W&M ScholarWorks

Dissertations, Theses, and Masters Projects

Theses, Dissertations, & Master Projects

Summer 2018

Teacher Perceptions of the Implementation Processes of the Imagine Learning Program in Title I Elementary Schools

Brigitt Angelica McGuinness
William & Mary - School of Education, bamcguinness@email.wm.edu

Follow this and additional works at: https://scholarworks.wm.edu/etd

Part of the Educational Leadership Commons

Recommended Citation

McGuinness, Brigitt Angelica, "Teacher Perceptions of the Implementation Processes of the Imagine Learning Program in Title I Elementary Schools" (2018). *Dissertations, Theses, and Masters Projects.* William & Mary. Paper 1530192587.
http://dx.doi.org/10.25774/w4-ak96-dw35

This Dissertation is brought to you for free and open access by the Theses, Dissertations, & Master Projects at W&M ScholarWorks. It has been accepted for inclusion in Dissertations, Theses, and Masters Projects by an authorized administrator of W&M ScholarWorks. For more information, please contact scholarworks@wm.edu.

TEACHER PERCEPTIONS OF THE IMPLEMENTATION PROCESSES OF THE IMAGINE LEARNING PROGRAM IN TITLE I ELEMENTARY SCHOOLS

A Dissertation

Presented to

The Faculty of the School of Education

In Partial Fulfillment

Of the Requirements for the Degree

Doctor of Education

By

Brigitt A. McGuinness

March 2018

TEACHER PERCEPTIONS OF THE IMPLEMENTATION PROCESSES OF THE IMAGINE LEARNING PROGRAM IN TITLE I ELEMENTARY SCHOOLS

By

Brigitt A. McGuinness

Approved March 20, 2018 by

James H. Stronge
Committee Member

Margaret Constantino
Committee Member

Michael F. DiPaola
Chairperson of Doctoral Committee

Dedication

To my son, Brian. You are the most beautiful challenge I have ever faced. To my husband, Jeff, the joyful optimist. You change me for the better every day. I love you both.

Table of Contents

List of Tables vi

List of Figures vii

Chapter 1: Introduction 2

Background 2

Program Description 4

Context 4

Description of the Program 6

Overview of the Evaluation Approach 8

Program Evaluation Model 9

Purpose of the Evaluation 9

Focus of the Evaluation 10

Evaluation Questions 11

Definition of Terms 11

Chapter 2: Review of Literature 13

Literacy Accountability 14

Low Progress Trends in the United States 14

Literacy and Poverty 17

Background Constructs 20

Philosophical Views 20

Differentiated Instruction 21

Response to Intervention 24

Self-Efficacy 26

Opponents to Computer-Assisted Instruction 27
A Growing Body of Proponent-Based Research 28
Imagine Learning Program 30
Differentiation 30
Response to Intervention 32
Summary 34
Chapter 3: Methods 35
Introduction 35
Participants 35
Data Source 36
Data Collection 38
Data Analysis 39
Delimitations, Limitations, and Assumptions 44
Delimitations 44
Limitations 45
Assumptions 45
Ethical Considerations 46
Chapter 4: Results 51
Research Question One 52
Research Question Two 62
Research Question Three 79
Research Question Four 89

Summary of Findings 97

Chapter 5: Discussion, Conclusions, and Recommendations 99

Discussion of Findings 100

Implications for Practice 114

Recommendations for Future Research 120

Conclusion 122

Appendices 125

Appendix A: Logic Model 125

Appendix B: Teacher Interview Protocol 126

Appendix C: Informed Consent Form 128

References 129

Curriculum Vitae 136

Acknowledgments

I would like to start by thanking my husband Jeff. I was able to achieve this dream because of your encouragement, time, and love. Thank you to my mother, Chandra, whose willingness to offer prayers and babysit during her weekends gave me the necessary peace to finish my work. Thank you to my stepfather Rick and brother-in-law Rick, who talked to me for countless hours about my study. Thank you to my sisters, Amber and Shannon, who always told me that I could achieve this goal. Thank you to my sweet son, Brian, for every time you interrupted my work and showed me the importance behind our goals as educators; to support and nurture children.

A special note of gratitude to everyone from my cohort. Your personal, professional, and academic support has truly seen me through this process and I am so grateful for your friendship. You truly showed me what it looked like to be an effective and caring administrator and I look forward to hearing about all of your future successes.

I am tremendously appreciative of my school administrators who believed in me and helped make this process possible. A very special thank you to my dissertation chair, Dr. DiPaola, and my committee members Dr. Constantino and Dr. Stronge for their encouragement, advice, time, and support throughout this process. Your expertise and guidance have been invaluable both academically and professionally and I am grateful to have been able to learn from you. I feel honored and blessed to be a part of such a distinguished college and I cannot thank everyone enough for the opportunity to have spent these past four years with you. Go Tribe!

List of Tables

Table 1. Student Demographic School-Wide Percentages 5

Table 2. Teacher School-Wide Demographics 36

Table 3. Data Sources and Analysis 43

Table 4. Participants' Demographic Information 52

Table 5. Training Session Information 55

Table 6. Teacher Perceptions of Ineffective Training Elements.....58

Table 7. Summary of Implementation Transitions 64

Table 8. Teacher-Perceived Impacts of the Imagine Learning Program 68

Table 9. Teacher Perceptions for Decreased Program Integration 78

Table 10. Teacher Perceptions of Barriers to Implementation 80

Table 11. Assistance Needed to Improve ILP Implementation 86

Table 12. Support Mechanisms.....91

Table 13. Consultant Support 93

Table 14. Reading Specialist Support.....94

Table 15. Technology Teacher Support.....95

Table 16. Support from Colleagues 96

Table 17. Summary of Important Findings by Interview Question 98

Table 18. Findings and Related Recommendations.....114

List of Figures

Figure 1. Implementation Device Changes.....63

Figure 2. Teachers' Perceived Reasons for Decreased Program Interaction.....74

Figure 3. Teacher Perceptions of Barriers to Implementation of the Imagine Learning Program.....85

Abstract

Closing achievement gaps for students from low-socioeconomic backgrounds is a decades-long issue in public education, particularly for reading instruction (International Reading Association [IRA], 2010; National Center for Education Statistics [NCES], 2013). Across the United States, initiatives to further integrate technology-based instruction to achieve differentiation are constantly emerging. Selecting which programs to use and how to best implement the technology to produce the highest academic gains remain significant issues. Research has shown that technology-based programs can produce the same positive or negative effects as teacher-led instruction (Ross, Morrison, & Lowther, 2010). Finding and implementing high-quality literacy technology is particularly important for students attending Title I schools. Students from low-income backgrounds may start their schooling at a disadvantage in terms of vocabulary and oral communication skills (Reardon, 2013; Timmons, 2008) which research has linked to higher unemployment rates (Timmons, 2008). The purpose of this qualitative program evaluation was to analyze teacher perceptions regarding the impact of implementation activities for a technology-based literacy program in four Title I schools in a Virginia school district. Nine teachers representing kindergarten, first and second grades were interviewed regarding their level of preparedness, classroom integration, obstacles and facilitators in relation to program implementation. Teachers reported high levels of preparedness in placing students on the program, but low levels of support in ongoing implementation and training. Recommendations included providing all teachers with initial and continual professional development, allowing stakeholders to visit model classrooms, providing necessary equipment, devoting time for program-specific data

talks and individual teacher planning, and garnering more planning input from the program consultants.

TEACHER PERCEPTIONS OF THE IMPLEMENTATION PROCESSES OF THE IMAGINE LEARNING PROGRAM IN TITLE I ELEMENTARY SCHOOLS

CHAPTER 1

INTRODUCTION

Background

Closing achievement gaps for students from low-socioeconomic backgrounds has historically been an issue surrounding all arenas of education (National Center for Education Statistics [NCES], 2013). Across the United States initiatives to further integrate technology-based instruction are emerging using programs such as one-to-one and computer-based software to address this issue. Ross, Morrison, and Lowther (2010) researched the effects of technology-based programs on closing achievement gaps through supplementing conventional, teacher-led instruction. Over the past decade they found that research suggests that both teacher-led instruction and technology-based instruction can produce similar effects (Ross et al., 2010). Many technology-based instructional programs provide research-based literature regarding the ways in which the programs differentiate instruction through consistent assessments and data-driven student modules for learning. Effective teachers also utilize the same types of formative assessments to drive differentiated instruction. A program, just like a teacher, can be ineffective in its methods if assessments, results, and modes of instruction are not aligned to student needs (Ross et al., 2010).

Closing achievement gaps in any subject in schools with high percentages of students from low-socioeconomic backgrounds is of paramount importance given the

contextual needs of the students and parents. Adamson and Darling-Hammond (2012) found that the disparity in equitable access to highly qualified teachers in the United States is among the highest in the world. This disparity spans across myriad qualification attributes. State mandates that require fair access to qualified teachers are not being enforced (Adamson & Darling-Hammond, 2012). Low-income students and minority students who are at a higher risk of less exposure to vocabulary are 3 to 10 times more likely to receive their education from a teacher who is either unqualified, unprepared, or working outside of their expertise than a White student in a wealthier school system (Adamson & Darling-Hammond, 2012). Goldhaber, Lavery, and Theobald (2015) found that teacher inequities exist not just in relation to districts but also inside individual schools. For example, students who previously had low performance were more likely to be placed in a novice or under-performing teacher's classroom, in addition to being in a school with higher staff turnover. Reading is a gateway for learning any discipline and research has shown that students from low socioeconomic backgrounds begin their schooling at a disadvantage in terms of both vocabulary and oral communication (Payne, 2013) and are more likely to be placed in an underperforming reading teacher's classroom (Goldhaber et al., 2015).

What does this mean in terms of comparability provisions and teacher equity in low-ses schools? For lower-income students it is imperative that districts follow the equity mandates put into place in order to create an equitable playing field for learning. States are allowing districts to show equity in ratios versus dollars, which is problematic because teacher ratios do not account for the amount of novice teachers, which subsequently leads to disadvantaged student populations not having fair access to

effective teachers (Adamson & Darling-Hammond, 2012). This information is pertinent to this study because one way that schools could start to show equitable spending, in lieu of the perceived inability to hire more seasoned and more effective teachers in low-income schools, is to provide the students with highly effective programs, access to technology, and targeted differentiated instructional tools. As mentioned previously, a program, just like a teacher, can be highly effective or ineffective based on the strategies it employs (Ross et al., 2010). This study seeks to inform district leaders on teacher perceptions of the effectiveness of the preparatory training for the Imagine Learning program as well as how to best facilitate program-based professional development.

Program Description

A Virginia school district is currently seeking ways to increase reading achievement in schools with high populations of free and reduced-price lunch with an emphasis on closing achievement gaps for African American males. The central office researched and funded the Imagine Learning software initiative for Title I schools. The program is meant to provide intervention and enrichment through technology in an effort to alleviate burdens on teacher planning times. The program claims to provide differentiated literacy instruction by administering continual assessments that modify the program to meet each individual student's needs (Imagine Learning, 2015).

Context. The participating schools have high percentages of students from low-income socioeconomic backgrounds as evidenced by the numbers of free and reduced-price lunches. The schools were able to develop their own program implementation plans to ensure feasibility based upon specific building needs. The schools document the program strategies in their building's annual Plan for Continuous Improvement.

The Smith County (a pseudonym) School District's mission statement communicated that the Smith County Public Schools, in partnership with the entire community, will empower every student to become a life-long learner who is a responsible, productive and engaged citizen within the global community. The Smith County strategic plan listed five main tenets and employed Imagine Learning as a support strategy for the following three objectives: rigorous work through supportive technologies, balanced assessment, and closing achievement gaps. Table 1 demonstrates the student demographics of each participating school in this study that would be supported by the Imagine Learning program. A component of Smith County's strategic plan requires schools to develop aligned annual plans for continuous improvement. Each school described academic proficiency goals for reading and math, and described the ways in which Imagine Learning aligned with those goals by providing three-tiered instruction in phonics, vocabulary and reading comprehension.

Table 1

Student Demographic School-Wide Percentages

	Female	Male	Low-SES	Gifted	LEP	SPED
School 1	48.6%	51.4%	72.1%	3.2%	3.2%	7%
School 2	49%	51%	68.5%	5%	4.8%	8.2%
School 3	53.2%	46.8%	88.2%	1%	2.8%	12.4%
School 4	47.3%	52.7%	63.6%	6.4%	1.1%	9.6%
District	48.8%	51.2%	39.2%	7.8%	2.4%	9.4%

Note. Table demonstrates percentages of student body for low-socioeconomic status (Low-SES), limited English proficiency (LEP), and special education (SPED).

In Grades K-2 the *Developmental Reading Assessment 2* measures student reading growth in accuracy, fluency, and comprehension (Beaver, 2006). This assessment data is tracked by the Smith County School District to determine the percentages of students

who are on grade level as well as percentages of students who need remediation instruction. The grade levels that use the program do not participate in statewide testing that measures schools for accreditation and accountability purposes. In the strategic plan, the technology programs were being used to ensure students remained on grade level to stay prepared for all accountability measures, including the Virginia Standard of Learning English Language Assessment, which assesses student proficiency in reading comprehension, vocabulary, grammar, word analysis, and research capabilities (Virginia Department of Education [VDOE], 2013).

Description of the program. Imagine Learning (2015) is a computer-based software program that is designed to increase vocabulary, phonics, phonemic awareness, spelling, comprehension, fluency, and oral language skills. The central office, building administrators, teachers, and Imagine Learning consultants have access to student achievement data reports administered through the software. The data reports track student growth in oral language and literacy skills that include vocabulary, phonics, comprehension and fluency (Imagine Learning, 2015). The goals are to improve district scores on the Developmental Reading Assessment administered at the building level to prepare students to become on grade level readers by the time they reach the third grade in order to achieve passing rates on the Virginia Standard of Learning English Language Assessments.

Along with Title I liaisons, the schools are assigned one to two Imagine Learning consultants to facilitate teacher training in areas such as program updates, reporting measures, curriculum alignment, and suggestions for improvements (Principal, personal communication, March 2, 2015). The Imagine Learning program itself provided schools

with a curriculum guide, within-program reports, and consultants.

The Imagine Learning program incorporates multiple facets of literacy into one technology resource. The program is research-based and follows a differentiated model of instruction citing scientifically-based instruction, individualized learning sequences, ongoing student assessment, and family involvement as its key components (Imagine Learning, 2015). The family involvement component is centered around English Language Learners support, as the program offers progress reports and parent letters in home languages, as well as student recordings that parents can listen to and review during conferences (Imagine Learning, n.d.).

The program runs in several ways. First, it is used on technology devices by individual students. The students log-on to the program and are initially provided with a preassessment. The preassessment then assigns a plan of instruction for the student based on their scores. The students use the program daily for thirty minutes. The program shows the students lesson introductions and follows-up with various activities. Some of these activities include games, read alongs, read alouds, videos, and songs. At the end of each session students are shown an end-of-session screen that shows their progress such as number of activities completed, words learned, and books read for the day (Imagine Learning, 2015). The students receive assessments based on the program, which then tracks the data into various reports that the teacher can use to analyze individual student progress, classroom trends, usage times, and student recordings (Imagine Learning, 2015). There is also a teacher action steps report that groups students based on needs. Students appear on these reports when the program has run out of technology-based remediation. The program gives the teacher suggested resources such as videos and

activities that the program has already tried with the students (Imagine Learning, 2015). More importantly, the teacher action steps give teachers printable materials that can be used as homework or in teacher-directed remediation groups. Once the student has mastered the skills for his or her grade level, then the student has to be manually reassigned to the next grade level. The program also provides schools and teachers with annual growth reports that are given at the beginning and end of the year, regardless of how many times the student has moved up in the program's grade levels (Imagine Learning, 2015). The program is structured like a graphic video game for literacy and includes phonics, text, reading, listening and oral language pieces within the activities.

Overview of the Evaluation Approach

The purpose of the program evaluation is to determine teacher perceptions regarding implementation training and processes in order to garner data to make improvements in program use. Additionally, the evaluation seeks to gain information about the implementation processes and their impact on classroom practices. The researcher will ask questions to gain knowledge of implementation factors such as self-efficacy, preparedness, classroom impact, barriers and facilitators. This information will be useful in determining how training, expectations, and resources influence the ways in which the teachers are using the program. The program needs evaluation because of the population its serving, the time students are engaged with the program, and its high costs. The program is $150.00 per student and is being used in high-poverty Title I schools where students are placed on the program for thirty minutes or more per day (Principal, personal communication, March 2, 2015). These reasons, along with the research that shows that income is now the most significant indicator of academic success (Reardon,

2013), it is imperative that the program be implemented with fidelity to achieve optimal results.

Program evaluation model. Mertens and Wilson (2012) found that logic models are essential in developing program evaluations that appropriately analyze a program's effectiveness. The following program evaluation seeks to evaluate the effectiveness of Smith County School District's implementation and professional development efforts for the Imagine Learning literacy program by interviewing classroom teachers. The researcher will review and analyze the teachers' perceptions of the program-related activities and training sessions. The logic model showing inputs, activities and outcomes has been created to assist in the evaluation of the program's activities components. The logic model can be found in Appendix A.

Purpose of the evaluation. The evaluation of this program is rooted in the pragmatic paradigm which is linked to the use branch of evaluation approaches (Mertens & Wilson, 2012). The evaluation is action-oriented and meant to formatively guide district and building leaders on how to improve the implementation process. The evaluation is meant to analyze trends in teacher perceptions of the implementation of the program in terms of self-efficacy, professional development, classroom experiences with the program, and perceived barriers and facilitators of program implementation. The design of the evaluation will consist of qualitative interview data that will eventually be given to district and building administrators to guide formative decisions on effective training for teachers.

Implementation is part of a program's avenue to expected outcomes, so it is important to fully implement the program so leaders can make data-based decisions on

how to improve or terminate program use (Stufflebeam & Shinkfield, 2007). How and why teachers decide to use the program is important because it is related to the problem of practice which is that children from low-income homes are significantly more likely to struggle in literacy (Reardon, 2013). Even more alarming is that children as young as kindergarteners from low-income homes are suffering from increasingly debilitating literacy gaps that tend to stay with them throughout their academic studies (Reardon, 2013). To break the cyclical effects of these disadvantages in how students enter school, it is imperative that educators not only choose the right programs to ensure equity, but also ensure that the programs are being used to their utmost potential to help our learners. This is particularly important in Title I schools which have high concentrations of students from low socioeconomic backgrounds. In order for any program to be evaluated, it first needs to be implemented correctly.

Focus of the evaluation. The evaluation's focus is on teacher perceptions of the implementation activities in the areas of communication, professional development, and teacher ability to integrate the program into instruction. The evaluation seeks to understand how the Imagine Learning program is used in the schools and the effectiveness of the program training and support mechanisms according to teachers. The evaluation will analyze the activities listed in the logic model found in Appendix A as well as their perceptions of program impact in the classroom. Included in the evaluation will be interview questions aimed to provide insight into the infrastructures and classroom structures that support the program such as the devices, equipment, and types of lessons used to employ the program.

Evaluation questions. The evaluation questions were developed to assist the district in understanding teacher self-efficacy and perceptions regarding the implementation of the Imagine Learning program in terms of preparedness, implementation experiences, and barriers. The research questions are as follows:

1. To what degree do elementary school teachers for Grades K-2 feel prepared to implement the Imagine Learning program?
2. To what degree do elementary school teachers for Grades K-2 feel that they are implementing the Imagine Learning program as an instructional supplement?
3. What are the barriers to the effective implementation of the Imagine Learning Program identified by elementary school teachers?
4. What are the facilitators to the effective implementation of the Imagine Learning program identified by elementary school teachers?

Definitions of Terms

Instructional Supplement: This term is used to describe how teachers could integrate the Imagine Learning program into the classroom in order to add to, augment, or extend instruction. This term also references the myriad classroom structures in which the program can be utilized such as extension and remediation blocks, intervention, small group, whole group, or at home.

Developmental Reading Assessment (2nd edition): *DRA2* is a district-mandated research-based measurement tool used to determine each student's independent (or instructional) reading level by evaluating engagement, accuracy, oral reading fluency, and

comprehension (Beaver, 2006).

Standards of Learning: The Standards of Learning for Virginia Public Schools describe the commonwealth's expectations for student learning and achievement in Grades K-12 for the following: English, mathematics, science, history and social science, technology, the fine arts, foreign language, health and physical education, and driver education (VDOE, 2014).

RtI-Response to Intervention: A three-tiered instructional model designed to quickly identify students who are struggling in order to provide either Tier 2 or Tier 3 interventions. Tier 1 refers to whole group instruction that all students receive. Tier 2 refers to small group instruction and Tier 3 refers to individual instruction (Yell, Shriner, & Katsiyannis, 2006).

Fidelity: The term fidelity will refer to the degree to which the teachers are able to use the program to the full extent that was intended (National Implementation Research Network, 2017).

Differentiation: A teaching strategy where teachers consider student differences and plan instruction to accommodate individual student needs (Tomlinson, 2000).

Teacher Self-efficacy: A teacher's belief in his or her ability to deliver appropriate instruction that will increase student learning (Bandura, 1993).

CHAPTER 2

REVIEW OF RELATED LITERATURE

Chapter 2 will include a discussion of the struggles of students from low-socioeconomic backgrounds and the prolonged effects of poverty on student achievement. Next the chapter will delve into the background constructs related to computer-assisted instruction (CAI) to better understand the elements that CAI programs could include to support student learning. This chapter ends with a discussion of the program's description and the claims made by the Imagine Learning company's research in relation to the program's content.

Closing achievement gaps for students from low-socioeconomic backgrounds has historically been an issue in public education, particularly for reading instruction (NCES, 2013). Across the United States, initiatives to further integrate technology-based instruction to achieve differentiation are constantly emerging. Selecting which programs to use and how to best implement the technology to produce the highest academic gains still remain the big issue as districts launch technology initiatives and professional development training. Using technology-based literacy programs to achieve highly-effective differentiated instruction in schools with high percentages of at-risk students may help close the literacy achievement gap for students from low-income backgrounds.

