ACADEMIC ACHIEVEMENT IN THE EIGHTH GRADE: CAN DISTRICT POLICY LEADERSHIP DECISIONS INFLUENCE HIGH STAKES TEST SCORES?

A Dissertation

by

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Submitted in Partial Fulfillment of the Requirements for the Degree of

DOCTOR OF EDUCATION

in

EDUCATIONAL LEADERSHIP

Texas A&M University-Corpus Christi
Corpus Christi, Texas

December 2016

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This dissertation meets the standards for scope and quality of
Texas A&M University-Corpus Christi and is hereby approved.

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ABSTRACT

The growing sentiment that American schools were falling behind in global economic competition was confirmed with the release of A Nation at Risk (1983). Since then, waves of school reform have swept across the country resulting in standardized, high stakes testing. To meet the increasing performance standards on standardized tests, educators have continuously searched for an effective intervention that can impact teaching and learning. A policy decision was made by district leadership at a large school district to implement Varied Strategic Learning (VSL). The VSL is an intervention to develop academic concepts and close achievement gaps for struggling learners. The study examined the effects of the policy decision to implement VSL for mathematics and reading achievement of 8th grade students.

The ex post facto study employed a causal-comparative research design. The independent variable is the VSL program with two levels: (a) VSL; and (b) no VSL. The characteristic-present group consisted of 8th graders utilizing the VSL ($N = 250$). The 8th graders not receiving the VSL formed the comparison group ($N = 250$). The outcome measures were the State of Texas Assessments of Academic Readiness (STAAR) mathematics and reading achievement scores.

There were four research questions. Multivariate analyses of the data were completed to measure the relationship for each research question and the results showed the VSL groups performed at a lower academic level than the non-VSL groups in the majority of the outcome measures. The analyses indicated the VSL, overall, did not have a positive influence on the standardized test STAAR. However, standard deviations did show the potential for high scores. Thus, students may not have performed at the rigor required on STAAR but data showed an increase in general knowledge of mathematics and reading.

Continued participation in the VSL program will likely benefit students if the district will focus on the aspects of the program that led to the higher scores. By cultivating those areas of high performance, district leadership can more closely align the VSL with standardized testing. Then, the VSL will be able to reach those higher levels of academic rigor required on STAAR leading to higher student achievement and the potential to meet accountability standards. A recommendation for future research is to explore a longitudinal study of the effects of the VSL to analyze how much scores change over time.

DEDICATION

I dedicate this dissertation to my parents. Growing up, I saw the sacrifices you both made to raise my siblings and me. You would go without so that we wouldn't have to. You worked tirelessly to provide for us. You took care of us and most importantly, you showed us unconditional love. You also showed us that the bonds of family are greater than anything else in this life. As a family, our bond is strong because of how you raised us and the love you shared. I know you always dreamed of a better life for me. Because of this, each day I wake up striving to be a better version of myself. I am the person I am today because of you both. I hope I have made you proud and that you are smiling down on us all.

ACKNOWLEDGEMENTS

To my dissertation chair, Dr. Bowden, I want to sincerely thank you for your support, dedication, and guidance on this journey. Your continuous encouragement and affirmation helped me overcome any challenges or obstacles that came my way. I am thankful for your understanding and patience. Because of you, I have grown professionally and learned my true potential. Thank you for being there with me every step of the way. I truly could not have done this without you.

I would like to thank my committee members, Dr. Israel Aguilar, Dr. Rosie Banda, and Dr. Diane Denny for your support and for motivating me to make this accomplishment a reality. I would also like to thank the wonderful faculty at TAMUCC for your constant encouragement and for the contributions you made to make this possible for me.

I want to share a special thank you to one of my dearest friends, Christina Barrera. Thank you for not backing down when I announced we were going to embark on this journey together. We have shared so much in this life-changing experience together. We have vented, cried, but most importantly, we have laughed! Laughing at all the silly things we did made it easier. Thank you for believing in me and for never letting me put forth less than my best. I can't imagine going through this with anyone else. Thank you friend.

To my wonderful family, I cannot thank you enough. To my sisters, Fina, Carmen, Julia, Soila, Tencha and my brothers, Frank, Juan, and Luis, you encouraged me, supported me, and gave me the time I needed without question. You stood by understanding but you were always there for me if I needed you. I am sorry for everything I missed but I am thankful you understood how much this meant to me. I love you all and I promise I will not go back to school for anything else. You mean the world to me!

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Introduction

Background and Setting

The concerns over student performance in mathematics and reading is a focus for the United States (U.S.) as student performance results indicate that students are performing lower on international assessments when compared to their peers in other countries (Stewart, 2012; National Commission on Excellence in Education, 1983). The Programme for International Student Assessment (PISA) released results in 2010, which revealed that students in the U.S. scored below students in several countries (Stewart, 2012). The Trends in International Mathematics and Science Survey (TIMSS) and Progress of International Reading Literacy Study (PIRLS) also indicated that there were many weaknesses in American K-12 student performances when compared to their counterparts in other countries (Stewart, 2012).

The National Assessment of Educational Progress (NAEP) data of 2015 showed that students were not making academic progress in mathematics and reading. On the 4th grade mathematics assessment, the 2015 average scores were 1 point lower than the 2013 scores (The Nation's Report Card, n.d.). On the 8th grade mathematics assessment, the 2015 average scores were 2 points lower than the 2013 scores (The Nation's Report Card, n.d.). On the 4th grade reading assessment, the average scores were not significantly different from the 2013 scores (The Nation's Report Card, n.d.). On the 8th grade reading assessment, the 2015 average scores were 2 points lower than the scores in 2013 (The Nation's Report Card, n.d.). Thus, the NAEP data of 2015 also indicated that students were not making academic progress in the areas of mathematics and reading.

Even though these data revealed that the United States was falling behind academically

when compared to other countries, the fact is educational concerns had surfaced long before. When *A Nation at Risk* (1983) was released by President Reagan's National Commission for Excellence in Education, it was reported schools were failing across the country. Today, student achievement in mathematics and reading continues to be a topic of discussion in school districts across the country. Since the passing of No Child Left Behind (NCLB) in 2001, schools receiving federal funding must administer a state standardized assessment annually and meet performance standards in selected grade levels and content areas. In Texas, the standardized assessment is the State of Texas Assessment of Academic Readiness (STAAR), which measures student performance on the Texas Essential Knowledge and Skills (TEKS) (STAAR Resources, n.d.). Since the implementation of STAAR in 2012, student proficiency in mathematics and reading learning standards has been assessed. These data are included in the accountability system created by NCLB.

Specifically, STAAR measures: (a) mathematics and reading in grades 3-8; (b) writing in grades 4 and 7; (c) science in grades 5 and 8; (d) social studies in grade 8; and (e) end-of-year exams in English I, English II, Algebra I, Biology, and U.S. History (STAAR Resources, n.d.). Since mathematics and reading are heavily tested in all grades beginning with third grade, the impact of these data on accountability calculations is significant. Thus, the achievement of students on STAAR assessments in mathematics and reading alone can determine whether a school meets the state accountability standard or not.

While the Texas Education Agency (2015b) reported that student STAAR results have been relatively stable over four consecutive years from 2012-2015, mathematics was not included in the STAAR accountability calculations during the spring of 2015 assessment. The State Commissioner of Education made the decision to exempt the mathematics scores to allow

school districts and teachers' time to adjust to the new and more rigorous math standards (TEA, 2015a). Valiant efforts are being made by teachers and principals across the districts to improve instruction and prepare students for the mathematics assessment during the Spring 2016 administration. There are, however, some obstacles impeding the progress schools must make to improve student achievement and receive a *Met Standard* state rating.

In the study, the school chosen was designated as *Improvement Required* by the Texas Education Agency (TEA) for failing to attain a *Met Standard* rating for two consecutive years on the STAAR assessment. The middle school enrolls approximately 750 students annually in 6th, 7th, and 8th grades. According to the 2014-2015 School Report Card, the attendance rate is 93.2% with a high mobility rate of 32.2% (School Report Card, n.d.). The ethnicity composition of school includes 88.3% Hispanic students, 5.9% African American students, and 4.6% White students (School Report Card, n.d.). The school also serves a large number of economically disadvantaged students with 90.2% of students with this classification (School Report Card, n.d.). This school is facing increasing pressures to improve student performance on state assessments while addressing other factors that affect scores and accountability ratings, such as attendance, drop-out issues, discipline, and low academic performance from its feeder elementary schools. Failure to improve student performance in the area of mathematics and reading can lead to further TEA sanctions such as reconstitution of staff, school closure, and the implementation of alternate management options (Accountability Monitoring, n.d.).

Based on the current academic standing of the school, school district leadership made a policy decision. Varied Strategic Learning (VSL) was implemented as an intervention for mathematics and reading. Because standardized testing is such a high stakes approach to student learning in the state of Texas and since hundreds of thousands of dollars have been spent to assist

district and school leadership to improve test scores, there is the potential for negative consequences, if the VSL did not help improve test scores. Therefore, Varied Strategic Learning (VSL) is a pseudonym and VariedStrategicLearning.org is not the web link for the actual program. All references to teaching and learning strategies within VSL have been assigned pseudonyms as well.

The VSL supports students' learning by supplementing the instructional program with an online component designed to increase student achievement (VariedStrategicLearning.org, n.d.). The VSL was implemented daily for 50 minutes. The instructional design included students working with the teacher in a group, with students in collaborative groups, and independently on the online component. The program will measure the academic progress of students currently performing below grade level in mathematics and reading. Based on this data, the teacher created and implemented an intervention plan. The goal of the VSL was to close the academic gap for these students by meeting standard on the STAAR mathematics and reading assessments in the Spring 2016 STAAR administration. This hefty goal might be considered unrealistic considering the one-year timeframe, but the grave academic standing of the school called for ambitious results to overturn the *Improvement Required* status. The VSL was the intervention chosen to improve student performance by addressing student academic needs through targeted intervention. It was imperative that the VSL assist the campus avoid further TEA sanctions by attaining a *Met Standard* rating on the STAAR assessment. Thus, the academic standing of the school rested on the success of the VSL.

Varied Strategic Learning was chosen by district leadership as an intervention for students in the middle school, who were multiple years behind grade level and not meeting minimum standard on STAAR. Since the middle school received a designation of *Improvement*

Required by the state, district leadership researched effective, intervention resources to assist the school improve student achievement. Along with district curriculum specialists, the district leadership selected, as a policy decision, the VSL as the intervention resource because of its potential to improve student achievement in mathematics and reading, if implemented with fidelity. According to Kurth-Schai (2014):

> Simply stated, policy fidelity is the commitment and capacity to maintain coherence across democratically constructed social purposes, policy processes and necessary outcomes. Policy fidelity is approached through deepening alignment with a set of clearly articulated, mutually reinforcing, philosophically, and contextually grounded criteria. At every stage in the reform process—from problem posing to initiative design, implementation, evaluation, and revision—progress toward each criterion is individually, then collectively, assessed. Voluntary and aspirational, rather than imposed and prescriptive, a holistic approach to public accountability can provide much needed guidance and support for reform efforts determined to bridge the gap between cherished hopes and the challenging realities of life in a neo-liberal world (p. 435).

