding of content.

Trif (2014) described teaching and learning as a behavioral orientation by which students are rewarded and motivated to learn. The teacher is the manager of the learning of the students, and is responsible for the development and implementation of a personalized system of instruction that is student-centered and uses positive consequences of learning to improve the students' content mastery and communication skills. As a result, this type of personalized system must be taught at the learners' paces and should be focused on providing students the opportunity to deepen their individual understanding of concepts. Trif believed that educational technology will provide teachers with teaching and learning tools that can do these things, facilitating the implementation of these kinds of differentiated instructional systems.

Morgan (2014) agreed with Trif's (2014) ideas in personalized learning and

described differentiated instruction as “a way of recognizing and teaching according to different student talents and learning styles” (Morgan, 2014, p. 34). However, one of the problems of incorporating differentiation in the classroom is that many classrooms can have as many as 40 students to one teacher, making it nearly impossible for the teacher to manage such individualized attention.

Stanford, Crowe, and Flice (2010) noticed this challenge and stated that teachers need to begin where students are in instruction. These researchers stated that the use of technology in differentiated instruction can offer teachers the opportunity to engage students in different forms, vary their rates of instruction and complexity levels, and apply different teaching strategies that will meet their students’ individual instructional needs.

Furthermore, Stanford, Crowe, and Flice (2010) posited that this type of differentiated instruction would allow teachers to be more efficient to meet the needs of a diverse student population; in this time of high-stakes testing and teacher accountability, teachers have been faced with more demands and given limited resources and time. Technology can provide teachers with tools that will help them create teaching and learning plans that are differentiated to their individual students’ needs. Technology also supports personalized learning and provides a diverse means of learning new content in a flexible, portable, on-demand manner.

Huang, Liang, Su, and Chen (2012) studied the effect of e-book readers on mobile personalized learning using an interactive learning system that was developed for elementary students. A group of teachers were consulted during this study for acquiring their domain expertise; and individualized learning functions were implemented to

reinforce the students' learning. The researchers' first study used 166 elementary school students to evaluate the usability of this interactive learning system and the second investigation used the same students to evaluate its learning effect. This study showed that there was no difference between students' use of e-books or printed books to the students' overall reading accuracy. However, the study did indicate that the learning tracking system of this educational technology provided teachers with detailed information that helped the teachers make formative decisions within the teaching and learning cycle. Teachers were able to run individual learning reports that they could use to analyze student progress. They were able to see who could benefit from an enrichment activity or who would need further assistance in a specific area. This resulted in the conclusion that this type of educational system could provide better individualized learning experiences for elementary school students (Huang, Liang, Su, & Chen , 2012).

Growth and Achievement in the 21st Century

Many educational experts argue that today's students, surrounded by digital technology since infancy, are fundamentally different from previous generations and are no longer the people our educational system was designed to teach. As a result, a widening gap has formed between the knowledge and skills students are acquiring in schools and the knowledge and skills needed to succeed in the increasingly global, technology-infused 21st century workplace (Partnership for 21st Century Skills, 2008).

Brown and Czerniewicz (2007) explored the relationship between students' access to and use of technology in the teaching and learning process. This research extended prior work on how technology availability affects students' use, and found that high levels of access to technology do not guarantee high use. Brown and Czerniewicz

(2007) noticed a difference in students' use of technology based on other variables, such as their socioeconomic level. This is called the digital divide, and describes the presence of inequalities between households with different socioeconomic levels when it comes to access to and use of technology. However, there are also students with low access to technology who are still able to make frequent use of the school-issued computers for learning (Brown & Czerniewicz, 2007, p. 733). This study found that the theory of digital divide was too simplistic and that digital differentiation was more useful as a framing concept amongst higher education students. Thus, digital differentiation means students access the internet for different reasons based upon their socioeconomic status. Students with greater socioeconomic resources use the internet more frequently for information rather than entertainment. Students with fewer socio-economic resources use the internet more frequently for entertainment rather than to find information (Peter & Valkenburg, 2006). Therefore, students that come from low-income homes may not have access to technology as the other students that come from more affluent homes. They may struggle with how to use the devices appropriately when given access to them in a school setting.

As we continue to ensure that every student has the same learning experiences, recent advances in educational technology have made it possible to enrich the kinds of instructional differentiation that provide students with the opportunity for advanced experiences in 21st century learning skills (Renzulli & Reis, 2007). Technology makes it possible to pace lessons appropriately for each student's learning level and can be used to promote learning in the multiple intelligences (Kara-Soteriou, 2009).

However, in order to best explore the potential of educational technology, it is important to develop practices that use strength-based learning theory to specifically

design functions that allow for advanced learning, creative productivity, and high levels of student engagement through students applying knowledge rather than just regurgitating it (Renzulli & Reis, 2007). This application of learning will lead to the student's demonstration of higher growth and achievement in both the Common Core and in their mastery of 21st century skills.

Building on Renzulli and Reis' (2007) assertions, Lucey and Grant (2010) argued that educational technology requires an inquiry-based approach in order to empower students' realization of the relationships in social studies instruction. Lucey and Grant suggested that various technological tools could be used to simulate authentic experiences and encourage deeper levels of communication with their peers and teachers. These researchers proposed that educational technology can be used for students to practice the critical consideration involved in decision-making, and that students can use technology as a tool to construct social understandings. This model represented a method for using the technology as a method for students to use in creating connections and reducing their dependence on technology as a dispenser of information (2010). This type of intentional use of educational technology will provide students with the opportunity to explore and perfect 21st century skills as a part of their content-focused learning process.

Most important, the implementation plan for integrating a 1:1 technology program in a school is the need for it to be done with fidelity. This means that the students and teachers are using 1:1 technology consistently. When it comes to the digital curriculum, the teachers must utilize the program in the same way that it was designed to be used and delivered to students. To ensure that this occurs, administrators will be doing fidelity checks. That means that they will be reviewing the teacher/classroom usage reports that

are provided through Odyssey. They will also be doing weekly walk-throughs during the time each teacher has slated for Odyssey Learning. Technology is no longer a separate component in education; it is embedded into its fiber. It is not enough to buy devices and expect learning to automatically occur. Student engagement, program specificity, adherence, exposure/duration, and quality of delivery are all factors when looking to ensure a 1:1 technology program is successful. Specifically, you need to focus on the level of students' engagement and involvement with the technology tool. Are the teachers following the implementation plan set out by the district? How often are the students accessing the technology tool and how much time are they devoting to utilizing the device? Additionally, how well do teachers know the technology tool and are they using good teaching practices when delivering the instruction while utilizing the tool (Bianco, 2010)?

Shapley, Sheehan, Maloney, and Caranikas-Walker (2010) conducted a pilot study of technology immersion in middle schools, in which the schools were immersed with technology by providing each student with a laptop, wireless internet access, professional development, online digital curriculum/assessments, and technical/pedagogical support. This study examined the effect of fidelity in the implementation of technology in the classroom, and looked for associations between these implementation factors and student academic achievement. Implementation was measured as the fidelity with which the technology immersion components met the envisioned "ideal," which meant that the school was at 80% or higher in each of the categories listed above. This approach involved gathering data on immersion components at each of the treatment schools and comparing school-to-school variations

with the vision for "full" implementation. The schools with the higher levels of implementation were schools with higher levels of support (e.g., principal leadership, teacher commitment, and professional development). However, implementation quality varied across all of the schools and classrooms. Only 25 percent of the schools reached the envisioned ideal for technology immersion. The level and quality of implementation largely determined the achievement of the desired outcomes. In fact, studies of technology innovations have shown that ineffective implementation undermines prospects for changes in student learning opportunities and academic outcomes (Cuban, 2009).

Shapley, Sheehan, Maloney, and Caranikas-Walker (2010) found that the immersion of technology in education can be done with fidelity, and if schools demonstrate commitment to this model's specifications, it will likely result in an increase in the students' overall academic achievement.

Conclusion

Ultimately, this literature review outlined the historical perspective of educational technology and the use of differentiation in the classroom. Section Four also included a discussion of current models of differentiation and use of educational technology that is based on roots of constructivism and the ideals of 21st century learning. This chapter also presented an overview of theories and research in the field of educational technology that supports its use as a proactive tool for meeting individual student needs and providing meaningful data to guide teachers' instructional practices.

This section also provided the variables associated with the framework of this research study, including a theoretical overview of the literature related to differentiation

in instructional strategies. This review presented a link to current policies affecting student education and achievement through the effective use of educational technology. Section Four also provided a review of current findings in education related to current policies, theories, instructional practices, and a review of research on achievement, including an overview of the literature on technology-based instruction, instructional differentiation, educational reform, and factors affecting student achievement in the 21st century.

SECTION FIVE: DATA ANALYSIS & INTERPRETATION

Introduction

As described in the research design, qualitative data was collected from our assistant superintendent and teachers through interviews and surveys regarding our supplemental digital curriculum, technology, blended learning, and fidelity of implementation on three separate occasions. The data will be used to construct a plan to ensure that our digital curriculum is being used consistently in the classroom. As our district begins to build its blended-learning model for the classroom, the foundation must be a strong digital curriculum.

Assistant Superintendent's Perspective

On October 7, I interviewed our assistant superintendent and we discussed several different topics. I chose to work with our assistant superintendent because she collaborates with our teachers and principals on a monthly basis to provide instructional support to incorporate technology in the teaching-learning process. Also, our district has earned the Apple Distinguished Program award for four years in a row, and she was a key figure in ensuring we met the requirements of this award.

