

What Is the Impact on Growth in Language Arts and Mathematics Skills for Special
Needs Students when the i-Ready Program is Implemented?

Teresa Ann Forsman

A dissertation submitted to the faculty of the

School of Education

in partial fulfillment of the requirements for the

Doctor of Education in Educational Leadership

William Carey University

May 2018

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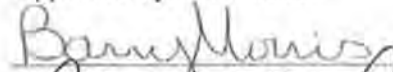
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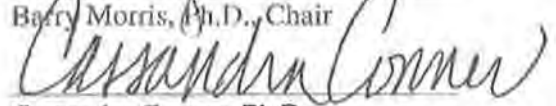
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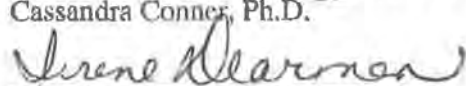
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ABSTRACT

Teresa Ann Forsman

What Is the Impact on Growth in Language Arts and Mathematics Skills for Special Needs Students when the i-Ready Program is Implemented?

Educators continually work to find interventions that will help special needs students strengthen foundational skills and be capable of keeping up with the general education population in the regular education classroom. There has been debate over which interventions are in the best interest of students while being capable of implementation in a timely manner. The i-Ready program is an intervention that is used in many schools for the general education and special education population. The effectiveness of the program is the focus of this study because the goal of educators is to provide students with the most effective intervention program available.

DEDICATION

To my first love, Brooke, and her perfect angels, Levi and Jase; I love each of you to the moon and back. The three of you are my world, my life, my motivation to carry on.

To my true love, Richard; I love the way you love me, and you give me hope for the future.

ACKNOWLEDGEMENTS

I would like to thank the people who helped me through this journey. Donna, Kyle, Laura, and my friends and family who edited my rough drafts, gave me priceless critiques, and dried my tears when I didn't think that I could finish this adventure. I love all of you and hold you dear to my heart.

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Chapter I

INTRODUCTION

Educators are perpetually striving to find interventions that will strengthen student skills in order for them to achieve success in the classroom. General and special educators work together analyzing data, observing students, researching methods of instruction and interventions, and finding ways to motivate students to learn. Discovering meaningful interventions that work for students in the time allotted each day can be challenging.

There are many programs available for teachers to help students better understand the skills that are necessary to move through each grade level. Puente (2012) discusses the options available that are aimed at moving classrooms into the digital age. Students need to be motivated and challenged to retain skills and apply skills to tasks across the curriculum. Teachers rely on research to help them find the most effective programs available. Working by trial and error is not an option for teachers because there is not enough time in the school year to waste on methods that do not meet the needs of students.

School districts implement programs and teachers are directed to use these programs. Sometimes the districts choose programs based on careful research, but there are times when a program is chosen based on cost effectiveness. Some programs chosen for implementation are not as effective for special needs students. If the implemented program is not effective for the entire population of students, the teacher must prove this with data and then find an individualized program that fits the needs of each student.

More research is needed to indicate if the i-Ready program meets the needs of students with disabilities to insure that the special education teacher can use the program as part of best practices for students.

The students who attend the school participating in the research project are in a small-town middle school in the southern region of Mississippi. The population of the town is about 5,900. The town is one of three that makes up the school district. According to census data, the population of the town is 90% Caucasian, 5% African-American, and the other 5% consisting of various minority groups such as Hispanic, American Indian, Native Hawaiian, and mixed races. The population of the town is not as diverse as the rest of the county, which is about 70% Caucasian, 21% African-American, and 9% consisting of several different minority groups. The middle school attendance averages around 600 students. The median household income for the town is \$57,445, and the estimated per capita income is \$18,132.

The data used in this study was based on test and intervention results of special needs students grades 6 through 8. During the 2016-2017 school year, there were 66 special needs students with ages ranging from 11-16 who participated in the i-Ready intervention program. Students were either in self-contained, resource, inclusion, or a combination of resource and inclusion academic settings. The participating students' disability categories included Emotionally Disabled, Intellectual Disability, Multiple Disabilities, Language/Speech Impaired, Specific Learning Disabled in one or all subjects, Autism, and Other Health Impaired. There were 15 females and 51 males. The study consisted of one African-American, one Hispanic, one American-Indian, and 63 Caucasian students. Most of the students have been in the town's school system their

entire school career, but there are a few who are new to the school system or have moved out and back in over the years.

Statement of the Problem and Significance

The problem that educators are facing in public school, special needs classrooms is that students are struggling to understand grade level concepts due to significant weaknesses and lack of foundational skills. Most special needs students are several grade levels below their peers in mathematics and reading and need to have more tools than the average student in order to understand the concepts presented on a daily basis. Effective interventions can boost the academic gains that students achieve, but there is limited time to spend on strengthening foundational skills.

The importance of this research is that students need to be given access to the most effective intervention strategies in order to achieve growth needed for success in the classroom. Teachers have limited time to teach the skills needed to recover lost foundational skills. Students who are significantly below grade level in one or more subjects are at risk of failing and dropping out of school if they are not given the tools needed to succeed.

Students need to have the tools available to learn skills at a level that can be easily managed in order to retain skills. Digital information that is available at a lower readability level allows students with disabilities the opportunity to learn in the same environment with their general education peers. Computer programs can help students

move through skill levels that promote improvement in reading comprehension and support the individual needs of students.

Purpose of the Study

The purpose of this study is to determine if the i-Ready program that special needs students are using is an effective intervention strategy to achieve the growth needed for success in the classroom because teachers have limited time to teach the skills needed to master each grade level.

The regular education teachers in most classrooms lack the training needed to help special needs students. General education teachers do not understand the individualized needs of the special education population. The methods that keep special needs students motivated, on-task, and able to cope with the stress of being in the general population is not taught in most college courses for general education teachers. Students with disabilities must overcome many obstacles, and they rely on the teacher to give them the proper tools to be able to face their individual challenges. Knowledge of effective interventions that shows student growth will assist teachers in helping students succeed in school, in life beyond the classroom, and in future endeavors.

The program that is being implemented to collect data for this study is i-Ready. According to i-Ready Central (2016), the computerized program uses adaptive testing to personalize an educational plan for each student. The program provides a customized evaluation of the student by adapting to find the precise ability of each participant. The information is then used to map out a program of study for each student. The students

take a test at the beginning, middle, and end of each year to monitor progress and update the program. Teachers have the ability to modify each student's program of study at any time during the year. Standards Mastery Tests are also given at predetermined checkpoints throughout the year to measure mastery of classroom skills and drive future planning and instruction for the students.

The i-Ready computer program uses videos, games, and practice sessions for students to learn skills needed to build their knowledge in reading and mathematics. The skills that are selected for each student are based on the results of their diagnostic test. The program provides a flexible, adaptive means of assessing knowledge in reading and mathematics for Kindergarten through 8th grade students.