Effectively implementing the VSL with fidelity was the responsibility of campus and district administrators in partnership with the VSL support staff. Classrooms visits by district and the VSL staff were conducted regularly to monitor program implementation, as well as provide feedback and support to campus administrators and teachers. This support was especially essential for all the VSL teachers since the program was in its first year of implementation. The district also assigned a curriculum specialist to oversee program implementation and provide continuous coaching to teachers. Thus, the VSL was consistently supported by all stakeholders. This is consistent with the spirit of fidelity. “We must strive to ensure genuine accountability

whereby processes of problem posing, design, evaluation, reenvisioning, and renewal are grounded in communal purpose and real-world challenge" (Kurth-Schai, 2014, p. 441). The question remained: How does this policy and support relate to test scores?

Varied Strategic Learning is an example of an instructional intervention chosen by district administrators as instructional leaders to close the achievement gaps in mathematics and reading. Campus leadership supports such initiatives considering the administrators are held accountable on state assessments. Maintaining the focus on curriculum and the instructional program was the primary responsibility of an instructional leader. The middle school in this study has experienced a change of administrators frequently in the past few years which impacted the fidelity and effectiveness of the instructional program. Establishing stability with this position will be critical to the success of the VSL. The instructional leader is responsible for implementing district policy, as well as establishing a common vision and mission which situates instruction and academic success at the forefront of all campus initiatives. Thus, it is essential that the administrator possess effective leadership skills to restructure the campus instructional program and improve student achievement.

Statement of the Problem

A middle school in an urban school district in Texas implemented Varied Strategic Learning to improve student performance on mathematics and reading assessments. The school was in the third year of *Improvement Required* status and had undergone the reconstitution process. Reconstitution is the removal or reassignment of all or some administrative and instructional personnel at a campus failing to achieve a *Met Standard* rating on STAAR for two consecutive years (Texas Education Code). Due to the low performance on STAAR, campus staff had to reapply and interview for their positions. This process allowed the school the

opportunity to hire and retain more highly qualified staff with the end goal of improving student achievement.

The school experienced various changes over the past few years and the impact of all these variables on student achievement has not been positive. Administrator and teacher turnover have both negatively impacted the instructional program and the academic success of the students. Repeatedly hiring new staff has been detrimental to the success of the campus because of the transition time needed by new staff. New staff must be trained and inducted into the campus each year which requires campus initiatives to be relearned by staff and implemented. This makes it difficult for the campus to experience academic progress and equates to lost instructional time. Furthermore, the experiences of the teachers vary from veteran teachers to first year teachers which produces differing assessment results. Also, the high mobility rate and the high number of economically disadvantaged students require more resources than the campus has been able to offer. The student population has many needs that are vary from special education to limited English proficient students whose performance on the STAAR have also been an area of concern for instructional leaders. Thus, there were variables that could not be controlled, which could have impacted instruction and student performance on STAAR and must be considered during the implementation of the VSL.

While the TEA reported that STAAR results have remained stable over time across the state, there are two factors that may greatly impact results in the next administration of the STAAR. First, the STAAR mathematics test scores would contribute to the district and school's accountability rating. Second, the minimum performance standards for STAAR increased to the Standard Progression criteria (Texas Releases News Online, 2015). To meet Final Recommended Level II performance in 2021-2022, State Commissioner William proposed for

smaller, incremental increases through the Standard Progression model each year in performance standards (Texas Releases New Online, 2015). Thus, schools in *Improvement Required* status have greater academic concerns, as the achievement gap increases yearly. The VSL is implemented as an intervention program to improve student performance in mathematics and reading. The effectiveness of the VSL and its impact on academic achievement, however, has not been systematically investigated.

Theoretical Framework

The theoretical framework for the study was Vygotsky's (1978) Zone of Proximal Development (ZPD). Zone of Proximal Development is defined as "the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance, or in collaboration with more capable peers" (p. 86). It has three major components: (a) what is known; (b) zone of development; and (c) what is not known. What is known refers to the student's current level of academic performance. The ZPD is the area where student learning can occur with guidance from adult or peer interaction. What is not known is targeted level of academic development or the potential development zone.

Vygotsky (1978) stated:

> An essential feature of learning is that it creates the zone of proximal development; that is, learning awakens a variety of internal developmental processes that are able to operate only when the child is interacting with people in his environment and in cooperation with his peers (p. 90).

In the ZPD, the student's level of mental development determines his/her ability to understand and accomplish a task. The ZPD learning theory can be impactful on school learning because it

focuses on what students can achieve with assistance through social interaction with adults or peers in relation to their mental developmental state (Vygotsky, 1978). The support a student receives in the ZPD will allow him/her to master a concept or skill previously unattainable.

Varied Strategic Learning similarly followed suit by assessing and identifying the student's current level of achievement in mathematics and reading. The VSL consisted of a balanced and systemic approach that incorporated teacher instruction and an online component designed to develop concepts and increase student achievement while making the learning process fun (VariedStrategicLearning.org, n.d.). Thus, the VSL targeted the instructional level in the ZPD by providing instruction designed to strengthen and deepen student understanding of a concept or skill. Once a student mastered a new concept, his/her instructional level in the VSL increased and the learning process continued to move forward into a new ZPD.

The conceptual framework for the VSL was designed with the goal of providing the highest level of educational support to campuses to increase student achievement. This framework was built upon the "Five Keys to Success" which include the following essential areas: (a) Quality of Instruction; (b) Amount of Instruction; (c) Use of Assessments; (d) Differentiation; and (e) Classroom Management (VariedStrategicLearning.org, n.d.). The VSL customizes an implementation plan and provides on-going support of the "Five Keys to Success" for campus educators (VariedStrategicLearning.org, n.d.). As an intervention program based on these essential elements, the VSL has been successful in increasing student achievement in both mathematics and reading.

Continuous support and coaching was also a critical component of the VSL. The VSL grounds its training program on the model of professional development (VariedStrategicLearning.org, n.d.). In this model, high levels of support and coaching are

provided to teachers. This approach leads to an effective and accurate level of program implementation. In the VSL, the professional development plan for educators includes teaching theory, modeling, allowing for practice, providing feedback, and continuous coaching (VariedStrategicLearning.org, n.d.).

Purpose of the Study

The purpose of the study was to examine the effects of the policy decision to implement Varied Strategic Learning for mathematics and reading achievement of 8th grade students. As a question, does Varied Strategic Learning help improve academic achievement in areas of mathematics and reading as assessed on the Texas state STAAR examination? The 8th grade students were chosen for three major reasons. First, middle school data showed that middle school students tended to score lower on achievement tests as they progressed through their middle school years. Second, the students selected for this study were from a middle school campus rated *Improvement Required* by TEA, thus, growth in mathematics and reading at this middle school was essential to meet the state standard. Third, the average enrollment of students in this grade level ensured that all students needing the VSL were enrolled in the class.

Of tremendous importance in this study was the current TEA accountability rating for the school. The middle school failed to attain a *Met Standard* rating from the state for three consecutive years. The reconstitution process was implemented after the second year of failing to meet standard. To avoid further TEA sanctions, it was of critical importance to the district for the school to meet standard on the STAAR assessment. Due to the serious delinquency of the school in academic achievement, the district invested in the VSL as the intervention program to increase student achievement and assist the campus in reaching a *Met Standard* rating from TEA. The district not only provided the program, but also included additional teachers to teach the VSL

and a district specialist to monitor and provide on-going support to the teachers and campus. The implementation of the VSL was a coordinated effort between the campus, district, and program consultants to ensure the program was successful. Thus, the VSL was challenged with task of improving the academic performance of students on STAAR to finally attain a TEA *Met Standard* accountability rating after three unsuccessful years. This study measured the effects of the policy decision to implement the VSL to improve student achievement.

For this study, the 2014-2015 8th grade student group was the control group and 2015-2016 8th grade student group was the test group. The test group included the intervention the VSL and the control group did not include an intervention. The mathematics and reading STAAR data for each school year was compared to determine if the VSL influenced student performance. Both student groups shared similar demographics including population size, gender compositions, ethnicity compositions, and economically disadvantaged designations as well as English as a second language and special education needs. The most significant change between the two groups was been the impact of the reconstitution process. During the 2014-2015 school year, the campus did undergo the reconstitution process and new staff was hired for the 2015-2016 school year.

Research Questions

The study involved a number of variables. There were two independent variables and two dependent variables. The independent variables were academic years and demographics. There were two academic years: 2014-2015 and 2015-2016. There were five areas of demographics: (a) gender; (b) ethnicity; (c) English as a second language; (d) economically disadvantaged; and (e) special education status. The dependent variables were STAAR mathematics and reading scores. The STAAR mathematics assessment included the following reporting categories: (a) numerical

representations and relationships; (b) computations and algebraic relationships; (c) geometry and measurement; and (d) data analysis and personal finance literacy. The STAAR reading assessment reporting categories included; (a) understanding/ analysis across genres; (b) understanding/analysis of literary texts; and (c) understanding/ analysis of informational texts. The study was guided by the following questions:

1. What is the difference in STAAR testing 8th grade mathematics scores between academic years 2014-2015 and 2015-2016 due to the implementation of Varied Strategic Learning?

    1.1 What is the difference in STAAR testing 8th grade mathematics scores between academic years 2014-2015 and 2015-2016 due to the implementation of Varied Strategic Learning according to numerical representations and relationships?

    1.2 What is the difference in STAAR testing 8th grade mathematics scores between academic years 2014-2015 and 2015-2016 due to the implementation of Varied Strategic Learning according to computations and algebraic relationships?

    1.3 What is the difference in STAAR testing 8th grade mathematics scores between academic years 2014-2015 and 2015-2016 due to the implementation of Varied Strategic Learning according to geometry and measurement?

    1.4 What is the difference in STAAR testing 8th grade mathematics scores between academic years 2014-2015 and 2015-2016 due to the implementation of Varied Strategic Learning according to data analysis and personal finance literacy?

2. What is the difference in STAAR testing 8th grade reading scores between academic years 2014-2015 and 2015-2016 due to the implementation of Varied Strategic Learning?

    2.1 What is the difference in STAAR testing 8th grade reading scores between academic years 2014-2015 and 2015-2016 due to the implementation of Varied Strategic Learning

according to understanding/analysis across genres?