First, we began by talking about the need for a supplemental digital curriculum in our district. She told me that she realized there was a need for a supplemental digital curriculum aligned to our units of study for math and ELA before the 2014–2015 school year. She further explained that the needs of the students in our district were changing and so was teaching. We needed to begin supporting student learning and achievement through the use of digital tools. She also wanted "to see teachers begin to work on changing the delivery of their instruction to better meet the needs of our students." "The

teachers must focus on the instructional shifts needed to support 21st century learning," she said. "The supplemental digital curriculum would reinforce what the teachers are teaching in the classroom and would support our district technology initiative (PLuDL)."

The students in District XYZ should be accessing the digital curriculum based upon what their learning needs indicate. "This means whether they are using the digital curriculum to extend learning or to remediate, there is no magic number. The kids should be accessing the digital curriculum to complete lesson folders at 80% or better to show mastery." They need to access the digital curriculum however long it takes to complete a lesson folder. To her, implementing the digital curriculum with fidelity would be whatever Odyssey Learning is recommending for folder completion.

She believed that the students would benefit by using the supplemental digital curriculum consistently in the classroom. "Confidence and achievement would increase and learning gaps would close." In her view, students would have greater successes because they would have ownership of their own learning. Student engagement would also increase when students access the digital curriculum. Students would be more engaged because the digital curriculum focuses specifically on each student's area of need. Additionally, technology in itself increases student engagement. The more students feel success, the more they pay attention and are engaged in learning.

Moreover, the assistant superintendent believed that teachers would also benefit if the supplemental digital curriculum were used consistently in the classroom, because those teachers would have a better sense of where their students are in relation to learning. This means that each teacher would be able to give more valuable feedback for learning acceleration and each student "would be more aware of their GAN (greatest area

of need)." Therefore, teachers would be able to develop a better learning connection with each student. Students would show more academic growth while they are in their class. This would also lead to better climate and culture in the classroom and a feeling of overall success because the teacher and student would have a better connection. As stated previously, we are aware of the fact that the needs of our students are changing, and therefore our delivery of instruction must change to meet those needs.

Additionally, the assistant superintendent argued that the district would also benefit because student achievement for all students would rise and eliminate learning gaps. "Learning for students would be more personalized and the district can focus on how to extend learning, not how to remediate students."

Currently, District XYZ is moving toward implementing a blended-learning model in its classrooms for the 2016–2017 school year. The supplemental digital curriculum will help support a blended-learning environment; in fact, a blended-learning environment cannot exist without a digital curriculum. "We need the teachers to teach the content of the lesson. The supplemental digital curriculum will assist teachers because it will reinforce the lesson taught and give them a checkpoint to see how well they taught the skill and how well the students understood it."

Since the supplemental digital curriculum is such a crucial part of blended learning, the district needs to ensure that the teachers are using it accurately and consistently. The district administrators and building principals must review the Odyssey usage reports on a weekly basis. Specifically, they would look at the total number of minutes per day, per week that the program is being used by school and by teacher. The

principals would also check during their daily walk-throughs to see if it is being used and if so, how are they seeing it being used to support learning and achievement.

Ultimately, a supplemental digital curriculum is important for a district to have in place because this is where education is going. The assistant superintendent added that "every district is trying to figure out how we are going to get a bigger buy-in at certain levels to ensure we are meeting all kids' needs." We can no longer depend on the older methods of instructional delivery. A more flexible approach to learning that incorporates technology is what we need to move toward developing 21st century learners.

Finally, the regular use of the supplemental digital curriculum not only supports our district technology initiative (PLuDL), but also benefits teachers and students. Gathering feedback from some of our most important stakeholders regarding the program is imperative to examining how the digital curriculum is being implemented in the classroom and the benefits that come with using the program consistently.

Teachers' Initial Perspective

During the month of October 2015, I sent out a survey to the two teachers who attended the XYZ training I presented on Odyssey Learning and the Digital Curriculum. Both agreed to participate in my research study. Their responses to the first survey, titled Digital Curriculum Teacher Survey, are scripted below. The questions and answers dealt with technology, fidelity of implementation, and Odyssey Learning.

Successful iPad Programs

First and foremost, it is important to have a successful iPad program before starting to use a supplemental digital curriculum in the schools. Teacher A noted that the indicators of a notable program are having a "strong instructional model in place and

ongoing professional development to help teachers engage students for the program to be prosperous. iPads are tools that are meant to strengthen the curriculum. Technology is a natural part of the school day." Teacher B stated that the iPads should be "fully integrated with daily classroom lessons to enhance the instructional experience for every student." In addition to this, technology should be integrated into the lessons on a daily basis.

Technology Use

Technology is a new way of life in the classroom. The teachers indicated that they use the computer applications, programs, and websites to introduce new concepts in a fun and exciting new way. Teacher A specifically said that "it makes lessons more interesting and engaging!" When technology is used in the classroom, student engagement and higher-order thinking increases a lot, while student behavior problems decrease.

Furthermore, teacher A said that "technology also helps students gain independence and aids teachers in zoning in on specific skills students need support with." "It grants access to more resources and helps teachers differentiate instruction to meet the needs of each individual student."

Teacher B stated that iPads are used "daily in the classroom for whole-group instruction, independent practice, guided math, reading, writing, and spelling." More specifically, the teachers who responded to the survey had their students access the Odyssey Learning program on their iPads during guided reading and math. Both teachers explained that they have their students use Odyssey daily and that it is very effective. Teacher B said that "it increases test scores and is great at targeting needs and

differentiating learning. Specifically, it helps by leaps and bounds when implemented with fidelity. That means it is being used consistently and the way it was designed to be utilized."

Benefits and Concerns

Moreover, District XYZ has provided professional development to the teachers in regards to Odyssey Learning. The teachers who responded to the survey noted that the professional development they received on creating individualized assignments for students and using the system and reading reports was most helpful to them. They further explained, however, that they encountered barriers when trying to implement the supplemental digital curriculum.

Specifically, not having the necessary browser to support the program was a problem. Additionally, the network could not support the program when too many students were trying to access it at once. There was either a very slow connection or you were completely kicked out of the program. This discouraged a lot of students because they could not complete folders and assignments. They would lose their place on what they were working on and could not return to that same spot once their connection was restored. Teachers also noted that students sometimes have trouble logging on, and there is just not enough time in the school day to fit everything in.

Teachers' Follow-Up Perspective

In November 2015, the two teachers who filled out the initial survey in October 2015 submitted another survey, titled Follow-Up Teacher Digital Curriculum Survey, through our Google Docs system. The purpose of this survey was to gather feedback

after the teachers had been utilizing the supplemental digital curriculum (Odyssey) in their classrooms on a consistent basis.

To begin with, the total amount of time students spent on Odyssey varied based upon the grade level of the students and their attention span. Both teachers stated that their students spent at least 60 minutes on Odyssey per day. To ensure that this occurred, they had a daily routine set up in their classroom that allowed for the students to utilize technology on a daily basis. One teacher noted that he fits it into his student grouping rotations during guided reading and guided math. While he is instructing a small group during this time, the students can work independently at their desks on their iPad utilizing a program like Odyssey Learning.

Additionally, there was a huge change in student engagement when students accessed the supplemental digital curriculum. The lessons have a lot of animation and the students loved completing them on their iPad. This was a new and different way to present a skill taught in the classroom that day.

Students also were more responsible for their own learning when utilizing the online digital curriculum. They were well aware of which areas they need extra practice in and they worked hard to complete the lessons with a certain percentage of accuracy. This means that they had to get 80% or more of the questions right. If they did not reach this percentage, they had to complete the lesson again. The students were able to verbalize which lessons they completed and which lessons they struggled with.

There was also an increase in the overall mastery of the subject matter after implementing the supplemental digital curriculum in the classroom. Student

assessment/quiz scores improved, along with the homework completion rate and overall classroom participation. One teacher explained:

> Odyssey increases mastery because the students not only participated in the lesson I presented in class, but they also completed the folder (lessons on Odyssey) for that specific skill on their iPad. That means that the students heard the information twice in a different format which would hopefully help them to commit it to memory.

The teachers who responded to the survey also felt that they had a better picture of where their students were at in relation to mastery of content. This was due to the fact that they received a report from Odyssey on folder (lesson) completion for each student. They were then able to see which skill (lesson) students did very well with and what needed extra practice. They would then assign additional lessons to those students to practice or they would meet with those students during guided reading or math time to reinforce the skill. If the entire class struggled with the skill, they would then re-teach the lesson and they made sure to integrate technology into their lessons on a daily basis.

After implementing the supplemental digital curriculum in their classrooms, teachers again stated that when technology is used in the classroom, student engagement and higher-order thinking increases a great deal. Additionally, student behavior problems similarly decrease because students choose to act out less when they are truly interested in what they are learning.

Analyzing the Assistant Superintendent Interview and Teacher Survey

The assistant superintendent and our teachers provided valuable insight in regard to the digital curriculum, Odyssey Learning, and technology through the interview and surveys. I was able to hear what our assistant superintendent believes should be occurring and what is actually happening in our classrooms from the mouths of our very

own teachers. It is evident by the surveys that our teachers are working hard supporting student learning and achievement through the use of digital tools. They are moving toward changing the delivery of their instruction to better meet the needs of our students, which is a goal of our assistant superintendent and district. For instance, our digital curriculum is being used consistently in their classrooms and the students are completing student activity folders. This is apparent by the school/teacher usage reports and teacher surveys. Student confidence and achievement have increased. This is evident by the teachers indicating that student engagement and higher-order thinking increased greatly when technology was used in the classroom. Student behavior problems have decreased due to the higher level of student engagement in the classroom. The more the students are focused, the less they seem to want to misbehave. Again, this is made clear by the teachers indicating student behavior problems decreased when technology was being used in the classroom. Therefore, an overall improvement in the culture and climate of the classroom would occur, which was recognized by the assistant superintendent in her interview. She felt that this would occur because the teacher/student relationship would strengthen.