Students log-in to the i-Ready program at least three times each week. They are instructed to choose mathematics or reading based on the schedule for each class. Within each subject, the students can work on a lesson plan created from the results of the diagnostic testing or a lesson plan created by the classroom or special needs teacher. Skills can be added, updated, or deleted by the teacher based on what each student needs throughout the school year.

Students are taught skills using animated characters who teach by demonstration and modeled problem solving. They are given the chance to practice each skill and then quizzed on mastery and application of the skill. Remediation lessons are available for the students who do not show mastery of the skill. The teacher can view reports that show time spent on tasks, response to instruction, percentage of mastery, and student progress. Lessons can be adjusted by teachers as needed.

Norm scores, scale scores, placement levels, Lexile measures, and Quantile measures are generated by i-Ready after the diagnostic test, and reports are available immediately for teacher use. This report provides a well-rounded view of each student's proficiency level and areas of need. This information is imperative for teachers to pinpoint students' academic needs in order to determine a plan for instruction using the district mandated Ready materials. Linda Atwood, the local i-Ready consultant, stated that "i-Ready is the companion piece to the Ready print material. It is the skills based, supplemental software piece in reading and mathematics for middle school students."

Research Question

What is the impact on growth in language arts and mathematics skills for special needs students when the i-Ready program is implemented?

Hypothesis

Ho: There is no significant difference in the growth of language arts skills for self-contained students with the implementation of the i-Ready program.

Hi: There is a significant difference in the growth of language arts skills for self-contained students with the implementation of the i-Ready program.

Ho: There is no significant difference in the growth of mathematics skills for self-contained students with the implementation of the i-Ready program.

Hi: There is a significant difference in the growth of mathematics skills for self-contained students with the implementation of the i-Ready program.

Ho: There is no significant difference in the growth of language arts skills for resource students with the implementation of the i-Ready program.

Hi: There is a significant difference in the growth of language arts skills for resource students with the implementation of the i-Ready program.

Ho: There is no significant difference in the growth of mathematics skills for resource students with the implementation of the i-Ready program.

Hi: There is a significant difference in the growth of mathematics skills for resource students with the implementation of the i-Ready program.

Ho: There is no significant difference in the growth of language arts skills for inclusion students with the implementation of the i-Ready program.

Hi: There is a significant difference in the growth of language arts skills for inclusion students with the implementation of the i-Ready program.

Ho: There is no significant difference in the growth of mathematics skills for inclusion students with the implementation of the i-Ready program.

Hi: There is a significant difference in the growth of mathematics skills for inclusion students with the implementation of the i-Ready program.

Conceptual/Theoretical Framework

Part of a special needs teacher's job is working to create a team that consists of administrators, teachers, parents, and students. Sometimes there is a need to involve the outside community as part of the team in order to fully employ the resources needed to

help students. Special needs teachers are educators, cheerleaders, counselors, referees, mediators, and part-time parents for their students on a daily basis.

Additional interventions are needed for special needs students, but sometimes there does not seem to be adequate time in the day to complete all identified interventions in addition to all of their classroom assignments. Students are held to high standards and feel the stress that is put on them by the teachers, administrators, and lack of time in the school day. Teams must work overtime each day to ensure students are filling their tool bag with what is necessary to be successful. The most effective interventions must be available to meet the needs of special needs students. The effectiveness of the i-Ready program was studied using historical data.

Definition of Terms

1. *Evaluation*: The making of a judgment about the amount, number, or value of something; assessment.
2. *Inclusion classroom*: A general education classroom in which students with and without special needs learn together.
3. *Inclusion student*: A student with special needs who is mainstreamed into the regular education classroom. This student spends 80% or more of his or her day with non-special needs peers.
4. *Intervention*: A specific program or set of steps to help a child improve in an area of need.

5. *i-Ready*: A computerized intervention program that individualizes instruction for students.
6. *Lexile measures*: Measures of text complexity and reading ability that allows a direct link between the level of reading materials and the student's ability to read those materials.
7. *Norm scores*: Identify how students are performing relative to their peers nationwide.
8. *Placement levels*: The practical day-to-day language that helps teachers determine what grade level of skills to focus on with a particular student. Indicates where students should be receiving instruction.
9. *Quantile measures*: A unique resource for accurately estimating a student's ability to think mathematically and matching the student with appropriate mathematical content.
10. *Resource student*: A student with special needs who is pulled from the regular education classroom to receive specialized instruction that is different from his or her non-special needs peers. This student spends 40% to 79% of his or her day with non-special needs peers.
11. *Scale Scores*: A common language across grades and schools. A metric which indicates that a student has mastered skills up to a certain point and still needs to work on skills that come after that point.

12. *Self-contained student*: A special needs student who receives specialized one-on-one instruction that is different from his or her non-special needs peers. This student spends less than 40% of the day with his or her non-special needs peers.
13. *Stakeholder*: A person with an interest or concern in something.

Assumptions

The assumptions are that most typical special needs students will be far below grade level, and some of their disabilities will make them poor test takers. This may affect the results of this study. Additionally, students having an “off day” during “high-stakes” testing may also be a factor that affects the final results.

Limitations

One limitation of this research is that teachers have no control over students moving in and out of the district. Also, technology issues may limit and have an impact on the outcome of the use of i-Ready. Students unable to take both the pretest and posttest due to placement changes based on health issues or disciplinary infractions is a factor that is possible in a school setting. Another limitation is that a school district can change an intervention program at any time in a school year.

Summary

Stakeholders in a school system are working toward the goal of success for all students. Teachers work hard each day to find the most effective ways to motivate, encourage, and train students of varying ability levels. Students with special needs have to learn skills needed to both catch up and keep up with the rigorous demands of a middle school classroom. The most effective intervention strategies must be used to meet the demands that a school district places on students and teachers.

Chapter II

LITERATURE REVIEW

Maximizing Performance

Obiakor, Harris, Mutua, Rotatori, & Algozzine (2012) believe that teachers can make special needs students successful in general education classrooms despite current concerns about its practicality. Maximizing student performance is the goal of educational programs and maintaining mastery levels using effective interventions is vital for students (Mong & Mong, 2010). Debate continues over what constitutes the best environment to achieve mastery level. This lack of best practice knowledge diminishes the likelihood of achievement for students with disabilities. Past experience has proven that individuals with disabilities are sometimes mistreated by educational professionals and service providers who not only downplay their capabilities and willingness to live a "normal" life, but who also argue that excluding them in educational processes is justified. Professionals have learned that an increased sense of self-esteem and a sense of belonging is nurtured when a disabled student is included in the general education setting.

The inclusion classroom is designed to make all students feel welcome, safe, and successful. However, additional accommodations and interventions are needed for students with disabilities. Students with disabilities learn differently and at a slower pace than their regular education peers. Students are often mislabeled as lazy or behavior problems because they are not able to keep up with the pacing of the rest of the class. The disabled student sees a pattern of frustration, failure, and criticism which makes them more likely to become behavior problems in the classroom if academic interventions are

not administered in a timely manner. To give students the tools needed to keep up with their peers, teachers have to work as a team to ensure that students are given the support needed to keep them on track and motivated. Choosing the best tools available can be a difficult task, and teachers often rely on the research of their peers to determine what is best for students.