2.2 What is the difference in STAAR testing 8th grade reading scores between academic years 2014-2015 and 2015-2016 due to the implementation of Varied Strategic Learning according to understanding/analysis of literary texts?

2.3 What is the difference in STAAR testing 8th grade reading scores between academic years 2014-2015 and 2015-2016 due to the implementation of Varied Strategic Learning according to understanding/analysis of informational texts?

3. What is the difference in STAAR testing 8th grade mathematics scores between academic years 2014-2015 and 2015-2016 due to the implementation of Varied Strategic Learning according to demographic background?

3.1 What is the difference in STAAR testing 8th grade mathematics scores between academic years 2014-2015 and 2015-2016 due to the implementation of Varied Strategic Learning according to gender?

3.2 What is the difference in STAAR testing 8th grade mathematics scores between academic years 2014-2015 and 2015-2016 due to the implementation of Varied Strategic Learning according to ethnicity?

3.3 What is the difference in STAAR testing 8th grade mathematics scores between academic years 2014-2015 and 2015-2016 due to the implementation of Varied Strategic Learning according to English as a second language status?

3.4 What is the difference in STAAR testing 8th grade mathematics scores between academic years 2014-2015 and 2015-2016 due to the implementation of Varied Strategic Learning according to economically disadvantaged status?

3.5 What is the difference in STAAR testing 8th grade mathematics scores between

academic years 2014-2015 and 2015-2016 due to the implementation of Varied Strategic Learning according to special education status?

4. What is the difference in STAAR testing 8th grade reading scores between academic years 2014-2015 and 2015-2016 due to the implementation of Varied Strategic Learning according to demographic background?

4.1 What is the difference in STAAR testing 8th grade reading scores between academic years 2014-2015 and 2015-2016 due to the implementation of Varied Strategic Learning according to gender?

4.2 What is the difference in STAAR testing 8th grade reading scores between academic years 2014-2015 and 2015-2016 due to the implementation of Varied Strategic Learning according to ethnicity?

4.3 What is the difference in STAAR testing 8th grade reading scores between academic years 2014-2015 and 2015-2016 due to the implementation of Varied Strategic Learning according to English as a second language status?

4.4 What is the difference in STAAR testing 8th grade reading scores between academic years 2014-2015 and 2015-2016 due to the implementation of Varied Strategic Learning according to economically disadvantaged status?

4.5 What is the difference in STAAR testing 8th grade reading scores between academic years 2014-2015 and 2015-2016 due to the implementation of Varied Strategic Learning according to special education status?

Definition of Terms

This study was conducted in a middle school in a Texas school district. The state of Texas administers the State of Texas Assessment of Academic Readiness (STAAR) to measure

student performance in reading and mathematics (STAAR Resources, n.d.). At the middle school level, STAAR mathematics and reading assessments are administered in 6th, 7th and 8th grades. In 8th grade mathematics, student achievement is presented as a composite score as well as measured in four categories: (a) Numerical Representations and Relationships; (b) Computations and Algebraic Relationships; (c) Geometry and Measurement; and (d) Data Analysis and Personal Finance Literacy. In reading, student achievement is measured by a composite score as well as performance in three categories: (a) Understanding/Analysis Across Genres; (b) Understanding/Analysis of Literary Texts; and (c) Understanding/Analysis of Informational Texts. The district also collects data on students according to demographic background. The STAAR assessment includes performance data for students in the following subgroups: (a) gender; (b) ethnicity; (c) English as a second language; (d) economically disadvantaged; and (e) special education.

The following definitions are provided to ensure a clear understanding of the terms used in the study:

State of Texas Assessment of Academic Readiness (STAAR): state assessment administered to students designed to measure mastery of the Texas Essential Knowledge and Skills (TEKS) in Texas (STAAR Resources, n.d.).

Texas Essential Knowledge and Skills (TEKS): Curriculum standards adopted by the Texas State Board of Education that define the essential knowledge and skills required in each course and grade (Texas Essential Knowledge and Skills, n.d.).

Varied Strategic Learning: A pseudonym for a research-based reading and mathematics intervention program designed to increase student's academic achievement and teacher effectiveness.

Independent Variables

Academic Years: There are two academic years, 2014-2015 and 2015-2016. The construct definition of an academic year is described by the district from August to June. The operational definition of academic year are those students assigned to the 8th grade by the district for the duration of either 2014-2015 or 2015-2016 (MetroISD, 2015). Because standardized testing is such a high stakes approach to student learning in the state of Texas and since hundreds of thousands of dollars have been spent to assist district and school leadership improve test scores, there is the potential for negative consequences if the Varied Strategic Learning did not help improve test scores. Therefore, the school district is referred to MetroISD and the web link has been changed.

Demographics: There are five demographic categories.

1. Gender: The construct definition of gender is a category established by the district. The operational definition is a designation given to each student in the district data base as either male or female. District follows federal designation (OPM, 2016).

2. Ethnicity: The construct definition of ethnicity is a category of race and ethnicity adopted by the district based on federal guidelines (New Race and Ethnicity Guidance, 2008). The operational definition is a designation given to each student in the district data base as either American Indian or Alaska Native, Asian and Pacific Islander, Black or African American, Hispanic, or White. District follows federal designation (Fedscope, 2016).

3. Economically disadvantaged: The construct definition is a category for students eligible for free or reduced meals under the National School Lunch Program (Glossary of Terms, 2013). The operational definition is a designation given to students in the database who are economically disadvantaged (MetroISD, 2015).

4. English as a Second Language: The construct definition is a category for students whose native language is a language other than English (Glossary of Terms, 2013). The operational definition is a designation given to students in the database to identify them as an English as a Second Language learner (MetroISD, 2015).

5. Special Education: The construct definition of special education is the services provided to students with disabilities as determined by an Admission, Review and Dismissal Committee (Glossary of Terms, 2013). The designation is given to students who qualify for special education services (MetroISD, 2015).

Dependent Variables

There were two dependent variables: 8th grade mathematics scores and 8th grade reading scores. Both are based on STAAR testing results. Composite mathematics' scores can range from 1005 to 2236. In 2014-2015, a scale score of 1583 met criteria for passing. In 2015-2016, the passing scale score is 1595. Reading composite scores can range from 952 to 2173. In 2014-2015, the passing score was a scale score of 1575. In 2015-2016, the passing scale score is 1587.

Mathematics: Mathematics STAAR test results are given in four areas.

1. Numerical representations and relationships: The construct definition is application of the "mathematical process standards to represent and use real numbers in a variety of forms" (Grade 8 Mathematics Assessment, 2014, p. 3). The operational definition is a percentage of questions correct for numerical representations and relationships. Analysis of raw score determines mastery in the reporting category. Mastery is determined on the raw score or percentage of questions correct per reporting category. The number of questions in each reporting category vary.

2. Computations and algebraic relationships: The construct definition is the student "will

demonstrate an understanding of how to perform operations and represent algebraic relationships" (Grade 8 Mathematics Assessment, 2014, p. 4). The operational definition is a percentage of questions correct for computations and algebraic relationships. Analysis of raw score determines mastery in the reporting category. Mastery is determined on the raw score or percentage of questions correct per reporting category. The number of questions in each reporting category vary.

3. Geometry and measurement: The construct definition is the student "will demonstrate an understanding of how to represent and apply geometry and measurement concepts" (Grade 8 Mathematics Assessment, 2014, p. 6). The operational definition is the percentage of questions correct for geometry and measurement. Analysis of raw score determines mastery in the reporting category. Mastery is determined on the raw score or percentage of questions correct per reporting category. The number of questions in each reporting category vary.

4. Data analysis and personal finance literacy: The construct definition is the student "will demonstrate an understanding of how to represent and analyze data and how to describe and apply personal finance concepts" (Grade 8 Mathematics Assessment, 2014, p. 8). The operational definition is the percentage of questions correct for data analysis and personal finance literacy. Analysis of raw score determines mastery in the reporting category. Mastery is determined on the raw score or percentage of questions correct per reporting category. The number of questions in each reporting category vary.

Reading: Reading STAAR test results are given in three areas.

1. Understanding/analysis across genres: The construct definition is the student "will demonstrate an ability to understand and analyze a variety of written texts across reading genres" (Grade 8 Reading Assessment, 2011, p. 2). The operational definition is the percentage of

questions correct for understanding/analysis across genres. Analysis of raw score determines mastery in the reporting category. Mastery is determined on the raw score or percentage of questions correct per reporting category. The number of questions in each reporting category vary.

2. Understanding/analysis of literary texts: The construct definition is the student "will demonstrate an ability to understand and analyze literary texts" (Grade 8 Reading Assessment, 2011, p. 4). The operational definition is the percentage of questions correct for understanding/analysis of literary texts. Analysis of raw score determines mastery in the reporting category. Mastery is determined on the raw score or percentage of questions correct per reporting category. The number of questions in each reporting category vary.

3. Understanding/analysis of informational texts: The construct definition is the student "will demonstrate an ability to understand and analyze informational texts" (Grade 8 Reading Assessment, 2011, p. 6). The operational definition is the percentage of questions correct for understanding/analysis of informational texts. Analysis of raw score determines mastery in the reporting category. Mastery is determined on the raw score or percentage of questions correct per reporting category. The number of questions in each reporting category vary.

Delimitations

The proposed study was delimited to one middle school in a school district in Texas, and to the outcome measures of mathematics and reading STAAR scores for 8th grade students. Specifically, performance in reporting categories for mathematics and reading was analyzed as well as composite scores. Non-probability sampling was utilized; thus, the study will not be generalized to the population of 8th grade students. Furthermore, no causal inferences were drawn since the study was non-experimental in nature.

Limitations

The study included limitations that should be considered with the outcome. The middle school underwent the reconstitution process in 2014-2015 and as result, there was a high turnover in staffing for the 2015-2016 school year. The school hired some new teachers and administrators as well as other professional and auxiliary staff. Since the VSL program was in its first year of implementation, all teachers assigned were new to the program. These VSL teachers had varied experiences and teaching styles which may have affect program implementation. Also, attendance and discipline were significant factors that vary from year to year and impact instruction. In mathematics, the math test was administered in April of the 2014-2015 school year. In the 2015-2016 school year, students had one less month of instruction since the STAAR mathematics test was administered in March of 2016.

Assumptions

In this study, existing data were used and it is assumed that they were correct. It is also assumed that the 8th grade teachers were teaching the 8th grade TEKS and that the researcher remained objective throughout the conduct of the study.

Significance of Study

As educators strive to improve student achievement and prepare our students for the demands of the 21st century, schools continue to face challenges that impede progress. Not only must educators adequately prepare students to be successful and productive adults, they must also equip them with the essential qualities needed to compete in a global economy. With the current reality of students failing state assessments which measure student academic progress, this task becomes daunting for educators.