Although technology-based literacy programs are frequently being implemented through avenues such as one-to-one initiatives, research has shown that technology-based

programs can produce the same positive or negative effects as teacher-led instruction (Ross et al., 2010). This was especially evident when technology was used as an alternate form of pencil-and-paper versus a differentiated instructional tool (Ross et al., 2010). A program, just like a teacher, has been found to be ineffective in its methods if the assessments, results, and modes of instruction are not aligned to student needs. If achievement effects of traditional versus computer-assisted instruction can produce similar positive or negative effects, then inquiries into the types of highly-effective technology and supporting classroom infrastructures are essential to strategic planning, particularly in regard to the literacy instruction of at-risk student populations. Computer-assisted instruction, just like a teacher, should be considered highly-effective.

Literacy Accountability and the Effects of Socioeconomic Status

Low Progress Trends in the United States

Accountability. The United States has been moving towards an era of accountability as increased attention on student achievement to measure teacher effectiveness has been incorporated into national and state funding efforts through policies such as No Child Left Behind and the American Recovery and Reinvestment Act's Race to the Top initiatives (International Reading Association [IRA], 2010). Demonstrating the growth of every student learner was no longer optional as funding efforts required states to include accountability in the teacher evaluation process. The hope was that requiring growth data would result in increased attention on meeting the needs of every student learner through differentiated instruction. Essentially, the ideology was that every child could learn if teachers were effective in meeting students' individualized needs (IRA, 2010).

The Every Student Succeeds Act (ESSA) was passed in 2015 and led to some significant changes in accountability. There are two important changes for elementary schools that have occurred in Virginia as a result of ESSA. First, districts can now decide to give students computer-adaptive tests, which means that the test questions are adapted based on performance as the students complete the tests (United States Department of Education [USDOE], 2017). This shortens the time it takes for students to complete the tests. Secondly, the ESSA lifted the requirement to partially base teacher evaluations on student performance (USDOE, 2017). Students are still required to be tested in reading and math in Grades 3-5, as well as Virginia Studies and Science in Grades 4 and 5. While ESSA may have lifted some of the pressure associated with high-stakes testing, there are still annual testing goals in reading, math, science, and social studies and the results are still used to determine school progress. The goals, however, are lower under ESSA versus the No Child Left Behind Act while also allowing more state involvement in the testing versus federal oversight (USDOE, 2017).

In 2002, data showed that over eight million students between Grades 8-12 could not read on grade level (Biancarosa & Snow, 2004). Additionally, 70% of older, adolescent readers required some form of remediation, not in phonological components, but rather comprehension of the content that they read. Biancarosa and Snow (2004) suggested that although NCLB focused attention on achievement and literacy, its focus was primarily on the lower grade levels. The focus on early literacy was not the issue, however, as the real issue was that early literacy efforts were not providing essential comprehension instructional strategies (Biancarosa & Snow, 2004).

Continuing achievement gaps. Based on results from the 2013 National Assessment of Educational Progress, the National Center for Education Statistics (NCES) found that from 1970-2013, there has been a steady literacy achievement gap between White and minority 4th grade students. From 2008-2013, there was an average 48 point gap in vocabulary recognition between White and Black students and an approximately 30 point gap between White and Hispanic students. NCES also reported that the vocabulary achievement gap between White and Black students was 32 points in 1980 and 23 points in 2012, only narrowing the minority vocabulary gap by 9 points in over 30 years. This is important as the four elementary schools involved in this Imagine Learning study have student populations comprised of over 80% Black, Hispanic, and multiracial backgrounds.

The NAEP also attempted to compare and correlate student scores on the vocabulary assessments and the comprehension assessments. NCES (2013) recognized the limitation that the grading scales were developed separately, so the organization compared students at the lower, middle, and upper quartiles. In 2013, the students who scored well on the vocabulary assessment were the same students who performed above the 75th percentile in comprehension, while the lowest vocabulary scorers were also the same students who performed below the 25th percentile on comprehension. Kieffer (2008) also found significant gaps between immigrant English Language Learners (ELL), low-income minority students, and White students. The study compared the literacy ability of ELL students and found that the effects on limited English background in the home were significantly similar to the effects found for students from low-income minority homes. These studies suggested that vocabulary has a relationship with

comprehension, so those students from ELL or low-income homes are more susceptible to falling behind in terms of reading achievement (Kieffer, 2008; NCES, 2013).

Literacy and Poverty

Generational poverty. Closing achievement gaps in literacy in schools with high percentages of students from low-socioeconomic backgrounds is of paramount importance given the contextual needs of the students and parents. Reardon (2013) found that the income achievement gap has been steadily increasing since the 1950s and is now at an all-time high with a 40% increase since the 1970s in standard deviation in achievement between low-income and higher-income students. This increase has resulted in income being a more significant educational outcome factor than race (Reardon, 2013). Literacy ability has lifelong impacts that affect income and employability that studies have shown to be generational (Kieffer, 2008; Reardon, 2013). It is imperative that reading achievement be at the forefront of any school's improvement plans, but particularly for low-income students who start their schooling at a disadvantage in terms of vocabulary and oral communication skills (Reardon, 2013; Timmons, 2008) which research has linked to higher unemployment rates (Timmons, 2008). Reardon (2013) found that students from low-income homes start kindergarten at a disadvantage that stays relatively the same throughout their educational career showing that the income level of a student can be a long-term predictor of their educational success. This is an indicator that families from low-income backgrounds may tend to stay in financial strains due to their lack of opportunity early on in their educational journeys.

Perhaps most alarming in regard to the income gap is Reardon's (2013) findings regarding students from low-income backgrounds who are extremely successful with

their academics but still do not go on to compete in the higher education arena. Students from affluent backgrounds are increasingly attending college, whereas college attendance rates from students from low-income backgrounds has remained stagnant (Reardon, 2013). Highly successful students from low-income families are not attending top universities and colleges, and overall college attendance for students from low-income families has remained the same over the past few decades (Reardon, 2013). By providing engaging literacy programs, educators can instill a love for learning that can motivate students to do well in school and continue their education.

Stevens (n.d.), the director of The Center for Poverty Research (CPR) through The University of California, Davis, is an academic researcher funded by the U.S. Department of Health and Human Services. Stevens (n.d.) used data from the U.S. Census Bureau and U.S. Bureau of Labor Statistics, as well as data from the Panel Study of Income Dynamics (PSID) from 1968 through 2003, to compile a policy brief on poverty trends in the United States. Stevens (n.d.) found that people transition in and out of poverty for a variety of reasons such as change in income, change in family structure, or regional job availability. The average spell of unemployment lasted 2.8 years (Stevens, n.d.). Stevens (n.d.) also found that 36% of people affected by poverty would reenter a poverty spell within four years of ending the previous spell. The rates of reentry within four years of ending a poverty spell increased to 46-50% for households headed by African Americans or single females (Stevens, n.d.). After seven years of being poverty-stricken, the ability to exit poverty was low at just 13% (Stevens, n.d.). Given that the average poverty spell lasts 2.8 years, from data gathered and analyzed from 1968-2003, and the overall rate of reentry within four years was 36% (Stevens, n.d.), a child who

entered poverty in kindergarten could potentially spend the majority of their schooling in a low-income home.

Nonliteracy and its relationship to lower pay. Kutner et al. (2007) analyzed the household results of the National Adult Literacy Survey (NALS) and found alarming evidence that eleven million people in the United States' adult population were considered completely not literate in English because they could not answer basic questions in the categories of prose literacy, document literacy, and quantitative literacy. Scores ranged from below basic, basic, intermediate, and proficient. The NALS sample size of participants scoring below basic in prose literacy was interpreted as representing 14% of the United States population in 2003, or 30 million adults, who would have scored in the lowest category of continuous text comprehension. Additionally, 35% of survey participants with below basic literacy capabilities in any category were employed in low-paying service-related jobs that led to poverty compared to just 7-10% of participants with proficient literacy skills.

Lower pay and the relationship to higher nonliteracy. The NCES (2013) found that fourth-grade children who qualify for free or reduced-price lunch experience significant literacy gaps when compared to their non-qualifying peers that have been ongoing since 2003. On average, there was a 30-point gap between the free lunch and non-qualifying groups, and a 17-point gap between the reduced-price lunch and non-qualifying groups. A study conducted by Hart and Risley (1995) showed that three-year-old children raised in professional households demonstrated a more extensive vocabulary than adults living in welfare homes. The study also found that children from low-income homes not only heard less vocabulary, but also received negative comments over positive

comments in a 2:1 ratio compared to a middle class 1:5 ratio. Reardon (2013) found that students from low-income homes start kindergarten with significant achievement gaps that do not decrease throughout their years of schooling. Schools need to be engaging in tactics to end this type of cycle and studies have shown that extending the school day with quality instruction can help (Reardon, 2013). Programs such as Imagine Learning could help provide teachers with a quality literacy reinforcement for these types of extended day programs.

Informal language structures. Studies have found that households containing immigrant parents were more likely to experience poverty and often employed informal English language structures versus engaging in formal language usage (Kieffer, 2008; Kutner et al., 2007). Additionally, Payne (2013) found that African American males were more likely to come from generational poverty, where parents had to work multiple jobs to maintain their households and children were at greater risk of outside influences on language and behavior. Essentially, students from low-socioeconomic backgrounds could experience a lack of parental support due to time or language barriers, arrive at school with limited vocabulary, or confuse varying home and school language structures.

Background Constructs Related to the Use of Computer-Assisted Instruction for Individual Student Learning

Philosophical Views

Dewey (as cited in Hill, 1997), who was associated with pragmatic and progressive philosophies, believed that education was experiential-based and that any curriculum, despite its aims or content, must address not only what is to be done but how it is to be done. Experiential educators facilitate learning experiences with standards that

reflect autonomous discovery to meet individualized needs. Pragmatism is rooted in the belief of a holistic experience of life in order to help students grow academically and morally through cooperative learning both inside and outside the classroom through differentiated methods that increase student interest and motivation (Hill, 1997). Pragmatic curriculums rely on interdisciplinary structures that are not fixed by the ends, although flexible ends are specified, but are more concerned with the process of learning through doing (Hill, 1997). Progressivism takes pragmatism a step further by emphasizing that thinking and doing are equal in scholarly pursuits, and that perpetual learning throughout life is the ultimate goal of education (Fairfield, 2009). Learning by doing, or instruction that is experientially differentiated, can be facilitated through technology programs that customize instruction, remediation, and extension activities. Differentiation can be planned for and facilitated through technology to foster experiential learning if the program is responsive to a student's personalized learning needs either in content, process, product, or learning environment (Tomlinson, 2000).

Differentiated Instruction

Technology has been used to differentiate instruction in attempts to close achievement gaps in reading. Differentiation is described by Tomlinson (2000) as creating variance within the classroom to meet every student's needs. Tomlinson (2000) described three student areas for differentiation which were student readiness, interest, and learning profile. With these student characteristics in mind, educators can differentiate content, process, products, and learning environments to meet the students' needs. Given that content has been shown to have the greatest effects on comprehension, Tomlinson (2000) suggested adjusting reading levels, utilizing audio, adjusting

vocabulary instruction, using both auditory and visual representations of books, participating in partner reading and discussion, and engaging in small group meetings. The use of audio and visual representations provides students with multimodal instruction that they can use to help develop fluency, expression, and inflection. The tenets of differentiation are relevant to the problem of practice, which is increasing reading achievement in Title I schools, because differentiation is a requirement of instruction through Smith County's strategic plan. Regardless of the mode of instruction, whether it be from a teacher or technology medium, the district expects it to meet individual student needs. This includes annotating differentiation in lesson plans to impact student learning.

Content. Tomlinson conducted studies utilizing the theoretical framework of multiple intelligences developed by Gardner (as cited in Eidson & Tomlinson, 2003). Gardner (1983) developed eight intelligences that shaped Tomlinson's early studies on student learning profile, which are interpersonal, intrapersonal, linguistic, bodily-kinesthetic, logical, music-rhythmic, naturalistic, and spatial intelligence. The naturalistic intelligence is normally seen in nature, which is not easily accessed through the use of computers. The other seven intelligences, however, provide a framework for understanding learning profiles and interest based upon their multiple intelligences. Providing differentiation in terms of student profile would require a program to incorporate diverse activities to cater to student needs, some of which are met through the use of technology-based instruction.

Assessment-driven instruction. Tomlinson (2000) emphasized the importance of attending to student differences and combining assessment and instruction to guide personalized learning efforts in the classroom. In a supporting study, the highest-

performing schools' literacy programs were heavily-laden with responsive technology that used data results to guide instruction and monitor student progress for up-to-date information (Wilcox, 2013). The technology was found to foster reading engagement by scaffolding book and activity selections to provide differentiated literacy practice that could be completed independently to facilitate one-to-one tutoring interventions with minimal teacher support. The key to data-driven instruction to differentiate learning is to employ both formative and summative assessments, beginning with placement pretests to start students at their current instructional level (Butler & McMunn, 2006). Assessment should be the basis for differentiated instructional techniques, but can often be considered too time-consuming for educators to conduct, grade, and make sense of the data. Technology-based instruction can assist teachers with quick, effective assessments.

Learning environment. Weller, Carpenter, and Holmes (1998) found that the traditional classroom structures presented scheduling problems for differentiated interventions, loss of overall instructional time when providing accommodations, and inadvertent labeling of students during instruction. In their study that examined the performance of fifth grade students on an Iowa state standardized reading test, the students who used daily computer-assisted reading technology outperformed the students who received the traditional classroom interventions (Weller et al., 1998), demonstrating that computer-assisted instruction can provide a supplemental environment conducive for student learning. Technology can serve as a classroom structure that helps teachers easily and quickly provide differentiated instruction, individualized pacing, and text processing support (Kamil, 2003). Numerous studies have demonstrated that individualized reading technology such as e-storybooks had positive effects on the achievement of low-income

and ELL learners by providing opportunities for the students to independently explore texts (Zucker, Moody, & McKenna, 2009). The independent exploration led to an increase in vocabulary development, decoding skills, and comprehension abilities as evidenced by classroom-based assessments (Zucker et al., 2009). A review of the research surrounding computer-assisted instruction found that placing students in technology-based literacy programs that used support features such as ebooks, hypermedia, and modules resulted in greater effects with all populations, but particularly students with disabilities (Stetter & Hughes, 2010). The supporting features of technology, when sequenced in instructionally responsive ways, were found to provide students with supplemental information to better comprehend the text in a safe, private, and nonjudgmental environment.

Response to Intervention

Overview. Yell et al. (2006) defined Response to Intervention (RtI) models as "designed to identify students who are having academic problems when the problems first become apparent, and then matching evidence-based instruction to their educational needs" (p. 13). The RtI system was developed specifically for literacy differentiation in response to the disproportionate number of English language learners and minority students being identified as having special needs (International Reading Association [IRA], 2010). With the reauthorization of the Individuals with Disabilities Education Act (IDEA) in 2004 came a new language that prompted educators to develop instruction from a proactive standpoint rather than first attempting to identify failure. Essentially, there are students who benefit from larger amounts of small group or one-to-one instruction that do not have learning disabilities but need more personalized instruction.

RtI requires teachers to plan differentiated instruction using research-based methods, documenting progress, and determining what methods work for each student. RtI's methods of differentiation require standards-relevant assessments to drive instructional efforts to determine which methods work best for each individual student. If a number of methods have been employed over an appropriate period of time to achieve implementation, without adequate student progress according to benchmark accountability measures, then further testing into special needs can occur based on sound data (IRA, 2010).

RtI to facilitate differentiation. Response to Intervention systems have been implemented since NCLB to facilitate differentiated instruction by providing a tiered system that provides individualized levels of support (Watts-Taffe et al., 2012). Most RtI systems have utilized three tiers based upon student assessment results. For reading, Tier 1 is the differentiated instructional efforts given to the whole group, or the core program utilized by the school. Tier 2 instruction consists of identifying academic deficits to supply students with instruction that meets their specific needs in addition to the core curriculum, usually by providing additional small group learning. Tier 3 instruction has also been utilized for small group settings, but in most cases is implemented as a one-to-one tutoring intervention. Tier 1 classroom-based instruction should meet the needs of approximately 80% of the students, while Tier 2 extended differentiation should meet the needs of 20% or less of the student population, and Tier 3 instruction should support the needs of around 1-5% of the student population (Smith, Fien, Basaraba, & Travers, 2009). In high poverty areas; however, a school may have a disproportionate number of students requiring Tier 2 and 3 supports. Schools with high numbers of immigrant

populations that employ English as a second language in the home also could experience more students who need Tier 2 and 3 leveled support. Schools and teachers need a way to effectively assess and monitor student progress, as well as provide the tiered, differentiated support systems to close literacy achievement gaps.

Self-Efficacy

Teacher self-efficacy is an important element to consider when launching any new initiative. Self-efficacy describes a person's belief in their ability to complete a task or achieve a goal (Bandura, 1993). Teachers' self- efficacy has been shown to affect how they create environments that facilitate opportunities for students to learn (Bandura, 1993). Bandura (1993) also found that the classroom spaces and climates are reflective of a teacher's sense of self-efficacy, or belief in the ability to deliver appropriate instruction that will increase student learning. Collective self-efficacy is also a factor in school climate and the belief that students can learn. When the collective self-efficacy is high, and teachers feel supported and empowered by their administrators, then they are more likely to create environments that are conducive for all learners (Bandura, 1993). The socioeconomic make-up of the school affects both the individual and collective sense of self-efficacy (Bandura, 1993). The lower the school's overall socioeconomic status, the lower the self-efficacy of both students and teachers (Bandura, 1993). Self-efficacy is an influential factor when examining academic achievement in Title I schools. This evaluation seeks to understand how the Imagine Learning program was integrated into the school day in terms of structure, type of instruction, and the classroom spaces. This includes gathering information on whether or not the classroom learning environments for the program were influenced by teacher self-efficacy.

Opponents to Computer-Assisted Instruction

Opponents of computer-assisted instruction claim that the initial costs associated with the technology for the infrastructure, human resources, and time outweigh the academic benefits of such programs, especially when the programs are used as mediums for recording work versus responsive instructional tools (Parker-Gibson, 1999). Other concerns included ways to evaluate the teaching provided by the program, which can be time-consuming and difficult if the program does not readily include reporting measures. Teachers are not always able to evaluate the program as a student, or easily incorporate the program into whole-group instruction. Opponents also claim that technology is constantly changing, making updates costly, time-consuming, or impossible if the technology becomes quickly outdated. The usability, or shelf life of a product before it is too outdated to update, is difficult to predict in some cases (Parker-Gibson, 1999).

Most children have an innate need to be social beings (Lentz, Kyeong-Ju Seo, & Gruner, 2014). This includes working with other students, making connections with peers, learning to interact socially, and making connections to other living things. Opponents to computer-assisted instruction claim that besides the risks of technology addiction, lowered physically activity, and social emotional impacts, that there are components of development that will simply be left out if teachers and parents rely too heavily on technology (Lentz et al., 2014). Research has shown that over 70% of children in the United States ages birth to two years old are using technology daily (Vandewater et al., 2007), so using technology in combination with other developmental structures is essential to the learning processes of the whole child (Rosen & Jaruszewicz, 2009).

While there are concerns that technology will become outdated, choosing a

computer-assisted technology program that dedicates consultants and technology contacts could help to alleviate concerns about product updates. By providing these types of company contacts, schools and teachers could feel more comfortable knowing that issues concerning implementation will be quickly addressed. Infrastructure can be a costly endeavor, as schools are facing new challenges to keep up with innovative technology. Internet connectivity is becoming more commonplace as districts integrate technology standards to prepare a global workforce, so these issues, however costly, must be addressed in order to teach students 21st century skills. Training the staff, students, and parents about ways to couple technology with other instructional techniques would ensure that students are developing all essential social and emotional components. Technology can, in fact, be very social when students are allowed to work within the programs together or set-up classroom playrooms that incorporate chats, games, and feedback.

A Growing Body of Proponent-Based Research on Computer-Assisted Instruction

The research studies surrounding computer-assisted instruction have used several types of platforms. The first compares exclusively teacher-led instruction to exclusively computer-assisted instruction and placed the teacher against the computer. Mitchell and Fox (2001), for example, found that between three groups, a control group, teacher-led group, and CAI group, the teacher-led and CAI groups showed an increase in learning but that there were no lasting considerable differences in achievement between receiving instruction from a teacher or a computer. Saine, Lerkkanen, Ahonen, Tolvanen, and Lyytinen (2010) compared computer-assisted remediation instruction with teacher-led remediation instruction with 166 first grade students who were considered struggling

readers. The students in the computer-assisted remediation groups showed the greatest gains, particularly for those students who began using the program with the most significant achievement gaps. This model, again, gave exclusivity to either a teacher or a computer as the instructor. While the findings vary, the models have been consistently the same in comparing only teacher-led literacy instruction to only computer-led literacy instruction. The studies have found that these groups both perform better than a group who received no remedial literacy instruction (Mitchell & Fox, 2001; Saine et al., 2010).

In terms of proponent-based research of CAI programs, the methods of existing research have been extremely limited in how they have compared the results of CAI and student growth, either eliminating all literacy remedial instruction or exclusively measuring one type of instruction against the other (Cassady & Smith, 2003). Little has been done to research integrated literacy systems, or instructional systems that attempt to combine and use all facets of literacy instruction in the classroom (Cassady & Smith, 2003). Cassady and Smith's (2003) study has added to the limited body of research that compares the effects of integrated literacy systems. These systems attempt to bridge the gap between teacher-led and computer-led instruction, while integrated learning systems further attempt to eliminate the idea that CAI is a disconnected remediation effort separate from teacher reflection and the school's curriculum (Davis & Shade, 1999; Ferguson, 2001; Underwood, 2000). Cassady and Smith (2003) conducted a study that examined the effects of integrating computer-assisted literacy programs with other research-based teacher-directed instructional methods. In a study that analyzed two schools' kindergarten populations, they found that the school that employed integrated learning systems that included CAI did significantly better in kindergarten reading gains

than the school with no integrated systems (Cassady & Smith, 2003). Additionally, Cassady and Smith (2003) compared their findings to those of Paterson, Henry, O'Quin, Ceprano, and Blue (2003) who found that integrating CAI programs into the literacy instruction in the classroom had little to no effect on reading progress. Cassady and Smith (2003) discussed how the teachers in the Paterson et al. (2003) study exhibited little interest or knowledge of how to integrate the materials into the daily literacy instruction program, and instead implemented the existing teacher-led instruction as a separate entity from the CAI instruction. In Cassady and Smith's (2003) successful participating school, the teachers had access to ongoing professional development to support their learning and used the CAI technology components of their literacy programs to integrate all materials into the instructional day in order to have the technology act as an extension of teacher-delivered instruction.