Ultimately, the students did take ownership of their learning, as noted in the interview and surveys. They were more aware of their GAN and knew that this was their target area for growth. One teacher noted:

> The students know which areas they need extra practice in and they work hard to complete the lessons with a certain percentage of accuracy. If they do not reach the percentage set out they must complete the lesson again. They are able to verbalize which lessons they completed and which lessons they struggled with.

The digital curriculum also makes learning more personalized and allows teachers to differentiate leaning better. Teachers therefore had a better sense of where their kids

were in relation to learning. The teachers noted that learning gaps closed and discussed that when the digital curriculum was used daily, it was highly effective. However, they did note that time proved a barrier for consistent implementation. The teachers felt that they did not have enough time to collaborate as a team to review the reports and fully learn the program. Also, there is not always enough time in the school day for the digital curriculum to be used on a daily basis. Sometimes it is tough to fit it in to an already packed schedule.

Finally, the digital curriculum helped students improve assessment scores and learning of the specific skill being taught in the classroom, which is a goal of our district and is highlighted in the 21st century learning initiative. As another teacher stated:

> Odyssey does help students increase their knowledge in their respective target areas. My students often reference things they've learned on Odyssey when working on specific skills or concepts in the classroom. The instruction that they receive through the Odyssey program aids in their overall understanding and performance.

The lessons presented by the teacher in the classroom were reinforced and supported with the digital curriculum. This encouraged blended learning because students spent half of the time with face-to-face instruction and the other half working within the digital curriculum independently.

In conclusion, it was evident through the interview and surveys that the teachers and assistant superintendent share the same philosophy when it comes to the technology integration and the implementation of the digital curriculum. As stated above, my goal is to have a fully-implemented digital curriculum in the classrooms of our district that would ultimately support a blended-learning atmosphere. Based on the information provided by the teachers who completed the survey, I can conclude that they are using the

digital curriculum consistently in their classrooms. However, this cannot be said about the other teachers in the district. We are fortunate enough to have a wealth of technology at our disposal to better support students at different academic levels within a single classroom. New approaches to teaching, like blended learning, make it possible to personalize and customize each student's experience. It is apparent that both parties believe that technology makes it easier than ever for educators to generate meaningful, ongoing data to inform teaching, track student progress, and personalize learning. Now teachers can use data to gain insights into their students' abilities that they never had before. We are providing teachers with the tools necessary to utilize 21st century strategies and blended learning in the classroom to ensure that our students are successful.

Finally, it is clear to me that having students access the digital curriculum on a daily basis improves achievement and encourages blended learning. However, not all the teachers are consistently doing so. The teachers who responded to the survey feel that they need more collaboration time so that they can learn to use the program more effectively. They would use this time to review learning reports and plan their next steps in regard to the digital curriculum. Also, they expressed that they may have difficulties fitting it in to an already packed schedule. We could alleviate this problem by really looking at what is important in the daily schedule and updating it to fit the 21st century learning standards. Teachers would therefore be given permission to let something go in their daily schedule so that they would be able to ensure that students are accessing the digital curriculum on a daily basis.

SECTION SIX: VISION OF SUCCESS (TO BE)

Technology has entered into many classrooms across the country in the way that it has impacted the business world: fast, innovative and ever-changing. While some school districts have embraced this change, many are not sure how to implement technology with restricted budgets and stagnant operations. Technology can be expensive to acquire and implement. Oftentimes, this can cause key stakeholders such as educators and administrators to resist this type of change and perhaps prefer continuing to use existing protocols.

Research has found that schools that focus on "aligning the design of learning experiences with students' needs creates synergy in the teaching and learning classroom processes" (Diaz et al, 2014, p. 226). Without implementing technology within the classroom, a key component of the modern learning process may be omitted. If students are confronted by high technology usage at home but do not have newer, more modern tools within the classroom, their outlook of school may be significantly affected.

Emerging evidence suggests that online learning programs are efficient. A meta-analysis of empirical studies published by the U.S. Department of Education found that students who took part of their class online performed better than those who took the same course through traditional face-to-face instruction (Heritage Foundation, 2010). This strategy reduces overhead and increases profits, a feature that many institutions enjoy. However, poor implementation can cause students to opt for traditional classroom settings over their online counterparts.

Utilizing classroom and curriculum-driven technology in the right way can best cultivate the future of successful and impactful education. Forward-thinking educators

and administrators can successfully integrate technology to change the "to be" facing education. They can change the culture, conditions, competencies, and context found within their own schools, whether working with elementary-aged students or older. For this reason, the following paragraphs describe the "to be", which can also be found in the appendix, for a fully-implemented digital curriculum that supports 21st century learning for all students in District XYZ.

Culture

Successful implementation and integration of the digital curriculum would positively impact the school district's culture. It would cultivate a positive and forward-thinking environment in which new ideas flourish. It would make sure teachers feel appreciated and productive within their roles. As staff are able to take ownership of their suggestions and of their implementation strategies, they feel more confident about how they are able to improve performance and drive long-term change.

Ideally, in the future, District XYZ will move slowly under careful directions for each change to limit the negative impacts of implementation. Only one or two initiatives would be tackled each year. This would allow the staff to have enough time to invest fully in programs and understand all of their attributes. Many school districts that have incorporated technology had to rush the process. Teachers and other staff members do not fully understand how to best use technology to their advantage and may not understand all features. This means that the school district has wasted an investment in technology.

By carefully understanding how each change needs to be implemented and following a set plan, the implementation of the supplemental digital curriculum will have

a greater chance of finding success. Without such a plan, it is unlikely that all of the key stakeholders will support the plan to implement these holistic, technology-based solutions into their classrooms.

For example, if the overall goal of our iPad program was to be clearly stated, the program would have more favorable outcomes. The objectives, costs, and associated implementation plan would be organized in a manner that is easily understood by all stakeholders. By structuring significant changes to teaching and learning in this way, it increases the chance of success.

Conditions

If the implementation is "to be" successful, some conditions would need to be met. First, enough time will need to be built in between projects and initiatives to improve the chance of success. Implementation would have to be tested after each phase to determine whether or not it makes sense to proceed. This may be conducted by several of the experts in technology and digital curriculums throughout the school district. This would best utilize the existing competencies found within the district.

Additionally, all teachers would have their students access the digital curriculum daily to reinforce the change. This would help teachers to evolve curriculum to meet current modern standards. Additionally, educators would need more weekly team collaboration time to discuss implementation, examine technology systems, and review existing student completion reports to both understand opportunities for improvement and to learn based on experience.

Competencies

Some shared competencies would also need to be addressed. First, everyone needs to share the same understanding of technology usage and rely on the same technology systems for the same things. Administrators need to enforce the same curriculum and usage standards across different classrooms. It would be less effective to allow certain classrooms to continue to operate under old policies while others migrate to new technologies.

Technology could have the most profound impact on student learning outcomes. Teachers would therefore customize iPads and other key technologies to meet the individual learning needs for all students. This would allow District XYZ to better address what students need to reach the next academic level.

Educators will also be able to better to use the technology to collaborate and share lessons plans with their peers in District XYZ. By effectively using the lesson planning software purchased by the district, lesson plans could easily be replicated in order to be utilized in different classrooms. For instance, a school could invest in high-quality learning once to be utilized across different classrooms and levels. Eventually, each of these variations could be used to directly impact a specific student's learning needs in a more successful way. This represents a monumental change from broadcast delivery method.

Context

The future context that online integration has on the education industry is imminent. As online education becomes increasingly prevalent, organizations that opt not to incorporate the online learning systems may be left behind. In worst-case scenarios,

students may opt to enroll in programs that are more engaging and integrated with technology.

In terms of context, such a technological integration would remove the perceived digital divide found across District XYZ. It would promote a stronger relationship between key stakeholders, including the teacher's union, administrators, and the overall school board. Fostering this type of professional and positive relationship would be very beneficial for teachers and their students. When all of these parties successfully work together, they're capable of accomplishing more toward their goals. However, so much change has occurred in the last three years within the district that key stakeholders have become hesitant about more change. Even though the perceived change might be beneficial to students and teachers, it might be received negatively because it is just "one more change."

If the change is "to be" successful, the new fully implemented digital curriculum would better support blended learning and 21st century learning in all our classrooms. Over time, the government may mandate technology usage within public school classrooms. Instead of reactively making investments in technology, school districts should be on the forefront of proactively making these changes. These school districts will be the mostly likely to earn more money and grants for continuing to spur technology-based change. Therefore, it makes financial sense to incorporate these changes sooner rather than later.

SECTION SEVEN: STRATEGIES AND ACTIONS FOR CHANGE

One of the most important aspects of making a large-scale implementation is how to bridge the "as is" state of the school district and its employees with what could be or is "to be." First, implementers must fully understand the existing condition of the school district and related systems to better develop plans to bridge the outcomes between what is and what can be. The strategies and actions for change in District XYZ are further explained below and can also be found in the appendices.