The study can be instrumental in determining the effectiveness of Varied Strategic

Learning as an intervention for struggling students in mathematics and reading. The results have the potential to affect funding and the allocations provided to campuses for additional technology integration.

Chapter 2

Review of Literature

School reform continues to sweep across the world of education as educators contend with the demands of high stakes testing. Best practices, methodology, and curriculum are all topics of discussion as educators try to find the right answers to meet state and federal testing standards. These standards continue to rise every year and schools continue to struggle to meet minimum performance standards on the state assessment. To meet minimum requirements on standardized testing, educators continue to search for intervention programs to close student achievement gaps in mathematics and reading. The Varied Strategic Learning is one of those programs.

Chapter 2 provides a review of literature and research related to student achievement and the VSL. The review of literature is organized in four sections: (a) Education Reform; (b) Assessment and Accountability; (c) Theoretical Framework; (d) Varied Strategic Learning; and (e) Summary.

Education Reform

Early Education Reform

The evolution of education reform can be traced back to the early history of education. What is evident from this historical journey is that education has continually changed as philosophers, activists, and politicians provide input into what is wrong with the educational system and how it can be fixed. As a figure of Western Philosophy, Plato's work revealed some basic ideas about education that still mirror current beliefs about education today. Plato believed that the educator should care about their students' future and know their subject matter (Magee, 2001). The emphasis was on the student and preparing for a position in the world where the

student can contribute to society. These ideals of education still hold true today as schools strive to prepare students for life beyond the classroom.

John Dewey, an American philosopher, is known as a naturalistic or pragmatic philosopher because he "sought explanations of natural phenomenon, of objects and events accessible to our senses" (Noddings, 2011, p. 24). The emphasis on natural explanations and childhood learning are not radically different from current practices. Dewey was a strong proponent of education reform and passionately believed that people learned by doing through social interaction and using prior knowledge (Warde, 1960). His revolutionary thinking in school reform and teaching practices caused a wave of supporters to emerge and embrace his philosophy of education.

According to Warde (1960), Dewey was a dynamic thinker who began the Progressive movement in education and many countries such as Japan and China turned to Dewey's innovative educational ideas for guidance. Perhaps Dewey is most well-known for his idea on child centeredness. Dewey believed that the aim of education should be on growth and that students should be involved in setting the objectives for their own learning and their interests should be included in their learning (Noddings, 2011). He challenged educational practices dealing with curriculum and teaching as well as the purpose of education. Dewey's views were impactful and changed fundamental beliefs about education. Current practices encourage students to collaborate, think critically, and be creative in their approach to problem solving. Authenticity, relevancy, and choice are all design elements effective teachers embed in their lessons to deepen student learning of concepts. To this day, Dewey's ideas on school reform are in place at many institutional levels of learning and are at the core of the educational belief system.

Horace Mann, an American politician, was the first secretary of the first state board of education (Biography, 2015). As an education reformer, Mann made substantial movements in education to create and implement policy to better the American educational system. Specifically, he created the Six Principles of Education which were influential yet controversial (Biography, 2015). The principles include: (a) people cannot be both free and uneducated; (b) education should be controlled and maintained by the public; (c) schools should embrace students from diverse backgrounds; (d) education must be nonsectarian; (e) education must follow tenets of free society; and (f) teachers must be well-trained professionals (Biography, 2015). Mann's ideals of education still hold true today as the educational system continues to be grounded in these principles.

Recent Education Reform

The most recent wave of education reform can be traced back to the launching of *Sputnik* by Russia. American politicians blamed the educational system for failing to compete with Russia's advancement in technology. President Dwight Eisenhower blamed the schools for not preparing American students in mathematics and science as well as the Russians had prepared their students (Spring, 2011). The outcry in the media was that schools were failing our students and as a result, America was falling behind the Soviet Union. This resulted in a political movement to make schools more rigorous in mathematics and science to ensure the United States surpassed the Soviets in technology innovations (Spring, 2011). Educational programs were launched, such as the War on Poverty and Title I which was later renamed No Child Left Behind (Spring, 2011).

According to Stewart (2012), other assessment measures have indicated that American schools are not efficiently preparing students to compete with the global counterparts. The

concerns were derived from student assessment results on international assessments. The Programme for International Student Assessment (PISA), the Trends in International Mathematics and Science Survey (TIMSS), and Progress of International Reading Literacy Study (PIRLS) indicated that there were many weaknesses in American K-12 student performances when compared to their counterparts in other countries (Stewart, 2012). Specifically, the concerns were in the areas of mathematics and reading. These results heightened the awareness that America was failing to match other countries in their educational accomplishments and competitive stance.

The issue came to the forefront in the minds of politicians and education with A Nation at Risk. In 1983, President Ronald Reagan's National Commission on Excellence in Education (NCEE) released A Nation at Risk, which confirmed the sentiment that American schools were failing. A Nation at Risk fueled the controversy that American education was falling behind in global economic competition (Spring, 2011). As a result, an urgent wave of local, state and federal school reform commenced in an effort to improve American schools. A Nation at Risk was a plea to the American people to reform the current public school system which it described in dire need of improvement (NCEE, 1983). The report called for improving the content for students, raising standards in higher education and K-12, increasing time in school, improving teacher quality, and making teacher salaries competitive (Ravitch, 2010). These school reform structures were implemented as a result of A Nation at Risk data, indicating that schools were failing and the United States was becoming globally non-competitive.

With its release, A Nation at Risk did place the topic of education at the forefront of the political agenda. Schools across the country took steps to adopt new rigorous academic standards with many state embracing the Common Core State Standards (Graham, 2013.) However, the

report was not as impactful as the creators had intended. Teacher salaries have seen little increase since the report was released and 20% of teachers leave the profession after one year (Graham, 2013.) Education support programs previously in place were scaled back and the curriculum narrowed with the launching of the standardized testing movement. The focus turned to school accountability and a culture of standardization was created in American schools.

The next wave of educational reform came from President George W. Bush. On January 8, 2002, President George W. Bush signed into law the No Child Left Behind Act (NCLB) of 2001 which was the reauthorization of Elementary and Secondary Education Act of 1965 according to the National Association of Elementary School Principals (NAESP) (2003). In order to receive $55.7 billion in federal funds through NCLB, states were required to assess students in selected grade levels and content areas (Ravitch, 2010). The primary reform strategy of NCLB was to mandate standardized testing and establish accountability criteria for schools across the country. All students were required to meet proficiency on mathematics and language arts assessments in order to receive federal funding (Guskey, 2007).

Schools were given rewards or sanctions for failing to meet Adequately Yearly Progress (AYP) in designated subgroups (NAESP, 2003). Rewards included academic achievement designations as well as financial awards to the school, principal, and teachers (NAESP, 2003). Sanctions included replacing staff, implementing a new curriculum, decreasing management, providing expert assistance, extending the school day, and reorganizing the school (NAESP, 2003). By January of 2014, NCLB required that all students make progress towards achieving AYP goals in reading and language arts or contend with sanction requirements (Ravitch, 2010). Failure to meet AYP standards resulted in correction action by the district and campus to address the deficiencies. School must comply with these possible sanctions: (a) offer school transfers; (b)

provide supplemental services; (c) replace staff; (d) offer a new curriculum; (e) appoint outside expert; (f) decrease management of administration; (g) extend the school day; and (h) reorganize the school (NAESP, 2003).

A final wave of educational reform was implemented by President Barack Obama. According to the American Recovery and Reinvestment Act of 2009, President Obama in collaboration with the U.S. Secretary of Education, Arne Duncan, announced there was $4.35 billion available in competitive grants for Race to the Top (U. S. Department of Education, April 2016). This education reform movement called for several changes in education such as the creation of a national data bank, the implementation of Common Core Standards, evaluation of teachers by using student scores and the creation of a national data bank (Spring, 2011). Race to the Top was supported by The Gates Foundation and many states rushed to apply for the funds and comply with the new federal requirements (Spring, 2011). With many states in dire need of education funding, the opportunity to receive a significant amount of money was a relief they could not overlook.

Race to the Top, however, also heightened the standardization and accountability movement already in existence due to No Child Left Behind. According to Onosko (2011), Race to the Top increased standardization and accountability by implementing national common core standards with national curriculum materials as well as high-stakes testing. The culture of standardization was perpetuated by the U.S. Department of Education allocating $361 million to assessment companies (Onosko, 2011). Partnerships for Assessment of Readiness for College and Career (PARCC) and SMARTER Balanced Assessment Consortium (SBAC) were contracted to create national assessments aligned to the Common Core Standards (Onosko, 2011). In the efforts to reform education, Race to the Top tied funding to a standardized

educational system with high accountability ramifications. Furthermore, Robinson (2015) stated that this paradigm of conformity with government commanding education reform must change.

Most recently, the Commissioner of Education in Texas (Michael Williams) recommended an alternate to the current standard schedule with a standard progression model for the 2015-2016 school year. Performance standards will increase 3% annually in small increments in every grade level and content areas assessed until reaching the final phase of Level II Final Recommended in the school year 2021-2022 (TEA News Releases Online, 2015). There are two levels of performance: Level II Satisfactory and Level III Advanced. In Level II, Phase I was last implemented in the spring of 2015. Phase II was replaced by the standard progression model and concludes with the Final Recommended standard. Schools must continue to meet those incremental increases to avoid state sanctions for low performance such as reconstitution. As a result, the timeline for each phase has been continually reevaluated and adjustments made to allows schools more time to meet the required standards.

Assessment and Accountability

With each reform movement, schools contend with assessment and accountability requirements that continue to increase with each passing school year. The constant pressure of state testing and accountability leaves educators continuously wondering how to meet the growing demands in assessment with limited resources in schools. In Texas, the desired results are currently state rating of *Met Standard* and even *Distinctions* on the state assessment, STAAR.

In 2012, the State of Texas Assessment of Academic Readiness (STAAR) became the state's standardized assessment. State of Texas Assessment of Academic Readiness measures student progress on the Texas Essential Knowledge and Skills (TEKS) in grades K-12 (Texas Essential Knowledge and Skills, n.d.). Within the TEKS, TEA identified knowledge and skills to

be assessed on STAAR which are identified as readiness standards or supporting standards. Reading standards are emphasized on the STAAR assessment while supporting standards are assessed but not emphasized (Executive Summary, n.d.). Readiness standards require in-depth instruction and are important for academic success at the current grade level while preparing students for the next grade level and postsecondary success (Executive Summary, n.d.). Supporting standards are taught in the current grade level but emphasized in a previous or subsequent grade level (Executive Summary, n.d.). The design of the STAAR assessment blueprint assesses student performance on a greater scale over readiness standards but does include supporting standards in its measurement. Specifically, STAAR measures: (a) mathematics and reading in grades 3-8; (b) writing in grades 4 and 7; (c) science in grades 5 and 8; (d) social studies in grade 8; and (e) end-of-year exams in English I, English II, Algebra I, Biology, and U.S. History (STAAR Resources, n.d.). The assessments are timed and more rigorous than previous tests.