The Imagine Learning Program

Differentiation

Content and process. There are several ways that the Imagine Learning program could potentially facilitate Tomlinson's differentiated instructional model. The Imagine Learning program provides multimodal learning modules that incorporate oral language, writing, and comprehension. All students are provided with ample opportunities to use ebooks chosen for each individual student after placement testing has occurred. Tomlinson (2000) suggested auditory and visual reading instruction, and Imagine Learning engages students in partnered reading with the software through prompting, call and response, and choral reading exercises. The ebooks are followed by scaffolded comprehension questions that are modified based on student responses therefore

assessing the students in order to adjust the process of learning. The computer-assisted software then provides supplemental remediation or extension activities based on student progress. To build content knowledge, Tomlinson (2000) recommended scaffolded vocabulary instruction, which Imagine Learning provides by incorporating both leveled book-based vocabulary, and content-focused vocabulary.

Assessments-driven instruction. Imagine Learning (2015) cited references from the RtI Action Network, a district of the National Center for Learning Disabilities (NCLD), that the program claims were used to develop what is described as a differentiated program that provides students with assessments-based systematic, explicit instruction. Although Imagine Learning (2015) cited the NCLD as a guiding resource for program development, it did not provide any independent research that demonstrated alignment with the NCLD guidelines. Imagine Learning determines a student's accomplishments, overall program placement, and areas of need according to mini-assessments issued throughout the student's program of study (Imagine Learning, 2015). The program provides students with immediate feedback from the assessments and subsequently differentiates the instructional modules. The program claims to cater to English Language Learners through first-language opportunities, as well as level instruction for special needs students and students with reading difficulties (Imagine Learning, 2015). First-language support can be teacher-activated, and includes monolingual instruction that is assessments-based and scaffolded for gradual release, bilingual support, common phrase instruction, picture-text-oral dictionaries, and first-language newsletters for parents. The Imagine Learning program currently provides first-language support in 15 different languages (Imagine Learning, 2015).

Response to Intervention

The NCLD (as cited in Imagine Learning, 2015) identified four main components of most RtI programs which are as follows: high-quality and scientifically-based classroom instruction, ongoing student assessment, tiered instruction, and family involvement. In terms of scientifically-based instruction, Imagine Learning (2015) claims to accomplish differentiation by administering placement tests for instructional starting points, regulating sequencing through ongoing assessment, providing scaffolded first-language support for ELL students, and providing immediate feedback. The program collects student scores, which immediately shapes the student's curriculum for one-to-one support, reteaching or accelerating by offering a large database of activities and videos. In addition to the differentiation piece associated with research-based instruction, Imagine Learning provides tiered instruction aligned with RtI. Imagine Learning (2015) could potentially reduce Tier 1 students' odds of needing additional tiers of intervention by providing all students with Tier 3, one-to-one instruction that provides continual assessment results to drive instruction.

Differentiation for English language learners was previously identified as a concern given the vocabulary background associated with higher reading comprehension skills (NCES, 2013). Imagine Learning facilitates Tier 3 instruction for this student population in several ways. First, the program provides instruction in the five core reading areas that encompass phonological awareness, phonics, reading fluency, vocabulary, and comprehension by using direct and explicit instruction in a one-to-one setting with the computer. The direct instruction occurs through individually sequenced activities that include video modules, songs, chants, rhymes, animated games and lessons,

and complex storytelling. In addition to multimodal, responsive instruction, Imagine Learning provides a first-language feature for ELL students that is scaffolded for gradual release. According to student testing and responses, the program offers language support systems that can offer directions, translate words and phrases, provide visual definition support, and customize activities that include common phrases and academic language.

Vocabulary has been shown to have a positive effect on reading comprehension skills for all learner types. Imagine Learning (n.d.) uses several RtI strategies for vocabulary comprehension. The program includes over 600 activities for academic language and content language that is used by spelling, speaking, or writing the words. The words themselves are taught, coupled with phonological awareness and decoding strategies. Vocabulary instruction also includes figurative language to support inferential thinking. When explaining how the program developed a well-rounded vocabulary database, the Imagine Learning program claimed to have drawn upon the work of researchers such as Marzano, Coxhead, and Cunningham (as cited in Imagine Learning, n.d.), as well as phrases found within multiple state standardized tests.

In summary, Imagine Learning (n.d.) does present compelling claims about its technology that infer that using the program could potentially lead to an increase in student engagement, differentiated and personalized instruction, and increased use of RtI components. The research provided is based largely on claims, however, as the program's research cites the inclusion of various literacy components that the program suggests will lead to specific effects (Imagine Learning, 2015). This study will discuss the components of the Imagine Learning program and the perceived impact that the program has had on student learning and teacher-directed instruction. The program's research, however, does

not cite empirical evidence that links the program's use to increased test scores. The lack of independent research and empirical evidence makes studying Imagine Learning even more critical when the program is being purchased and employed in Title I schools in a large school district.

Summary

A meta-analyses of 4, 875 studies regarding the use of computer-assisted technology showed trends that the best use of technology occurred when the program provided student-driven instruction and delivered extensive feedback (Hattie, 2009). Blok, Oostdam, Otter, and Overmaat (2002) found that students enjoyed computer-based learning because the feedback is less threatening. Timmerman and Kruepke (2006) found that computer-assisted explanations had a high effect of 0.66 on overall student achievement, while remediation had an effect size of 0.73.

Given that Imagine Learning employs Tomlinson's (2000) methods for assessment-driven differentiation, includes multimodal instruction to meet the needs of multiple intelligences (Eidson & Tomlinson, 2003), and is developed using RtI research-based methods (Imagine Learning, 2015), it is valuable to explore the effectiveness of Imagine Learning to close literacy achievement gaps for high-risk students to ensure that every student is receiving highly-effective instruction. The related background constructs appear to support the program's effectiveness, but no direct research regarding the achievement rate has been conducted or compared to other measures of student literacy ability. The purpose of this qualitative program evaluation was to analyze teacher perceptions regarding the impact of implementation activities for Imagine Learning and how those implementation activities affected classroom use of the program.

CHAPTER 3

METHODS

Introduction

The purpose of this program evaluation was to determine teacher perceptions regarding implementation activities in order to garner data to make improvements in training and support to achieve optimal program use. The findings can be used to inform district leaders on how to offer support and professional development so that students and teachers can fully benefit from the program. Additionally, the information could be useful to schools that are not Title I in the district, but may decide that the program could meet its needs. The lessons learned from the district's Title I implementation could help other schools achieve a smoother classroom integration. This chapter will discuss the participants, data collection and coding procedures.

Participants

The participants for this evaluation included classroom teachers from Grades K-2 representing four Title I schools. The schools are contextually similar in students' socioeconomic statuses. The participants came from four different schools and each school had their own versions of training and continued professional development. Each grade level of teachers interacted with the program differently, as student needs, types of devices that were used, and student growth reports varied due to the differences in age groups of the teachers' students. Schools 1, 2, and 4 each had two participating teachers,

while School 3 had three participating teachers. The study participants were all females and represented a wide range of teaching experience. Table 2 shows all of the teacher demographics within the four participating schools.

Table 2

Teacher School-Wide Demographics

	Female	Male	Avg. Years of Experience	Graduate Degree Holders	New to District
School 1	92.5%	7.5%	11.5	52.5%	12.5%
School 2	90.2%	9.8%	16.9	53.7%	26.8%
School 3	97.3%	2.7%	11.4	56.8%	2.7%
School 4	95.1%	4.9%	10.1	58.5%	17.1%
District	93.0%	7.0%	14.8	56.2%	8.4%

Data Sources

Data source one. Interviews as data sources allow researchers to provide open-ended formats to gather information while also allowing there to be flexibility in garnering valuable insights. The method used for this program evaluation is rooted in the one-on-one interview format to gain information on preparedness, experiences, barriers and facilitators to program implementation. The method was chosen in order to provide the researcher with flexibility that led to a more comprehensive understanding of the level of professional development effectiveness of the Imagine Learning program. The research questions are tied to interview questions to help guide participants while also allowing the researcher to request more information on topics that may become evident as a result of the participants' responses (Craig, 2009).

The questions and structured format were followed and later transcribed, but the interviewer had the freedom to use certain techniques such as the detail, explanation, and

clarifying probes to interpret or glean information (Craig, 2009). By providing a limited number of open-ended questions and allowing for participants' details to emerge (Craig, 2009), the interview process served as a valid source of gathering information while avoiding leading the participants in certain directions.

An interview was administered via phone or in-person to three teachers from each of the participating grade levels. There were three teachers from each grade level in Grades K-2 for a total of nine participants. The number of schools represented was not a factor in determining participants since all of the schools were considered Title I. Four schools were represented by the participants. Multiple node coding reports exported from NVivo 11 were created and organized into condensed and contextual reports that represented each of the four research questions. The reports contained multiple subcategory sections due to the nature of responses from a single interview with context in more than one category. Each interview was only counted once within the node. The teachers often provided a variety of responses to a single question, and the same content or different selections of text from a single interview document was coded to multiple nodes. The researcher then went back into each condensed report to consolidate findings and further color code each report based on context. The interview can be found under Appendix B.

Interview protocol. The interviews were conducted by following nine questions that were planned, scripted, and asked of each participant. The interviewer then used follow-up questions as needed to gain further insight into the participant's context or to keep participants on track with discussing the Imagine Learning program. The researcher discussed the interview questions with one of the participating schools' reading specialist

and technology teacher to increase validity of the questions. These reviewers were chosen because of their extensive use of the program for the past six years and their backgrounds as both teachers and teacher leaders. One reviewer had five years and the second reviewer had six years of being involved in the school improvement planning processes that included developing, monitoring, and presenting school improvement strategies. Because of their backgrounds in the classroom and in leadership, their feedback on the questions would represent multiple levels of stakeholders.

The utility standard was considered when developing the interview questions as well. The utility standard is meant to ensure that evaluations are designed to be useful to stakeholders by providing relevant information from credible sources (Yarbrough, Shulha, Hopson, & Caruthers, 2011). The interview reviewers served to modify and strengthen the interviews through careful reflection and discussion of each research question and the ways in which each of the interview questions were related. This program evaluation sought to meet the needs of several levels of stakeholders that included classroom teachers, building leaders, and district leaders. It is important to all levels of stakeholders in the district to know if a district-wide Title I program that is used daily by students is meeting the needs of its learners and increasing academic achievement.

Data Collection

Data were collected to help inform school leaders of the most efficient training practices and barriers so that teachers are able to launch the Imagine Learning program with fidelity. The researcher distributed an email to the building principals who then contacted their staff. Those teachers that agreed to participate in the study alerted their

building principals who then provided me with the teachers' email addresses, names, and grade levels. I emailed those teachers who agreed to participate and provided them with the Informed Consent Form, the Teacher Interview Protocol, and a schedule of available dates and times to conduct the interviews either in-person or via phone. Those that chose to participate responded with their available dates for interviews and the phone number where they could be reached. The interviewer chose three participants from each grade level for a total of nine participants to represent the kindergarten, first, and second grade populations that utilize the Imagine Learning program.

The interviews were conducted beginning in June 2017 through November 2017. The first two interviews were conducted face-to-face at the schools at the request of the teachers. I believe that the logistics of conducting the interviews after work in an official place was appealing to these two teachers. Subsequent interviews with the remaining seven participants were conducted and recorded via phone. Afterwards the interviews were transcribed and sent to the interviewee before the coding process began to increase validity. All identifying information of the school district, building principals, and interviewees were changed or removed to provide anonymity. Each interview took approximately one hour.

Data Analysis

Each of the four research questions were analyzed using the staff interview as the data measure. The transcribed interviews were coded using NVivo 11, and manually categorized and subcategorized based on context to ensure reliability (Creswell, 2014). The coder first auto-coded within NVivo 11 to create categories based on the interview questions that were asked. This effectively organized the responses by interview question

for review. The researcher then highlighted and annotated responses throughout the interview question nodes to create emergent nodes and subcategories. This allowed the researcher to group together contextually similar responses regardless of the interview question that the responses fell under. Coding categories were dependent on the researcher's analysis of the interview attributes and symbolism as related to the Imagine Learning program teacher training and experiences. The coding categories emerged as the researcher interacted with the data. The categories and themes were exported into an Excel spreadsheet that tracked the frequency counts from words or phrases that represented themes within the individual interviews. The spreadsheet includes the frequency counts that show a tally of the number of documents coded to each node. When the data were exported into Excel, the tables were created in descending order of frequency to identify nodes with the most or least responses. Lower percentages did reveal some outliers, but the overall number of participants was a limitation to this area of the study. The coding reports had to be read in order to understand the context and further manually code the themes.

Evaluation question one. The first evaluation question focused on teacher preparedness to implement the program. The coder did not use predetermined categories; however, it was assumed that certain terms related to or having similar meaning to "prepared" (such as adequately, confident, ready, able) would be used when answering the related interview questions. Evaluation question one had two questions on the teacher interview that were used for analysis, which were the following:

- Please describe your initial and ongoing training experiences and their effectiveness with implementing the Imagine Learning program for your

students.

- To what extent did you feel prepared to implement the Imagine Learning program and what types of professional development, if any, could improve your level of preparedness?

Evaluation question two. The second evaluation question focused on teacher experiences when actually implementing the program in the classroom. Research question two was meant to derive relationships from the teacher perceptions on preparedness and the impact on classroom experiences and implementation. Evaluation question two had three questions on the teacher interview that were used for analysis, which were the following:

- Describe how the Imagine Learning program is being implemented in the classroom and school for instruction.
- Describe how Imagine Learning did or did not make an impact on learning in your classroom.
- Describe how teacher-directed and/or classroom instruction has or has not been affected by using the Imagine Learning program.

Evaluation question three. The third evaluation question focused on barriers to the effective implementation of the Imagine Learning program. The third evaluation question revealed coding categories directly related to teacher training and also provided valuable information concerning a range of obstacles as well as user suggestions for a more effective integration of the program into instruction. Evaluation question three had

three questions on the teacher interview that were used for analysis, which were the following:

- What are some of the obstacles, if any, that you have noticed when implementing the Imagine Learning program?
- Please describe suggestions to achieve more improved implementation of the Imagine Learning program for students, teachers, and/or parents.

Evaluation question four. The fourth evaluation question focused on facilitators to the effective implementation of the Imagine Learning program. The fourth evaluation question revealed coding categories related to support mechanisms and the types of assistance that teachers received from the facilitators. This question helped to inform the researcher on elements that were currently working in the district. Evaluation question four had two questions on the teacher interview that were used for analysis, which include the following:

- Please describe any facilitators or support mechanisms in your classroom or school that have assisted you with implementing the Imagine Learning program.
- What specific assistance did these facilitators provide to you during the implementation of the Imagine Learning program?

Timeline

Data were collected from June 2017 through November 2017. In June 2017 school principals were contacted and asked to allow their teachers to volunteer to participate in the study. All teachers from Grades K-2 from the four schools who agreed

to participate were contacted via email and sent the Teacher Interview Protocol and the Informed Consent Form found in Appendix B and Appendix C. Three interviews from each of the grade levels were scheduled and conducted (one from each of the grades kindergarten through second for a total of nine). Two interviews were conducted face-to-face, while seven interviews were conducted via phone. The final coding process took place in December 2017 and findings were both auto and manually coded using NVivo 11 software as well as manually color coded using the node reports to evaluate context. The data sources are noted in Table 3.

Table 3

Data Sources and Analysis

Evaluation Question	Data Sources	Data Analysis
To what degree do elementary school teachers for Grades K-2 feel prepared to implement the Imagine Learning program?	Staff Interview	Qualitative analysis (coding) of open-ended responses
To what degree do elementary school teachers for Grades K-2 feel that they are implementing the Imagine Learning program as an instructional supplement?	Staff Interview	Qualitative analysis (coding) of open-ended responses
What are the barriers to the effective implementation of the Imagine Learning program identified by elementary school teachers?	Staff Interview	Qualitative analysis (coding) of open-ended responses
What are the facilitators to the effective implementation of the Imagine Learning program identified by elementary school teachers?	Staff Interview	Qualitative analysis (coding) of open-ended responses

The participants received a transcription of their interviews within one week of the interview. The interviews were not coded until all participants agreed that they were accurately and completely represented by their responses. Throughout the coding process I exported data using an Excel spreadsheet to log the coding categories as well as kept both a NVivo 11 and physical notebook to keep accounts (such as names, dates, and categories) of interconnected and/or new information that emerged during the transcription and coding processes. The dissertation was successfully defended on March 20, 2018.

Delimitations, Limitations, and Assumptions

Delimitations. The findings of this research are most applicable to practitioners who teach kindergarten through third grades in schools with high-levels of technology integration and the funding to support initiatives for students from low-income backgrounds. The study was conducted using a combination of several philosophical frameworks. Ultimately, differentiation was used as a foundation to explain the importance of the study and the impact the program could have on student learning. Pragmatism is a subtheory that connects the study's importance to the student's outside interests through high engagement fostered by a technologically advanced program (Hill, 1997). Progressivism is another subtheory used to frame the importance of this research by connecting the program to experientially differentiated instruction that includes thinking, doing, and metacognition (Fairfield, 2009). If these philosophical background constructs were not used, then the underlying importance of differentiation could not be justified which would thwart the importance of the findings. Differentiation, however, is generally accepted as a best practice in the education community (Tomlinson, 2000), and

will be discussed in the assumptions section.

Limitations. There are certain limitations to this study that could affect the results. The sample size of nine makes generalizations to a larger population difficult, but four of 13, or 31%, of the Title I schools in the district were represented. Next, the program integration strategies differed across the schools, which made it demanding to identify best practices and perceived barriers that affected teacher self-efficacy regarding implementation. Differing school climates can also account for teacher perceptions of collective self-efficacy as discussed by Bandura (1993), which could have led to inaccurate inferences concerning training success.

Classroom infrastructure coupled with scheduling can affect learning as well. For example, kindergarten classes and inclusion classes are assigned more teachers per classroom. Access to supporting technology affects usage rates and student reporting systems. Teachers who have more access to varying technology also have more comfortability in implementing new programs. Schools that have more laptops and desktops could potentially have higher usage simply due to availability of the technology. Other technology resources such as the school's technology teachers could have implemented alternative technology access points such as IPad applications for the program as well, giving schools and participants more of an advantage in terms of implementation with fidelity and teacher ability to integrate the program. Internet connectivity, quality of technology, and classroom management are limitations that could affect teacher perceptions of training and implementation.

Assumptions. The study relied on a teacher interview process where participants answer the questions truthfully and include all relevant information. The participants

were made aware of an anonymity and confidentiality agreement within the Informed Consent Form and reassured that no identifying information will be shared during the interview protocol process. All school information was referred to as school followed by a participant number such as School 1. The participants were also given the interview questions before they agreed to participate in order to build trust and ensure that participants were able to thoughtfully reflect on the questions to provide pertinent information.

Reading and technology integration are on the rise and will continue to provide innovative instructional strategies. School districts across the country frequently include global citizenship in their vision and mission statements. This includes the leveraging of technology to achieve global connectivity, conduct well-rounded research, and respond to student needs and interests. Technology, and its use, will continue to be entrenched in society as an avenue to communicate and learn. The Imagine Learning program is but one example of many reading programs that utilize technology to differentiate instruction and engage students. The type of training information gleaned from this research could inform other technologically-based school districts on how to increase effective program implementation through appropriate training.

Ethical Considerations

The program evaluation standards were created by an organization called the Joint Committee on Standards for Educational Evaluation (Yarbrough et al., 2011). The committee was created in 1975 in an effort to advise program evaluators on how to best align and produce quality evaluations (Yarbrough et al., 2011). For program evaluations,

the Joint Committee on Standards for Educational Evaluation created thirty standards that can be used to evaluate the effectiveness of program evaluations (Yarbrough et al., 2011).

Utility. The utility standard explores whether or not the needs and concerns of the stakeholders are being met through the evaluation (Yarbrough et al., 2011) and is the primary standard for this program evaluation. This program evaluation is intended to meet the information needs of the Smith County School District's stakeholders by providing formative information on improving the implementation and use of the Imagine Learning Program. This is useful to all stakeholders within the Title I classrooms as well as the school leaders who make programmatic decisions based on achievement data. This technology-based reading program was executed to assist those student stakeholders who derive from low-socioeconomic backgrounds evidenced by free and reduced-price lunch rates. The purpose of the program in Smith County Public Schools is to close achievement gaps for low-SES students, with an emphasis on African American males. Students at the participating schools and the teachers who instruct these students all have a vested interest in the success of the program, which hinders on having the appropriate infrastructure, access to technology, knowledge of reports, and time allotments to integrate the program with fidelity. Due to the time spent on the program by students and teachers, as well as fiscal costs, an evaluation of teacher perceptions of program training effectiveness will benefit all stakeholder groups immensely, as well as bring to light previously unidentified barriers to implementation by the participating staff.

Feasibility. The key concepts of feasibility are evaluability, context, values, and accountability (Yarbrough et al., 2011). The technology-based reading program was adopted under the umbrella goal of increasing student reading ability for potentially at-

risk student populations. There are several participant groups from similar contexts that can be used for the purpose of the program evaluation. In an effort to formatively drive implementation training practices based on teacher perceptions, a comparison of classroom experiences and barriers to implementation could lead to connections.

The district currently has a usage agreement with the company regarding recommended implementation practices by the Imagine Learning consultants, as well as expected building implementation practices within each school. The accountability measures, however, are included in the schools' various annual plans. The schools were required to develop their own accountability and implementation program plans and embed them in their annual school improvement plans, as well as demonstrate alignment by including direct references to the district strategic plan. The amount of training could depend on building-level funds for consultants and teacher substitutes, access to technology, teacher availability, and the administrator's opinion or budgetary restraints on the need for training. These types of factors and levels of integration are where the contexts varied according to building policies. Regardless of the reasons behind the amount and type of training, the study has evaluability because its purpose is to determine connections between similar socioeconomic contexts to identify barriers as well as successes to program implementation in an open-ended format.