Evaluating Change

Currently, there is a divide across the school district that has left teachers without trust in the administration. Although the school district is open to change, so much has occurred within a few years that teachers are unsure about what their focus should be. Therefore, I would develop a clear plan of action for all teachers in regards to how the digital curriculum should be incorporated in the existing curriculum. To build consensus for this plan of action, I would share information on the academic benefits of online learning with the staff to help build their capacity for change.

Additionally, by involving teachers in major technology decisions and working with them to slowly implement the digital curriculum, this will in turn increase the consistency of implementation. Doing so will also build confidence and win support. After we have developed a plan of action, a task force will be developed to create a vision and goals for our digital curriculum and implementation. Teachers, who are on the front lines delivering and supporting technology instruction, should be an essential piece of the change process. Therefore, the task force will continually review the goals set while developing the best way to determine if those goals have been reached. It is critical that

you look at the goals of the new technology program being implemented. They can provide us with valuable feedback in regards to how the teachers perceive the program's goal and learning experiences. Ultimately, we will only be able to tell if the new technology program is effective if the goals are being attained.

Gathering feedback from the teachers and using it to evaluate the current effectiveness of the change will improve implementation. Without continual evaluation of the process at each stage, we would not be aware of when adjustments would need to be made to keep the process on track. Therefore, the end of the process is too late to determine that the process was flawed and had failed; something needs to be done earlier to ascertain whether the technology program is on course to meeting its objectives.

Building Trust

The current culture within the school district can also be improved. It is currently operating with the relationships between the school district and individual schools straining because of conflicting priorities. Teachers do not feel that their needs are being met, and thus are less likely to feel appreciated by school officials. This often translates into staff members not taking ownership over the tasks that they actually do have control over.

However, to help build trust, I believe you must guide and create meaningful opportunities for teachers to work collaboratively. Therefore, I will make sure that additional collaboration time is allocated for teachers to work with their teams to discuss how to implement the digital curriculum successfully in their classroom. This helps build trust not only with administrators, but also amongst the teachers. We are aware of the fact that technology has transformed teaching and learning. It has changed the way that

we do business. By having the teachers who use the digital curriculum coach the other teachers who are struggling, we would help build unity amongst the staff.

Conversely, some schools in the district aim to make too many improvements and plan too many initiatives that are not identified and disseminated properly throughout the district. This may impact some schools negatively, as the staff does not have enough time to fully invest in new programs. They may wait until existing programs phase out, as they often do. This may stem from the fact that teachers are unaware of the types of goals and long-term vision associated with these initiatives.

For instance, many teachers report that they are unaware of how the digital curriculum will be beneficial to them in the long term. They may even feel that this is just another initiative that will be short lived and be quickly phased out. If teachers are not adequately told about the long-term plan for any project, they may not properly invest in an initial training session offered to them. They must understand that this is a change that the district and their individual schools are committing to for the long term and as such try their best to manage new changes.

When we first began our 1:1 initiative in 2011, only two grade levels were involved. District XYZ should have been more transparent with the teachers about their long-term plans for this new initiative. Many staff members chose to ignore technology because they thought that this would not affect them. Clearly that was not the case, as the expectation now is for everyone to use 1:1 technology and incorporate the iPads into their daily lessons. I think that we could have avoided a lot of issues if we were just up-front with the teachers about our expectations and goals for the 1:1 project.

Unfortunately, this is an example of top-down decision-making, which leads to ineffective communication and diminishes the trust between the teachers and administrators (Tschannen-Moran & Hoy, 2001). There is a significant link between productivity, level of trust, and student learning in a school, as noted in the study by Bryk and Schneider (2002). Therefore, I will be very transparent when disseminating information about the digital curriculum. There will not be any surprises. A high level of trust lowers each staff member's sense of vulnerability as they engage in new tasks associated with school improvement, such as using a digital curriculum in the classroom. To build trust, you must involve staff in decision making, use effective communication, celebrate experimentation, and support risks.

Supporting Change

To ensure that a change is going to be successful, first you must think about if it is necessary and how it benefits students. Then you must discuss the proposed change with the district's stakeholders. Make sure that you come to the table with a plan of action, research to support the change, and answers to any questions that may come up. Teachers need to feel that they have the power to help make these decisions. They need to be provided with as much knowledge as possible so that they can contribute information to other teachers. Rewards and incentives need to be discussed for those who wish to lead the change and fully invest in the program.

However, some teachers currently feel that conditions are not beneficial for implementation. They claim that the iPad program overall was too rushed to discern whether the program would be successful in the long run. They do not feel there is a current district contact point with expertise on technology and digital curriculum usage as

it applies to them. For this reason, not every teacher has made their students utilize the digital curriculum within the classroom. To better support teachers through this change, I will make sure that there is a contact person in each building who is available to provide assistance in using technology. This contact person will be an expert on utilizing and supporting the digital curriculum. This would be a full-time position and this person would have been a teacher with expertise in technology. Therefore, they can provide peer coaching on how to utilize the digital curriculum to support students in their classrooms.

Development and Innovation

Moving forward, the teachers need to be counseled to understand the benefits of the digital curriculum and upgrade the skills required to utilize it. Some teachers may not have the current skill set to adequately manage technology tools. Teachers must be assessed for not only compliance but also personal understanding of the tool to understand why some teachers remain resistant to the change. Therefore, I will make sure that we provide support to teachers as they begin to consistently incorporate the digital curriculum into their classrooms. Teachers need to have a strong support system. They also need to have release time throughout the week to let them work both independently and with their colleagues to help improve their skill set. Teachers will also need to receive professional development and peer coaching relevant to the their school setting. Additionally, they will be able to visit other schools with successful online programs.

We are aware of the fact that the effectiveness of educational technology is determined not by its mere presence in the classroom, but by teachers' readiness to use it.

All teachers need to be encouraged to embrace the change instead of fighting against it. We know that modifying traditional teaching methods to incorporate technology is not easy. However, to ensure this happens, technology needs to be made a priority in the schools.

If teachers are not using the digital curriculum, the Instructional Planner, Collaborative Learning Suite, and Curriculum Mapper to make informative instructional decisions, those in charge of the implementation process need to identify why. If poor training is the culprit, this needs to be noted and addressed. Additionally, training needs to be targeted toward those educators unable to see the long-term vision and purpose of the iPad project. Creating work environments that enhance technology training for teachers is key. District XYZ should not only be providing teachers with professional development regarding the digital curriculum, but also should plan follow-up sessions where the teachers can receive support after they have been using the new skill in the classroom. This should make it more relevant to their specific school setting.

For example, they may not fully understand how a lack of consistency from classroom to classroom and school to school may negatively impact learning outcomes and extend the time required for implementation. If teachers understand how critical their individual role is to implementation, they may be more likely to put effort into complying with the program.

Personalized Learning

However, it is also imperative that staff understand how this is just one phase of the process. While creating individual learning paths through our digital curriculum remains critical to the long-term mission, it is not possible to create them all

instantaneously. Each specific learning path will be created as students require them. This is differentiated instruction, one of the most important features of the supplemental digital curriculum. Students access the lessons independently on their iPad and progress through the curriculum at their own pace based upon mastery of the subject content. Again, to ensure that teachers are doing this, there must first be clear expectations of what needs to be done. Every school needs to abide by this; follow-through is important.

For instance, as one classroom utilizes a digital curriculum to target the needs of mostly advanced learners with a focus on auditory learning, another classroom will utilize more tactile learning techniques. Both of these learning paths would be documented and shared. This reduces the amount of work each individual classroom teacher is responsible for completing. Allowing educators to understand their part in the overall system makes them less likely to feel overwhelmed by all the inherent change technology brings.

Only by working together will educators and school administrators be successful in driving this type of large-scale change into classrooms. If each and every classroom across the school district incorporated this type of learning and digital curriculum strategies, the vast amount of specific curriculum components generated would be immense.

Systems Research

One of the most important considerations for bridging the gap between what is and what can be in the future is to utilize the wide range of research being conducted on online learning. This will allow the school district to limit the number of errors associated with migrating to such a technology platform. It is likely that other school

districts that have successfully implemented this type of technology into the classroom have made mistakes and established best practices. I would recommend visiting other schools that are currently using online learning to help determine the appropriate role for technology in moving our educational program forward.

A wide range of published academic research has been created to disclose these types of strategies. From understanding how technology can expedite and benefit student learning to monitoring the impacts of change on teaching staff, research exists to improve academic organizations. Some of this research presents opportunities to build upon existing implementation plans and design more comprehensive strategies for widespread usage. I would then present this research to the teachers in District XYZ to help support the claim that educational technology benefits all students. With the research standing behind this statement, there is no excuse for not implementing this in the classroom.

Researchers are looking deeply into the impact of technology in the classroom. It has become clear that technology will be a leading force in innovation and change in the future. Therefore, it is important to integrate technology into the learning process to familiarize learners with emerging technologies. New technologies will also make the learning process easier, as it will not only provide more information, but do so in a meaningful context.

As researchers study the uses and impact of technology in the classroom, "research emphasizes the importance of integrating technology into the curriculum; the use of technology can only be effective if teachers themselves possess the expertise to use technology in a meaningful way in the classroom" (Sadik, 2008, p. 487). Without this

knowledge, it is unlikely that technology will be implemented or used correctly, if at all, within the classroom setting.

Systems Performance

Teachers must be able to properly utilize this technology, meaning that they will need to have mastered it first. I would help them do this by giving them a consistent amount of time to practice the new skill or tools. Additionally, working with other colleagues who have greater skills with technology will help each teacher move toward mastery. While much of the technology is rudimentary by modern standards (i.e., using a television or simple audio devices like radios), the complexity of available technologies is increasing. With the advent of the smartphone and the revolution of other computing technologies, educators have an increasing number of highly effective technological solutions to choose from.