Computer interventions allow special needs students to work at their own pace without embarrassment that is caused by peers knowing that some students are working on below grade level skills (Cleaver, 2014). Students gain a sense of security, and they can focus on the assigned task as their confidence is strengthened. Skills can be mastered by all students in a classroom when each student is working at a pace that is effective to meet his or her needs. Skill mastery at a maintainable pace for a special needs student is key to the ability to reduce their frustration level while achieving success in the regular classroom.

All students need to feel they belong and that they have an equal chance to thrive and succeed in a classroom. One way to “even the playing field” is by using technology tools that stimulate and motivate students with disabilities (Ferriter, 2010). Teachers can use computer programs containing lessons that complement the curriculum being taught in the classroom. The additional practice, with the use of technology that motivates the student, helps teachers show all students that skill building is within their reach.

Motivation, stimulation, and a sense of accomplishment, helps the student with a disability gain the edge needed to grow academically. Technology tools, such as computer intervention programs, can improve learning, and make the classroom experience more satisfying for students and teachers. Teachers are tasked with finding

the tools and teaching methods that will motivate the student to give maximum effort on assignments. Student performance in the classroom and on state testing is the main criteria used to evaluate teachers. A teacher's job is in jeopardy if her students do not show growth, so there is extreme pressure to teach the skills students need to perform well on the state test.

Maximum performance is expected for the students in the general education population as well as students in the special needs population. Teachers who encourage a student to maximize performance level instill a sense of accomplishment within the student while maintaining the high expectations that are put in place by administrators. Teachers have to balance instruction to ensure that all students are being challenged while being careful to avoid frustrating the special needs students to the point that they shut down and refuse to complete assignments. Computer programs that teach individualized lessons are an effective way for teachers to instruct students based on functioning level. Each student can learn to maximize performance in an environment that is safe from peer pressure and embarrassment. The teacher can use the data from the program to determine student growth on skills and base future lessons on the results.

Maximizing student success can have positive effects on the culture of the classroom and the entire school. Successful students can motivate their peers, and create an environment of accomplished students who are willing to give their best effort on a daily basis. Successful districts are made up of schools where students are willing to give their best effort for themselves and their school community. Teachers are a big part of making sure that students can achieve their maximum potential and work diligently to help them become the successful leaders of the future.

Least Restrictive Environment

Kimbrough and Mellen (2012) define the most effective inclusion of special needs students in general education as “to ensure that all students are given an equal education in the least restrictive environment regardless of intellectual, physical, or emotional exceptionality.” Their findings support that the feelings of acceptance and value are important. Students with disabilities need to feel a sense of belonging in general education classrooms, and gaining a sense of belonging is easier to attain when inclusion is established as a whole in a school-wide manner.

Parents must also be a part of the educational team. A high percentage of general education parents feel that special needs students receive more attention, and that special needs students cause disruptions. Some parents of special needs students feel that their child benefits socially but not educationally in a general education class setting. This tends to lower the expectation level for the special needs population, and thus makes the students in danger of being left behind in core subject areas. The classroom teacher has to create a balance that ensures that all students are learning skills in the time frame put in place by the district pacing guide. Teachers must balance giving each student the time needed to master skills while teaching all required skills for the year.

General and special educators experience frustration over the lack of collaboration time regarding interventions and modifications that could grant students further exposure to the general education curriculum. Time saved by using proven, research based interventions will be beneficial to teachers. Kimbrough and Mellen’s (2012) research indicated that stakeholders recognize benefits of inclusive education, but valid concerns are present and warrant attention. Teachers need effective interventions

that will help them meet the needs of students in a timely manner. Effective interventions that show positive results can mitigate the concerns of stakeholders. Successful students are the goal of all stakeholders in an educational community, and effective teaching methods that are based on student needs help create successful students.

Nusir, Alsmadi, Al-Kabi, & Sharadgah, 2012, studied the impact of using interactive intervention programs to learn basic skills, but more research is needed to determine interventions that can bring greater success to all students in a classroom regardless of ability level. Teachers can benefit from data that gives them access to the most relevant interventions available to help all students. This data can lead teachers to interventions that provide additional support to students with disabilities in order to provide the means for making the regular education classroom the least restrictive environment for the student. Having the regular education classroom as the least restrictive environment is crucial to the student's ability to stay on the regular diploma track so they can graduate high school with their peers. Students who are placed in a resource or self-contained setting are at higher risk of not being able to complete the requirements needed to graduate, and they are at a higher risk of dropping out of school prior to graduation.

Determining the least restrictive environment is one of the most crucial elements of a special needs student's educational progression. Placing the student in an environment that is not based on the individual needs of the student can put her at a higher risk of failure, and ruin her chances for college placement or a future career. Least restrictive environment is a very fluid placement. The student can be moved from more restrictive to less restrictive environments in as little as one school year, or as a

progression from elementary to middle school and high school. In most cases, the least restrictive environment placement is determined on an annual basis by a committee made up of teachers, administrators, related service specialists, and parents. When students reach middle school, they become an additional member of the committee that determines least restrictive environment. Some students have their least restrictive environment determined several times in one school year. Student ability level, grades, behavior, and disability ruling are factors that help the committee determine the least restrictive environment for each student. The members of the committee work as a team to determine the best plan for each student.

When the general education classroom is the determined placement for a student, special education teacher works with the general education teacher to help students remain in the regular classroom. The placement is monitored on a regular basis. Data from a variety of sources are used to determine if the general education classroom continues to be the best placement for each student. If placement concerns arise, the teachers work together to add the appropriate accommodations to the students individualized education plan. The special education teacher monitors the student on a daily basis and provides the services needed to help the special needs student practice the skills needed to stay in the general education setting. The special needs student's accommodations can range from minimal to extensive. The ultimate goal is to strengthen the student's skill level to a point where they are given a minimal amount of teacher assistance so that they are as independent as possible. This helps the student gain the confidence to make better choices for their future beyond the classroom.

Barriers in the classroom

Hines (2015) feels that the barriers to teaching special needs students can be put into three categories: organizational, attitudinal, and knowledge barriers. The organizational barriers are related to differences in ways schools and classes are taught, selected, staffed, and managed by teachers. Attitudinal barriers deal with the perception of general education teachers, suggesting that they are not prepared to teach students with disabilities in a classroom with general education students. Knowledge barriers exist with both general and special educators. Teachers in the general education classrooms feel they have not received necessary training; special educators feel they are not content experts for the subject areas being taught.

Many teachers experience all of these barriers and the frustrations they bring. Communication and willingness to work as a team are critical for overcoming these barriers. The administration in a school must be willing to accept areas of needed change in order for the change to be effective. New interventions are not always immediately accepted by the principal. The principal is ultimately responsible for the results, and thus, an integral part of the team. Every part of the team must use the data that is available to them via the methods of instruction and interventions outlined by the school district. If the data is flawed or incomplete, the best interest of the student cannot be served.