Propriety. Propriety is especially important when dealing with the ethical treatment of students and their achievement information (Yarbrough et al., 2011). Since the evaluator is a former user of the program it is especially important to garner feedback from multiple school sites to gain a sense of the direction of the evaluation in terms of training, preparedness, experience, barriers and facilitators. Conducting interviews with

teachers from multiple grade levels will allow for a myriad of perspectives while maintaining a K-2 scope to gain a more holistic view of professional development practices across the district. Informed consent agreements to ensure participant confidentiality will be put into place before the evaluation process begins. The interview data, school names, and any type of district identifiers will remain completely anonymous. Since the interviewer was a user of the program, open-ended interview questions were used in order to garner information which allowed for new information to emerge based on participant data.

Accuracy. The accuracy standards are set into place in order to ensure that the program evaluation produces valid and reliable information using appropriate theoretical frameworks, and that the conclusions drawn from the evaluations are based off of research results versus misconceptions or unsupported statements (Yarbrough et al., 2011). With regard to reliable and valid data, a goal of the evaluation will be to utilize interview techniques and coding procedures that ensure participants are accurately represented and codes are reasonably derived. To ensure validity, the researcher shared the transcripts of the individual interviews with the participants before drawing inferences on training effectiveness (Creswell, 2014). None of the participants felt inaccurately represented so no follow-up interviews needed to take place (Creswell, 2014). Until the participants were satisfied with their representation no coding took place. A goal of the evaluation findings was to utilize the information from these assessments to provide educators and administrators with suggestions on how to best implement the professional development and training surrounding the program.

Approval process. The research received approval from the evaluation's dissertation chair based upon the initial outline, and the outline was submitted and approved by the participating school district's review board in the fall of 2016. After completing the Institutional Review Board training modules, the proposal defense took place in April 2017. In April of 2017, after a successful proposal defense, the required documentation was submitted to the Institutional Review Board at The College of William and Mary and the researcher was permitted to proceed with the study.

CHAPTER 4

FINDINGS

The purpose of this qualitative program evaluation was to determine teacher perceptions of the implementation of the Imagine Learning literacy program at Title I schools at a public school district in Virginia. The goal of the evaluation was to enhance the program's professional development and implementation efforts by identifying barriers and facilitators to effective and efficient program use. The evaluation also garnered information on the implementation activities that positively influenced teachers in the areas of training, support, and satisfaction with the program. The methodology chapter described the participants and the overall coding process of the interviews, representing three grade levels and four elementary schools across the district. This results chapter will focus on the findings of the study using the research questions to guide the discussion. The research questions are as follows:

1. To what degree do elementary school teachers for Grades K-2 feel prepared to implement the Imagine Learning program?
2. To what degree do elementary school teachers for Grades K-2 feel that they are implementing the Imagine Learning program as an instructional supplement?
3. What are the barriers to the effective implementation of the Imagine Learning program identified by elementary school teachers?

4. What are the facilitators to the effective implementation of the Imagine Learning program identified by elementary school teachers?

The interviews consisted of nine questions with research questions one and three consisting of two interview questions, research question two consisting of three interview questions, and research question four consisting of two paired interview questions asked at the same time. All interview data were coded using the NVivo 11 software using codes selected by the researcher as new themes emerged. The participants' experience levels for both teaching and program use are shown in Table 4.

Table 4

Participants' Demographic Information

Interviewee	Grade Level	Years of Experience with Imagine Learning	Total Years Teaching
Interviewee 1	K	4	4
Interviewee 2	K	6	8
Interviewee 3	K	2	24
Interviewee 4	1st	6	22
Interviewee 5	1st	6	31
Interviewee 6	1st	6	9
Interviewee 7	2nd	6	21
Interviewee 8	2nd	2	8
Interviewee 9	2nd	5	5

Summary Findings for Study

Research Question 1: To what degree do elementary school teachers for Grades K-2 feel prepared to implement the Imagine Learning program?

The data related to evaluation question number one were taken from questions one and two of the teacher interviews. These questions were focused on the content and

support during training sessions. Teachers described their perceptions regarding their levels of preparedness as well as suggestions for continued training.

Please describe your initial and ongoing training experiences and their effectiveness with implementing the Imagine Learning program for your students. This open-ended question was developed to gain a holistic view of what the Imagine Learning trainings consisted of, as well as the teacher perceptions of training effectiveness. Eight out of nine teachers received formal training, while one teacher self-taught and asked colleagues about the program. The teacher that did not receive any formal training on Imagine Learning has been teaching in the district for four years.

Six of the eight teachers received two training sessions total during the program launch year, while two teachers received continual training throughout the past five years. Two schools provided initial half-day training sessions while two schools provided 45 minute initial training sessions. The first training session in all four schools focused on inputting student information such as student numbers, grade levels, and reading levels. The teachers were then able to create their classrooms within the program. The teachers described the consultants as having positive attitudes during the training which helped garner teacher buy-in. Eight teachers gave positive reviews of the Imagine Learning consultants' attitudes during the initial training and used descriptions such as excited, helpful, approachable, or "open to questions." One teacher stated, "The consultants would walk around, help us, remind us, ask questions, and hear concerns." All of the teachers who received formal training stated that there was a level of excitement about the program and the "freedom" during guided reading that it would allow.

Since the first training took place, the school district has assumed responsibility

for inputting and creating student classes. Inputting student information consists of entering students' names, grade levels, reading levels, and student information numbers. The district has since found ways to automatically upload this information into teachers' Imagine Learning profiles, which enables students to access the program without the teacher having to spend time manually entering student profile information and organizing those profiles into classes under the teachers' accounts. The initial training session time that focused on creating classrooms now seems irrelevant for continued program use, however, all nine teachers appreciated that the district assumed this role. Moving forward, training sessions that include this information are no longer needed in this district for teachers, but other districts that do not decide to create the student profiles for the teachers would need to facilitate this training.

The second training sessions focused on the data reporting tools. The data reports can be categorized into teacher action reports, usage reports, and student progress reports. The exposure to the reports varied, with four receiving training on teacher action reports, nine receiving training on usage reports, and eight receiving training on student progress reports. While the self-taught teacher did not attend a formal data training, her mentor did show her how to access usage reports, as the administration stressed that the students needed to be using the program for a specific amount of time per week. Four teachers expressed interest in going back into the program and accessing the different data points. Only two teachers mentioned that they visited data reports and tools post-training. A teacher went on to say:

> I took the program for what it was…ready-made…the data training was okay but nobody I know looks at the reports or uses them at all to make decisions. Nobody

has ever told us we have to and we have all of these other data points that we use. Table 5 shows the quantity and length of time for the training sessions at each school. Although School 1 provided the teachers with more training sessions that were longer in length, this did not affect how the teachers used the program in the school. The teachers did provide more well-versed responses regarding the type of information contained in the data reports. This study found, however, that neither the quantity of trainings nor the earlier access to Ipads led to an improved classroom integration of the program or use of the data functions in School 1. This indicates that despite more professional development, the content of the training did not lead to teacher action on the data to provide differentiated instruction.

Table 5

Training Session Information

Schools	Number of Sessions	Year of Sessions N=6	Length of Sessions
School 1	12	Years 1-6	All Trainings: Half-day
School 2	2	Year 1	First Training: Half-Day Second Training: 45 Minutes
School 3	2	Year 1	First Training: 45 Minutes Second Training: 45 Minutes
School 4	2	Year 1	First Training: 45 Minutes Second Training: 45 Minutes

Ineffective training elements. There were issues related to training time throughout the interviews as shown in Table 6. One teacher stated, "To me, 45 minutes really isn't enough time to make something count" while another respondent stated, "The training was led…mostly for 40 minute intervals, and it was just…too much to take in." Another teacher talked about the time of day that the training occurred and said the following:

> We went to these collaborations smack in the middle of the day when we had a thousand other things going on and everything just blurred together and we were left thinking…wait this data training is way more than we thought it would be.

The length, short amount of time, time of day, and amount of information were factors that lowered teacher preparedness in relation to the second training for data reports.

During the second training, teachers were exposed to the extra materials included in Imagine Learning that appear within the teacher action steps reports. These materials are meant to give teachers hard copies of printable activities that they can use with students who are struggling. The materials can be used when the program has run out of technology-based remediation activities to help the student master a learning strand. Only four of the teachers recalled how to access the program's printable materials such as the manual, activity sheets, or books. One teacher stated, "I don't know how to go in and see [the activities] they've been working on so I'm not sure how to match the printables to what the student has been doing." Another teacher stated, "I had no idea there were printables…we put students on because we were told to do it…but I'm not sure how else to use [the program]." All nine teachers discussed how having the capability to see a student's daily activities would be beneficial, and it was clear that teacher confidence was

low in interpreting the program's data and next steps within the program. The teachers who had low preparedness in accessing data and matching the program's resources to students' needs may be missing the opportunity to create a classroom that is reaching its fullest potential to promote data-driven student learning.

Another ineffective element that teachers mentioned was a lack of continued training, particularly for the program's data components. Five of the nine teachers referenced how the training had been so long ago that they "can't directly recall" or "don't remember" certain elements of the training. For example, one teacher went on to state:

> I know the trainer came out to the school one other time and showed us how to find some data and honestly I can tell you that I don't remember how to go on it and do anything with it.

A different teacher stated, "I haven't seen a consultant in the building in the last couple of years and no one has come back out to reign us in and ask us… do you remember any of this data?" The teachers were not given the opportunity to engage in training that would reinforce and solidify the knowledge regarding program data. The initial excitement and teacher confidence in implementing the program was not maintained due to an absence of ongoing training. Only one of the schools continued with half-day training sessions, and the same school continued to provide professional development two times per year, as shown in Table 5. For six of the teachers, the second training session was meant to carry them through the next several years of interacting with the program's data and printable materials, which is not feasible.

Table 6

Teacher Perceptions of Ineffective Training Elements

Themes of Ineffective Training Elements	No. of Teachers N=9	Quotes from Teachers
The training sessions did not continue past year one.	6	"I haven't seen a consultant in the building in the last couple of years and no one has come back out to reign us in…" "I think they came back another time, maybe a year or so later and did another 45 minutes. But other than that, we haven't seen a rep in the building." "We had two 45 minute trainings, one of the consultants came in and said, 'Okay, you go here and you click here and there,' but we didn't really get into the meat and bones of it or have any follow-up."
The lack of follow-up training led to an inability to remember information from the sessions.	5	"Honestly I can tell you that I don't remember how to go on it and do anything with [the data]." "I am trying to remember what they taught us during that second training on the reports and I can't directly recall what the different reports were but I know they did show them to us really quickly."
The training sessions did not equip the teachers to be able to access the printable materials and match them to student needs.	5	"I don't know how to go in and see [the activities] they've been working on so I'm not sure how to match the printables to what the student has been doing." "[The consultant] came out one other time and just showed us how to look and find the data and some sheets and honestly I can tell you that I haven't really bothered to go on and do anything with it. I mean that sounds terrible of me but I probably don't really use the program like it's supposed to be used but I'm not really sure how to I guess." "I had no idea there were printables…we put students on because we were told to do it…"
The training sessions were too short in comparison to the amount of content covered.	4	"To me, 45 minutes really isn't enough time to make something count." "The training was led…mostly for 40 minute intervals, and it was just…too much to take in."
The teachers directly mention needing more training specifically on the data functions.	4	"I think training on how to read the data reports would help because they look different than other things we use." "There were a lot of data reports so I think training on condensing reports or assigning that job to our data person would be good."
The training sessions that occurred during the middle of the instructional day led to an inability to focus solely on the training.	2	"We went to these collaborations smack in the middle of the day when we had a thousand other things going on and everything just blurred together."
The training sessions occurred after students returned to school which was a distraction for one teacher.	1	"I think it's helpful to do these trainings before the kids come back so I am ready before I have them in the room and distracted with other things like testing. It might drive teachers crazy but in order to be really effective, it needs to be something that's either held before the school year even begins so we can really get into it and look and see what to do and then have follow-ups that might be 45 minutes."

To what extent did you feel prepared to implement the Imagine Learning program and what types of professional development, if any, could improve your level of preparedness? The eight teachers who had training felt confident in placing their students on the program as a self-directed reading center. Four of these teachers referred to the initial implementation as easy. A teacher discussed the initial training and stated, "The training showed us what the students would see and we thought, wow, that looks so exciting for them. It's like a video game." Another teacher also discussed the initial training and stated:

> The first training was really good. The consultant showed us a video of a kid using it and we were all excited about it. It was easy to input your class and we didn't have to do much for the kids to be able to get on it.

A third teacher discussed the training and went on to say, "There was some trial and error during that training on making your class, but it was super easy for the kids to just logon and start using it by themselves." When the teachers were asked to consider their level of confidence coupled with professional development opportunities they gave specific recommendations that could potentially improve their preparedness.

Kindergarten-specific issues. The first and second grade teachers did not mention student log-in issues following the training; however, kindergarten teachers did experience post-training issues due to their population's age group. Two of their responses to the follow-up training were starkly different than the other six participants. One teacher stated, "I have been getting interrupted in my guided reading groups for months now…it's December and the kids still don't know how to logon or trouble shoot the program." Another kindergarten teacher said that the first training "should have been

talking about what to do when the program gives the kids activities that are way too hard for kindergarteners." The same teacher stated, "The excitement of the consultants was great at first, I mean we were all excited, but later they just kept being nice and never actually fixed any of the problems that we brought up in the second training."

Home capabilities. Two teachers discussed how they would like to learn how to set-up the program for at-home capabilities as well as demonstrate the program to parents. Interestingly, the teachers and students already do have the capability to access the program off-campus. The students, however, have only been given the information for these capabilities at one of the four schools. The teachers acknowledged that a potential problem with this would be that the parents could assist the students and skew the program's data.

Data training. Four teachers discussed the need for further data training to increase their level of confidence. The teachers described this support in the form of "reading the data reports," "condensing data" or "putting the reports into simple terms." One teacher expressed the need to know why teachers should check the data reports if the program is trusted by the district and it differentiates lessons automatically. Another teacher discussed having data training before the school year starts so that teachers have more time to explore the program's reports with little to no time constraints.

Classroom models. Four teachers discussed initial training suggestions such as visiting schools and classrooms that originally piloted the program, or at a minimum seeing videos of the program being used in real classrooms in various ways. None of the nine teachers used the program for whole-group purposes. There was a teacher who expressed concern with the consultants' lack of classroom experiences and said, "Who

knows if the consultants have ever actually been in a classroom. It would be nice to see a model of expectations for the program…what the vision was and what the classroom expectations look like." Another teacher discussed the importance of real-world classrooms to see the program in action before launching it. The teacher stated:

> It would have helped me to see the program being used in real-life, talk to some kids, and hear from a teacher 'I've been using it and I love it and the kids love it'…and hear some real testimonials. This would have helped me think okay this is manageable and here's what this experienced teacher does with [the program].

Another teacher compared new teachers with kindergarteners and went on to say:

> [New teachers] really don't know anything, like kindergarteners, they're learning everything it seems by just hearing about what to do versus seeing it. Making sure that a new program is shown in a real classroom is more powerful than any hand-out. You see it live so you have that example instead of just winging it.

Accessing student recordings. Five teachers suggested that having training on how to "access" the recordings, "export" the recordings, and use the recordings would be a fruitful use of time. One teacher stated:

> Lots of kids were getting stuck on the recording part. This made the kids learn that if they push the recording button for three seconds at least the program would allow them to move on. I do like the recording feature because I think it allows kids to go off on their own in a safe space and record, which I could later listen to if I had some training on how to access [the recordings].

There was a teacher that had no idea that the recordings were actually stored and thought that students received instant playback. That teacher stated, "I had no idea we could use

the recordings. I honestly…just thought the recordings went off into la la land and the kids could only hear themselves as they went."

Flexible program use. All nine teachers were told by their administrators to use the program during guided reading groups as an independent literacy station. Two teachers recommended training on different ways to incorporate the program into the classroom. These two teachers suggested having more teacher flexibility. One idea was that the students could all complete the program at the same time during a whole-group literacy block. The teacher would be able to observe the program, view the student activities, and conference with students about what they are learning from the program. The teacher who had no training said:

> My grade level chair told me that she's not sure how the program works or what's on it so I would just be grateful to have the [whole group] time to talk to my kids about what the program is and why they like it.

Research Question 2: To what degree do elementary school teachers for Grades K-2 feel that they are implementing the Imagine Learning program as an instructional supplement?

The data related to evaluation question number two were gleaned from questions three through five of the teacher interviews. These questions were focused on the infrastructure of the implementation, the impact on classroom structures, and the impact on classroom and teacher-directed experiences. The term instructional supplement is used to describe how teachers could integrate the Imagine Learning program into the classroom in order to add to, augment, or extend instruction. This term also references the myriad classroom structures in which the program can be utilized such as extension and

remediation blocks, intervention, small group, whole group, or at home. School 1, that received the follow-up training, did not use the program in any capacity other than small groups. School 3 had the capability of at-home use but the data and extent of at-home use was not tracked. Figure 1 demonstrates the changes in devices throughout the program's implementation.

Figure 1. Implementation device changes. This figure demonstrates the school district's device transitions while implementing the Imagine Learning program.

Describe how the Imagine Learning program is being implemented in the classroom and school for instruction. This interview question was designed to gain a knowledge of classroom and building strategies surrounding the program, as well as the infrastructure needed to support the program's users. During the second year of implementation, School 1 was considered a technology pilot school and became one-to-one a year before the other three schools in the study but reported similar issues with using the Ipads as the remaining three schools after their transitions took place. This would indicate that increased training and feedback to the program consultants did not fix software issues for the Ipad transitions for the remaining schools in the district. After the one-to-one initiative every student had access to a personal Ipad while also having access

to six to eight desktops or laptops before fully transitioning to Google Chromebooks in the first and second grades as shown in Table 7.

Table 7

Summary of Implementation Transitions

Year	Summary of Implementation Structural Changes
Year 1	• Schools 1, 2, and 3 receive Imagine Learning • Desktops/Laptops in the classrooms • Students seated in same area of classroom • Laptops did not have built-in microphones • Teachers had access to computer labs • Six teachers experienced issues with the supporting equipment such as headphones breaking, plugging in multiple cords for separate headphones and microphones, or needing splitters to make the equipment work properly
Year 2	• School 1, a technology pilot school, transitions to one-to-one Ipads for every classroom while maintaining classroom desktops and laptops • School 1 computer labs remain in use • School 1 teachers (n=2) report “less behavior problems” and “less cheating” between students now that they can be placed in separate areas of the room • School 1 continues follow-up training and teachers report “minor” issues with the Ipads such as sporadic “freezing” or students “talking loudly” into the Ipads’ built-in microphones
Years 3-5	• The remaining three schools transition to one-to-one Ipads for instruction in every classroom • A mixture of desktops and laptops remain in the classrooms • All nine teachers preferred portable devices to stationary computers to “manage behavior” and provide “privacy” to students • Four more teachers experience issues with the sound, software and microphones when using the program on the Ipads with teachers citing examples such as needing to “enter server codes constantly” or “hearing excessive noise” when students needed to use older headphones because “the new ones with microphones would break” and students had to use the Ipads’ built-in microphones • School 4 receives Imagine Learning privileges in Year 5 • From School 4, two more teachers experience issues with headphones breaking
Year 6	• The first and second grade classrooms transition to Google Chromebooks versus Ipads • Kindergarten classrooms continue to use the Ipads and two teachers report an inability for students to troubleshoot the program into late January • All six of the first and second grade teachers preferred Chromebooks to Ipads and reported less software issues with the Chromebooks

Portable devices and learning environment. A technology pilot school was included in this study, with two teachers from the school as participants. Since the pilot, the district has moved from one-to-one Ipads, with a classroom station of six to eight computers, to a one-to-one model using Google Chromebooks or Ipads. When asked about the differences between using computers and hand-held devices, all nine teachers agreed that the hand-held devices give students "privacy" and "freedom" to work independently without embarrassment or "worrying about the other kids hearing them or seeing their screens." Another teacher said, "I feel good about the data, if I ever got a chance to see it, because since we got the hand-held devices the kids aren't cheating or helping each other as much so I know it's [the student's] work."

A primary factor in any program launch is infrastructure and the necessary equipment for the program to be successful. At the time of the interviews, the three kindergarten teachers were still using Ipads, while the first and second grade teachers now have Google Chromebooks. All six Chromebooks users agreed that the program works better using the Google Chromebooks and discussed experiences with the negative aspects of using the Ipads. The teachers described Ipad software issues such as sound not working or the application freezing. None of the teachers have experienced freezing or sound issues on the Google Chromebooks. The students also need to have access to a microphone and headset when using the program. Headsets have been problematic for all nine teachers, which will be discussed later in the study.

Small groups. The teachers use the program as a completely independent, self-regulated program during guided reading small group stations using portable devices. All nine teachers mentioned that the program is "ready-made" while seven found it "easy to

use" with very little effort on the teacher's part to place students on the program. Two kindergarten teachers were the exception to ease of student log-on and independence with the program.

Home capabilities. School three, that did not receive continuous training, was using the at-home student capabilities, and a teacher spoke positively about this aspect and went on to say:

> I have found that the students and parents who get on board with also using it at home…has really kicked up their reading level a notch. The kids seem to do better on the activities…I think that having a parent there to directly explain the more complicated [activities] might actually help them learn from the program instead of wasting their time trying to navigate it.

The other three schools did not offer at-home access, and two of the teachers strongly disliked the idea of using the program in that regard. One teacher said:

> I can't tell if it's the student doing it by themselves in the classroom because they ask each other for help and a parent's natural instinct might be to just give them the answer if the child isn't getting it. Then my data would be useless.

Another teacher discussed concerns of redundancy and stated:

> The program is mandatory for them every day in my room for at least twenty minutes, and by the end of the year they're burned out. We don't need the kids getting sick of it any earlier than that because we also make them do it at home.