To add to the testing requirements, the Student Success Initiative (SSI) was enacted by the 76th Legislative Session and modified by the 81st Legislative Session (Student Success Initiative, n.d.). The goal of the SSI was to ensure that students in the selected benchmark grade levels were meeting standards in mathematics and reading assessments to be promoted to the next grade (Student Success Initiative, n.d.). Currently, 5th grade and 8th grade students must pass STAAR assessment to be promoted to the next grade level. Students are given three opportunities to take the test and if they do not meet the standard, students are retained in that grade. The exception, however, is that a parent can appeal the retention to the Grade Placement Committee (GPC). This committee consists of three entities: (a) principal or designee; (b) parent or guardian; and (c) teacher (Student Success Initiative Manual, 2016). During a GPC meeting,

the committee can promote the student if the members unanimously agree the student can be successful in the next grade with accelerated instruction.

For state accountability, the results of the second administration of the mathematics and reading STAAR assessments are included in the score calculations. This allows scores to increase from the first to the second administrations with the likelihood that students who previously failed will pass during the second attempt. For students who do not pass the second attempt of STAAR, an Accelerated Instruction Plan (AIP) is created and implemented to ensure students meet standard on the third attempt (Student Success Initiative Manual, 2016). While it behooves a student to reach the STAAR goal on the third attempt for promotion purposes, passing scores from the third attempt are not included for accountability and do not help the schools attain a *Met Standard* rating. For accountability, only scores from the first and second administration of STAAR are included.

Schools who meet the STAAR performance standard receive a rating of *Met Standard*. Schools who fail to reach a *Met Standard* designation on STAAR are rated *Improvement Required* by the state. These campuses are monitored by the Program Monitoring and Interventions (PMI) Division in TEA through the State Accountability System (Accountability Monitoring, n.d.). Through the Texas Accountability Intervention System (TAIS) schools engage in continuous planning and monitoring of academic progress (Accountability Monitoring, n.d.). Schools must remain in the TAIS process until the campus receives a *Met Standard* rating on the STAAR assessment. While in the TAIS process, the PMI Division implements sanctions such as: (a) Campus Turnaround planning and implementation; (b) TEA hearing; (c) involvement of TEA support specialists; and (d) assignment of a monitor or management team (Accountability Monitoring, n.d.). Schools who fail to meet standard for two consecutive years face TEA

sanctions such as the reconstitution process.

The school in this study last received an *Academically Acceptable* accountability rating during the school year 2010-2011 when the former state assessment, Texas Assessment of Knowledge and Skills (TAKS), was administered. The school has not met standard on STAAR. Under STAAR, there are four accountability indexes comprised of: (a) Index 1: Student Achievement; (b) Index 2: Student Progress; (c) Index 3: Closing Performance Gaps; and (d) Index 4: Postsecondary Readiness. To receive a *Met Standard* rating, a school must achieve Index 3 and Index 4 and Index 1 or Index 2. The school in this study has failed to meet one or more required indexes each year the STAAR has been administered. The campus also underwent the reconstitution process during the 2014-2015 school year. During this study, new teachers and administrators implemented a school improvement plan and engaged in the TAIS process. To support this school in meeting standard on STAAR, the district funded Varied Strategic Learning and additional personnel to offer the intervention courses to students who failed STAAR.

Theoretical Framework

The study was grounded by Vygotsky's (1978) Zone of Proximal Development (ZPD). Lev Vygotsky was a Soviet psychologist who believed people learn best in social environments where meaning can be derived through interaction with others. Vygotsky emphasized the importance of identifying the leaner's level of knowledge or ZPD. As mentioned in Chapter 1, the ZPD is defined as "the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance, or in collaboration with more capable peers" (Vygotsky, 1978, p. 86). In this framework, there are three key levels in the learning process. First, what is known refers to the student's current level of academic performance. Second, the ZPD is the area

where student learning can occur with support from an adult or interaction from a skillful peer. Third, what is not known is the targeted level of academic development or the potential development zone.

In the Zone of Proximal Development, the learner must be provided with opportunities to learn a concept or skill with support which will advance their learning and achievement (Vygotsky, 1978). Vygotsky studied the ZPD as he further analyzed Jean Piaget's work on independent thinkers and learners (Crain, 2010). Vygotsky believed it was better to study the leaner's ability to problem solve independently and with assistance from an adult or peer because it provided a better measure of a student's ability to learn (Berk & Winsler, 1995). In social environments, Vygotsky concluded that opportunities are provided to learners to interact with others, learn challenging skills, and progression to next level of knowledge.

From Vygotsky's ZPD, the term "scaffolding" emerged as part of Bruner's social constructivist theory (Wood et al., 1976). Scaffolding refers to "those elements of the task that are initially beyond the learner's capacity, thus permitting him to concentrate upon and complete only those elements that are within his range of competence" (Wood et al., 1976, p. 90). In the scaffolding model, the learner's level of knowledge is known, interaction occurs between the learner and a more knowledgeable person, and the support is gradually diminished as the learner begins to grasp the new knowledge. Providing students more challenging and difficult tasks using the scaffolding model leads to greater student achievement (Wass & Golding, 2014). Scaffolding is utilized as a best instructional practice to advance the learning of students working below grade level. As Vygotsky (1978) emphasized, it is through social interaction and cooperative learning that a learner's attainment of knowledge can progress. In the VSL, the student's ZPD focuses on the learner's level of knowledge and the rigorous skills the student can

master through social interaction with adults or peers.

Kolb's (1984) Experiential Learning Theory (ELT) was also explored as theoretical framework guiding the study. In ELT, learning can be defined as "…the process whereby knowledge is created through the transformation of experience. Knowledge results from the combinations of grasping and transforming experience" (Kolb, 1984, pg. 41). In this theory, all factors such as the student's experience, environment and cognitive abilities collectively define the learning process. The ELT is also different from cognitive and behavioral theories, which do not take into account the student's experience in the learning process. Thus, the student's experience is a huge determinant when coupled with experimentation in this learning theory.

Constructivism was a third theory considered as a theoretical framework for this study. According to Bruner (1961), learning is defined as a process in which learners are actively engaged as they construct new ideas or concepts based on their current and prior knowledge. Students use this information to test their hypothesis and reflect to make determinations in their learning. In this learning theory, students construct their knowledge by experiencing and reflecting on those experiences. As students reflect and expand their understanding, they are able to integrate new information into their existing schema.

After studying the learning theories, the ZPD was determined a better fit for the proposed study because it considered the student's mental developmental level in the learning process. In the VSL, assessments determine the learner's level of knowledge and the level where the learner needs support to master a challenging concept which is the ZPD. The VSL targets the instructional level in the ZPD by providing instruction designed to strengthen and deepen student understanding of a concept or skill through adult support or peer assistance. Once a student masters a new concept, his/her instructional level in the VSL increases and the learning process

continues to move forward into a new ZPD.

Varied Strategic Learning

Implementation of school reform policies for campuses performing unsatisfactorily places immense pressures on district leadership to make informed decisions that will impact student achievement positively. District leadership must fully analyze campus needs to adequately tailor an intervention plan designed to turnaround poor performing schools based on state accountability assessments. State and federal accountability systems require continuous progress of student achievement in high stakes testing and leaders must look at high-quality data to inform policies and practices (Farrell, 2015). To identify the underlying issues in the instructional program, data must be carefully analyzed by district leadership. The policy environment for addressing these concerns involve collecting, analyzing, and reacting to data to improve the instructional program (Farrell, 2015).

Not only is it essential for district leadership to use data to inform their decisions, leadership must also look at research in collaboration with the data to develop justified and precise plans of intervention for failing campuses. Researching programs and their claims of academic success should be carefully reviewed. District leadership should research program effectiveness and share critical information about programs that are proven to be successful (Farley-Ripple, 2012). Furthermore, No Child Left Behind requires districts implementing improvement programs to find research-based evidence that a program is successful as well as to evaluate the program to determine future funding (Farley-Ripple, 2012). This emphasizes the importance of using research and evidence-based data to make informed decisions about instruction and school improvement by district leadership.

Leithwood and McCullough (2016) highlighted important characteristics that effective

leaders must have, which include using multiple sources of data and quality research information to inform decision-making. District policies grounded in sound data and solid research can assist district leadership to establish expectations for increasing student achievement. Districts must establish systematic routines for collaborating and utilizing data to drive district decisions (Leithwood & McCullough, 2016). Being transparent about what the research and data reveal is imperative in order to execute a successful instructional plan. Thus, district leaders should provide school administrators, other district leaders, staff, and trustees information on data use and research evidence to garner support for their decision-making (Leithwood & McCullough, 2016). By approaching data and research in this manner, a common understanding of academic needs is revealed and a plan to address those needs is formulated and supported by all constituents.

Seager et al. (2015) recommended to districts to use data and research in formulating policies and practices. Specifically, Seager et al. (2015) emphasized the importance of reviewing several sources of data to develop a comprehensive understanding of academic needs, as well as to rally support from staff. Thus, data and research are critical components in district leadership decision-making and policy decisions made by district leadership should be informed by data, researched, and supported by both district leadership and campus staff.

In implementing the VSL, a best instructional practice, the district did utilize data and evidence-based research on the VSL prior to making its decision to implement the program at the middle school. Specifically, the VSL has proven to be a successful intervention program to close achievement gaps in the academic performance of students in mathematics and reading. Across the country in states, such as North Carolina, South Carolina, Washington, Alaska, and Texas, the VSL program has assisted schools in improving academic achievement

(VariedStrategicLearning.org, n.d.). By developing mathematics and reading skills with the VSL program, these schools have experienced significant academic gains resulting in boosted student confidence levels (VariedStrategicLearning.org, n.d.). Although successful but unknown within the context of a one year timeframe, the VSL was chosen as the intervention program to improve student achievement of 8th grade students in mathematics and reading. It is also important to note that the VSL was not the only instructional program implemented at the middle to increase student achievement during the study. The campus also implemented a program designed to assist struggling readers and English language learners who were reading below grade level to improve their literacy skills towards grade level proficiency. However, the VSL program was expected to improve students' achievement on the STAAR assessment.

The district selected both the mathematics and reading intervention programs from the VSL for the campus. For reading, the district implemented *Adventures* which provided a curriculum that includes a scope and sequence with scripted lessons that target reading skills. In *Adventures*, the lessons are grouped into themes with as many as 9 lessons in each theme (VariedStrategicLearning.org, n.d.). For mathematics, the district implemented *Adventure Mathematics* which also had a curriculum with a scope and sequence with scripted lessons that focused on identified math skills. In *AdventureMathematics*, there are 7 modules which include 10 to 15 lessons in each module (VariedStrategicLearning.org, n.d.). The individual student performance level is identified by pre- and post-assessments which allows appropriate placement in differentiation groups and monitoring of student progress. Student performance level is continually monitored through formal and informal assessments as well as feedback to ensure students are making progress towards their benchmark goals.