As technology provides us with wider access to information and learning avenues, it has become more important to maintain and improve the quality of the education available. For some time now, educators have seen the importance of planning curriculum around the desired knowledge and outcomes for the subject. As technology is integrated into the classroom, more emphasis needs to be placed on the improvement of learning objectives, as "learner satisfaction has been shown to be positively correlated with quality of learning outcomes" (Palmer & Holt, 2009, p. 101). This means that teachers must be prepared to incorporate more of how learners want to learn over how educators may want to teach.

Technology and Online Learning

One of the major changes to education is the advent of online learning platforms. Currently, online learning is available to every teacher in District XYZ, but is only being used consistently by only a handful of teachers. Online learning offers huge potential benefits, and teachers need to be more aware of how this directly aids students.

Students who had a clear understanding of what was expected of them in class and how to function in an online class were more confident and performed better in online classes. This is part of the reason that many school districts, including District XYZ, have taken an interest in incorporating a digital curriculum. They understand how students may be more engaged and find increased applicability in classroom learning from this type of learning environment.

Online learning also helps provide different social skill training experiences in the classroom. Educators are studying "how components of socialization— knowledge acquisition, investment, and involvement—are influenced by the online context" (Holley & Taylor, 2009, p. 257). These teachers are looking for ways to influence social behaviors in students. This has resulted in group development and communication assignments (e.g., discussion boards, peer review projects) that force students into situations in which they must collaborate with other students and practice social skills online, which may utilize a different skill set than in-person interactions. Many university professors have made a huge shift in the way they teach and incorporate technology (Vaughan, 2007). Discussion boards and peer review projects are being used consistently in the classroom. By incorporating them into our program in District XYZ, we are doing a better job preparing our students for college.

Research shows that "technology offers teachers free digital tools to build a customized online learning system, one that fits their learners in approach, subject content, level, and learning style" (Osuagwu, 2013, p. 196). These platforms also provide educators with a way to plan their lessons and tools to manage their classes, which in turn makes the educators more organized and allows them more time and energy to focus on the students.

Integrating technology into classrooms is also changing the physical makeup of traditional learning environments. Educational space designers are using new technologies to improve their space designs and customize it to specific learning needs. Designers are working with students to "assess their educational needs related to advances in IT and simulation in order to optimize curriculum and educational space design" (Harris, Barden, Walker, & Reznek, 2009, p. 45). Redesigned learning spaces can engage students more in the learning process. It allows for a more flexible classroom setup that assists with collaboration and student engagement. Additionally, it supports technology use and individualized learning.

The resulting improvements in structural and organizational design could improve the learning ability of students who previously would fall behind due to an inability to learn in classroom environments. New institutions are being built with better resources that utilize these new designs to reach students in more focused ways across different learning styles. New classrooms include better resources for visual displays to reach visual learners, while utilizing advanced acoustics to provide better auditory learning.

Sustaining Change

Researchers have found that trouble often comes not from the technology itself, but how it is implemented (Cradler, 1996). In order to improve the chances of a successful implementation, several factors must be considered. First, there needs to be a clear vision for technology, one that is understood and easily identified by the administration and teachers. Ultimately, this should be developed by a task force made up of faculty and administrators. This is not something that should just be developed at the district office and distributed to all faculty. If educators do not fully understand how to use the selected technology, they are less likely to successfully implement it within their classrooms.

Secondly, there needs to be more professional development around the supplemental digital curriculum and how it fits specifically into "blended learning." Teachers may think they can hold off on using the technology when they fail to understand the long-term plan for it. With the iPad implementation, for instance, teachers need to understand how more and more resources may be moved directly to the iPad. It may be beneficial for some teachers to go visit another school that is having great success using a supplemental digital curriculum.

Teachers should be educated on the supplemental digital curriculum through the courses offered in the district's XYZ Internal University. This would increase their level of exposure before working in a classroom. Additionally, clear district-wide guidelines and expectations for the use of the digital curriculum will be set. Principals and district administrators will monitor this through using classroom walk-throughs and reviewing

classroom/school usage reports. With educators better understanding both the value of blended learning and what is expected of them, they have a better chance of compliance.

Teachers must be evaluated to ensure that technology is being used productively in their classrooms. There must be an open forum in which educators can talk to administrators to ask questions and learn more about technology plans. The system and changes must be monitored to ensure that they work. Additionally, District XYZ would benefit from having a talented point person at each school to help guide the teachers through use of the digital curriculum. This person should also be very passionate about educational technology and available for classroom support.

Principals need to monitor the use of the supplemental digital curriculum by reviewing usage reports or having teachers submit a schedule outlining how this fits into their daily lessons. Specifically, principal walk-through data could be used to help build the schedules.

In conclusion, there are benefits to both online and in-person communication that should be equally harnessed within the classroom setting. Doing so would better prepare students for post-educational opportunities and outcomes. The iPad program described throughout this research project could serve as a beginning step to successfully integrating a digital curriculum into the learning environment, starting as early as elementary school. By focusing on proper implementation, rather than incorporating yet another new technology, educators will find continued long-term success with their students.

Finally, we know that change is very difficult for most people but nonetheless necessary to ensure student growth. There are many key factors to address when

incorporating the digital curriculum into the everyday classroom. To begin with, the long-term goals and expectations of the program need to be clearly communicated to all stakeholders. Checkpoints need to be built in along the way to evaluate if the plan is on track and if goals are being met. Teachers need to be directly involved in creating these goals and the evaluation process itself. They also need to receive support for incorporating the digital curriculum into their classroom through professional development and peer-coaching. There needs to be a strong sense of trust between the teachers and the administrators for the former to be comfortable taking risks associated with this change. Additional collaboration time needs to be allocated specifically for work on the digital curriculum. By building a strong relationship with the staff, change will be more sustainable as staff members work to ensure the students are provided the best possible outcomes.

In conclusion, many studies have shown the potential advantages of technology in the classroom (Cradler, McNabb, Freeman & Burchett, 2002; Keengwe, Onchwari & Wachira, 2008). Some of these benefits occur in the short term—enhanced student achievement, increased confidence—but perhaps even more important are those for the long term. By integrating technology into a blended-learning model in the classroom, teachers can personalize education and form more meaningful, direct connections with students.

Of course, technology is just a tool, and like any tool, it is only useful if wielded properly. For all the myriad benefits of technology in the classroom, the possibilities it presents will go unrealized without clear and consistent implementation and use. By working together to integrate a digital curriculum into instruction, educators and

administrators can create an environment that fosters growth and prepares students for the evolving demands of the 21st century.

REFERENCES

Abbey, E. (2008). Blended Learning in Your Classroom. Retrieved from http://eabbey.blogspot.com

Alijani, G. S., Kwun, O., K., & Yu, Y. (2014). Effectiveness of blended learning in KIPP New Orleans' schools. *Academy of Educational Leadership Journal, 18*(2), 125-141.

Bainbridge, J. M., & Macy, L. (2008). Voices: Student teachers link teacher education to perceptions of preparedness for literacy teaching. *Teacher Education Quarterly, 35*(2), 65-83. Retrieved from http://www.teqjournal.org/

Bauer, K. (2014, May 6). Can the blended classroom help instill 'grit'? Retrieved from http://www.gettingsmart.com/2014/05/can-blended-classroom-help-instill-grit/

Baylor, A. L., & Ritchie, D. (2002). What factors facilitate teacher skill, teacher morale, and perceived student learning in technology-using classrooms? *Computers & Education, 39*(4), 395-414.

Bianco, S. D. (2010). Improving student outcomes: Data-driven instruction and fidelity of implementation in a response to intervention (RTI) model. *TEACHING Exceptional Children Plus, 6*(5).

Brown, C. L., & Czerniewicz, L. (2007). If we build it, will they come? Investigating the relationship between students' access to and use of ICTS for learning. *South African Journal of Higher Education, 21*(6), 732-747.

Bryk, A., & Schneider, B. (2002). *Trust in schools: A core resource for improvement*. New York, NY: Russell Sage Foundation.

Camahalan, F. G., & Ruley, A. G. (2014). Blended learning and teaching writing: A

teacher action research project. *Journal of Instructional Pedagogies, 15.*

Celli, L. M., & Young, N. D. (2014). *Learning style perspectives: Impact in the classroom*. Madison, WI: Atwood Publishing

Childs, G. (1991). *Steiner education in theory and practice*. Edinburgh, UK: Floris Books.

Chambers, B. (2014, August 28). L.A. cancels iPads-in-the-schools program: A failure of vision, not technology. Retrieved from http://www.macworld.com/article/2599988/lausd-ipad-cancellation-is-a-failure-of-vision-not-technology.html

Conley, D. T. (2008). What makes a student college ready? *Educational Leadership, 66*(2), 1-4.

Cradler, J. (1996). Implementing technology in education: Recent findings from research and evaluation studies. Retrieved April 5, 2008. Retrieved from: http://neuage.org/portfolio/SilverDrive/more/implementingTechnology.htm

Cradler, J., McNabb, M., Freeman, M., & Burchett, R. (2002). How does technology influence student learning?. *Learning and Leading with Technology, 29*(8), 46-49.

Creswell, J. D. (2009). *Research design: Qualitative, quantitative, and mixed method approaches*. Thousand Oaks, CA: Sage Publications.

Cuban, L. (2009). *Oversold and underused: Computers in the classroom*. Cambridge, MA: Harvard University Press.