Lack of incentives to promote further use. Surprisingly, this interview question launched a discussion regarding other literacy and technology programs being used in the schools, and the amount of time that teachers spend looking into the data on those

programs. Three teachers mentioned other literacy technology programs that belonged to Scholastic, a literacy company that offers programs that include teacher incentives. Examples of these incentives included gift cards, free books, raffle drawings for large gift baskets, and student prizes. The teachers are able to "assign" activities and books, and use the programs more easily on a Promethean Board. The training that the schools provided was a factor as well, and two teachers discussed how they used the Scholastic programs for small groups as well as whole groups because they had been taught how to search for lessons within the program. The training, along with incentives, seemed to be why the teachers were more apt to personally delve into these programs versus the Imagine Learning program. The Imagine Learning program was discussed by all nine teachers as an "independent" or "hands-off" or "center" station.

Describe how Imagine Learning did or did not make an impact on learning in your classroom. The discussions on impact led to rich information that revealed both positive and negative aspects of a myriad of elements. The areas discussed included the following: program-based assessments, differentiated learning, extension/remediation, student engagement, academic language, learning styles, and the needs of students with disabilities. Table 8 demonstrates both negative and positive teacher-perceived impacts of the Imagine Learning program.

Program-based assessments. Eight teachers discussed the ways in which it was beneficial to have preassessment and ongoing program assessments that were already created and assigned to students within the program. A teacher was asked about a previous comment regarding distrust in the data and how that coincided with appreciating ready-made assessments and responded:

I like that I don't have to create anything or really keep up with this data. I know I talked about how the kids can guess, but when I really think about it, even if the kids guess the program is going to remediate all of their wrong answers. It will show them videos and do activities that I don't have to create, and [the students] can only guess the answers correctly so many times before they get one wrong.

Table 8

Teacher-Perceived Impacts of the Imagine Learning Program

Type of Impact	(+/N=9)	Positive Attributes	(-/N=9)	Negative Attributes
Program-Based Assessments	8 8 7	Ready-made Graded Automatically Instant Remediation	5	Teacher distrust in data
Differentiated Learning	9 7 2 5	Personalized Instruction Data-Driven ESL/ELL Support Targeted assistance for students	2 2	Too few remediation activities per strand Geared towards readers who have surpassed Concept of Word
Extension/ Remediation	7 8	Provides excelling readers with extensions Acts as a ready-made intervention tool	2 2 2 3	Program too difficult for many kindergarteners Inconsistent lesson expectations Lack of spelling and Concept of Word activities The program has a set number of extension and remediation activities that can be used
Student Engagement	7 7	Excited students Multimodal strategies: read alongs, oral language, songs	1	Students can become frustrated with the technology and stop interacting with it
Academic Language	3 3	Incorporates content Students show more background knowledge	4	Some teachers have seen no impact on academic language
Learning Styles	0		3	Some students do not prefer working with technology
Students with Disabilities	0		3	Students with disabilities may find the graphics and sounds frightening or over-stimulating

Other teachers added that the program instantly makes sense of the student's data, which takes a considerable amount of time for the teachers. A teacher went on to say, "I don't have to come up with [the assessments] and I know that the program's starting the students where they need to be. Making sense out of assessment data can be overwhelmingly time consuming."

Differentiated learning. All nine teachers felt that the program has improved their classroom's "individualized" or "differentiated" learning, including the kindergarten teachers for academically higher student groups. It is important to note that the teachers referenced this differentiation in terms of the program's content. The teachers did not mention teacher-directed differentiation using the program's data. While the teachers perceived that the program was differentiating content for students, this was based off of assumptions versus data or teacher interaction with the program. One teacher responded:

> I can only personalize it so much based on my assessments because I only have so much time in the day. I can't always teach one little thing to each student and at some point I have to say, 'I'm basing my group off of *this* need.' Imagine Learning can do what I can't and that's offer instruction to each kid on an individual basis.

Another teacher discussed teaching to reading levels and stated, "[Imagine Learning] takes them to frustrational level, which is ideally what a teacher is supposed to do. Sometimes our reading groups cover several [reading] levels because we only get a little over an hour to do small groups." Two teachers mentioned support and differentiation for students who are English language learners and one teacher responded:

> It is hard for [teachers] to know what ELL students need help with. Even though Imagine Learning is set to English, it still gives them help with vocabulary and phonics. I feel like we should be inputting their home languages but we can't.

When asked about this further, the teacher thought that the administration was directed to keep students set to the English home language.

Extension and remediation. Seven out of nine teachers discussed how they feel that their students' needs are being met at all instructional levels since they began using the program. One teacher said:

> My kids that would move up to the next grade level in reading would get left out or overlooked because I am so focused on the low students. Now I feel like with Imagine [Learning] they are getting…the instruction they need.

Another teacher also described student groups that are above grade level and stated:

> Even the administrators say you don't have to meet with the high kids a lot, get these mid and low students up so they're not left behind. With Imagine Learning I feel like they're getting instruction at that high level.

The six teachers from the first and second grade levels felt that the Imagine Learning program met the needs of students struggling with reading and writing. One teacher described how the school designated certain blocks for intervention and remediation and said, "The students love it and it caters to them, so I feel good about double-dosing some students…if I need to… while I meet with another group for targeted remediation." Two of the three kindergarten teachers felt differently. One teacher went on to say, "Sometimes my kids don't even know the first twenty sight words and they're recording books and trying to answer questions. What they need is spelling and word

practice and activities that are consistent." The other kindergarten teacher, who used the phonics reports to create word study plans, also expressed concern stating:

> I don't need [the students] to know complex things like story elements, I just need them to know their letters. I think the program is good for students that can read read. It doesn't hurt them, but it doesn't necessarily…provide enough… help with the really basic skills either.

Program limitations was an area of concern in relation to impact of learning. One teacher stated:

> If a teacher isn't paying attention then they might not know that a student has finished a specific grade level and the program just allows [the students] to choose activities that they have already done. My extremely advanced readers at the end of the year might be two or more grade levels up but the principal said that we can only move the student up one grade level. At that point…there's no more personalized instruction happening and the program's busy work.

Another teacher discussed how the program does a nice job of bringing students to frustrational level and then reteaching concepts but went on to add, "In some instances the program brings the kids to frustrational level, remediates, but then basically runs out of remediation practice and stops offering it." Both of these instances could be opportunities to start utilizing activities from the program's printable materials to accommodate continued learning.

Student engagement. Seven teachers were impressed with the high level of student engagement garnered by the program. A teacher described how much enjoyment the program brought the class and said:

> We will be working in a group and hear a student singing the songs at the top of their lungs…or be recording themselves reading a funny book and making the voices and it's just so comical. We get a big kick out of it and I think the students get a lot of fun activities in just 20 minutes or so.

Another teacher described the students and said, "They are having a good time. They get so excited they're singing and recording and I can see they enjoy it." One teacher from kindergarten did not think that the program delivered developmentally appropriate lessons and stated:

> A good number of my kids will sit there just staring at the computer in frustration because they don't know their letters much less how to record a book. I thought I would have all of this freedom and I don't because the kids aren't engaged because the lessons are too hard.

Academic language. Imagine Learning (2015) lists an increase in academic language in its goals through the program's research. Four teachers felt that academic language transferable across the disciplines had not increased while three teachers reported hearing and seeing improvement that students credit to Imagine Learning. One teacher went on to say:

> I will say…if I've not tossed them a certain sight word yet and they know it I'll ask, 'Well where did you learn how to read that word?' or 'How did you know how to spell it that way?' and they'll say 'I learned it on Imagine Learning.'

When asked about transferability a teacher responded:

> There are a lot of pieces to the program…reading, recording, listening to themselves, listening to books, songs…as a matter of fact we start every math

> lesson with songs from Imagine Learning. The kids just love them and it has really helped me introduce and spiral the math curriculum.

Learning preferences. Four of the teachers mentioned that student learning style is not met by technology-based learning. One teacher stated:

> Some of my students just can't sit there for thirty minutes and look at a computer screen. It's not how they like to learn. They like to be together and hold the books and make their storyboards as a team.

Implementing the program has been focused on using it independently while the teacher conducts small groups. There could be other approaches to the program for those students who do not enjoy technology-based learning but that has not been the directive given to the teachers.

Students with disabilities. Three teachers discussed implementation issues for students with disabilities. Some of the students with disabilities were afraid of the graphics within the program such as bugs or pop-ups within the games. The teachers described how their students with autism did not enjoy having to sit through the music in the program and that these students were "terrified" or "cried" over having to use the program. One teacher stated:

> The past two years as an inclusion teacher I've had this problem. Last year my student with autism would get so upset and cry when the songs would come on. This year another student with a different disability is so afraid of the graphics like bugs and aliens that he begs me to push him through the scary parts. It just hasn't suited my little ones with extra learning issues.

Describe how teacher-directed and/or classroom instruction has or has not been affected by using the Imagine Learning program. This interview question was designed to garner information on what types of action steps the teachers have taken based on the program, and whether or not the program has affected teacher-directed instruction. This question also garnered teacher perceptions regarding the lack of teacher-directed classroom integration of the program as shown in Figure 2. Table 9 provides a summary of the teacher perceptions for decreased program integration into other classroom instruction.

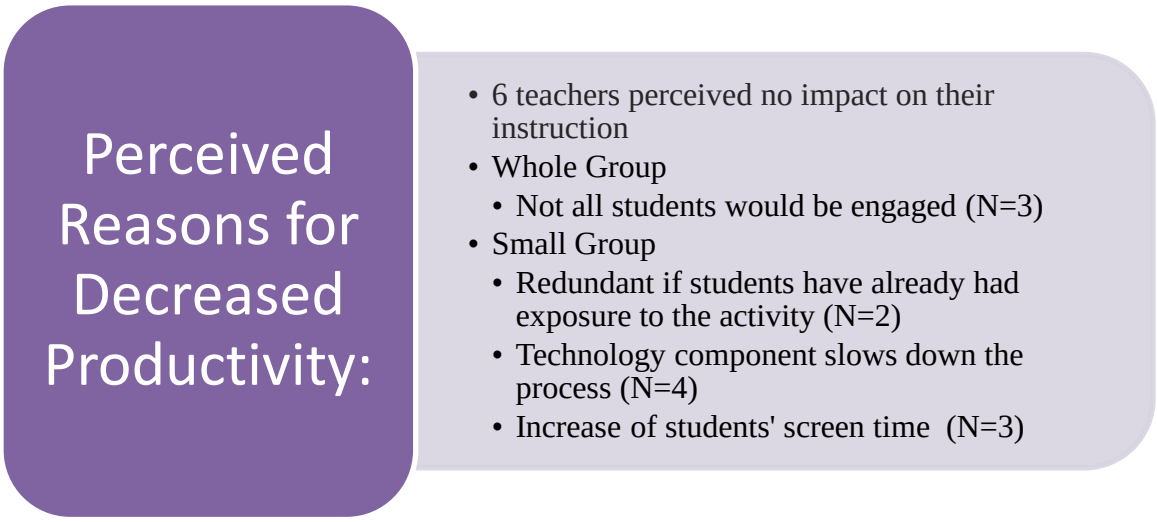

Figure 2. Teachers' perceived reasons for decreased program interaction. This figure shows teacher perceptions on why they did not interact directly with the Imagine Learning program to extend its use into teacher-directed whole group or small group instruction.

Data reliability. As discussed previously, five teachers found the second training on data sources to be helpful, four teachers requested more data training, and only two of the teachers actually accessed the data post-training. These two teachers expressed confidence in the data generated by the program with one teacher noting, "the data reinforces that I'm on the right track with the kids because I see the same needs." The

second teacher went on to say, “You feel good when you see that the reports match your notes...and think ‘That's exactly what I'm seeing so it's not just me.’ It gives you the confidence you need from a source that’s not subjective, it’s a computer.” Despite five teachers discussing the data training’s usefulness and eight teachers expressing appreciation of ready-made assessments, there were still five teachers who mentioned that they do not trust the program’s feedback. Reasons for data distrust included students simply guessing to answer multiple choice questions, using each other’s accounts, and adult intervention. These teachers recognized that students could guess to move forward with one teacher stating:

> I don’t rely on the data for two reasons. Sometimes we have to intervene and help the kids to move them forward when there’s an activity that they don’t understand because we can’t skip it. The second reason is that teachers are unaware if students guess the correct answers in the program.

Four teachers mentioned “savvy” and “clever” students who wanted to play the same games as one another or try to beat each other on Imagine Learning. These students would learn each other’s passwords and allow one another to login to each other’s accounts.

Word study. One teacher discussed how she used the program to adjust her word study instruction centers and kindergarten assistant lesson plans. The other eight teachers did not mention word study in their interviews. The teacher described the process for her weekly classroom set-up that included differentiating lesson plans and centers. The teacher said, “I use [the program data] for my assistant…because she does word study

groups while I do reading groups." The teacher described how the assistant "likes the reports because it helps me know what she's seeing since I don't do word study."

Intervention. One teacher discussed how her school has full-day kindergarten that includes an hour-long block for intervention and extensions. During this block, the teacher described trusting the program as "an effective way to provide additional practice and skills." When asked how she identifies the students who receive a double dose of the program she talked about identifying two groups for intensive teacher-directed instruction, a group that needed more reading practice by using the Imagine Learning program, and a self-directed extension group. To further clarify the teacher stated, "My assistant and I work with either the two lowest groups or a mid and a low group. The other kids go on Imagine because I trust it."

Potential activities. When asked how teacher-directed instruction has been affected, four out of nine teachers talked extensively about what they could do with the program if they had more knowledge, support, and time to explore the program. The teachers had ideas about how they could improve their own personal instruction and mentioned potential whole-group lessons to initially introduce the program and logon, sending the printable materials as homework or morning work, using the teacher action reports for small group remediation, and listening to the student recordings during planning and conferences. One teacher described embedding areas of weakness into small group instruction and stated:

> I have data points but the cool part about Imagine Learning is that the kids are on it every day taking little tests. If I had time, then those reports would be the most

> up-to-date data I've got so really, I should be embedding those areas of weakness into my instruction.

A kindergarten teacher discussed how she describes the program as another teacher and said:

> I tell the kids that it is their third teacher and they think of the program in that way. Since I say that I should refer more back to the program in my groups but the kids are invested in completing the activities just like they would be for me as a physical teacher.

***Does not affect instruction*.** Six teachers perceived that their teacher-directed classroom instruction was not affected by implementing the Imagine Learning program. Among the six who found that the program did not influence their direct work, several themes emerged such as limited engagement, redundancy and feasibility. Four respondents referenced how incorporating the program into small group and whole group instruction would slow down the teaching process. An example of this came from one teacher who stated, "If I used this whole group, say as an introduction, not everyone would be getting a turn on the board at the same time. That limits student engagement." In reference to small group instruction another teacher said:

> I tried using it on the Ipads in my small group. Several kids couldn't get on the app, and then other kids had already done the activity I had planned to use so they didn't want to do it. I thought they have already used this today, I'm not doing this again I have other resources.

Table 9 provides teacher perceptions for the reasons behind decreased program integration. Teacher quotes are included for each category along with the number of teachers out of nine participants.

Table 9

Teacher Perceptions for Decreased Program Integration

Perceptions Regarding Decreased Program Interaction	No. of Teachers N=9	Teacher Quotes
Some teachers are not using the program's data to plan instruction.	6	"I'll be brutally honest with you, I don't use a lot of the data for any program because I feel like the way the data is generated sometimes is that the program will appeal to some children but not to others based on their interest and their attention span and what they're motivated to do. If I don't interact with [the students] directly then I don't use it." "I kind of feel like sometimes with these computer programs, especially if it's a kid that doesn't focus very well on it, it's not really giving you a true picture of what they can do. That's why I don't use that data."
Some teachers do not trust the software's data results.	5	"I have mixed feelings about the data because you don't know if the children are just guessing. Is the report really a valid snapshot of their knowledge or did they not understand something and so they are just making a guess?" "The data sources can't really be trusted because students can use each other's accounts once they're savvy enough with it. They like to play the same games as each other." "For my lower struggling students, maybe because they're not necessarily understanding what to do, they get stuck sometimes. Then the adults have to intervene and enter answers for them to get through activities and then that skews the reports."
Some teachers believe that using technology slows down the teaching process.	4	"I think that if we have to use it for 30 minutes at a time per student, I think it affects how quickly you can rotate stations. Sometimes I want students through stations faster than that if I have a lot of needs to cover that day, but people above me are concerned with how long they're on it. It's hard to fit it in sometimes." "I feel like trying to always incorporate these Ipads apps is slowing me down because the kids are doing the same types of activities, just in a technology format with software kinks." "Well I don't use technology that much. For Imagine I looked on there and it's like, 'Uh we don't need all these alphabet cards, we have magnetic letters, and all this other hands-on stuff.' So I like to give the kids other ways besides devices because it can be slower than just doing the actual hands-on [activities]."

Some teachers believe that using the program during whole-group would not be the best use of time.	3	"I don't do it whole group, but then again I don't usually do technology whole group, because it's hard for them to share and stay engaged with [technology]. They're not all getting a turn and don't have the attention span to sit and watch other kids at the board." "If I used this whole group, say as an introduction, not everyone would be getting a turn on the board at the same time. That limits student engagement." "I mean I have not seen anyone have like an Imagine Learning block but I just don't think that's the best use of instructional time and I would never suggest to use it whole group. Sure, you could intro an idea using [Imagine Learning] videos, but whole group, I think, should be more interactive."
Some teachers believe that students are overexposed to screen time.	3	"I have my concerns about screen time. I feel like the kids probably get their fair share of that at home, so I just don't want school to be another few hours of screen time, I want it to be of value and social. I want them to get a lot out of being here with me."
Some teachers believe that using the program outside of independent work stations is redundant for students.	2	"I tried using it on the Ipads in my small group. Several kids couldn't get on the app, and then other kids had already done the activity I had planned to use so they didn't want to do it. I thought 'They have already used this today, I'm not doing this again I have other resources.'"

Research Question 3: What are the barriers to the effective implementation of the Imagine Learning program identified by elementary school teachers?

The data gathered in relation to evaluation question number three came from questions six and seven of the teacher interviews. Questions were focused on the barriers to initial and ongoing program implementation and the specific issues that the stakeholders encountered in the classrooms.

What are some of the obstacles, if any, that you have noticed when implementing the Imagine Learning program? All nine of the teachers discussed barriers to facilitation that were directly related to administrative support, policies, efficiency, and knowledge of the program as shown in Figure 3 and Table 10. The principals' amounts of exposure to the program varied between the four schools, but the school that seemed to have a streamlined professional development program timeline had

more well-versed teacher feedback on the program's capabilities than the schools that did not provide annual follow-up training.

Table 10

Teacher Perceptions of Barriers to Implementation

Descriptions of Barriers	No. of Teachers N=9	Percent of Teachers N=9
All teachers felt that the current system for maintaining and purchasing necessary equipment was a hindrance to the program's implementation.	9	100%
Teachers voiced confusion on which personnel to ask for program assistance and suggested assigning program-related duties to specific personnel.	8	89%
Teachers felt that there was a lack of consultant accountability in assisting the schools with program implementation.	8	89%
Teachers expressed that there was an absence of ongoing planned professional development in three of the four schools.	7	78%

Planned professional development. Seven teachers described frustration with the lack of follow-up training, while two teachers discussed a training model that had continued throughout the six years since they initially piloted the program. The teachers that voiced the most frustration with the data functions and content of the program had

two trainings total. Both training sessions occurred after the school year had begun. The first training consisted of either a half-day or forty-five minute session that covered teacher buy-in, student log-in procedures, and creating classrooms. It is important to mention that the program's classes and students are no longer created by the teachers but are now inputted by the school district's central office. The follow-up trainings were grade-level sessions that consisted of answering questions and demonstrating the data tools and support materials.

The two teachers from School 1 that received continuous training received all half-day sessions with substitute teachers in the classrooms. Throughout the years the teachers have received two annual trainings with the program consultants and new teachers were tracked and trained in the same sessions or in separate sessions. At each session the teachers were given their program usage reports and discussed these reports briefly with the administration. These two teachers were the participants that felt comfortable with being able to access the printable materials and teacher action reports as described previously. They were also more well-versed in what the data reports and the program had to offer, but knowledge of the program did not translate into increased interaction with the program's capabilities. These teachers were able to speak about the program more extensively, but they did not use the program's data for planning and did not monitor student growth on the program. This indicates that the quantity of sessions may not be as important as the quality of the sessions to increase teacher-program interaction.

Purchasing equipment. The nine teachers expressed issues with a lack of equipment needed to make the program run appropriately. The biggest area of concern

were the headphones and microphones. The Imagine Learning program allows the students to listen to books as well as record themselves reading. Both of these activities are important to student growth and student independence when using the program. One teacher described the headphones and stated:

> The headphones are apparently really expensive and they have been a constant issue that I don't think the district was aware of when they chose the program. The kids have to be able to record or they can't move on [with the program], and all of the brand-new headphones break every single year within a month or so. Our principal told our tech teacher they're 30 dollars a pair for decent ones so this last year she said we simply weren't going to order them if the kids broke them. The teachers are up a creek I guess.

Another teacher described the devices in relation to the headphones and said:

> When we used to have desktops, the kids had to have headphones with microphones, or headphones with a separate microphone and a separate mouse. Logistically, it was a cord and tripping hazard nightmare that the teachers were left to set-up on their own. Now with the Ipads and Chromebooks, those have built-in microphones but sometimes they don't work or the kids have to yell into them. Plus they still need headphones with a USB jack, or laptops needed a splitter because there were no ports for a microphone and a headphone cord separately. These are just things that I don't feel like I should be wasting my time on.

All of the teachers talked extensively of USB ports for headphones, splitters for headset jacks, or portable devices that had broken microphones. Logistically, the program

requires this equipment and at a high cost that does not appear to have been appropriately factored into building-level budgets. Since the program was purchased for all Title I schools it would seem that the cost for these accompanying pieces of equipment were lost in the planning phase of implementation.