The VSL seeks to make students confident in their learning by having positive academic

experiences. In a blend of print and technology which includes the VSL instructional materials and the online program, the VSL is designed to engage all learners through diverse methods. These methods include whole group instruction, small groups, differentiated instruction and the online program. Through the VSL, students are expected to master foundational skills through direct instruction and the online component. If used with fidelity, the VSL has proven to close academic achievement gaps in reading and mathematics (VariedStrategicLearning.org, n.d.). Since the VSL identifies a student's performance level and advances their performance level through intensive, direct intervention, Vygotsky's (1978) Zone of Proximal Development (ZPD) provided the study's theoretical framework. In the VSL, the student's performance level is identified and the targeted level is determined. The teacher serves as a facilitator during much of the learning and carefully monitors student progress. Vygotsky (1978) emphasized the importance of student interaction and cooperative learning with peers. In the VSL, the student's ZPD focuses on what students can achieve with assistance through social interaction with adults or peers considering their mental developmental state.

Besides the teacher support provided in the VSL, the online component is a proven best instructional practice in meeting individual learner needs. The VSL consists of a well-balanced approach that blends teacher supports and an online component designed to develop concepts and increase student achievement (VariedStrategicLearning.org, n.d.). The usage of technology in the VSL is supported by Sonny Magana and Robert Marzano's instructional approach to improve instruction through the integration of technology. The VSL includes a technology component in the lesson objective designed to strengthen and deepen student understanding of a concept or skill.

Magana and Marzano (2013) defined educational technology as "the use of technology

tools in the classroom to improve learning" (p. 56). In the VSL, the program is intended to be used as a supplement to the teacher's instruction and not as the replacement for the teacher. Viewing technology through a value-positive lens, Magana and Marzano (2013) stated that technology has the ability to transform education and increase student achievement. Stewart (2012) emphasized the importance of technology in schools by describing how technology can potentially help U.S. schools address the deficiencies revealed in international assessments. Technology can improve instructional practices and provide education opportunities for students (Stewart, 2012).

Thus, research showed that the potential for the VSL to greatly impact teaching and learning was attainable. Given the resources and if used with fidelity, the VSL could be the answer for students who were academically low and continually failed state assessments. The VSL could provide students support aligned with Vygotsky's Zone of Proximal Development learning theory. The VSL could address individualized student learning, motivate students through successful learning experiences, and make the learning fun.

Summary

The research examined the challenges school reform has encountered and the subsequent obstacles that have emerged for schools from such policies. The debate intensifies over school reform, assessment, and accountability as parents, educators, and education reformists voice their concerns over standardized testing and its harmful effects on students.

Pinar (2012) emphasized that education reflects a business model and that education is driven by test scores. Apple (2004) described how the political, economic, and cultural institutions impact education as well as how decisions are made about the knowledge that must be taught in our schools. With so many different viewpoints about education and what should be

done, the educational system might be considered in disarray. Concerns continue to peak with each wave of school reform and leading educational theorists demand discourse about our education crisis. The answers to the problems, however, are not always as forthcoming from the most vocal.

As schools contend with the ongoing challenges of student performance on state assessments, programs are continually being sought to restructure schools and increase student achievement. The VSL is a research-based program intended to cement concepts and skills students lack while making progress towards appropriate grade level achievement. As performance standards rise, so does accountability and educators must continue to seek methods to improve teaching in order to improve student learning. The study determined if the VSL was one of these effective intervention programs.

Chapter 3

Method

Introduction

The purpose of the study was to examine the effects of the policy decision to implement Varied Strategic Learning for mathematics and reading achievement of 8th grade students. As a question, does Varied Strategic Learning help improve academic achievement in areas of mathematics and reading as assessed on the Texas state STAAR examination? The following questions guided the study:

1. What is the difference in STAAR testing 8th grade mathematics scores between academic years 2014-2015 and 2015-2016 due to the implementation of Varied Strategic Learning?

    1.1 What is the difference in STAAR testing 8th grade mathematics scores between academic years 2014-2015 and 2015-2016 due to the implementation of Varied Strategic Learning according to numerical representations and relationships?

    1.2 What is the difference in STAAR testing 8th grade mathematics scores between academic years 2014-2015 and 2015-2016 due to the implementation of Varied Strategic Learning according to computations and algebraic relationships?

    1.3 What is the difference in STAAR testing 8th grade mathematics scores between academic years 2014-2015 and 2015-2016 due to the implementation of Varied Strategic Learning according to geometry and measurement?

    1.4 What is the difference in STAAR testing 8th grade mathematics scores between academic years 2014-2015 and 2015-2016 due to the implementation of Varied Strategic Learning according to data analysis and personal finance literacy?

2. What is the difference in STAAR testing 8th grade reading scores between academic years

2014-2015 and 2015-2016 due to the implementation of Varied Strategic Learning?

2.1 What is the difference in STAAR testing 8th grade reading scores between academic years 2014-2015 and 2015-2016 due to the implementation of Varied Strategic Learning according to understanding/analysis across genres?

2.2 What is the difference in STAAR testing 8th grade reading scores between academic years 2014-2015 and 2015-2016 due to the implementation of Varied Strategic Learning according to understanding/analysis of literary texts?

2.3 What is the difference in STAAR testing 8th grade reading scores between academic years 2014-2015 and 2015-2016 due to the implementation of Varied Strategic Learning according to understanding/analysis of informational texts?

3. What is the difference in STAAR testing 8th grade mathematics scores between academic years 2014-2015 and 2015-2016 due to the implementation of Varied Strategic Learning according to demographic background?

3.1 What is the difference in STAAR testing 8th grade mathematics scores between academic years 2014-2015 and 2015-2016 due to the implementation of Varied Strategic Learning according to gender?

3.2 What is the difference in STAAR testing 8th grade mathematics scores between academic years 2014-2015 and 2015-2016 due to the implementation of Varied Strategic Learning according to ethnicity?

3.3 What is the difference in STAAR testing 8th grade mathematics scores between academic years 2014-2015 and 2015-2016 due to the implementation of Varied Strategic Learning according to English as a second language status?

3.4 What is the difference in STAAR testing 8th grade mathematics scores between

academic years 2014-2015 and 2015-2016 due to the implementation of Varied Strategic Learning according to economically disadvantaged status?

3.5 What is the difference in STAAR testing 8th grade mathematics scores between academic years 2014-2015 and 2015-2016 due to the implementation of Varied Strategic Learning according to special education status?

4. What is the difference in STAAR testing 8th grade reading scores between academic years 2014-2015 and 2015-2016 due to the implementation of Varied Strategic Learning according to demographic background?

4.1 What is the difference in STAAR testing 8th grade reading scores between academic years 2014-2015 and 2015-2016 due to the implementation of Varied Strategic Learning according to gender?

4.2 What is the difference in STAAR testing 8th grade reading scores between academic years 2014-2015 and 2015-2016 due to the implementation of Varied Strategic Learning according to ethnicity?

4.3 What is the difference in STAAR testing 8th grade reading scores between academic years 2014-2015 and 2015-2016 due to the implementation of Varied Strategic Learning according to English as a second language status?

4.4 What is the difference in STAAR testing 8th grade reading scores between academic years 2014-2015 and 2015-2016 due to the implementation of Varied Strategic Learning according to economically disadvantaged status?

4.5 What is the difference in STAAR testing 8th grade reading scores between academic years 2014-2015 and 2015-2016 due to the implementation of Varied Strategic Learning according to special education status?

Research Design

The study utilized an ex post facto, causal-comparative research design. In an ex post facto study, the independent variable cannot be manipulated since the event that is under study has already occurred (Meltzoff, 2008). The ex post facto studies are retrospective and the researcher identifies antecedents or causes from the results and consequences in the study (Meltzoff, 2008). The researcher focuses on analyzing the relationship between the independent and dependent variables. Causal-comparative research is a type of ex post facto investigation that aims to identify the cause-and-effect relationships between the independent and dependent variables but no causal inferences may be drawn due to the non-experimental nature of the study (Gall, Gall, & Borg, 2007).

In this study, the independent variable was the VSL program with two levels: (a) VSL and (b) no VSL. The characteristic-present group consisted of 8th graders utilizing the VSL. The 8th graders not receiving the VSL form the comparison group. The outcome measures were academic achievement in mathematics and reading scores.

Intervention

As stated in Chapter 1, Varied Strategic Learning provides targeted intervention for students that have been identified as failing reading and/or mathematics. Students are placed in the VSL for 50 minutes of daily intensive instruction designed to accelerate a student to grade level achievement. The program provides students with successful learning experiences in an attempt to assess them in becoming confident learners (VariedStrategicLearning.org, n.d.).

The VSL includes a blended print and a technology component to address the various needs of the learners. In mathematics, research-based solutions, meaningful practice, discussion, progress monitoring, and visual as well as concrete models create additional opportunities for

students to master the deficient concepts and skills (VariedStrategicLearning.org, n.d.). In reading, the students improve their literacy skills through reading closely by (a) analyzing and responding to text; (b) writing strong informative/explanatory, narrative, and argumentative compositions; (c) listening attentively and critically; and (d) building literacy in content areas (VariedStrategicLearning.org, n.d.). The literacy component of the VLS also provides interventions to improve student abilities to read, write, speak, listen, and think.

The VSL includes directions for instructional rotations, classroom procedures, and grouping. Scripted lessons are provided in both reading and mathematics, however, the implementation of the lesson does allow for differentiation. Students are administered pre- and post-tests as part of the assessment and progress monitoring component during the intervention. Research has shown that when used with fidelity, students are expected to make progress towards the age appropriate grade level (VariedStrategicLearning.org, n.d.). Through the VSL, students are expected to master foundational skills through direct instruction and the online component (VariedStrategicLearning.org, n.d.).

Subject Selection

The subjects for the study were from a middle school in the District. The characteristic-present group consisted of a non-probability sample of 250 8th grade students who utilized the VSL as part of the curriculum in the 2015-2016 school year. The comparison group consisted of 250 students in the same middle school during the 2014-2015 school year when the VSL was not used as part of the curriculum. All data were acquired from the Texas Education Agency and provided by the agency in de-identified form. Permission to conduct the study was obtained from the Institutional Review Board at Texas A&M University Corpus Christi and the middle school's school district.