Dewey, J. (1902). *The child and the curriculum*. Chicago, IL: University of Chicago Press.

Díaz, A., Nussbaum, M., Ñopo, H., Maldonado-Carreño, C., & Corredor, J. (2015). Orchestration: Providing teachers with scaffolding to address curriculum standards and students' pace of learning. *Educational Technology & Society*, *18*(3), 226-239.

Doe, C. (2013, March 1). Compass Learning Odyssey. P 1-2. Retrieved from http:// http://www.internetatschools.com/Articles/Editorial/Product-Reviews/Compass-Learning-Odyssey-88282.aspx

Educational Testing Service. (1997). *Computers and classrooms: The status of technology in U.S. schools. Policy information report.* Princeton, NJ: Coley, R., Cradler, J., & Engel, P. K.

Ferguson, S. (2005). How computers make our kids stupid. *Maclean's*, *118*(23), 24-30.

Foote, C. (2012). Learning together: The evolution of a 1:1 iPad program. *Internet @ Schools, 19*(1), 24-26. Retrieved from http://www.questia.com

Graham, C. R. (2006). Blended learning systems. In Bonk, C. J., & Graham, C. R. *The handbook of blended learning: Global perspectives, local designs* (169-170). Pfeiffer.

Hannafin, M. J., & Land, S. M. (1997). The foundations and assumptions of technology-enhanced student-centered learning environments. *Instructional Science*, *25*(3), 167-202.

Harris, J., Mishra, P., & Koehler, M. (2009). Teachers' technological pedagogical content knowledge and learning activity types: Curriculum-based technology integration reframed. *Journal of Research on Technology in Education*, *41*(4), 393-416.

Harris, S. S., Barden, B., Walker, H. K., & Reznek, M. A. (2009). Assessment of student learning behaviors to guide the integration of technology in curriculum reform. *Information Services & Use*, *29*(1), 45-52.

Heritage Foundation. (2010). *How online learning is revolutionizing K-12 education and benefiting students. Backgrounder. No. 2356.* Washington, DC: Lips, D.

Herrington, J., Oliver, R., & Reeves, T. C. (2003). Patterns of engagement in authentic online learning environments. *Australasian Journal of Educational Technology*, *19*(1), 279-286.

Holley, K. A., & Taylor, B. J. (2009). Undergraduate student socialization and learning in an online professional curriculum. *Innovative Higher Education*, *33*(4), 257-269.

Horn, M. B., & Staker, H. (2012). Formative assessment is foundational to blended learning. *The Journal.* Retrieved from https://thejournal.com/articles/2012/11/14/formative-assessment-is-foundational-to-blended-learning.aspx

Huang, Y. H., Liang, T. P., Su, Y. Y., & Chen, N. N. (2012). Empowering personalized learning with an interactive e-book learning system for elementary school students. *Educational Technology Research & Development*, *60*(4), 703-722. doi:10.1007/s11423-012-9237-6

Huffman, D., Goldberg, F. & Michlin, M. (2003). Using computers to create constructivist learning environments: Impact on pedagogy and achievement. *Journal of Computers in Mathematics and Science Teaching*, 22(2), 151-168.

Innosight Institute. (2011). *The rise of K-12 blended learning.* Horn, M. B., & Staker, H.

International Association for K–12 Online Learning. (2013). *Mean what you say: Defining and integrating personalized, blended and competency education.* Vienna, VA: Patrick, S., Kennedy, K., & Powell A.

Kara-Soteriou, J. (2009). Using technology to differentiate instruction across grade levels. *New England Reading Association Journal, 44*(2), 86-90.

Keengwe, J., Onchwari, G., & Wachira, P. (2008). Computer technology integration and student learning: Barriers and promise. *Journal of science education and technology*, *17*(6), 560-565.

Koedinger, K. R., McLaughlin, E. A., & Heffernan, N. T. (2010). A quasi-experimental evaluation of an on-line formative assessment and tutoring system. *Journal of Educational Computing Research, 43*(4), 489-510. doi:10.2190/EC.43.4.d

Lucey, T. t., & Grant, M. (2010). Using technology to prepare critically thinking global citizens. *Social Studies Research & Practice, 5*(3), 119-138.

McDonough, D. (2012). Applying learner-centered principles and strategies: From face to face instruction to a hybrid course learning format. *Journal of Learning in Higher Education*, *8*(2), 31-39.

Morgan, H. (2014). Maximizing student success with differentiated learning. *Clearing House: A Journal of Educational Strategies, Issues and Ideas, 87*(1), 34-38. doi:10.1080/00098655.2013.832130

Moss, G. (2005). Compass Learning Odyssey® reading/language arts curriculum. Retrieved from http://wvde.state.wv.us/techworkplan/ReadingWP032305_V04.pdf

North American Council for Online Learning. (2008). *Blended learning: The*

convergence of online and face-to-face education. Promising practices in online learning. Vienna, VA: Watson, J.

Osuagwu, O. (2013). Online content management website: Create a web-accessible student learning system that dovetails with your class curriculum. *Journal of Research & Practice for Adult Literacy, Secondary & Basic Education, 2*(3), 196-198.

Palmer, S., & Holt, D. (2009). Examining student satisfaction with wholly online learning. *Journal of Computer Assisted Learning*, *25*(2), 101-113.

Partnership for 21st Century Skills. (2006). *Results that matter: 21st century skills and high school reform.* Retrieved from http://www.p21.org

Partnership for 21st Century Skills. (2008). *21st century skills, education & competitiveness: A resource and policy guide*. Retrieved from http://www.p21.org/storage/documents/21st_century_skills_education_and_competitiveness_guide.pdf

Peter, J., & Valkenburg, P. M. (2006). Adolescents' internet use: Testing the "disappearing digital divide" versus the "emerging digital differentiation" approach. *Poetics*, *34*(4), 293-305.

Piaget, J. (1953). *The origins of intelligence in children.* New York, NY: Basic Book.

Powell, K. C., & Kalina, C. J. (2009). Cognitive and social constructivism: Developing tools for an effective classroom. *Education, 130*(2), 241-250.

Reiners, T. R., Dreher, C. C., & Dreher, H. H. (2011). Six key topics for automated utilization and acceptance. *Informatics in Education, 10*(1), 47-64.

Renzulli, J. J., & Reis, S. S. (2007). A technology based program that matches

enrichment resources with student strengths. *International Journal of Emerging Technologies in Learning, 2*(3), 57-64.

Rice, M. L., & Wilson, E. K. (1999). How technology aids constructivism in the social studies classroom. *The Social Studies, 90*(1), 28-33.

Richtel, M. (2011a, October 22). A Silicon Valley school that doesn't compute. *The New York Times*. Retrieved from http://www.nytimes.com/2011/10/23/technology/at-waldorf-school-in-silicon-valley-technology-can-wait.html

Richtel, M. (2011b, September 3). In classroom of future, stagnant scores. *The New York Times*. Retrieved from http://www.nytimes.com/2011/09/04/technology/technology-in-schools-faces-questions-on-value.html

Rock, M. L., Gregg, M., Ellis, E., & Gable, R. A. (2008). REACH: A framework for differentiating classroom instruction. *Preventing School Failure: Alternative Education for Children and Youth, 52*(2), 31-47.

Rosen, Y., & Beck-Hill, D. (2012). Intertwining digital content and a one-to-one laptop environment in teaching and learning: Lessons from the time to know program. *Journal of Research on Technology in Education, 44*(3), 225-241.

Sadik, A. (2008). Digital storytelling: A meaningful technology-integrated approach for engaged student learning. *Educational Technology Research & Development, 56*(4), 487-506.

Salerno, M., & Vonhoff, M. (2011). Launching an iPad 1: 1 program: A primer. *The Journal*. Retrieved from https://thejournal.com/articles/2011/12/14/launching-an-ipad-1-to-1-program-a-primer.aspx

Saul, C., & Wuttke, H. (2013). An adaptation model for personalized e-assessments. *International Journal of Emerging Technologies in Learning, 8*,5-12. doi:10.3991/ijet.v8iS2.2734

Milken Exchange on Education Technology. (1999). *The impact of education technology on student achievement: What the most current research has to say.* Santa Monica, CA: Schacter, J.

Schiller, P., & Willis, C., (2008). *Inclusive literacy lessons for early childhood.* Beltsville, MD: Gryphon House.

Shapley, K. S., Sheehan, D., Maloney, C. & Caranikas-Walker, F. (2010). Evaluating the implementation: Fidelity of technology immersion and its' relationship with student achievement. *The Journal of Technology, Learning, and Assessment, 9*(4). 5-66.

So, H. J., & Brush, T. A. (2008). Student perceptions of collaborative learning, social presence and satisfaction in a blended learning environment: Relationships and critical factors. *Computers & Education, 51*(1), 318-336.

Stanford, P., Crowe, M. W., & Flice, H. (2010). Differentiating with technology. *TEACHING Exceptional Children Plus, 6(*4), 1-9.

Stronge, J. (2005). *Evaluating teaching: A guide to current thinking and best practice*. Thousand Oaks, CA: Corwin Press.

Tomlinson, C.A. (1999). *The differentiated classroom: Responding to the needs of all learners.* Alexandria, VA: Association for Supervision and Curriculum Development.

Trif, L. T. (2014). Theoretical and practical perspectives on personalized instructional

systems. *Elearning & Software for Education, (3),* 406-410. doi:10.12753/2066-026X-14-203

Tschannen-Moran, M., & Hoy, A. W. (2001). Teacher efficacy: Capturing an elusive construct. *Teaching and Teacher Education*, *17*(7), 783-805.