Members of the team in each school work diligently to give students the most relevant materials, information, curriculum, and teaching methods that are allowed by the school district. If the effectiveness of what is available is lacking, teachers must find better ways of presenting what is mandated for her to teach. Communication with

principals and superintendents must remain open if there are changes that need to be made to the information being delivered to students.

Teachers are the professionals that guide students to learning the concepts that lead to their success. Standards mastery needed to score proficient and advanced on state tests fuel the information that is being delivered to students, but the curriculum must be supplemented with additional materials when students are not comprehending needed skills in a timely manner. A computer based program that has been approved by the district and principal is an effective way to supplement the mandated curriculum for the student who needs more time to grasp the skills required to be successful on the state test and in the classroom.

It is the effective principal who listens to the professionals working with students each day to ensure that the needed materials are provided by the school. Computer labs that are monitored by the technology team are essential to ensuring the students have access to computer program interventions. A schedule to use computer labs must be put into place so students and teachers have access to the appropriate lab on a regular basis because intervention programs must be accessed by students on a regular basis to be effective. Student data will be valid if the program is used as intended, and maximum effectiveness will be achieved.

In order for teachers to have a positive attitude about a new program, they must have adequate training (Kimbrough and Mellon, 2012). If the teacher does not understand the purpose and importance of the intervention, time will be wasted and students may not receive to full benefit of the program. The principal needs to ensure that training is made available before the program is implemented, and that the support

team for the program is available to answer questions during the school year.

Understanding the program and knowing the benefits that it offers both students and teachers can help teachers have a more positive attitude about implementing the program. The workload for the classroom teacher is tremendous, and having a program that is easy to manage will be readily accepted by most teachers. If they know the students will benefit, time will be saved, and relevant data will be collected, teachers will welcome the program.

Teachers are required to have a wide knowledge base, but they are not experts in all subjects. Having interventions that can build the basic foundational skills gives the math teacher more time to focus on teaching the skills in her area of expertise. The history and science teacher also benefit from not having to teach skills not related to their subject area. Language arts teachers can work with more students on individual skill gaps when the computer program teaches the needed skills and monitors the progress of each student on a daily basis. The teacher can focus on keeping up with the pacing guide that is given to her by the school district while the computer program is managing the interventions needed to help the student learn the teacher led concepts in the classroom.

Data from intervention programs help the teacher of special needs students pinpoint the skills that need to be taught to students who are several grade levels behind their peers. She can determine the pacing of her students, and determine what skills need to be reinforced after any breaks in instruction. Progress monitoring is an essential part of the special needs teacher's support services given to the student. Data from the results of lessons worked on a daily basis give the special needs teacher the information required to manage the individual education plan for each student. The special needs teacher can

communicate with the classroom teacher, and lessons can be adapted as needed to give the required accommodations to each special needs student. Kimbrough and Mellon, (2012) state that complete integration of both teachers is needed to meet the educational, physical, and emotional needs of each student. The partnership of the special needs teacher and general education teacher is a vital part of the success of the special needs student in the general education classroom. This partnership breaks down many of the barriers for both students and teachers.

Predictors of student achievement

There are numerous factors that can affect student success in the classroom and on state test scores. Chamberlin (2007) examined the effect of poverty on student test results. He contended that the effect of poverty was profoundly negative and correlated with parent education levels. Educators must supplement low socio-economic students' lack of skills to help them overcome the disadvantages. Interventions that build skills needed to help students flourish in the classroom are vital.

Impoverished students tend to gravitate towards technology (Cleaver, 2014). The lack of technology for under-privileged students when they are not at school, makes the accessibility while at school a motivator for learning skills. The foundational skills they are lacking need to be taught in a timely manner. Students who are motivated are more likely to learn skills at a faster pace than their peers who lack motivation. Teachers often have reward systems in place in their classrooms, but self-motivation occurs when the student's eagerness comes from being able to explore a new way of receiving the information. Technology can give the disadvantaged student a stimulating venue to learn skills.

Supplemental materials and teaching methods must be incorporated in a classroom that includes students who have not obtained the necessary foundational skills to be successful. One way to supplement the curriculum to enhance skills is by incorporating computer based interventions that have been proven to be effective in using video, audio, and animations to stimulate and motivate underprivileged students (Nusir, Alsmadi, Al-Kabi, & Sharadgah, 2012). Using activities and methods that motivate this segment of the classroom population can be an effective tool to increase achievement and close the gap teachers often encounter. Students benefit from the additional skills mastered, and schools benefit from better test scores generated on state tests.

School districts depend on data obtained from classroom assessments to predict how students will score on state tests. A computerized program that can accurately predict how a student will likely score on a state test is a valuable tool for the teacher, administrator, and school district. If the predicted score at the beginning of the school year is below what is expected on the state test, an effective computer program will prescribe and teach the lacking foundational skills to the student. The effective program will monitor the student's progress, and add skills needed to the student's program of study. Assessments given throughout the year that test mastery of skills will give teachers the data necessary to show if students are better able to score higher than what was previously predicted. A program that can provide these interventions for students and accompanying data for teachers is a valuable tool. Teachers can use the data to determine her future lessons to be taught in the classroom. The time saved by accurately pinpointing weak areas and providing prompt remediation will allow the student the opportunity to show the growth needed each school year.

Fenty and Barnett (2013) discuss the importance of supporting students who need readability-controlled alternate texts. Planning instruction to motivate these learners can be a struggle for teachers. Computerized programs that automatically adjust the curriculum for students with disabilities can help create a positive learning environment, and reading to succeed with content area curriculum also makes a positive impact on learning. Student who are able to practice reading passages with success are motivated to attempt more difficult, grade level passages.

State testing guidelines allow testing accommodations for their assessments in the areas of presentation, response, timing and scheduling, and setting for special needs students. The state testing guidelines require that the accommodations that are assigned to special needs student for the state test must also be used during the student's classroom instruction and assessments. The student's likelihood of achieving a proficient score on the state test increases when the accommodations assigned to the student are based on data from effective and reliable sources. Students who are given the chance to practice skills under the same conditions that they will face during state testing have the best opportunity for success. Skills taught in interventions should be based on the standards mastery requirements of the state test, and must include the allowable accommodations assigned to each student. Practice of skills in a setting that mimics what will be expected during the state test will provide special needs students with the confidence needed to take the test and feel more secure.

i-Ready

Technology has become an integral part of educating students and can open a whole new world for rural communities (Sheehy, 2011). Rural communities depend on research based programs such as i-Ready to meet the needs of students. The underlying theory and measurement construction of i-Ready assessments is based on Mark Wilson's process for the development of measures or assessments. Wilson (2005) states that the process of measurement and assessment requires both the careful consideration of the nature and purpose of the assessments, as well as detailed attention to articulating how each student progresses.