Instrumentation

The State of Texas Assessments of Academic Readiness (STAAR) test scores were used. The STAAR was enacted by Senate Bill 1031 as the standardized assessment to measure student performance on the Texas Essential Knowledge and Skills (TEKS). Specifically, the STAAR is administered to students in grade 3-12 and assesses their knowledge of the TEKS in the core subject areas of reading, writing, mathematics, social studies, and science. The STAAR measures student readiness for success in subsequent grades and courses as well as post-secondary readiness (STAAR Resources, n.d.).

The STAAR's external validity has been established by the STAAR Standard Setting Policy Committee (STAAR Technical Report, 2013). The Texas Education Agency also established content validity by ensuring that test items measure objectives in the appropriate content area. There are other committees that set the passing criteria for each grade level and for each phase-in performance level. In order to have a solid scale, the TEA statistically related the difficulty of the tests from grade level to grade level which ensured test difficulty to increase from one grade level to the next in each content area (STAAR Technical Report, 2013).

For the purpose of the study, the 2015 and 2016 8th grade STAAR scores in mathematics and reading were used for the comparison and characteristic-present groups, respectively. The proportion of the correct answers to the total number of test items were used to measure performance on STAAR objectives.

Achievement in 8th grade STAAR mathematics was measured by four Reporting Categories and a total of 56 test items. Reporting Category 1 contains 5 items and assesses numerical representations and relationships. Reporting Category 2 contains 22 items, assessing computations and algebraic relationships. Reporting Category 3 measures geometry and

measurement, using 20 items. Reporting Category 4 measures knowledge in data analysis and personal finance literacy with 9 items.

Achievement in 8th grade STAAR reading was measured by three Reporting Categories and consisted of 52 test items. Reporting Category 1 includes 10 items and assesses understanding/analysis across genres. Reporting Category 2 assesses knowledge of understanding/analysis of literary texts and contains 22 items. Reporting Category 3 measures understanding/analysis of informational texts and includes 20 questions.

Data Collection

The data were obtained from the Texas Education Agency (TEA). Specifically, two types of data were obtained for mathematics and reading scores. First, composite mathematics scores can range from 1005 to 2236. A composite score of 1595 is considered a passing score on the 2016 Mathematics STAAR assessment. In 2015, a composite score of 1583 was considered a passing score on the Mathematics STAAR assessment. The reading composite scores can range from 954 to 2173 on the 2016 STAAR assessment. A composite score of 1587 is considered a passing score. On the 2015 Reading STAAR assessment, the composite scores ranged from 957 to 2156 and 1575 was a passing score. Second, both mathematics and reading contain reporting categories as related in the Instrumentation section above. The scores for mathematics categories are: (a) numerical representations and relationships; (b) computations and algebraic relationships; (c) geometry and measurement; and (d) data analysis and personal finance literacy. The scores for reading categories are: (a) understanding/analysis across genres; (b) understanding/analysis of literary texts; and (c) understanding/analysis of informational texts. Analysis of raw data or percentage of questions correct per reporting category in both mathematics and reading determined mastery of the skills for each reporting category.

Data on gender, ethnicity, English as a second language, economically disadvantaged status, and special education status was the only demographic data, which was provided to the researcher by the TEA. Even though the campus recently underwent the reconstitution process, staff was not selected as a variable in the study. Staff information was limited because personnel files were kept confidential and secure in the human resources department of the district. Thus, information was not readily available to consider the school staff as a variable.

Data Analysis

The raw data were exported into the Statistical Package for the Social Sciences (SPSS), which was used for the purpose of data manipulation and analysis. For each category, the proportion of test questions answered correctly to the total number of questions was used to measure student achievement in mathematics and reading. Descriptive statistics was used to manipulate, organize, and summarize the data.

A series of multivariate analysis of variance (MANOVA) was performed to test whether the VSL group outperformed the non-VSL group on the basis of outcome measures of mathematics and reading. The MANOVA was used to compare groups on the basis of two or more correlated outcome measures. The mathematical expression, vector, was used to represent each subject's score on more than one response variable. The mean of the vectors for each group is called a centroid, and MANOVA examines differences on the basis of the centroid (Field, 2013). For post hoc analysis, univariate F-test was performed. The mean difference effect size, Cohen's d, was computed to examine the practical significance of findings and characterized as .2=small, .5=medium, and .8=large (Cohen, 1988).

Assumptions

Assumptions were addressed with statistical analyses. They pertained to statistical issues

to help determine accuracy of results (Glass & Hopkins, 1996). Independence of observations was the first concern. It assumed participants completed the STAAR testing independently without relying on other individuals for assistance. The second assumption related to normality of distribution of scores. Examination of histograms, skewedness, and kurtosis revealed how data were represented with relation to normal distributions. If data were considered normally distributed, then they were considered appropriate for further statistical analyses. A third assumption is homogeneity of variance. It examines equality of group sizes. Levene's test of homogeneity identifies homogeneity of variance. Results of .10 and greater indicate homogeneity. If results are less than .10 then data from unequal groups can be used as the statistic accounts for variance.

Research Questions

There were four research questions that guided the study. Each research question has sub-questions due to the type of data being analyzed. For example, STAAR test results provided a scale score, which is an overall test results. And, STAAR provided scores in sub-categories, thus there were a series of sub-questions.

Research question one: What is the difference in STAAR testing 8th grade mathematics scores between academic years 2014-2015 and 2015-2016 due to the implementation of Varied Strategic Learning? Research question one was analyzed according MANOVA. Academic year 2014-2015 was identified as year one and academic year 2015-2016 was identified as year two. The difference in mathematics tests scores was compared according to composite scores, as well as according to the four categories that contributed to the composite score.

Research question two: What is the difference in STAAR testing 8th grade reading scores between academic years 2014-2015 and 2015-2016 due to the implementation of Varied

Strategic Learning? Research question two was analyzed by MANOVA. Academic year 2014-2015 was identified as year one and academic year 2015-2016 was identified as year two. The difference in reading tests scores was compared according to composite scores, as well as according to the three categories that contributed to the composite score.

Research question three: What is the difference in STAAR testing 8th grade mathematics scores between academic years 2014-2015 and 2015-2016 due to the implementation of Varied Strategic Learning according to demographic background? Research question three was analyzed by MANOVA. Academic year 2014-2015 was identified as year one and academic year 2015-2016 was identified as year two. The difference in mathematics tests scores according to five areas of demographics was compared according to composite scores, as well as according to the four categories that contributed to the composite score.

Research question four: What is the difference in STAAR testing 8th grade reading scores between academic years 2014-2015 and 2015-2016 due to the implementation of Varied Strategic Learning according to demographic background? Research question four was analyzed by MANOVA. Academic year 2014-2015 was identified as year one and academic year 2015-2016 was identified as year two. The difference in reading tests scores according to five areas of demographics was compared according to composite scores, as well as according to the three categories that contributed to the composite score.

Summary

In this chapter, the research method for the study was described as an ex post facto, causal-comparative design. The research questions were presented which included STAAR assessment results in both mathematics and reading during the school years 2014-2015 and 2015-2016. Specifically, performance on reporting categories and identified demographic areas

were included as significant questions. After describing the instrumentation details for STAAR, the data collection and data analysis process was defined. The VSL program implementation criteria was specified as well as the assumptions relevant in the study.

Chapter 4

Results

In academic year 2015-2016, the school district made a policy decision to implement the Varied Strategic Learning program. This decision was made to address high stakes testing policies in the state of Texas to increase student performance, particularly in mathematics and reading. The concern has far reaching effects beyond student performance. For example, there are costs to purchase the program, hire additional faculty and support staff, train faculty and staff, provide resources, and maintain curricular standards. One way to examine the effectiveness of this policy is to compare students' test scores.

The purpose of the study was to examine the effects of the policy decision to implement Varied Strategic Learning for mathematics and reading achievement of 8th grade students. It was an ex post facto causal-comparative study to examine academic achievement in mathematics and reading composite scores of 8th grade students in the Varied Strategic Learning (VSL) program to the academic achievement in mathematics and reading composite scores of 8th grade students without the VSL program. It was expected that the students in VSL group would outperform the students in the non-VSL group on the basis of outcome measures. The data were obtained from the Texas Education Agency, coded, and entered into Statistical Package for the Social Sciences (SPSS) to be analyzed.

In this study, four primary questions were posed and guided the multiple analysis of data. The independent variable was the VSL program with two levels: (a) VSL and (b) no VSL. The VSL program was implemented in the 2015-2016 school year and compared to data from the 2014-2015 school year with no VSL program. The outcomes measures were academic achievement in mathematics and reading scores. Data analyses were also completed in each

content area by studying results in four mathematics reporting categories and three reading reporting categories. To study further the influence of the VSL, several demographic variables were also included: gender, ethnicity, economically disadvantaged, English as a second language, and special education.

Descriptive Statistics

Descriptive statistics were calculated for all variables: (a) independent variables-VSL and no VSL groups; (b) dependent variables-academic achievement in mathematics and reading scores with sub-categories consisting of reporting categories; and (c) demographics. The SPSS software was used to produce frequency distributions, means, skewness, kurtosis, range, standard deviations, and standard errors when appropriate. The SPSS was also used to analyze the research questions.

1. What is the difference in STAAR testing 8th grade mathematics scores between academic years 2014-2015 and 2015-2016 due to the implementation of Varied Strategic Learning?
2. What is the difference in STAAR testing 8th grade reading scores between academic years 2014-2015 and 2015-2016 due to the implementation of Varied Strategic Learning?
3. What is the difference in STAAR testing 8th grade mathematics scores between academic years 2014-2015 and 2015-2016 due to the implementation of Varied Strategic Learning according to demographic background?
4. What is the difference in STAAR testing 8th grade reading scores between academic years 2014-2015 and 2015-2016 due to the implementation of Varied Strategic Learning according to demographic background?

Before the research questions were analyzed, descriptive statistics were examined to establish their usefulness for further analyses. Tables 1-17 provide the descriptive statistics.

Achievement data of the mathematics and reading STAAR assessments were attained from the 2015-2016 school year with the VSL program and the 2014-2015 school year with no VSL program. Table 1 displays a summary of participant counts.

Table 1

Participants in VSL and Non-VSL Groups, N = 485

Intervention	Frequency	Percent
VSL	250	51.5
Non-VSL	235	48.5

Data were gathered from the VSL group in 2015-2016 and the non-VSL group in 2014-2015 from the Texas middle school and characterized with gender being identified. The results are presented in Table 2.

Table 2

Gender of Participants, N = 485

Gender	Frequency	Percent
Male	246	50.7
Female	239	49.3

Data were gathered from the VSL group in 2015-2016 and the non-VSL group in 2014-2015 from the Texas middle school and characterized with ethnicity being identified. The results are presented in Table 3.