Tucker, C. (2013). The basics of blended instruction. *Educational Leadership, 70*(6), 57-60.

Vaughan, N. (2007). Perspectives on blended learning in higher education. *International Journal on E-Learning*, *6*(1), 81.

Vygotsky, L. S. (1962). *Thought and language.* Cambridge, MA: MIT Press.

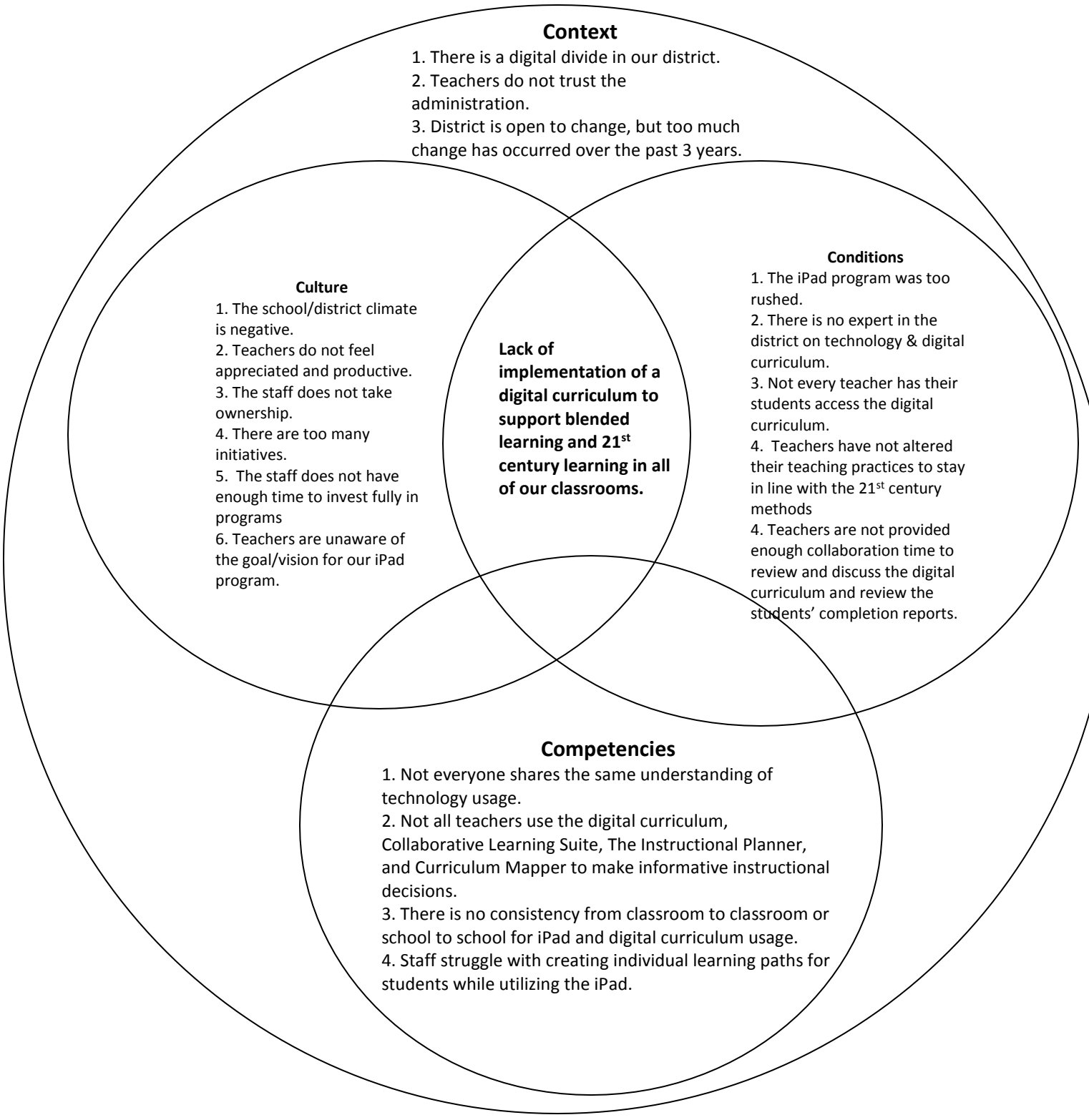
Wagner, T., Kegan, R., Lahey, L. L., Lemons, R. W., Garnier, J., Helsing, D., & Rasmussen, H. T. (2012). *Change leadership: A practical guide to transforming our schools*. DeKalb, IL: John Wiley & Sons.

Wang, K. H., Wang, T. H., Wang, W. L., & Huang, S. C. (2006). Learning styles and formative assessment strategy: Enhancing student achievement in web- based learning. *Journal of Computer Assisted Learning*, *22*(3), 207-217.

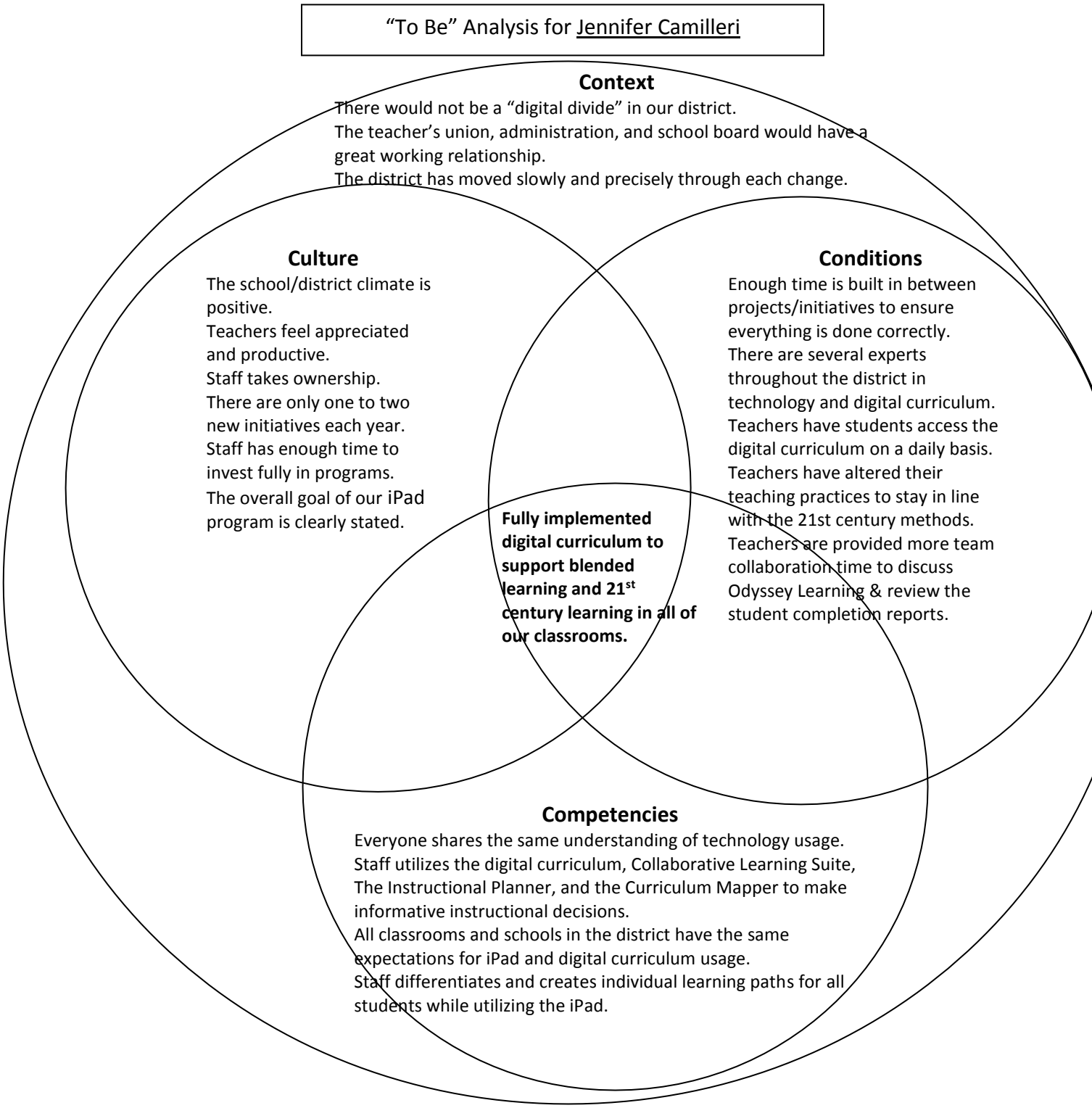
Ward, K. (2013, October 2). Coaching and professional development supporting educators as they do something previously not thought possible. Retrieved from http://www.aalf.org/articles/view.php?ArticleID=176

Wong, W. (2014, April). How technology enables blended learning. *EdTech.* Retrieved from http://www.edtechmagazine.com/k12/article/2014/04/how-technology-enables-blended-learning

Appendix A


"As Is" 4 Cs Analysis for Jennifer Camilleri
Context
1. There is a digital divide in our district.
2. Teachers do not trust the administration.
3. District is open to change, but too much change has occurred over the past 3 years.
Culture
1. The school/district climate is negative.
2. Teachers do not feel appreciated and productive.
3. The staff does not take ownership.
4. There are too many initiatives.
5. The staff does not have enough time to invest fully in programs
6. Teachers are unaware of the goal/vision for our iPad program.
Lack of implementation of a digital curriculum to support blended learning and 21st century learning in all of our classrooms.
Conditions
1. The iPad program was too rushed.
2. There is no expert in the district on technology & digital curriculum.
3. Not every teacher has their students access the digital curriculum.
4. Teachers have not altered their teaching practices to stay in line with the 21st century methods
4. Teachers are not provided enough collaboration time to review and discuss the digital curriculum and review the students' completion reports.
Competencies
1. Not everyone shares the same understanding of technology usage.
2. Not all teachers use the digital curriculum, Collaborative Learning Suite, The Instructional Planner, and Curriculum Mapper to make informative instructional decisions.
3. There is no consistency from classroom to classroom or school to school for iPad and digital curriculum usage.
4. Staff struggle with creating individual learning paths for students while utilizing the iPad.