The Wilsonian approach uses the construct map, items design, outcome space, and measurement model as the four building blocks for assessments. This correlates with the National Research Council's (2001) findings that assessments should be based on the best available understanding of how students represent knowledge and how they develop competency in the domain of interest. The National Center for Technology Innovation (2010) reiterates that technology tools help struggling students.

The i-Ready Diagnostic Technical Manual, (2015) outlines how the i-Ready program uses the Wilsonian four building blocks to develop assessments. The assessments in i-Ready use construct maps in the strands of: high-frequency words, phonics, phonological awareness, literature and informational text comprehension, and vocabulary in reading. In mathematics, the strands include Algebra, Geometry, Measurement, and Numbers and Operations. The strand-specific construct maps then combine to develop subject construct maps for both reading and mathematics.

Item design specifies the types and nature of items to be used in the assessments, and the process consists of multiple stages. First, subject matter experts consulted the skills and abilities in the construct maps for each grade to determine how to best address each one. Next came the development of assessment specifications to determine the number of items needed for each skill. Then, the experts begin to craft items addressing each individual skill. Finally, each item is reviewed for content, formatting, and keying.

The outcome space for an item refers to a procedure for classifying or categorizing results and should be well defined, finite and exhaustive, ordered, context-specific, and research based. The i-Ready assessment standards ensure that all items meet all of the previously noted requirements.

The i-Ready assessments use the Rasch Model as the measurement model. The Rasch Model has the advantage of providing sample-free item difficulty estimates and item-free person ability estimates. When using the Rasch Model there is an estimate of what the construct map might be like if a ruler was created to measure the skill (Bond & Fox, 2007). Rasch Models are probabilistic and estimate the probability for the student to answer each question correctly. The items are computer adaptive and upon completion, are randomly selected from a set of five items, interim ability estimates are updated, and the next item is chosen relative to the updated interim ability estimate. The items then target the estimated student ability, and more information is obtained from each item presented (Linacre, 2000).

The assessment begins by basing the first test item on the minimal score required to be considered one placement level below the student's chronological grade. Then the test automatically adjusts as the student answers each item. The estimated ability level of

the student is re-calculated and updated after each item. The assessment was developed to be accessible for all students regardless of their need for accommodations so that the interpretation or purpose of the test is not compromised. The seven elements of Universal Design for large scale assessments recommended by Thompson, Johnstone, & Thurlow (2002), were the basis for how the i-Ready assessments are designed.

The i-Ready diagnostic is designed to be administered periodically throughout the year and is specifically focused on three test sessions per year. A scale score is given for teachers to use as a means for interpreting the results that provide a baseline for progress monitoring. The specific skill weaknesses shown on the reports provide teachers with the information needed to plan future lessons for students. The assessments are a way for teachers to determine whether students are learning the skills needed to build a stronger foundation for future lessons. This process also allows students to practice digital formatting and grasp a better idea of what to expect on “high-stakes” testing. According to Wall & Symonds (2012), this preparation helps to reduce stress and testing anxiety when the annual state assessment is presented to the students.

The i-Ready diagnostic is a highly predictive benchmark for the results of each student’s state testing scores. As a formative assessment and standards monitoring tool, teachers and administrators can use the i-Ready data to anticipate the results of the students’ state test scores. This allows teachers and administrators to plan for what curriculum and program changes need to be made for the current school year, and for the future. Preparing for the state test is the driving force in a school system, and data is needed to effectively make the changes necessary to see improvement.

Using the data from i-Ready assessments to remediate the students' skill weaknesses will serve to improve a school's overall testing scores while helping the students gain confidence in their own performance. Rigorous standards-based classroom instruction, paired with the personalized online instruction geared toward the Common Core standards, can prepare students for the challenging demands that schools are placing on them each day. The i-Ready program is designed to include the rigor, details, and intent of the Common Core standards. Since the Common Core standards are what drives the school curriculum, interventions must mirror the standards in order to best serve students.

The Educational Research Institute of America analyzed the test scores of over 1.1 million students in the 2014 school year to determine the impact of the i-Ready program on student proficiency. This research was conducted on student scores from schools in the state of New York. The results showed a positive impact on student proficiency scores in the schools using the i-Ready program. A significantly higher percentage of students scored proficient on the New York Common Core state assessment from the schools that were using the i-Ready program. The language arts proficiency scores were 19% higher, and the mathematics proficiency scores were 24% higher in the schools where students used the i-Ready program. The schools who had a high percentage of minority, Title 1 status, and a large free or reduced lunch population also had significantly higher scores (Curriculum Associates, LLC , 2017).

Summary

For students to achieve proficient skills in reading and math, they must be given the best tools available and the time needed to learn and practice each skill. The teachers need adequate time to help students incorporate previously learned skills into activities that will be meaningful and beneficial for helping the student retain knowledge. Building a sense of belonging in the classroom is crucial for all students to feel the support needed to achieve success. Combining these factors will create an educational environment that is conducive to learning; students will achieve success, and complete assigned tasks.

Computer based intervention programs help create an environment that is beneficial to both students and teachers, and choosing the most effective program for students with diverse needs is vitally important for all stakeholders. Programs that have been proven to be effective are valuable to students, teachers, and administrators. Students benefit from the most current methods available, teachers avoid wasting time on programs that will not benefit her students, and higher levels of achievement appease administrators. Effective interventions are the key to helping schools keep up high standards, and maintain a high district and state rating. Teachers must create a balance between meeting high expectations and maintaining a positive, encouraging learning environment. Students who are motivated to learn create a classroom environment of excitement which stimulates a positive learning culture for the school.

The i-Ready program has been proven to increase the proficiency scores of students with varying backgrounds, ability levels, and socio-economic status. The program provides teachers with a valuable source for evaluating ability level, diagnosing specific skill weaknesses, remediating skill weaknesses, tracking student progress,

predicting student's state test scores, and monitoring growth in both language arts and mathematics. This information is vital to evaluate the school's curriculum, teaching methods, and intervention strategies used to guide student learning throughout the year.

Knowing the skills to teach in order to increase the student's score on the state test can be one of the best ways to ensure that effort in the classroom has been documented. The teacher is able to prove her effectiveness to administrators and the school district. High-stakes state testing demands that schools provide the most effective teaching tools available, and teachers rely on research to determine which methods to use in the classroom.

Chapter III

METHODOLOGY

Purpose of Study

The purpose of this study was to determine if the i-Ready program that is implemented as an intervention strategy for special needs students is an effective intervention strategy to achieve the growth needed for success. The importance of this research is that students need to be given access to the most effective intervention strategies in order to show growth on “high-stakes” testing and obtain skills needed for success in the classroom. Teachers have very limited time to teach the skills needed to recover lost foundational skills and the skills needed to master each grade level. The most effective intervention strategies are a crucial part of each student’s road to success.

Research Design

Using a quantitative approach, the researcher studied the effects of the i-Ready program on 6th – 8th grade special needs students’ academic growth. The i-Ready data was analyzed from testing completed at the beginning of the 2016-2017 school year for each student and then compared to the testing completed at the end of the 2016-2017 school year to determine the students’ academic growth.