***Assigning program-related duties*.** There was a general sense that teachers were unaware of which roles that key support personnel in the building had in maintaining the program and ensuring accountability. In two schools, four teachers described asking the reading specialist for help. In all four schools, five teachers described asking the technology teacher for help. None of the teachers mentioned asking the building administrators for assistance with the program. It seemed that when the teachers had questions, it was one specific person that they asked, versus seeking assistance based on the issue. The teachers provided ideas for assigning program-related duties that included the following types of tasks: creating uniform school logins, developing a yearly training schedule, uploading new student information, purchasing equipment, classroom set-up, and device updates. For example, one teacher noted:

> My headphones kept breaking so I would tell the reading specialist because it's literacy related and never hear anything back. Then I thought well it's a tech problem, but then she told me the principal actually ordered the headphones and wouldn't order more. I'm not going to go ask the principal about headphones.

A second teacher discussed the device transitions and stated:

> Our technology teacher was trained with us. We had that first year of training and since then we switched from desktops to laptops to Ipads and now Chromebooks. Each time we switch there are new things that we need to know and nobody

> updates us. Last year we had a lot of trouble with server codes and the tech teacher didn't know what to do and I waited for a month to get it fixed.

The teachers suggested streamlining data procedures to make the accountability more feasible.

Three teachers received usage reports sporadically but did not receive student achievement reports. One teacher noted, "The first year some people weren't using it like the principal said to so we got usage reports in our boxes a few times." Two teachers discussed receiving and reviewing the usage reports during annual trainings. The teachers that reviewed the usage reports received them from the reading specialist, but each school has a data support specialist as well. These roles were described by one teacher who noted:

> The new superintendent changed the tech roles so now our person who used to do both programs and equipment only does instructional technology and no equipment help. The data person used to basically run report cards and now she is in charge of all of the equipment, so I am not really sure why she's called a data support specialist…it's more like equipment person. Basically, we have a tech teacher who helps teach with technology, an equipment person, and no data person.

Consultant accountability. In the confusion surrounding recent job changes within the district, eight teachers felt that the Imagine Learning program was the consultants' expertise and that they should be more directly involved with the teachers. This included trusting the teachers by emailing them ways to "adjust the program" as well as "adjust the grade levels and home languages" for the students. One teacher

suggested having the consultants join quarterly planning meetings while another discussed having the consultants email the teachers directly with transition tips before an upcoming substantial change such as switching devices.

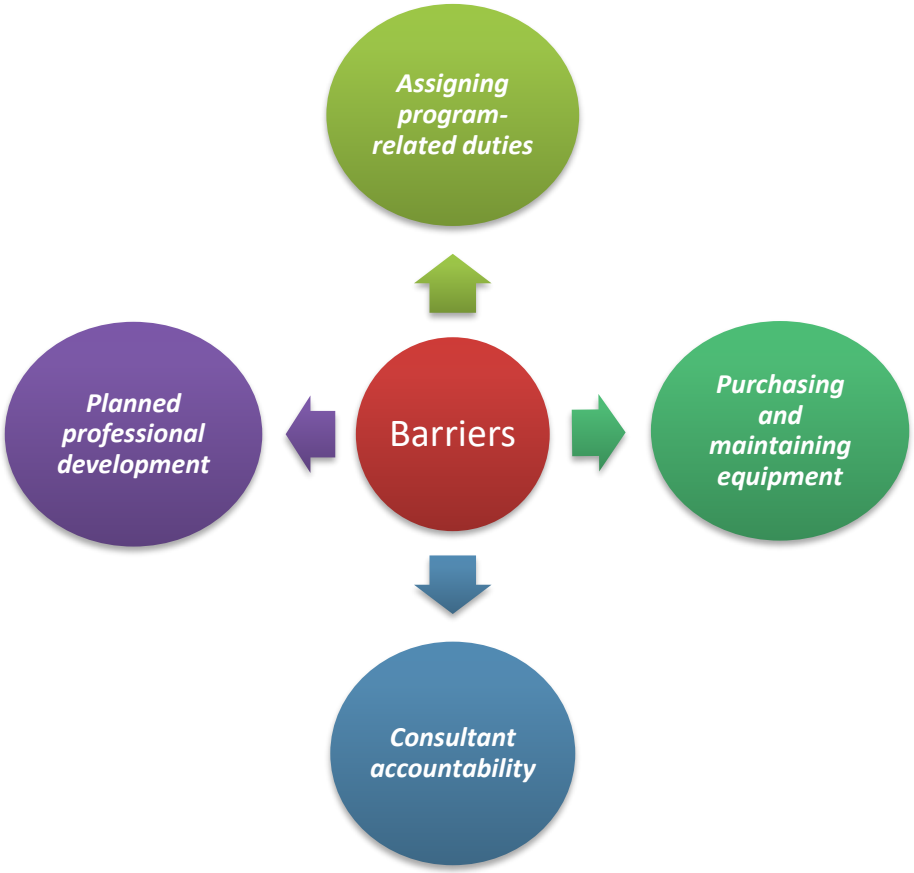

Figure 3. Teacher perceptions of barriers to implementation of the Imagine Learning program. This figure shows the four categories of implementation barriers identified by teachers.

Please describe suggestions to achieve more improved implementation of the Imagine Learning program for students, teachers, and/or parents. The teachers described myriad avenues in which program implementation could be improved as shown in Table 11. Equipment, time to plan, and ongoing training were the most coded categories. Descriptions of these categories are included in Table 11, along with the

number of teachers and percentages of the respondents. All nine participants specifically described how a failure to purchase or maintain equipment hindered program use.

Table 11

Assistance Needed to Improve ILP Implementation

Type of Assistance	Number of Teachers N=9	Percentage of Teachers N=9
Failure to purchase and maintain equipment	9	100%
Absence of ongoing training	7	78%
Time to engage in grade level Imagine Learning data talks	7	78%
Program administrative capabilities for teachers	6	67%
Teacher and student incentives	4	44%
Provide teachers with copies of the printable materials	4	44%
Training on how to provide parent engagement opportunities	3	33%
Initial Training	1	11%

Failure to purchase and maintain equipment. The teachers discussed how the district could combat equipment hindrances or individual building budget issues by ordering these supplies both upfront and continuously. This would ensure that the schools

are given what they need to integrate the program in the classrooms. The most mentioned coding coverage in this area was for equipment issues and ordering, while a failure to ensure equipment compatibility was also a concern.

Absence of ongoing training. Seven teachers described the need for ongoing training to engage with the program's content and features with one teacher stating, "The training has been so long ago that I don't remember it and nobody expects me to use the data." More specifically, teachers wanted training on the most efficient way to match data to the printable materials and remediation activities in the program. This points to a training problem as teachers recognize the information gaps and readily mention the desire for further training. Lack of training can certainly have negative impacts on teacher preparedness. Three schools did not emphasize initial training sessions, as two training sessions would not allow teachers the appropriate time to absorb the information. There was an absence of reinforcement because follow-up training past Year 1 of the implementation was not offered for three schools.

Time to engage in grade level Imagine Learning data talks. There was a distinction between what the teachers described as "ongoing" or "continuous" training and "grade level data talks." The grade level data talks referred to providing the teachers with the necessary time to plan using the program resources. Seven teachers wanted their grade levels to participate in a half-day session with substitutes in the building so that they could explore and discuss the Imagine Learning data and materials. This was considered separate from a consultant-led training or structured session. A teacher went on to describe the potential session and stated the following:

> [The session] would be a way for us to look at our kids' progress, listen to their recordings, come up with ideas on how to talk to the students about what they're doing, and figure out some different ways to use the program in the classroom.

Program administrative capabilities for teachers. Six teachers discussed the need for program administrator rights. This would allow the teachers to manipulate the program more so than previously discussed. Teachers are already finding ways to teach each other how to adjust the grade level and time allotments on the program, but would like the opportunity to access the program's learning materials to skip lessons, assign lessons, and change home languages. A teacher described the need for this type of support feature by stating, "I know my kids and when they're needs are not being met. I should be given the professional courtesy of having some say in what my kids are doing and what language they are doing it with." It would be beneficial to train teachers on the program's content and data points before allowing the integrity of the program to be changed.

Provide teachers with copies of the printable materials. The school district does not cap teacher copies as many other surrounding districts do, but the copies are a continual tenet of planning sessions and staff meetings. Due to paper costs, four teachers would like to have a master copy of the program's printable materials provided to them by the district, or a master copy provided to each grade level. In one school, the teachers engage in planning once per week with the reading specialist. A teacher described to me how the planning was structured and stated:

> The reading specialist comes in and we go over what we did last year, what worked and what didn't, and how we can make the activities and the assessments

better. Maybe if the specialist reviews those materials and we do too, we could see if there's something to offer from the program's materials that would match what the kids are doing in their center.

Training on how to provide parent engagement opportunities. Three teachers requested parent involvement with the program. Teachers suggested that providing parents with information about the program would help in several ways. By sending information letters home, the parents would have gained background knowledge of the program before discussing it in teacher-parent conferences. Another teacher suggested sending home the progress reports on a regular basis to provide parents with the most current information as this could give parents ideas about how to help their children at home.

Teacher and student incentives. Four teachers discussed incentives for teachers and students. These teachers said they tend to be more actively engaged with programs that offer tangible incentives. Ideas for teachers included gift cards, classroom books, rewards baskets, and point systems. Ideas for students included food rewards and discount cards that parents can use. As previously discussed, other programs in the schools are praised by the administrators and coaches and even offer classroom rewards for the most use in the form of parties. These teachers felt that the Imagine Learning program was more of a mandate versus a celebrated program.

Research Question 4: What are the facilitators to the effective implementation of the Imagine Learning program identified by elementary school teachers?

The data gathered in relation to evaluation question number four came from questions eight and nine of the teacher interviews. Questions were focused on the

facilitators of the program and the specific support that those facilitators provided. The goal of this question was to identify tenets of the implementation process that were working for teachers and to make connections to possible solutions for the previously identified barriers. It is important to note that throughout the interview process frequency counts showed overlap between themes so context was given to teacher responses.

Please describe any facilitators or support mechanisms in your classroom or school that have assisted you with implementing the Imagine Learning program. What specific assistance did these facilitators provide to you during the implementation of the Imagine Learning program? Two of the nine teachers said they felt "no support" or "none whatsoever" in their response to this interview question. Of these two instances, one teacher described having new administrators during program launch and said that the program was mentioned once or twice in grade levels meetings as an "afterthought" with phrases such as "Don't forget that Imagine Learning needs to be done" or "You have some reports in there that you can look at." The other teacher discussed how the administrators were not present during the training and did not discuss the program with the teachers outside of the consultant-led sessions. It is important to note that these two teachers both taught at the same school and discussed how the reading specialists and technology teachers were trained at the same time, in the same sessions, that they attended. It was communicated to these teachers that everyone had the "same training" and that "there were no experts" in the building. In this school there was what was described as a "hands-off" attitude regarding implementation.

Seven of the teachers, including the teacher that received no formal training, reported that they did feel supported by one or more of several groups shown in Table 12

that included the school district, program consultants, technology teachers, building reading specialists, and other colleagues. The types of support were dependent on the person who was providing it. Six teachers appreciated that the school district inputted student information and built classes for the teachers. For kindergarten, the teachers were under the assumption that the district began making it standard for reading specialists to build the classrooms within the program. This saved teachers time but the impact on reading specialists is unclear since they were required to input kindergarten information. Further descriptions of the types of support mechanisms are also provided in Table 12.

Table 12

Support Mechanisms

Source of Support	Number of Teachers N=9	Percentage of Teachers N=9
No support	2	22%
School district assumes responsibility for entering student information into the program for teachers	6	67%
Consultants train and interact with teachers to solve issues	7	78%
Technology teachers assist teachers and students with troubleshooting the software and equipment	5	56%
Reading specialists co-teach lessons and assist students with program content	4	44%
Colleagues provide software workarounds	3	33%
Administrators	0	0%

Consultants train and interact with teachers to solve issues. Seven of the nine teachers discussed the consultants as a form of support in various ways, as seen in Table

13. During the year, all teachers both received and lost students in their classrooms. The consultants were integral in removing students from the school licenses and also creating new students in the Imagine Learning system when the students were transferring from outside of the district. One teacher mentioned that licenses did become problematic as their school had frequent student turnover. The consultants solved this issue quickly by receiving teacher emails for this issue directly versus relaying the information through a third party.

Five teachers discussed the second training session that involved the data reports and resources as a form of program support. One teacher, for example, said the following:

> [The second training session] was nice because it brought us to an aha moment…there are extra reading activities you can send home…there are extra books on [the student's] level…the action reports show areas the student is weak in with activities you can use in small groups.

A second teacher went on to state:

> The data training was great support because when we went in to look at [the reports] it's exactly what we were seeing in guided groups…so we know the program's accurate which also gives us reassurance and extra activities that we could use.

Although the teachers mentioned the data training as a form of consultant support, only two of the teachers went on to access the data. Additionally, the consultants' email availability was mentioned as a form of support. The consultants' return time on emails

was usually within one to two business days, and five teachers felt that communication with the consultants was “quick” or “easy” or “accessible.”

Teacher buy-in and the ability to voice questions and concerns were interrelated in the interview responses. Seven teachers mentioned the word “excited” with one teacher stating that “everyone was hooked” after the consultant’s introduction to the program. During the second training it was important to teachers that they felt comfortable asking questions and voicing concerns. Descriptors such as “patient” or “thorough” or “flexible” referenced consultants attitudes towards the teachers during training.

Table 13

Consultant Support

Type of Support	Teachers Interviewed N=9
Adding and Removing Students	6
Data Training	5
Email Communication	5
Teacher Buy-in/Inspiration	7
Answering questions/Concerns	7

Reading specialists co-teach lessons and assist students. Four of the nine teachers described a variety of ways that the reading specialist supported the program’s implementation process as shown in Table 14. Two teachers mentioned being “more comfortable” contacting the reading specialists and then having the reading specialist communicate with the Imagine Learning consultants. These teachers felt that sending a quick email or hand-written note to the reading specialist saved them time when trying to

solve implementation issues such as inputting new students or trouble-shooting student challenges.

Three teachers from two schools said that the reading specialist would randomly run their usage reports for them and place the reports in their mailboxes. These three teachers said that having the specialist run the usage reports let them see who was using the program and who was not so that they could try to help students who were having technology or program issues. Two teachers discussed how the reading specialist would allow the students to bring their Ipads or Chromebooks to her office, and would then help the students in areas such as explaining activities, troubleshooting the software, or moving students forward when an activity would freeze or was too difficult. One teacher described how the reading specialist helped her and her colleagues by co-teaching an introductory lesson for the students on how to logon to the program, and the types of activities that they would be seeing. That teacher went on to say, "She…was extra support for me when I was nervous…like having a back-up…with the kids so that I didn't get stressed out. [The reading specialist] checks in with us quite a bit."

Table 14

Reading Specialist Support

Type of Support	Teachers Interviewed N=9
Provided the teachers with usage reports	3
Directly assisted students	3
Emailed with teachers and consultants	2
Co-taught Introductory Lesson	1

Technology teachers assist teachers and students with troubleshooting the software and equipment. Five teachers received support from the technology teacher in

the building in several ways as noted in Table 15. The technology teachers would assist students and classroom teachers in troubleshooting software and equipment issues, accessing the reports, and adding and removing students. Two areas that differed from the reading specialists was that the technology teachers did not co-teach introductory lessons or run the usage reports for the teachers. The support described was more technical in nature versus instructional.

Table 15

Technology Teacher Support

Type of Support	Teachers Interviewed N=9
Troubleshoot software	5
Add or remove student accounts	5
Assist teachers in learning how to access reports	4
Email teachers and program consultants	4

Colleagues provide software workarounds. Colleagues were mentioned as a support mechanism by three teachers, including the teacher that received no formal training. What is interesting to note is the ways that the teachers describe the support from other teachers in Table 16. For example, three teachers discussed changing the times that the students were on the program for a single session before it would boot the student off and mark them completed for the day. The times varied between fifteen, twenty, and thirty minute intervals. The teachers discussed manipulating these program times to fit into various schedules depending on daily activities and school or grade level expectations. The three teachers, from three different schools out of four participating schools, also talked about adjusting the students' grade levels. If a student received a

completion certificate for their current grade level, the teachers would assign them to the next grade level. It was unclear if the program issued the students another preassessment.

Table 16

Support from Colleagues

Type of Support	Teachers Interviewed N=9
Troubleshoot software	3
Changing the students' daily required time in the program	3
Changing the students' grade level within the program	3
Receiving directions on how to complete certain activities within the program	2

Kindergarten assistants and other grade level teachers were mentioned as being important to help trouble-shoot with the students on exercises that they were unable to move past. The teachers discussed how students would encounter activities that had directions or expectations that were too difficult and the program would repeatedly start the student back at that same activity again and again until completed. A teacher went on to describe the following scenario:

> This student was on a basketball spelling activity for two weeks…I could not figure out how to help him move on so finally, I asked my colleague to help and they said to just do it for him. I found out later that eventually the program will move on but I have no idea how long that would have taken.

Two teachers also discussed how to change the students who are English Language Learners' home language in the program, but one teacher decided against it since it was against school policy, and another teacher was unable to change it in the program without administrative rights.

Administrators. None of the nine teachers received any direct implementation training, classroom support, or emotional support from the administration. When asked about administrative support, one teacher said:

> I tried to bring up issues like the headphones not working, students being really loud on the program, or the activities being too hard, and nobody backed me up in the meeting. It was the first year I used [the program], and I was frustrated. The principal said that she was going to put a few people in my room since I seemed to be the only teacher who didn't get it. I was so embarrassed I never brought anything to her attention again.

The other eight teachers did not have negative experiences with the administration, but there was a lack of any kind of interaction regarding the program. The absence of administrative engagement with the program included positive interactions.

Summary of Findings

Chapter 4 demonstrated the results of the teacher interviews that were conducted with nine participants representing four Title I schools. A summary of important interview findings can be found in Table 17. These findings are organized by interview question as the interviews were used to garner rich details related to the research questions. The goal of the evaluation was to analyze and interpret the contextual, qualitative data about the perceptions of teachers following their training and initial implementation of the Imagine Learning literacy program. Chapter 5 will include recommendations to improve the program's implementation and training, as well as suggestions for policy changes and further research.

Table 17

Summary of Important Findings by Interview Question

Interview Questions	Responses N=9	Findings
Q1. Training Effectiveness	8	The first training sessions included inputting student information, promoting teacher buy-in, and demonstrating how to log students on.
	8	The first training was effective in garnering teacher buy-in.
	9	The training time spent showing teachers how to input student information is now irrelevant.
	5	The training was too long ago for some teachers to remember content.
	7	The second training provided exposure to the program's reports but did not solidify a working knowledge base due to lack of follow-up training.
Q2. Level of preparedness during implementation and PD needed to increase preparedness	6	Preparedness was high in teaching students how to log-on to the program in the first and second grades.
	4	Professional development is needed on the program's data features in order for teachers to be able to implement the program in any other capacity other than an independent work station.
	4	Teachers requested the opportunity to visit model classrooms that demonstrate the program.
	5	Training is needed on how to access and best utilize the student recording data.
Q.3 Implementation Structure	9	The schools transitioned from laptops and desktops and are now using either Ipads or Chromebooks as portable devices.
	2	The portable devices have provided students with a private learning environment.
Q.4 Program Impact	7	Teachers feel that the program is not doing any harm to a student's literacy ability.
	8	The program has not impacted teacher planning for small-group literacy instruction.
Q.5 Program's Influences on Teacher-Directed Instruction	1	One teacher used the program's data to develop and plan for word study groups.
	1	One teacher uses the program as a remediation small group during her center, but the program does not affect her instruction or how she chooses the students for the group.
	8	The program has not influenced whole-group or at-home instruction.
Q.6 Obstacles	9	Equipment has been a significant obstacle for all teachers.
	7	Teachers need time to review program content and data.
Q.7 Suggestions	9	Replacement equipment needs to be easily requested and purchased in a timely manner.
	7	Training needs to be ongoing to increase access and knowledge of the program's tools.
	7	Teachers requested grade level data talks to review program data.
Q.8/Q.9 Facilitators and Assistance Provided	8	The school district's decision to input student information saved teachers time.
	8	The consultants were the primary resource for training and support.

CHAPTER 5

RECOMMENDATIONS

As schools turn to technology as a school improvement avenue, districts are spending considerable amounts of time, money, and preparation in choosing the right programs and devices to impact student performance. Reardon (2013) found that income is now a more significant factor in achievement gaps than race, and more Title I schools are attempting to use their funding to ensure equity for their students. These students start their schooling at a disadvantage in terms of vocabulary and oral communication skills (Reardon, 2013; Timmons, 2008). Given that this school district has implemented Imagine Learning as a means to close the literacy achievement gap, it is imperative that administrators at multiple levels examine fidelity of implementation so that they can subsequently measure the program's effectiveness to ensure that students are using the best possible program to meet their needs. It is not enough to purchase the technology and programs without ensuring action-oriented follow-up as programs often fail during the implementation phase. In high-stakes school environments, the programs that get measured gain priority. The current measurement of implementation for the Imagine Learning program is solely rooted in student usage. The training that has been provided to teachers, and the alignment within the school district's strategic plan, suggests that further accountability beyond usage times was expected.

The purpose of this qualitative program evaluation was to analyze teacher perceptions of the implementation activities for a technology-based literacy program in four Title I schools. The study included nine teacher participants that were interviewed in order to allow the opportunity to express rich descriptions of their experiences with the program. After gleaning information from the teachers about how the program was being implemented, the next step was to determine the implementation features that have been working as well as ways to improve how the program is being used.

The results gleaned from this study demonstrated how teachers from Grades K-2 reacted to and implemented the Imagine Learning program. The conclusions from the data were made by compiling information from the teacher interviews by using the NVivo 11 coding software. A summary of the findings and recommendations to improve program implementation efforts are synthesized in this chapter.

Discussion of Findings

Evaluation question one. To what degree do elementary school teachers for Grades K-2 feel prepared to implement the Imagine Learning program? When the teachers were asked to describe their training experiences and the effectiveness of the experiences, the eight teachers who received formal training initially left the training feeling comfortable with placing students on the program and letting the students use it during small group reading centers. This did not include a comfortability with the utilizing the program in any other capacity outside of independent student use. The first and second grade teachers were able to log students onto the program, while two of the three kindergarten teachers were not able to have their students independently use the program until late January.