Appendix B


"To Be" Analysis for Jennifer Camilleri
Context
There would not be a "digital divide" in our district.
The teacher's union, administration, and school board would have a great working relationship.
The district has moved slowly and precisely through each change.
Culture
The school/district climate is positive.
Teachers feel appreciated and productive.
Staff takes ownership.
There are only one to two new initiatives each year.
Staff has enough time to invest fully in programs.
The overall goal of our iPad program is clearly stated.
Conditions
Enough time is built in between projects/initiatives to ensure everything is done correctly.
There are several experts throughout the district in technology and digital curriculum.
Teachers have students access the digital curriculum on a daily basis.
Teachers have altered their teaching practices to stay in line with the 21st century methods.
Teachers are provided more team collaboration time to discuss Odyssey Learning & review the student completion reports.
Fully implemented digital curriculum to support blended learning and 21st century learning in all of our classrooms.
Competencies
Everyone shares the same understanding of technology usage.
Staff utilizes the digital curriculum, Collaborative Learning Suite, The Instructional Planner, and the Curriculum Mapper to make informative instructional decisions.
All classrooms and schools in the district have the same expectations for iPad and digital curriculum usage.
Staff differentiates and creates individual learning paths for all students while utilizing the iPad.

Appendix C

Strategies and Actions Chart

Strategies	Actions
Preparing for the Implementation of the Digital Curriculum	• Research the change to online learning • Share with all teachers information demonstrating that online learning is best practice in educational technology • Establish a teacher task force • Work with the task force to create a vision & goals • Involve teachers in the major technology decisions • Develop a clear plan of action for all teachers to incorporate the digital curriculum consistently into every classroom • Work with teachers to slowly implement the digital curriculum • Set clear expectations for the digital curriculum use by teachers and students
Evaluating Change While Implementing the Digital Curriculum	• Continually monitor and evaluate the implementation of the digital curriculum into the classroom • Review goals (via task force) to see if we are on track • Reach consensus on what needs to be done to move forward
Building Trust	• Provide additional collaboration time for teachers to practice and work with colleagues • Eliminate top-down decision making • Communicate openly and honestly about the program and long-term goals

Sustaining Change After Implementing the Digital Curriculum	• Provide aid to teachers as they begin to consistently incorporate the digital curriculum into their classrooms • Provide professional development opportunities • Facilitate peer-coaching relevant to school setting • Have teachers visit other schools with successful online programs • Monitor the use through walk-throughs (principles and district administrators) • Review classroom/school usage reports on a monthly basis

Appendix D

Assistant Superintendent Interview Questions

September 2015

Thank you for participating in my research study. Data collected from this survey will remain anonymous and will be utilized for the purpose of dissertation research. Additionally, it will also be used to assess the current need for a digital curriculum implemented with consistency in our classrooms.

1. How did you realize that there was a need for a supplemental digital curriculum aligned to our units of study for Math and ELA in Odyssey K-5?
2. Do you feel that teachers should have their students access the digital curriculum on a daily basis? Why so?
3. What does it mean to you to implement the digital curriculum with fidelity?
4. How will students benefit if the supplemental digital curriculum is being utilized consistently in the classroom?
5. How will the district benefit if the supplemental digital curriculum is being utilized consistently in the classroom?
6. How will teachers benefit if the supplemental digital curriculum is being utilized consistently in the classroom?
7. Do you think that there will be a change in student engagement when students access the digital curriculum? How so?
8. Do you feel that by using the supplemental digital curriculum in the classroom, this will help support a blended-learning environment? If yes, how so? If no, why not?
9. How will we ensure that the teachers are using the supplemental digital curriculum accurately and consistently in their classrooms?
10. Is there anything else about the digital curriculum you would like me to know?

Thank You for Completing This Interview!

Thank you for taking time out to participate in this interview. We truly value the information you have provided. Your responses are vital in enhancing the excellent educational experience we provide to our students each and every day.

Appendix E

Digital Curriculum Teacher Survey

October 2015

Thank you for participating in my research study. Data collected from this survey will remain anonymous and will be utilized for the purpose of dissertation research. Additionally, it will also be used to assess the current need for a digital curriculum implemented with consistency in our classrooms.

Instructions: Please complete the following questions to reflect your opinions as accurately as possible.

1. In your opinion, what does a successful iPad program look like?

iPads are tools that enhance curriculum – fully integrated with lessons (daily basis) to enhance instructional experience – technology is a natural part of the school day – strong instructional model – ongoing professional development to help teachers engage students – digital devices for most or all students

2. How do you feel about integrating technology in your classroom?

Technology is a new way of life in the classroom – apps, programs, and websites – fun & exciting ways to introduce new concepts – help students gain independence – help teachers zone in on specific skills students need support with – makes lessons more interesting – differentiate instruction to meet the needs of individual students – more engaging – grants access to more resource

3. What do you use the iPad for in your classroom? (e.g., independent learning, whole group lessons, guided reading, guided math, guided writing, etc.) whole group instruction, independent practice – guided math, reading, writing, and spelling – Odyssey

4. Based upon your knowledge of our curricular programs, what does it mean to implement something with fidelity?
consistently – teachers use effective instructional strategies & deliver the content of the curriculum in the way it was designed to be used & delivered

5. What kind of professional development have you found that was helpful to you regarding Odyssey Learning and our supplemental digital curriculum?
Creating individualized assignments for students based on their learning needs – how to use system and read reports – ins and outs of the program

6. What barriers (if any) will you encounter when trying to implement the supplemental digital curriculum?
Not having the necessary browser to support the program – the network couldn't support the program – when too many students were trying to access it at once – there was a slow connection – kicked you out – couldn't complete folders – not enough time – internet going down – students having trouble logging on

Please click the box next to the response that best fits your answer.

7. After you have read the consent form attached to this survey, are you still interested in participating in this survey?

Yes

No

8. How frequently do you integrate technology into your lessons?

Daily

Weekly

Monthly

9. When students use technology in my class, I observe: Student Engagement

Decreases a lot

Decreases a little

No change

Increases a little

Increases a lot

10. When students use technology in my class, I observe: Student Writing

Decreases a lot

Decreases a little

No change

Increases a little

Increases a lot

11. When students use technology in my class, I observe: Student Higher Order Thinking

Decreases a lot

Decreases a little

No change

Increases a little

Increases a lot

12. When students use technology in my class, I observe: Behavior Problems

Decreases a lot

Decreases a little

No change

Increases a little

Increases a lot

13. How often do your students use Odyssey Learning (at home or in the classroom)?

Daily

Weekly

Monthly

14. How effective do you think that Odyssey Learning is?

Very effective – helps by leaps and bounds when implemented with fidelity – increases test scores – targeting needs

15. Is there anything else you would like to share with me about our supplemental digital curriculum?

Really good at differentiating learning

Thank You for Completing Our Survey!

Thank you for taking time out to participate in our survey. We truly value the information you have provided. Your responses are vital in enhancing the excellent educational experience we provide to our students each and every day.

Appendix F

Teacher Follow-Up Survey

November 2015

Thank you for participating in my research study. Data collected from this survey will remain anonymous and will be utilized for the purpose of dissertation research. Additionally, it will also be used to assess the current need for a digital curriculum implemented with consistency in our classrooms.

Instructions: Please complete the following questions to reflect your opinions as accurately as possible.

1. How many times a day did your students utilize the digital curriculum?

2. How did having a daily routine help you to integrate technology into your classroom?

3. Did you notice a change in student engagement when students accessed the digital curriculum? How so?

4. Do you feel like students had to take more responsibility for their own learning when utilizing the online digital curriculum? How so?

5. Did you notice an increase in the overall mastery of the subject matter? (improvement in assessment scores – formative & summative) How so?

6. Do you feel like you had a better picture of where your students were at in relation to mastery of content? How so?

Please click the box next to the response that best fits your answer.

8. After you have read the consent form attached to this survey, are you still interested in participating in this survey?

Yes

No

9. How frequently do you integrate technology into your lessons?

Daily

Weekly

Monthly

10. When students use technology in my class, I observe: Student Engagement

Decreases a lot

Decreases a little

No change

Increases a little

Increases a lot

11. When students use technology in my class, I observe: Student Writing

Decreases a lot

Decreases a little

No change

Increases a little

Increases a lot

12. When students use technology in my class, I observe: Student Higher Order Thinking

Decreases a lot

Decreases a little

No change

Increases a little

Increases a lot

13. When students use technology in my class, I observe: Behavior Problems

Decreases a lot

Decreases a little

No change

Increases a little

Increases a lot

14. How often do your students use Odyssey Learning (at home or in the classroom)?

Daily

Weekly

Monthly

15. Is there anything else about the digital curriculum you would like me to know?

Thank You for Completing Our Survey!