Participant Protection

The researcher has completed CITI training and will be following the guidelines set forth by the IRB committee of William Carey University. The researcher will obtain the historical i-Ready student pretest and posttest data for the 2016-2017 school year

from the testing coordinator. In a secure location at the school, the researcher will review the i-Ready student test data. In order to remove all identifying information, the researcher will compile a spreadsheet of pretest and posttest scores based on the student's least restrictive environment. There will be a spreadsheet for self-contained mathematics and language arts, resource mathematics and language arts, and inclusion mathematics and language arts. The i-Ready reports will then be given back to the test coordinator to shred according to school policy. The researcher will use dependent *t*-tests to determine the effectiveness of the i-Ready program on the academic growth of special needs students.

Research Question and Hypotheses

The question that was studied is "What is the impact on growth in language arts and mathematics skills for special needs students when the i-Ready program is implemented?"

Ho: There is no significant difference in the growth of language arts skills for self-contained students with the implementation of the i-Ready program.

Hi: There is a significant difference in the growth of language arts skills for self-contained students with the implementation of the i-Ready program.

Ho: There is no significant difference in the growth of mathematics skills for self-contained students with the implementation of the i-Ready program.

Hi: There is a significant difference in the growth of mathematics skills for self-contained students with the implementation of the i-Ready program.

Ho: There is no significant difference in the growth of language arts skills for resource students with the implementation of the i-Ready program.

Hi: There is a significant difference in the growth of language arts skills for resource students with the implementation of the i-Ready program.

Ho: There is no significant difference in the growth of mathematics skills for resource students with the implementation of the i-Ready program.

Hi: There is a significant difference in the growth of mathematics skills for resource students with the implementation of the i-Ready program.

Ho: There is no significant difference in the growth of language arts skills for inclusion students with the implementation of the i-Ready program.

Hi: There is a significant difference in the growth of language arts skills for inclusion students with the implementation of the i-Ready program.

Ho: There is no significant difference in the growth of mathematics skills for inclusion students with the implementation of the i-Ready program.

Hi: There is a significant difference in the growth of mathematics skills for inclusion students with the implementation of the i-Ready program.

Setting and Sample

This research study took place in a small town middle school in the southern region of Mississippi. The students have access to the i-Ready program for at least 45 minutes, three days a week.

The data that was used in this study are based on test and intervention results of special needs students in 6th – 8th grade. In the 2016-2017 school year, there were 66 special needs students with ages ranging from 11-16 who were participating in the i-Ready intervention program. Students were either in self-contained, resource, inclusion, or a combination of resource and inclusion academic settings. The participating students' disability categories included Emotionally Disabled, Intellectual Disability, Multiple Disabilities, Language/Speech Impaired, Specific Learning Disabled in one or all subjects, Autism, and Other Health Impaired. There were 15 females and 51 males.

Instrumentation

The instrumentation used to obtain data needed to test the research hypotheses was dependent *t*-tests using the i-Ready pretest and posttest reports for the participants in the subject area of mathematics and language arts. A dependent *t*-test was used because the data can be measured on a continuous scale, are matched pairs, contain no significant outliers, and was normally distributed. The data were analyzed to determine the impact that i-Ready has on the academic growth of the participants. The four self-contained students in the research group were not able to take the posttest, so no data is available for this group of students.

Procedures

The researcher met with the principal of the school and the superintendent of the district to determine if the research questions being studied will give beneficial information to the school and the district as a whole. With permission from the superintendent of the district and the principal of the school, the names of the students were pulled from the school data base to create a class in the i-Ready program. Once the testing was completed by the students, reports were generated in i-Ready to show the pretest and posttest scores for each student. The researcher used the data to perform a dependent *t*-test. The researcher analyzed the data to determine if the i-Ready program improves the academic performance of special needs students.

Data Analysis

The research question examining the impact on growth in language arts and mathematics skills for special needs students when the i-Ready program is implemented was addressed by analyzing the data gathered in a dependent *t*-test using the data from the i-Ready assessment reports. The researcher determined the amount of progress that was made by special needs students. An alpha level of 0.05 was used to determine acceptance of the null hypothesis. The researcher has developed twelve possible hypotheses that will be tested based on the analyzed data.

- Ho: There is no significant difference in the growth of language arts skills for self-contained students with the implementation of the i-Ready program.
- Hi: There is a significant difference in the growth of language arts skills for self-contained students with the implementation of the i-Ready program.

- Ho: There is no significant difference in the growth of mathematics skills for self-contained students with the implementation of the i-Ready program.
- Hi: There is a significant difference in the growth of mathematics skills for self-contained students with the implementation of the i-Ready program.
- Ho: There is no significant difference in the growth of language arts skills for resource students with the implementation of the i-Ready program.
- Hi: There is a significant difference in the growth of language arts skills for resource students with the implementation of the i-Ready program.
- Ho: There is no significant difference in the growth of mathematics skills for resource students with the implementation of the i-Ready program.
- Hi: There is a significant difference in the growth of mathematics skills for resource students with the implementation of the i-Ready program.
- Ho: There is no significant difference in the growth of language arts skills for inclusion students with the implementation of the i-Ready program.
- Hi: There is a significant difference in the growth of language arts skills for inclusion students with the implementation of the i-Ready program.
- Ho: There is no significant difference in the growth of mathematics skills for inclusion students with the implementation of the i-Ready program.
- Hi: There is a significant difference in the growth of mathematics skills for inclusion students with the implementation of the i-Ready program.

Summary

Chapter III reviewed the purpose for this study. The researcher analyzed the results of the students in the three learning environments to determine if students made academic progress. The research design, participant protection, research question and hypotheses, description of the setting and sampling population, the survey instrument, and the detailed steps of the procedures for the study were provided.

Chapter IV

RESULTS

Description of Participants

The students who participated in the research were either in self-contained, resource, inclusion, or a combination of resource and inclusion academic settings. The participating students' disability categories included Emotionally Disabled, Intellectual Disability, Multiple Disabilities, Language/Speech Impaired, Specific Learning Disabled in one or all subjects, Autism, and Other Health Impaired. There were 15 females and 51 males. The study consisted of one African-American, one Hispanic, one American-Indian, and 63 Caucasian students. Most of the students have been in the town's school system their entire school career, but there were a few who were new to the school system or had moved out and back into the school over the years.

Research Questions & Findings

The data collection method used for this research was dependent *t*-tests. The i-Ready pretest and posttest data help teachers determine students' performance level in both reading and mathematics. The data show student growth for the academic year in language arts and mathematics.

Hi: There is a significant difference in the growth of language arts skills for resource students with the implementation of the i-Ready program.

Ho: There is no significant difference in the growth of language arts skills for resource students with the implementation of the i-Ready program.