The teachers that had limited training stated that the training was insufficient and that they were unsure how to use the data reporting functions. The decrease in continued interaction with the program started occurring due to an absence of reinforcement because follow-up training was not offered or prioritized in three of the schools. The training sessions were too short in length to be beneficial in allowing teachers to absorb the information. The trainings also were not frequent enough to reinforce what the teachers had already been exposed to about the program. School 1 that did offer consistent training had teacher participants that were more versed in the program's capabilities, but this did not lead to more teacher interaction with the program. Those teachers accessed the reports and supplemental materials during ongoing follow-up training sessions but did not use the reports for planning purposes. The teachers who had continual training, and sporadically accessed the reports, did not make integrating the program's data a staple of instructional planning. In this regard, Schools 1, 2, 3 and 4 did not monitor student literacy growth by using the program's assessment data.

The National Partnership for Excellence and Accountability in Teaching [NPEAT] (1999) identified nine guiding principles for effective professional development for teachers. The guiding principles have a focus on both continuous and ongoing professional development that includes follow-up training sessions, support for further learning, and an emphasis on a comprehensive transformative process to increase student learning. The Association for Supervision and Curriculum Development (2003) utilized the NPEAT's guiding principles in a research brief that included Desimone, Porter, Garet, Yoon, and Birman's (2002) study of 207 math and science teachers in 10 school districts that found that teachers better used the technology-based professional

development when the training allowed the teachers to actually apply the content versus simply absorbing information. This research is applicable to this program evaluation and the types of training sessions that teachers received. In the Smith County Public School District, the NPEAT (1999) and ASCD's (2003) research can be applied to the school that did receive continual training and the schools that did not receive follow-up training. School 1 received a total of 12 sessions, however, the content of the sessions did not lead to increased teacher interaction with the program's data functions. This could mean that the quality of the sessions' content is more important than the quantity of the sessions. In Schools 2, 3, and 4, there was no continuous follow-up to reinforce knowledge of the program or an emphasis on a comprehensive classroom integration of the program's data to increase student learning. Additionally, Fullan's (2016) research found that professional development needed to include critical reflection and collaboration so that teacher learning ultimately leads to improvements in measuring student learning. In all of the participating schools, the professional development was consultant-led and did not include the opportunities for teachers to have the time to interact and plan using the program's data, so teacher follow-up using the Imagine Learning program's daily data assessments could not be fostered.

The program was chosen by the Smith County School District under the balanced assessment goal. Additionally, the program was chosen to provide differentiation, which Tomlinson (2000) found included differentiation in the product. While the teachers discussed the program's various products, the teachers were not trained on how to access the data points and did not discuss the data with the students to achieve follow-up in the classroom. The teachers at all four schools did not use the differentiated data functions of

the program, which means that differentiation based on the program's data did not occur. The two teachers at the school that did receive continual training indicated a higher level of preparedness in terms of accessing the data functions but did not actually use the data functions to track student growth. This would indicate that the training issues may also be related to the quality and content of the training versus the quantity of training sessions.

Students know when their teacher is reviewing materials that they complete, so when there is a complete disconnect between what the students are doing and what the teacher is inspecting, then that could lead to complacency when students work within the program. An example of this was noted by one teacher who did receive continual trainings and said, "We played one my student's recordings during a training and it was humiliating. The little girl was singing a song filled with curse words and then laughing with her friend." The program may offer differentiated products but a lack of inspection may mean that those products are not leading to student growth.

The second training sessions were focused on answering questions and accessing data reports. For three schools the training was 45 minutes long, and seven of the teachers could not apply much of what was taught in those sessions. The differentiated products (Tomlinson, 2000) that were covered in the second trainings' data talks were student recordings, data reports, accompanying printable materials, and teacher action reports that grouped students based on areas of weakness. Only four teachers suggested further training specifically on accessing data reports, but only two teachers accessed any of the reports after the training sessions. Five teachers praised the second training session and viewed it as a form of support, but it was clear that enjoying the training did not translate into using the training.

There are two program products that require teacher support in order to supply Tomlinson's (2000) differentiation which are the student recordings and the teacher action reports. The student recordings, for example, provide autonomous discovery through thinking and doing which are key tenets of experiential and pragmatic learning (Fairfield, 2009; Hill, 1997). Five teachers, however, suggested and needed professional development that focused on accessing and using the recording features. When students do not have the assurance that teachers are checking the recordings, or that adults such as parents would be hearing the recordings, then this independent task and product could become unreliable and potentially a waste of time in terms of academic growth.

The Imagine Learning program claims to produce assessments, data, and remediation at an accelerated rate compared to the time it takes to receive teacher feedback on graded assignments, however, the data from this study suggests that these claimed benefits are absent if the teachers cannot or do not use the data and follow-up functions. The teacher action reports are one avenue that the program provides in an effort to make data available in an organized way for teachers. What is especially important is the reason that students are placed onto the action reports. This happens when the program has extensively remediated a skill for that student and has essentially ran out of technology options. The program then lists technology-based activities that the student will have seen before, but more importantly, provides links to materials that can be printed or activities that teachers can use for remediation purposes. The second training did cover teacher action reports, but the teachers did not use the reports to guide instruction. Using the pragmatic theory coupled with the program, the student now lacks the experiential learning needed to maintain interest for that academic standard (Hill,

1997) and learning is stagnant in that area of weakness. While the program was designed to provide differentiated data functions and potentially teacher-led activities, this study found that the teachers were not equipped to use the teacher action reports to achieve differentiation. Because these strands are the students' weakest areas, and the program is out of independent options, the students could be left behind.

The data training is also linked to Tomlinson's (2000) differentiation theory in reference to process. The teachers were trained on how to access the data generated by the program, but were not trained in multiple ways to interact with the data. For example, all of the teachers use the program primarily in small groups as an independent station. This set-up has fostered a climate of teacher disconnect from the program. The printable materials are provided by the program and can be matched to the student based on their weakest area. None of the teachers were engaged with this extra support, so the teacher process of utilizing the program's data and support mechanisms is not differentiated for individual students (Tomlinson, 2000). Data-driven assessments are a key component to facilitating computer-assisted differentiation (Butler & McMunn, 2006; Tomlinson, 2000; Wilcox, 2013), and while the program itself differentiates in its internal multimodal assessments, the process to take action on that data is not being used in a differentiated way by the teachers.

Evaluation question two. To what degree do elementary school teachers for Grades K-2 feel that they are implementing the Imagine Learning program as an instructional supplement? While seven teachers felt that they had been given adequate training to achieve ongoing classroom use of the program as a technology-based independent station, all teachers had time concerns when asked about implementation

that extended beyond simply placing students on the computer program itself. In the district, it is the goal of the administration to give teachers an efficient technology tool to use so that teachers could implement small groups while still achieving balanced assessment. The program is providing students assessments and producing data reports, however, it is largely unknown what the students are actually accomplishing, or what teachers are actually learning, by using the program.

The first and second grade teachers felt that Imagine Learning offered activities for the three learning groups recognized by most schools: high, middle and struggling students. These perceptions were based on assumptions, however, as the teachers did not use the data functions of the program to track student growth. The teachers were particularly interested in the activities Imagine Learning offered for the students who needed extension activities, with several teachers stating that this group was no longer "left out" or "on their own." Kindergarten teachers were the exception and two out of three were displeased with the overall content for struggling students. Tomlinson's (2000) differentiated process and content intertwine in that these two areas would offer students a variety of material, myriad ways to learn the material, and differentiated assessments. Areas of concern for kindergarten were that the content was not designed for beginning or emergent readers, that the assessments did not match the activities, and that the main tenets of the program were far too advanced for the age group.

Research shows that assessments and data-driven instruction are essential functions of differentiation (Butler & McMunn, 2006; Tomlinson, 2000; Wilcox, 2013), but the teachers were not using any of the data for instructional purposes other than one teacher who created word study plans for her assistant by accessing the phonics reports.

Seven teachers responded that they would need to have more planning time devoted specifically to Imagine Learning in order to appropriately use the data reports to differentiate instruction for their students. Time to access, analyze, and discuss the program in multifaceted terms would be necessary to create teacher interaction with the data. Teachers felt that using the program in other areas outside of small groups would be considered a waste of time, and that time was a restriction for close examination of the data. If there is not enough time to review the differentiated assessment data, and teachers do not feel that it would be fruitful to use that data outside of the program itself, then the data is not going to be integrated into instruction, shared, or reviewed in terms of reliability and validity.

Dewey's (as cited in Hill, 1997) research suggested that experiential learning focused on individualized learning through doing. While Imagine Learning (2015) claimed to be capable of differentiated student products, this study found that the teachers are not reviewing the program's data so the classroom opportunities to plan differentiated instruction based on the program is not leading to extended experiential learning. All nine teachers mentioned that having the ability to access a student view in the program would be beneficial in building trust in the program's data as well as allowing teachers to have a better understanding of the program's content.

The learning environment changed in terms of the types of devices that were used over the implementation of the program. Teachers expressed satisfaction with using portable devices such as the Google Chromebooks versus the stationary laptops that grouped students in one area of the classroom. Weller et al. (1998) found that barriers to differentiation are often associated with the learning environment in terms of scheduling,

privacy, and loss of instructional time. Research showed that technology can provide assistance with reducing these barriers to differentiation (Kamil, 2003; Weller et al., 1998), and the teachers felt that using the program on portable hand-held devices allowed students to have the "privacy" and "freedom" to work independently without embarrassment or "worrying about the other kids hearing [the students] or seeing their screens." All nine teachers supported the switch to hand-held devices to provide privacy, but it is unclear if this transition actually increased learning and differentiation since the data functions were not accessed by the teachers. The teachers did feel that the switch in devices provided safe spaces for students to work, which was consistent with research that computer programs could provide safe spaces for exploration and non-threatening feedback (Hattie, 2009; Zucker et al., 2009).

At this time there is no option that allows the teachers to access the program and review individual student activities as the student engaged with them that day. None of the teachers are actually familiar with the specifics of what an individual student sees within the program other than reviewing data or glancing over a student's shoulders. Another notable area of concern is related to students with disabilities. Teachers provided examples of how the Imagine Learning program was overwhelming, or sometimes frightening, to students with disabilities. This is in contradiction to Stetter and Hughes's (2010) research that found computer-assisted programs greatly assisted students with disabilities. The sample size of the participants, however, cannot give a clear indication whether or not the program negatively impacts this student group on a larger scale.

There was a high level of concern regarding time management surrounding the program and Imagine Learning is being used primarily as a hands-off, independent tool

so that the teachers can conduct guided reading groups. The other tools in the program, such as the action steps activities, suggested student groupings, printables, and options for whole-group or at-home integration are not being utilized. Seven of the teachers had the perception that the program offered differentiated instruction but this study found that this is based on assumption as the data is not reviewed or used to monitor student growth. Overall, there were recurring themes in the data derived from the interviews in relation to evaluation question two which were the following:

1. Teachers have general knowledge of the program and how it claims to provide differentiated instruction, but have limited involvement with the data and additional resources within the program.
2. Teachers feel they have limited time to devote to the implementation of Imagine Learning outside of providing the students with a technology-driven independent work station.
3. Teachers feel that using Imagine Learning for whole-group instruction would be a misuse of their time.
4. Teachers need more information regarding the data reports as well as how to use the program's additional resources in effective ways.
5. Teachers need the opportunity to view individual students' activities throughout the day.

Evaluation question three. What are the barriers to the effective implementation of the Imagine Learning program identified by elementary school teachers? A response to intervention model is cited in the district's strategic plan. What is interesting to note is

that the RtI student percentage recommendations are approximately 80% Tier 1, 15-20% Tier 2 and 1-5% Tier 3 depending on school context. Subgroups such as English language learners were the reason that RtI was originally developed (International Reading Association, 2010; Yell et al., 2006), but administrators have not allowed teachers to access the home language features of the program that would directly assist these students. This means that the program could actually be hindering progress when a student could be allowed to participate in a different literacy station specifically designed with their needs, and language barriers, in mind. There were several recurring themes in the data derived from the interviews:

1. A scarcity of time and lack of accountability for reviewing the program's components has led to a hands-off implementation.
2. There is a need for planned professional development to provide the necessary reinforcement of program capabilities.
3. There is a need for planned professional development to provide the necessary program updates that would assist teachers.
4. A failure to reorder or maintain necessary equipment has frustrated teachers and hindered appropriate use of the program.
5. Teachers need more clarity on the roles that key support personnel have in maintaining the program and ensuring accountability.
6. RtI is not being used as an ELL intervention with home languages as intended by the Imagine Learning Company (Imagine Learning, n.d.), which could be hindering student progress.

7. The program is not garnering the parent involvement described in RtI (Imagine Learning, 2015; IRA, 2010).

Many of the barriers to implementation were related to how the administrators planned for the program. While the school district required schools to include Imagine Learning in the building School Improvement Plans, it was clear that the inclusion did not translate into continual training in three of four schools. If training had occurred, and administrators actually attended, the other barriers that were mentioned such as necessary equipment, direct contact with consultants, or the lack of time to explore the program and review data with colleagues, could have been addressed and acted upon. Another interesting barrier was the confusion surrounding who was ultimately responsible for the program. The only consistent answer with all nine participants was that the administrators were not involved in any component of support. Teachers chose different avenues to address issues such as seeking assistance from the reading specialists, colleagues, technology teachers, and consultants.

This question also raised concerns related to parent involvement with the program, which is a key component of RtI as mentioned in the strategic plan for the school district. The district chose the Imagine Learning program to provide equity in Title I schools which research has shown to have higher numbers of English language learners (Imagine Learning, 2015; NCES, 2013). English language support is another key component of RtI (Imagine Learning. 2015; NCES, 2013). The role of families and at-home capabilities is unclear to teachers and not addressed by administrators except in one school, but teachers did remember being shown translatable parent communication letters and thought that there might be ways to translate data reports. Additionally,

administrators have hindered teachers from allowing students to use the program in home languages and have not involved families in this discussion. It would appear that RtI is not truly being implemented in relation to Imagine Learning as parent engagement and the program's ELL supports are not being implemented.

Evaluation question 4. What are the facilitators to the effective implementation of the Imagine Learning program identified by elementary school teachers? The three main facilitators for the program were the Imagine Learning consultants, reading specialists, and technology teachers. None of the teachers listed the administrators as a form of support for the program's implementation and teachers stated that the reading specialists and technology teachers were trained during the same professional development sessions. The following themes emerged from the study regarding facilitators of the program's implementation:

1. The consultants facilitated all training sessions and the teachers felt comfortable interacting with the program consultants in-person and via email.
2. The reading specialists provided instructional support for the program by co-teaching introductory lessons and assisting students with the program's content.
3. The reading specialists sporadically dispersed usage reports to the teachers but deemphasized the program's instructional data reports.
4. The technology teachers provided equipment and software assistance but did not provide data support.

The consultants were the primary facilitators for the implementation of the Imagine Learning program. Teachers felt more comfortable voicing concerns and raising

questions to program representatives that one teacher described as having a “vested interest in the program and making the teachers happy.” The consultants brought a level of excitement surrounding the program that put teachers at ease with addressing the consultants. This comfortability was opposite of how teachers felt addressing administrators who teachers described as absent from the training or, in one instance, accusatory if teachers raised concerns. The consultants provided a safe and non-threatening third party for transparent training sessions which places them in unique positions to shape future professional development in the schools if given the opportunity.

The reading specialists and technology teachers were also mentioned as facilitators. Two reading specialists were particularly helpful at two of the schools. One specialist co-taught an Imagine Learning introductory lesson while another specialist directly assisted students with deciphering the program’s content. In two of the buildings, however, the reading specialist was mentioned as a facilitator but with caveats. One reading specialist consistently reminded teachers to use other data sources, while the other specialist told the teachers that she did not even look at the [Imagine Learning] data. The specialists did act as facilitators when teachers needed assistance but did little to combat opponents such as Parker-Gibson (1999) who found that these programs were often used as recording devices versus responsive instructional tools.

The technology teachers provided software support for broken equipment or program workarounds but little support was given in reference to the instructional content of the program. Administrators and informal building leaders seemed more concerned

with program usage times than academic data gleaned from the program. Because of this, more emphasis was placed on technical facilitators instead of data support.

Implications for Practice

Factors shown in Table 18 such as time, training, necessary equipment, and accountability have affected the implementation process.

Table 18

Findings and Related Recommendations

Findings	Related Recommendations
Findings from question 1 showed that teachers who were trained felt adequately prepared to place students on the program as an independent station, but were not prepared to use the program's components or data in any other capacity	Provide all teachers and administrators with initial and annual professional development opportunities that include *exploration* and *discussion* of the program content and data reports Allow teachers and administrators to visit model classrooms that demonstrate the program
Findings from question 2 showed that the program is rarely used as an instructional supplement	Develop training that demonstrates *multifaceted classroom use* of the program and its data reports
Findings from question 3 showed that the lack of time, as well as replacing essential equipment, were the most impactful barriers to implementation	Study which types of supporting equipment work best with the program and develop a specific plan to meet those costs Provide more time for teachers to plan instruction using the program's data and resources
Findings from question 4 showed the importance of the program consultants in facilitating the implementation process	Allow teachers more direct contact with the program consultants Garner input from the consultants when planning Imagine Learning professional development

This program evaluation found that teachers demonstrated teacher buy-in, excitement, and confidence in placing students on the program after the initial training session but that level of preparedness did not address using the program as an integrated classroom tool to guide instruction. Preparedness decreased as unexpected issues arose and there was an absence of follow-up training in three of four schools. Eight of nine teachers have not made interacting and integrating the program a priority for any capacity other than independent small groups, which has influenced the following implications for practice.

Recommendation one. Ensure that all teachers and administrators are provided with initial and continual training. Teachers first need to feel comfortable and well-versed in how to access the program and all of its accompanying features. Teachers had the initial training sessions at the beginning of the pilot year. Four teachers expressed the need for more professional development on program data, five teachers did not recall how to easily access elements such as teacher action steps, and seven teachers had no follow-up training past year one. The first recommendation is to continually review the features so that teachers can have the opportunity to access the materials, explore the materials to become familiar with program capabilities, and discuss the features with one another to garner ideas.

Data from the interviews revealed that one teacher never received any training and that her mentor was not familiar with the program's content. The teacher shared feelings of confusion regarding the program and compared new teachers to kindergarten students with vast knowledge gaps. These feelings could have been avoided if the building administrators had scheduled training sessions for new hires as the teachers joined the faculty. As evidenced by Table 2, Title I schools can experience high

percentages of teachers who are new to the district, so training needs to be monitored so that all teachers are trained and clear on the program expectations. The NPEAT (1999) and the ASCD (2003) both found that providing continuous training that includes teacher interaction with the program content helped to increase student learning. It is recommended that Smith County Public Schools create a professional development model for both initial and ongoing training that fosters teacher engagement with the program to further support teacher learning.

Recommendation two. If possible allow teachers and administrators to visit model classrooms that demonstrate the program. According to the interview results, teachers could benefit from observing classrooms that are employing the program in a variety of ways. The hindrance to providing real-life observations is that those classrooms may not exist in the immediate area. An alternative would be to have the consultants videotape teachers using the program in areas such as whole-group, remediation centers, or using the printable materials.

Administrators could benefit from visiting a school that has developed a continuing professional development for the program. There were four schools represented in this study and only one school continued training past year one. It would assist the administrators if the central office developed a list of model schools and allowed administrators to visit these schools to observe program-based professional development, data talks, and classroom visits. More training with model classrooms would benefit teachers with extending the program's use to achieve optimal implementation and facilitation of the program.

Recommendation three. Develop training that demonstrates *multifaceted classroom use* of the program and its data reports. This should include a review of the best ways to employ the program for ELL students and consideration of which ELL levels would need to utilize the home language feature. Information garnered from the interview data revealed that teachers were unsure how the program and data derived from the program were connected to classroom instruction, particularly teacher-directed instruction. The first training sessions primarily consisted of inputting student information, a task that is now completed by stakeholders other than teachers. Simply providing a training that is no longer relevant followed by a data training that covered access is not enough to garner teacher buy-in in terms of extended program use. The teachers requested opportunities to participate in observations of classrooms to gain strategies on how to incorporate the program further into their classrooms. In order to increase teacher interaction with the program as an instructional supplement, it is recommended that training sessions include not only how to access the data, but ideas on what to do instructionally with the data. Professional development sessions could include visits to other classrooms or schools, videos that demonstrate varying ways to use the program, consultant-led sessions on how the program's resources can be integrated into the classroom, or grade level Imagine Learning data talks.

The district's central office could encourage these training sessions by communicating with the building principals in ways that extend beyond collecting a beginning of the year School Improvement Plan. Communication could include providing administrators with budget ideas to pay for resources such as substitutes or travel expenses to visit other schools. Additionally, the central office could provide

administrators with Imagine Learning training protocols and request agendas and sign-in sheets to ensure measurement and accountability.

Recommendation four. Purchase the necessary equipment needed to access the program. The district purchased the licenses for all K-2 students in Title I schools but did not continue to purchase school-based headphones, microphones, or splitters. While this is an equipment issue, it is a costly one. The program's current cost is $150.00 per student. Ipads and Chromebooks require headphones with USB ports and teachers recommended headphones with built-in microphones to eliminate excessive noise. These headphones are approximately $30.00. Teachers were frustrated with issues surrounding the headphones and microphones and this is an easily avoidable problem given the proper planning. The district could require schools to purchase a set ratio of headphones per year or add these costs into their Title I and/or Title III district budgets. Additionally, the central office should confer with program consultants and conduct research surrounding the accessories that best support the program before moving forward with purchases of equipment that may break or require additional splitters to be functional.

Recommendation five. Provide more time for teachers to plan instruction using the program's data. The teachers discussed participating in data talks in reference to other reading assessments such as the DRA and DSA. One teacher recommended using the district's teacher goal-setting program to include goals based on Imagine Learning benchmarks. While it is important to conduct training on access and content, it would also benefit teachers to have time to discuss and plan using the Imagine Learning data. This could include using the program's remediation and extension resources, but it could also entail allowing teachers the time to review the individual student data to formatively

plan using the district's resources as well. The program is used daily by students whereas the DRA and DSA are only administered three to four times per year. It may be more fruitful to use frequently generated assessment data to address immediate student needs.