A paired-samples t-test was conducted to compare scores in pretest and posttest conditions for resource students in language arts. There was a significant difference in the scores for pretest ($M = 496.60$, $SD = 50.36$) and posttest ($M = 525.70$, $SD = 45.82$) conditions; $t(9) = -2.73$, $p = .023$. These results suggest that posttest scores are higher than pretest scores, and rejected the null.

Hi: There is a significant difference in the growth of mathematics skills for resource students with the implementation of the i-Ready program.

Ho: There is no significant difference in the growth of mathematics skills for resource students with the implementation of the i-Ready program.

A paired-samples t-test was conducted to compare scores in pretest and posttest conditions for resource students in mathematics. There was not a significant difference in the scores for pretest ($M = 442.56$, $SD = 23.90$) and posttest ($M = 438.00$, $SD = 29.49$) conditions; $t(8) = 1.06$, $p = .320$. These results suggest that posttest scores are lower than pretest scores, and failed to reject the null.

Hi: There is a significant difference in the growth of language arts skills for inclusion students with the implementation of the i-Ready program.

Ho: There is no significant difference in the growth of language arts skills for inclusion students with the implementation of the i-Ready program.

A paired-samples t-test was conducted to compare scores in pretest and posttest conditions for inclusion students in language arts. There was a significant difference in the scores for pretest ($M = 544.98$, $SD = 57.10$) and posttest ($M = 566.24$, $SD = 50.87$)

conditions; $t(49) = -3.35$, $p = .002$. These results suggest that posttest scores are higher than pretest scores, and rejected the null.

Hi: There is a significant difference in the growth of mathematics skills for inclusion students with the implementation of the i-Ready program.

Ho: There is no significant difference in the growth of mathematics skills for inclusion students with the implementation of the i-Ready program.

A paired-samples t -test was conducted to compare scores in pretest and posttest conditions for inclusion students in mathematics. There was a significant difference in the scores for pretest ($M = 470.88$, $SD = 24.73$) and posttest ($M = 486.88$, $SD = 24.96$) conditions; $t(49) = -6.30$, $p = .000$. These results suggest that posttest scores are higher than pretest scores, and rejected the null.

The i-Ready student profile report shows the language arts and mathematics scale score on a pretest that was given in August 2016 and was compared to a posttest that was given in April and May of 2017. The dependent t -test results suggested that the i-Ready program does have an effect on the academic growth of special needs students in an inclusion setting in both mathematics and language arts and in language arts for students in a resource setting.

The baseline pretest was given to students in August of 2016, and students were required to work in the i-ready program to strengthen skills for a minimum of 45 minutes per week in both language arts and mathematics.

After the posttest was given in April and May, 2017, nine out of twelve students, who are considered resource, showed improvement in language arts (reading), and five

out of twelve showed improvement in mathematics. There were significant outliers that were removed from the data for resource students. Out of fifty inclusion students, thirty-three students showed growth in language arts (reading), and forty-three students showed growth in mathematics. The four self-contained students who took the i-Ready pretest did not take a posttest so no data was available for these students.

Summary of Results

The researcher's goal was to determine the effectiveness of the i-Ready program for self-contained, resource, and inclusion students. The data supports that the intervention showed a significant difference in growth for the inclusion students in both mathematics and language arts, and a significant difference in growth for the resource students in language arts. There was no data available for the self-contained students because the posttest was not taken by this group of students. The next chapter will explore the steps that can be taken to help improve results for the self-contained, resource, and inclusion students when using the i-Ready program. Questions and problems that arose during the research will be addressed, and ideas for the future will be discussed.

Chapter V

DISCUSSION

Summary of the Study

This study was designed to provide information and analysis of the i-Ready intervention program on special needs students. The i-Ready program was used by the school district as a tool to diagnose the strengths and weaknesses of students using a pretest, providing lessons to remediate weaknesses based on the results of the pretest, and then determining the growth of each student by means of a posttest after the interventions were completed. The overall purpose of this study was to determine if the i-Ready program was effective in showing growth for the special needs population. Each group of students were able to take the pretest in language arts and mathematics, but the students in the self-contained class were not able to take the posttest in either subject. Health reasons and placement changes made the possibility for completing a posttest impossible for the self-contained students in this study.

Discussion of Results

The i-Ready program is a diagnostic and instructional tool used by schools to determine skill levels in language arts and mathematics for each student. i-Ready provides an intervention tool for teachers by remediating skill weaknesses for individual students. The program is used for the general education and special education population in language arts and mathematics. The data supports that the intervention showed growth for the inclusion students in both language arts and mathematics, and there was growth in

language arts for the resource students. There was no data available for the self-contained students because the posttest was not taken by this group of students.

Problems Encountered in the Research Process

As with any computerized program used in a school, there were issues dealing with band width and computer glitches during this study. Some days the band width of the system was not adequate to sustain the program, and students were not able to complete lessons in one or both subject areas due to Internet buffering. There was also a problem with finding enough headphones for students to use for hearing the lessons. On numerous days during the study, lack of resources and technical problems prevented students from being able to use the program for the minimum number of minutes required for the program to achieve maximum effectiveness. Problems were reported to the i-Ready staff and the technology team in a timely manner, but slow resolutions to problems delayed some students from being able to fully maximize time on task.

Implications

The implications of this research are that the i-Ready program can be an effective tool for showing growth in language arts and mathematics for students with special needs. More time on task, with better resources, could produce more growth in each subject area. The frustration students encountered from Internet buffering while working on lessons decreased motivation. Improving the technology needed to run the program could make a huge impact on the growth results for students.

A more streamlined way of reporting problems to the i-Ready staff and the technology team can help resolve issues in a timelier manner. Better reporting methods

will lead to more time on task and better results for students. Being able to send help tickets directly to the staff member or team member that can fix the problem will help minimize wasted time.

Future Areas of Research

The researcher determined that the i-Ready program is an effective tool for showing growth in language arts and mathematics for special needs students. The researcher is looking forward to continuing the research to find other programs that are effective in helping special needs students improve comprehension skills for those students who are three or more grade levels behind in reading.

Another area of research that is needed is to determine the effect that i-Ready has on state test scores. This research will benefit the educational community because student performance on a state test is what drives the school's curriculum and the educational decisions made by administrators. Data derived from state testing scores compared to the i-Ready diagnostic test scores can give administrators a wealth of information to gear interventions toward specific skills that will increase the student's proficiency on state tests. Using the i-Ready growth monitoring reports is another vital piece of information that can help administrators plan strategies to improve the students' state test scores. The information comparing i-Ready data to state test score data is relevant for both special needs students and the general education population.

Conclusions and Recommendations

In conclusion, the researcher found that the i-Ready program is effective for showing growth in language arts and mathematics skills by the special needs population.

The effectiveness was greater for the inclusion students, but the resource students benefited from the program as well.

Using the i-Ready program to remediate the students' skill weaknesses will serve to improve a school's overall testing scores while helping the students gain confidence in their own performance. Rigorous standards-based classroom instruction paired with the personalized online instruction can prepare students for the challenging demands that schools are placing on them each day.