Recommendation six. Allow teachers more direct access to the program consultants. The program consultants were key factors in facilitating training and overall program implementation. All of the above-mentioned recommendations could be addressed with consultants, as they are the subject matter experts. Teachers discussed how they "never saw the consultant in the building again" after the initial training sessions and several teachers mentioned preferring "face-to face time" with the consultants. It was preferable for teachers to talk with consultants versus deciphering emails from the technology teachers or facing scrutiny from administrators after raising concerns. Dealing with the program consultants would give teachers access to the most updated information while providing them with a person whose job is to be concerned with program performance and customer satisfaction. This would also help eliminate the subordinate-insubordinate context in relation to implementation issues and frustrations. The consultants would also be in a better position to speak with administrators regarding the types of training, equipment and support needed in the building.

Recommendation seven. Garner input from the consultants when planning Imagine Learning professional development. The consultants were contacted by the teachers more than any other facilitators in the building. The teachers trusted that their concerns would be heard and met with patience as the teachers were considered the consultants' customers and stakeholders. The open contact with teachers provides the consultants with insights on the types of training and equipment that is needed. The

consultants also have their time dedicated to servicing the program's customer-base and could take on projects such as researching the most reliable and efficient types of headphones. It would be beneficial to hear their input while also taking into account that they do want to continue gaining product sales.

Recommendations for Future Research

Research suggestion one. The teachers are noticing increased reading growth, but that growth could be a result of a combination of interventions coupled with sound Tier 1 instruction. The teachers that observed students talking about the program were more inclined to access the program's data and other materials. While eight of the teachers believe that the program is positively impacting literacy, this is mostly based on observation versus specific data. Further studies could include a comparison of DRA scores to program reading levels to see if the program is reliable when compared against other research-based literacy tests. If the study found that the data is sound, then this might increase teacher buy-in or administrative goal-setting using the program data. As of now, it appears that most of the program's accompanying features are not utilized, measured, or accounted for. Additionally, the school district's data department could compare the growth rates of students in Title I schools before program implementation to the growth rates of students at the same schools after the program's implementation. While the program would be only one contributing factor in the students' reading growth, the data could still be used to help inform decisions on the program's level of impact.

Research suggestion two. The administrators at three of the schools were completely uninvolved in the program's implementation outside of year one when the consultants were scheduled to conduct two training sessions. It would be helpful to find

out why this occurred, along with the district's expectations for administrative involvement. Educators are extremely busy but the program is an expensive venture that retails at $150.00 per student before any mass discounts, not including supporting equipment costs. Given the price and time students spend on the program, it may be useful for administrators to become more involved with the program so that they are able to advise the central office during strategic planning efforts. Without administrative involvement it is unclear how the district plans to make decisions on whether or not to continue to purchase the program.

Research suggestion three. Research could be done on how to achieve optimal results from the program and what the vision for the most effective use of the program would look like. The program gives its basic expectation for usage times and home languages, however, the teachers revealed that usage times and grade levels are manipulated at the teacher level and home languages were sometimes manipulated by the technology teachers. The district also sets its own usage goals, which are then passed through and potentially changed by building administrators. Further research into high-performing Title I schools that fully employ a multitude of the program's features could reveal the most effective ways to garner academic gains as a result of the program.

Research suggestion four. Although equipment issues can be a simple fix, it has been a topic of contention among the teachers who were interviewed. The portable devices and school infrastructure supported the implementation of the program, but the other equipment such as headphones and microphones were left to the building principals to purchase and maintain. This caused an array of issues that ranged from children yelling into the Chromebooks' microphones to record, or a lack of headphones that resulted in

students playing the program aloud on their devices and interrupting instruction. It would be fruitful to study the most cost-effective ways to purchase and maintain the program and the necessary equipment.

Research suggestion five. Two of the kindergarten teachers had significant issues with the program's content for their emergent readers that were still learning letters or the concept of word. One kindergarten teacher referred to the program as instructionally "inappropriate" while the other teacher said it was beneficial for students that could "actually read." The kindergarten students are one-third of the program's users so further research could address the program's impact on emergent and beginning readers. This research could start with a review of phonics activities available to address this population's need when compared to the volume of activities for first and second grade students. Additionally, the program refers to overall levels by grade level. It could be meaningful to compare those grade level standards with the district's learning standards.

Conclusion

Investing in a student's literacy is an investment into the future and economic growth of society. Equity is an increasingly difficult goal to achieve given the decades-long stagnant nature of achievement gaps (IRA, 2010; NCES, 2013). Teachers are struggling to meet demands in a high-stakes climate so it is natural that educators will focus on the data that gets measured and accounted for. Imagine Learning's data is not currently a tracked data point in Smith County schools so learning about the program has not been a priority for teachers. The teachers are substituting one computer program for

another by using Imagine Learning, which did not affect the structure of the day or impact the overall teacher-driven content.

It would be fruitful to encourage teachers and administrators to become more involved with the program for several reasons. First, teachers develop their skills by recognizing rigorous, multimodal instructional strategies. By knowing how the Imagine Learning program is teaching the students, the teacher can learn from those ideas as well as connect the program's activities to the classroom instruction to spiral the curriculum. Second, the program is used daily by students, meaning it is providing the most up-to-date assessment results that are being logged and organized for the teachers. It makes sense to review current data points to form instruction. Third, the district has to make difficult decisions regarding equitable spending and program distribution. If stakeholders are not paying attention to the program, and utilizing it to its full potential, it is unclear how any strategic decisions can be made regarding the program.

Title I schools face greater challenges as income levels have become the strongest indicators of future success (Reardon, 2013). Teachers, administrators, and district leaders need to be connected in decision-making and utilizing resources to achieve equity for all students. Connectedness cannot happen when all stakeholders that would have input on necessary training, optimal implementation and program effectiveness are all removed from the program's data and content. Bridging these gaps and providing the training needed to achieve a more multifaceted implementation will improve and inform all stakeholders on the program's value. Overall, the teachers that have received training have not translated the training into impactful action. The financial costs and the amount of daily instructional time dedicated to the program in our most vulnerable schools are

critical reasons that stakeholders must follow-through and achieve optimal implementation of Imagine Learning. Learning how to provide the right training, requiring reasonable program accountability, and strengthening knowledge of a program that is used daily in Title I schools could only improve strategic planning efforts at both the school and district levels.

APPENDIX A

LOGIC MODEL

Inputs	Activities	Short-term Outcomes	Long-term Outcomes
Imagine Learning literacy program	• District-wide implementation plan • Communication of a School-based Plan for Continuous Improvement (PCI) with expectations • Conduct professional development sessions • Integrate software into the classroom • Review data • Utilize Imagine Learning data reports to formatively drive and plan classroom instruction • Provide feedback for professional development	• Students are engaged during reading instruction. • Students receive appropriate instruction to meet their current reading needs. • Students demonstrate an increase in literacy achievement.	• Student achievement increases across disciplines. • Students maintain academic proficiency in reading throughout the grade levels.

APPENDIX B

TEACHER INTERVIEW PROTOCOL

To facilitate note-taking, I would like to audio tape our conversation today. Please sign the release form. Only researchers on the project will be privy to the tapes which will be eventually destroyed after they are transcribed. In addition, you must sign a form devised to meet our human subject requirements. Essentially, this document states that: (1) all information will be held confidential, (2) your participation is voluntary and you may stop at any time if you feel uncomfortable, and (3) we do not intend to inflict any harm. Thank you for agreeing to participate.

We have planned this interview to last no longer than one hour. During this time, we have several questions that we would like to cover. If time begins to run short, it may be necessary to interrupt you in order to push ahead and complete this line of questioning.

You have been selected to speak with us today because you have been identified as someone who has a great deal to share about computer-assisted technology integration for reading. The research project as a whole focuses on the improvement of early literacy in Grades K-2, with particular interest in understanding how the Imagine Learning program is engaged in reading instruction. This study does not aim to evaluate your techniques or experiences. Rather, I am trying to learn more about the program, and hopefully learn about teacher practices that help improve student learning when using the program. (Stanford Adapted)

Interviewee Background (for evaluator's purposes only)

How long have you been:

_____ working in this grade level?

_____ at this school?

_____ with the Imagine Learning program?

Research Question 1: To what degree do elementary school teachers for Grades K-2 feel prepared to implement the Imagine Learning program?

Please describe your initial and ongoing training experiences and their effectiveness with implementing the Imagine Learning program for your students.

To what extent did you feel prepared to implement the Imagine Learning program and what types of professional development, if any, could improve your level of preparedness?

Research Question 2: To what degree do elementary school teachers for Grades K-2 feel that they are implementing the Imagine Learning program as an instructional supplement?

Describe how the Imagine Learning program is being implemented in the classroom and school for instruction.

Describe how Imagine Learning did or did not make an impact on learning in your classroom.

Describe how teacher-directed and/or classroom instruction has or has not been affected by using the Imagine Learning program.

Research Question 3: What are the barriers to the effective implementation of the Imagine Learning program identified by elementary school teachers?

What are some of the obstacles, if any, that you have noticed when implementing the Imagine Learning program?

Please describe suggestions to achieve more improved implementation of the Imagine Learning program for students, teachers, and/or parents.

Research Question 4: What are the facilitators to the effective implementation of the Imagine Learning program identified by elementary school teachers?

Please describe any facilitators or support mechanisms in your classroom or school that have assisted you with implementing the Imagine Learning program.

What specific assistance did these facilitators provide to you during the implementation of the Imagine Learning program?

Please provide any additional feedback you would like to share.

Thank you for your participation in the interview. I will provide you with a copy of my results. If you have any questions in the future please feel free to contact me via email.

APPENDIX C

INFORMED CONSENT FORM

Dear Respondent,

I am inviting you to participate in a formative evaluation of the Imagine Learning literacy program. The focus of the study is to further examine Imagine Learning's impact on the literacy abilities of young learners. This research project is not funded by any source. Along with this letter is the questionnaire that will be used to conduct a phone or in-person interview with you. The interview will include questions about your experiences and observations of the Imagine Learning program. I am asking you to look over the questionnaire and, if you choose to do so, sign this consent form and contact me to schedule a time to discuss your experiences.

The results of this project will be presented to my research committee faculty members through The College of William and Mary. Through your participation I hope to understand the impact of the Imagine Learning program on student learning to help further future research on computer assisted reading instruction.

There are no known risks to you if you decide to participate in the interview process and any identifying information of the participants and district will not be shared. Your participation is voluntary and there is no penalty if you do not participate. You can withdraw from the study or stop the interview process at any time and your results will not be used. The interview should take about an hour and you will not be paid for your participation. Regardless of whether you choose to participate, please let me know if you would like a summary of my findings. If you have any questions or concerns about participating in this study, you may contact me at Bamcguinness@email.wm.edu. If you have questions about your rights as a participant in the study, please contact my research chair Dr. Thomas Ward at Tom.Ward@wm.edu. I am looking forward to speaking with you about your experiences in the classroom and want to thank you for your dedicated educational service to the students and families in your community.

Sincerely,

Brigitt A. McGuinness
Graduate Student
The College of William and Mary

Agreement:
I agree to participate in the research study described above.
Signature: _____ Date: _____
You will receive a copy of this consent form for your records.

REFERENCES

Adamson, F., & Darling-Hammond, L. (2012). Funding disparities and the inequitable distribution of teachers: Evaluating sources and solutions. *Education Policy Analysis Archives*, *20*(37), 1-42.

Association for Supervision and Curriculum Development. (2003). *What professional development structures best affect classroom instruction?* Retrieved from http://www.ascd.org/publications/researchbrief/v1n15/toc.aspx

Bandura, A. (1993). Perceived Self-Efficacy in Cognitive Development and Functioning. *Educational Psychologist*, *28*(2), 117-148.

Beaver, J. M. (2006). *Teacher guide: Developmental reading assessment* (2nd ed.). Parsippany, NJ: Celebration Press.

Biancarosa, G., & Snow, C. E. (2004). *Reading Next: A vision for action and research in secondary literacy.* Retrieved from http://carnegie.org/fileadmin/Media/Publications/PDF/ReadingNext.pdf

Blok, H., Oostdam, R., Otter, M., & Overmaat, M. (2002). Computer-assisted instruction in support of beginning reading instruction: A review. *Review of Educational Research*, *72*(1), 101-130.

Butler, S. M., & McMunn, N. D. (2006). *A teacher's guide to classroom assessment: Understanding and using assessment to improve student learning*. San Francisco, CA: Jossey-Bass.

Cassady, J. C., & Smith, L. L. (2003). The impact of a reading focused integrated learning system on phonological awareness in kindergarten. *Journal of Literacy Research*, *35*(4), 947-964.

Craig, D. V. (2009). *Action Research Essentials*. San Francisco, CA: Jossey-Bass.

Creswell, J. W. (2014). *Research design: Qualitative, quantitative, and mixed methods approaches* (4th ed.). Thousand Oaks, CA: Sage.

Davis, B. C., & Shade, D. D. (1999). Integrating technology in the early childhood classroom: The case of literacy learning. *Information Technology in Childhood Education, 1999*(1), 221-254.

Desimone, L. M., Porter, A. C., Garet, M. S., Yoon, K. S., & Birman, B. F. (2002). Effects of professional development on teachers' instruction: Results from a three-year longitudinal study. *Educational Evaluation and Policy Analysis, 24*(2), 81–112.

Eidson, C. C., & Tomlinson, C. A. (2003). *Differentiation in practice: A resource guide for differentiating curriculum, Grades K-5*. Alexandria, VA: Association for Supervision and Curriculum Development.

Fairfield, P. (2009). *Education after Dewey*. New York, NY: Continuum International.

Ferguson, D. (2001). Technology in a constructivist classroom. *Information Technology in Childhood Education Annual, 2001*(1), 45-55.

Fullan, M. G. (2016). *The new meaning of educational change* (5th ed.). New York, NY: Teachers College Press.

Gardner, H. (1983). *Frames of mind: The theory of multiple intelligences*. New York, NY: Basic Books.

Goldhaber, D., Lavery, L., & Theobald, R. (2015). Uneven playing field? Assessing the teacher quality gap between advantaged and disadvantaged students. *Educational Researcher, 44*(5), 293-307. doi:10.3102/0013189X15592622

Hart, B., & Risley, T. R. (1995). *Meaningful differences in the everyday experience of young American children.* Baltimore, MD: Paul H. Brookes.

Hattie, J. (2009). *Visible learning: A synthesis of over 800 meta-analyses relating to achievement*. New York, NY: Routledge.

Hill, A. M. (1997). Reconstructionism in technology education. *International Journal of Technology and Design Education, 7*, 121-139.

Imagine Learning. (2015). *How Imagine Learning supports response to intervention*. Retrieved from http://legacy.imaginelearning.com/school/Research.html

Imagine Learning. (n.d.). *Implementing what works for English learners*. Retrieved from http://www.imaginelearning.com/students/englishlanguagelearners/

International Reading Association. (2010). *Response to intervention: Guiding principles for educators from the international reading association*. Retrieved from http://www.reading.org/Libraries/Resources/RTI_brochure_web.pdf

Kamil, M. L. (2003). *Adolescents and literacy reading for the 21st century*. Retrieved from https://www.carnegie.org/media/filer_public/ff/cc/ffcc9965-bed2-406e-8e6e-907e09b8cb8c/ccny_grantee_2003_adolescents.pdf

Kieffer, M. J. (2008). Catching up or falling behind? Initial English proficiency, concentrated poverty, and the reading growth of language minority learners in the United States. *Journal of Educational Psychology*, *100*(4), 851-868.

Kutner, M., Greenberg, E., Jin, Y., Boyle, B., Hsu, Y., & Dunleavy, E. (2007). *Literacy in everyday life: Results from the 2003 national assessment of adult literacy* (USDOE Publication No. 2007–480). Washington, DC: National Center for Education Statistics.

Lentz, C. L., Kyeong-Ju Seo, K., & Gruner, B. (2014). Revisiting the early use of technology. *Dimensions of Early Childhood, 42*(1), 15–31.

Mertens, D. M., & Wilson, A. T. (2012). *Program evaluation theory and practice: A comprehensive guide*. New York, NY: Guilford Press.

Mitchell, M. J., & Fox, B. J. (2001). The effects of computer software for developing phonological awareness in low-progress readers. *Reading Research and Instruction, 40*, 315-332.

National Center for Education Statistics. (2013). *The nation's report card*: *Achievement gaps*. Retrieved from http://www.nationsreportcard.gov/reading_2013/vocabulary/#achievement-gaps

National Implementation Research Network. (2017). Fidelity assessment. Retrieved from http://implementation.fpg.unc.edu/module-2/performance-assessment

National Partnership for Excellence and Accountability in Teaching. (1999). *Characteristics of effective professional development*. Retrieved from https://pdfs.semanticscholar.org/13a1/c934ff0692d38ce1503062affa8d158b6d32.pdf

Parker-Gibson, N. (1999). Reference and media-instruction by any means necessary. *Reference Librarian, 31*(65), 61-78. doi:10.1300/J120v31n65_07\

Paterson, W. A., Henry, J. J., O'Quin, K., Ceprano, M. A., & Blue, E. V. (2003). Investigating the effectiveness of an integrated learning system on early emergent readers. *Reading Research Quarterly, 38*, 172-207.

Payne, R. K. (2013). *A framework for understanding poverty* (5th ed.). Highlands, TX: Aha! Process.

Reardon, S. F. (2013). The widening income achievement gap. *Educational Leadership, 70*(8), 10-16.

Rosen, D., & Jaruszewicz, C. (2009). Developmentally appropriate technology use and early childhood teacher education. *Journal of Early Childhood Teacher Education, 30*, 162-171.

Ross, S. M., Morrison, G. R., & Lowther, D. L. (2010). Educational technology research past and present: Balancing rigor and relevance to impact school learning. *Contemporary Educational Technology*, *1*(1), 17-35.

Saine, N. L., Lerkkanen, M. K., Ahonen, T., Tolvanen, A., & Lyytinen, H. (2010). Predicting word-level reading fluency outcomes in three contrastive groups: Remedial and computer-assisted remedial reading intervention, and mainstream instruction. *Learning and Individual Differences*, *20*(54), 402-414.

Smith, J. L., Fien, H., Basaraba, D., & Travers, P. (2009). Planning, evaluating, and improving tiers of support in beginning reading. *Teaching Exceptional Children*, *41*(5), 16-22.

Stetter, M. E., & Hughes, M. T. (2010). Computer-assisted instruction to enhance the reading comprehension of struggling readers: A review of the literature. *Journal of Special Education Technology*, *25*(4), 1-16.

Stevens, A. H. (n.d.). *Transitions into and out of poverty in the United States*. Retrieved from https://poverty.ucdavis.edu/policy-brief/transitions-out-poverty-united-states

Stufflebeam, D., & Shinkfield, A. (2007). *Evaluation theory, models, and applications.* San Francisco, CA: Jossey-Bass.

Timmerman, C. E., & Kruepke, K. A. (2006). Computer-assisted instruction, media richness, and college student performance. *Communication Education*, *55*(1), 73-104.

Timmons, V. (2008). Challenges in researching family literacy programs. *Canadian Psychology*, *49*(2), 96-102.

Tomlinson, C. A. (2000). *Differentiation of instruction in the elementary grades*. Retrieved from ERIC database. (ED443572)

Underwood, J. M. (2000). A comparison of two types of computer support for reading development. *Journal of Research in Reading*, *23*(2), 136-148.

United States Department of Education. (2017). Transitioning to the Every Student Succeeds Act: Frequently asked questions. Retrieved from https://www2.ed.gov/policy/elsec/leg/essa/essatransitionfaqs11817.pdf

Vandewater, E. A., Rideout, V. J., Wartella, E. A., Huang, X., Lee, J. H., Shim, M. (2007). Digital childhood: Electronic media and technology use among infants, toddlers, and preschoolers. *Pediatrics*, *119*, 1006-1015.

Virginia Department of Education. (2013). Virginia standards of learning assessment: Grade 3 reading performance level descriptors. Retrieved from http://www.doe.virginia.gov/

Virginia Department of Education. (2014). Fall 2014 standards of learning score reports for non-writing tests [Video file]. Retrieved from http://www.doe.virginia.gov/

Watts-Taffe, S., Laster, B. P., Broach, L., Marinak, B., Connor, C. M., & Walker-Dalhouse, D. (2012). Differentiated instruction: Making informed decisions. *The Reading Teacher, 66*(4), 303–314.

Weller, D., Carpenter, S., & Holmes, C. T. (1998). Achievement gains of low-achieving students using computer-assisted versus regular instruction. *Psychological Reports, 83*, 834-835.

Wilcox, K. C. (2013). A sociological view of higher-performing diverse elementary schools. *Journal of Education for Students Placed at Risk, 18*(2), 101-127.

Yarbrough, D. B., Shulha, L. M., Hopson, R. K., & Caruthers, F. A. (2011). *The program evaluation standards: A guide for evaluators and evaluation users* (3rd ed.). Thousand Oaks, CA: Sage.

Yell, M. L., Shriner, J. G., Katsiyannis, A. (2006). Individuals with Disabilities Improvement Act of 2004 and IDEA regulations of 2006: Implications for educators, administrators and teacher trainers. *Focus on Exceptional Children, 39*(1), 1-24.

Zucker, T. A., Moody, A. K., & McKenna, M. C. (2009). The effects of electronic books on pre- kindergarten to Grade 5 students' literacy and language outcomes: A research synthesis. *Journal of Educational Computing Research, 40*(1). 47-87.

VITA

Brigitt Angelica McGuinness

Education:	2014-2018	The College of William and Mary Williamsburg, Virginia Doctor of Education *Educational Policy, Planning & Leadership*
	2008-2010	Old Dominion University Norfolk, Virginia Master of Education *Curriculum and Instruction*
	2005-2008	Virginia Polytechnic Institute and State University Blacksburg, Virginia Bachelor of Arts *Interdisciplinary Studies, Minors in English and Social Studies*
Experience:	2016-2017	Assistant Principal Hampton Roads, Virginia
	2010-2016	Elementary School Teacher Hampton Roads, Virginia
	2008-2010	Graduate Assistant and Research Team Member Old Dominion University Research Foundation
	2000-2005	Military Police Officer United States Army