Strengths and weaknesses can be easily pinpointed by teachers and administrators, and customized lessons can be monitored efficiently when using the i-Ready program. Teachers are able to help special needs students close skill gaps while moving them toward learning and applying grade level skills. Students are able to achieve success where they have often had frustration and failure. The program allows a degree of independence for the special needs students who have had to rely on additional help to complete lessons in the regular education classroom. The independence gained by the student builds confidence and creates success.

Another benefit of the program is that the general education population can move through their current grade level, and beyond, to reach a higher level of achievement. Students are not limited by the pacing of the classroom. Skills can be learned at a faster pace, and students are able to achieve a higher level of success in both language arts and mathematics. Teachers can easily help higher achieving students reach their goals while offering the rest of the class the time needed to reteach grade level lessons. i-Ready is the tool that can be used to effectively meet the needs of the entire school. The program

allows students to learn at their own pace while closing skill gaps and offering enrichment opportunities.

According to Curriculum Associates, LLC. 2017, the i-Ready program takes adaptive learning and acts as a virtual specialist to provide students with the remediation needed to fill skill gaps in language arts and mathematics. The i-Ready program is an effective tool for improving student achievement and test scores because it connects the latest research with practical application in the classroom by combining technology with teacher led learning. i-Ready strives to connect the latest research with practical application by using a thorough research base and expert advisors to make it a continuously evolving program. They want to ensure that students, teachers, and administrators are benefiting from the latest technology and educational research when using the program in their individual schools.

Suggestions from teachers and administrators are welcomed by the i-Ready staff so that they can accommodate students, and update the lessons with the most relevant information available. Any problems with the program are fixed by the i-Ready team in a timely manner. The team uses the feedback given by the students who are using the program, and by the teachers who are monitoring the program.

Research has indicated that the i-Ready program has a positive impact on the proficiency of students by as much as 19% in language arts and 24% in mathematics (Curriculum Associates, LLC. 2017). In the high-stakes testing environment of schools, this percentage of achievement gains can be an effective tool for helping students meet and exceed personal goals for higher achievement. The achievement gains can also relieve stress for teachers and administrators by providing documentation that they are

raising the standards for the school population, and moving students to a higher level of achievement. Data to prove the implementation of an effective educational program that increases student achievement while improving test scores will be an invaluable asset to schools.

Additional research is needed to determine the effectiveness of the i-Ready program on students' state test scores. Data on the state test scores of the special needs and general education population would generate the results needed to determine if there is a significant difference in test scores when the i-Ready program is implemented. This information would be useful for teachers and administrators when determining an effective program to raise student test scores.

Recommendations

Recommendations include ensuring the Internet band width is adequate for students to successfully participate in an online program, as well as ensuring adequate resources are being budgeted for future years so students can access i-Ready lessons without interruption. The effectiveness of a program is diminished if the student does not have adequate access to the lessons. Students lose motivation when frustrated by computer programs that will not load or freeze during the lesson.

Administrators must monitor programs and rely on student and teacher feedback to fix any problems that arise while the program is being implemented. Problems that arise within the lessons of the program must be reported to the i-Ready staff in a timely manner so that they can resolve the issue quickly. Time, which is wasted by students because of an issue that can be easily fixed, can never be regained. Wasted time in a

classroom setting can lead to frustration for students and teachers. Motivation decreases as frustration builds, and students need to maintain a high level of motivation to achieve success.

A knowledgeable technology staff is needed to update the computers on a regular basis and keep the programs working efficiently. The team approach to helping the program reach its full potential is vital to the effectiveness of the program and the success of the students. Computer issues need to be documented and resolved quickly. A policy for reporting issues, and having them handled efficiently must be put into place by the administration of the school. Teachers need to be trained on the correct procedures, and the administrators must monitor the process to ensure that procedures are followed.

i-Ready reports should be analyzed on a regular basis by teachers and administrators to ensure that the students are reaching their full potential. Data must drive the planning for future lessons in all subject areas. Student achievement must be on the forefront of all decisions made concerning teaching methods, curriculum, pacing guides, and additional intervention materials used by teachers.

Additional student motivation policies must be put in place to encourage students to move through the lessons at a pace that will show the most positive impact for the student. A reward system for time on task and number of lessons passed should be put into place to maximize motivation. Recording the grades for lessons passed, and reporting this information to parents are motivational tools for students to strive for excellence when completing assignments.

Time on task and proficiency levels must be monitored on a weekly basis to ensure the students are benefiting from the program. Students who are not achieving time on task goals while passing each lesson, will need to have a data chat conference with his or her teacher in order to determine strategies for reaching a higher level of success. Data chats with each student will help create ownership of his or her learning. Students will be given the information needed to set, attain, and then set higher goals, to make them responsible for their own success. Giving the students ownership of their learning will help build a brighter future for each student by creating a sense of purpose and achievement for each student.

Technology is the future of schools and is a valuable tool for educators and students. Programs that save time, while improving academic achievement and test scores, are vital to the educational community. Research proven programs are needed to help students build skills for achieving goals. i-Ready is a program that has been proven to be effective for increasing student achievement in both language arts and mathematics. Positive results are being shown for students in schools that are implementing the i-Ready program.

Educators will have a better understanding of how the i-Ready program affects student achievement as more data is collected and analyzed. The impact of the program on the entire educational community will be revealed as more research is conducted. The positive effects on student achievement will reap rewards for the all stakeholders. The educational community will be able to celebrate the team effort that has made it successful. The stakeholders of the school community will use the data to make informed

decisions that implement programs which sustain effective use of resources, and the benefits will be shared by all members of the team.

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Appendix



WILLIAM CAREY
UNIVERSITY

INSTITUTIONAL REVIEW BOARD
Jalynn Roberts, Ph.D.
Chair

June 23, 2017

TO: Teresa Forsman

RE: What is the Impact of Growth of Language Arts and Mathematics Skills on Special Needs Students When the I-Ready Program Is Implemented? (IRB #2017-17)

Teresa Forsman,

This letter serves as official notification of the approval of your project by the Institutional Review Board (IRB) of William Carey University. It is the IRB's opinion that you have provided adequate safeguards for the rights and welfare of the participants in this study, and that the proposal appears to be in compliance with the Code of Federal Regulations on the Protection of Human Subjects (45 CFR Part 46). **It has been classified as expedited review research under the IRB guidelines.**

You are authorized to implement this study as of the date of final approval, which is June 23, 2017. This approval is valid until is June 22, 2018. If the project continues beyond this date, the IRB will request continuing review and update of the project.

You are required to notify the IRB immediately if any of the following occur:

- 1. any proposed changes that may affect the status of your project;**
- 2. any unanticipated or serious adverse events involving risk to the participants.**

When the above-referenced research project is completed OR if it is discontinued, the WCU IRB must be notified in writing. The IRB Final Report Form will be used for this purpose.

On behalf of the Institutional Review Board,

Jalynn G. Roberts, Ph.D.
Chair, WCU Institutional Review Board