Table 3

Ethnicity of Participants, N = 485

Ethnicity	Frequency	Percent
Hispanic	423	87.2
Other	62	12.8

Data were gathered from the VSL group in 2015-2016 and the non-VSL group in 2014-2015 from the Texas middle school and characterized with economically disadvantaged status being identified. The results are presented in Table 4.

Table 4

Economically Disadvantaged Status, N = 485

SES	Frequency	Percent
Yes	383	79.0
No	102	21.0

Data were gathered from the VSL group in 2015-2016 and the non-VSL group in 2014-2015 from the Texas middle school and characterized with English as a second language status being identified. The results are presented in Table 5.

Table 5

English as a Second Language Status, N = 485

ESL	Frequency	Percent
Yes	26	5.4
No	459	94.6

Data were gathered from the VSL group in 2015-2016 and non-VSL group in 2014-2015 from the Texas middle school and characterized with special education status being identified. The results are presented in Table 6.

Table 6

Special Education Status, N = 485

SPED	Frequency	Percent
Yes	55	11.3
No	430	88.7

Data were gathered from the VSL group in 2015-2016 and the non-VSL group in 2014-2015 from the Texas middle school with academic achievement being analyzed in mathematics. Specifically, data were analyzed according to raw score, scale score, and four reporting categories: (a) numerical representations and relationships; (b) computations and algebraic relationships; (c) geometry and measurement; and (d) data analysis and personal finance literacy. Tables 7-12 display a summary of the counts, means, standard deviations, and standard errors.

Table 7

Raw Score, N = 392

	N	Mean	SD	SE
VSL	214	19.62	10.75	.73
Non-VSL	178	21.78	8.43	.63

Table 8

Scale Score, N = 392

	N	Mean	SD	SE
VSL	214	1486.30	209.73	14.33
Non-VSL	178	1544.48	127.43	9.55

Table 9

Numerical Representations and Relationships, N = 392

	N	Mean	SD	SE
VSL	214	2.10	1.51	.103
Non-VSL	178	2.39	1.33	.100

Table 10

Computations and Algebraic Relationships, N = 392

	N	Mean	SD	SE
VSL	214	8.06	4.64	.31
Non-VSL	178	8.64	3.74	.28

Table 11

Geometry and Measurement, N = 392

	N	Mean	SD	SE
VSL	214	6.22	3.65	.24
Non-VSL	178	7.10	3.34	.25

Table 12

Data Analysis and Personal Finance Literacy, N = 392

	N	Mean	SD	SE
VSL	214	3.22	1.96	.134
Non-VSL	178	3.64	1.74	.131

Data were gathered from the VSL group in 2015-2016 and the non-VSL group in 2014-2015 from the Texas middle school with academic achievement being analyzed in reading. Specifically, data were analyzed according to raw score, scale score, and three reporting categories: (a) understanding/analysis across genres; (b) understanding/analysis of literary texts; and (c) understanding/analysis of informational texts. Tables 13-17 display a summary of the counts, means, standard deviations, and standard errors.

Table 13

Raw Score, N = 407

	N	Mean	SD	SE
VSL	205	28.12	10.75	.75
Non-VSL	202	29.01	10.22	.71

Table 14

Scale Score, N = 407

	N	Mean	SD	SE
VSL	205	1573.39	165.18	11.53
Non-VSL	202	1583.77	144.93	10.19

Table 15

Understanding/analysis Across Genres, N = 407

	N	Mean	SD	SE
VSL	205	5.65	2.50	.174
Non-VSL	202	5.75	2.44	.172

Table 16

Understanding/analysis of Literary Texts, N = 407

	N	Mean	SD	SE
VSL	205	12.46	4.88	.34
Non-VSL	202	11.72	4.41	.31

Table 17

Understanding/analysis of Informational Texts, N = 407

	N	Mean	SD	SE
VSL	205	10.00	4.36	.304
Non-VSL	202	11.53	4.34	.305

Varied Strategic Learning and non-Varied Strategic Learning groups were compared to consider their similarities. Random selection was completed for three categories; (a) ethnicity; (b) economically disadvantaged; and (c) special education. Gender was considered to be equal in number of cases and no further analysis was conducted. English as a second language had too few cases and no further analysis was completed. In some instances, there were cases where there were a sufficient number for analyses in one category; however, its corresponding category had up to four times the amount of cases. Therefore, for further analyses a random selection of cases was obtained in order to conduct analyses with a more similar number of cases. Even though the number of cases in specific categories from one academic year to another were similar, a random selection needed to be done in order to assess whether the groups from separate academic years were similar (see discussion below). Table 18 includes the details of the

random selection for the VSL group. Table 19 includes the details for the random selection of the non-VSL group.

Table 18

Random Selection of Varied Strategic Learning Cases

	Frequency	Percent
Ethnicity		
Hispanic	28	50
Other	28	50
Economically Disadvantaged		
Yes	28	50
No	28	50
Special Education		
Yes	31	50
No	31	50

Table 19

Random Selection of Non-Varied Strategic Learning Cases

	Frequency	Percent
Ethnicity		
Hispanic	34	50
Other	34	50
Economically Disadvantaged		
Yes	24	50
No	24	50
Special Education		
Yes	24	50
No	24	50

Academic Years' Groups Similarities

Since the data were from two separate academic years, this poses a concern. First, data were from two separate academic years. Although the school demographics remained similar from year to year, the data, nevertheless, were from separate years. Second, the students were different. The data were from 8th grade students, but students from the 2014-2015 academic year were a completely different group than students from the 2015-2016 academic year. Thus, it was not assumed their characteristics were similar. In order to evaluate similarity, simply relying on school demographics is inadequate. Therefore, further statistical analyses had to be conducted.

Since number of cases were made similar, it allowed for further analyses. There are three possible analytical procedures to help assess whether the VSL and non-VSL groups are similar. The first step includes a chi-square analysis to detect if there are statistically significant differences in each category. If there is no statistically significant difference, no further analysis is conducted. If there is a statistically significant difference, a second step is conducted through a correlation analysis to find a relationship. If there is no statistically significant relationship, no further analysis is conducted. If there is a statistical significance, then there is a relationship between the variables. At this point, an ANCOVA is conducted and if there is a statistically significant change in co-variance, further statistical analysis cannot be completed for a category applied to the research questions. In this study, there were no statistically significant differences based on chi-square analyses. Thus, the groups were considered similar in order to conduct further analysis. See Table 20.

Table 20

Chi-square Results of VSL and Non-VSL Groups
(no statistical difference means the groups are similar)

	N	Value	df	*p*
Gender	485	.762	1	>.05
Male	246			
Female	239			
Ethnicity	124	.000	1	>.05
Hispanic	62			
Other	62			
Economically Disadvantaged	104	.000	1	>.05
Yes	52			
No	52			
Special Education	110	.000	1	>.05
Yes	55			
No	55			

With the students from two separate academic years considered similar, statistical analyses of research questions were conducted. Along with the analyses, assumptions were addressed. Assumptions are statistical characteristics that must be checked in order for results of analyses to be considered accurate.

Statistical Assumptions

There were assumptions associated with analysis. Assumptions examine conditions to be met, helping the accuracy of results (Glass & Hopkins, 1996). The first assumption was independence of observations. Completed exams are to be done independently without relying on each other for responses. Since testing was completed according to Texas state guidelines, each student completes his or her own work. The second assumption related to normality.

Evaluation of histograms, skewness, and kurtosis confirmed this assumption. The expectation was that scores were normally distributed. Data were examined for outliers. Cook's Distance was used to locate outliers that may influence data. Outliers identified by the value greater than one were considered influential. No outliers were reported.

Results Based on Research Questions

The research questions were analyzed according to a number of statistical procedures. The following provides the research questions, results of analyses, and tables to summarize the results.

RQ 1: Math Academic Performance

What is the difference in STAAR testing 8th grade mathematics scores between academic years 2014-2015 and 2015-2016 due to the implementation of Varied Strategic Learning? Results for the statistical analysis for each individual question were presented.

According to the scale score, there was a statistically significant difference between the VSL school year and the non-VSL school year results. Results from the non-VSL school year were higher: $F(1, 369) = 8.80$, $p < .01$, (V, M = 1490.27; NV, M = 1544.16). However, Levene's test of equality of variance was violated ($p < .10$), therefore results should be viewed with caution. Research question one also analyzed data according to raw score, numerical representations and relationships, computations and algebraic relationships, geometry and measurement, and data analysis and personal finance literacy. There were only two areas of statistical significance: (a) geometry and measurement; and (b) data analysis and personal finance literacy. The results for geometry and measurement were $F(1, 369) = 4.85$, $p < .05$, (V, M = 6.31; NV, M = 7.11). The results for data analysis and personal finance literacy were $F(1, 369) = 3.89$, $p < .05$, (V, M = 3.26; NV, M = 3.64). However, Levene's test of equality of

variance was violated ($p < .10$), therefore results should be viewed with caution. Table 21 provides an overview of the results.

Table 21

MANOVA Results for Math Scores from VSL and Non-VSL Academic Years

Variables	N	Mean	SD	F	*p*	Effect Size
Scale Score				8.80	.003	.023
VSL	203	1490.27	209.45			
Non-VSL	176	1544.16	127.94			
Raw Score				3.32	.069	.009
VSL	203	19.94	10.76			
Non-VSL	176	21.77	8.45			
Numerical Representations and Relationships				2.42	.121	.006
VSL	203	2.16	1.51			
Non-VSL	176	2.39	1.34			
Computations and Algebraic Relationships				.92	.339	.002
VSL	203	8.21	4.63			
Non-VSL	176	8.63	3.75			
Geometry and Measurement				4.85	.028	.013
VSL	203	6.31	3.69			
Non-VSL	176	7.12	3.36			
Data Analysis and Personal Finance Literacy				3.89	.049	.010
VSL	203	3.26	1.98			
Non-VSL	176	3.64	1.75			

The results showed statistically significant differences between VSL and non-VSL school years in math scale score and in math sub-scales: geometry and measurement; and data analysis and personal finance literacy. The VSL school year mean scores were lower than the non-VSL

school year. However, Levene's test of equality of variance for both math scale score and data analysis and personal finance literacy were violated, thus results should be viewed with caution. In addition, the effect sizes for all statistically significant results were low. Vogt (2007) noted that in educational research, Cohen's *d* is referred to as the measure of effect size. Evaluations of the magnitude of effect size with Cohen's *d* are (a) small ($d = 0.2$), (b) medium ($d = 0.5$), and large ($d = 0.8$) (Gravetter & Wallnau, 2008).

RQ2: Reading Academic Performance

What is the difference in STAAR testing 8th grade reading scores between academic years 2014-2015 and 2015-2016 due to the implementation of Varied Strategic Learning? Results for the statistical analysis for each individual question were presented.

According to the scale score, there was no statistically significant difference between the VSL school year and the non-VSL school year results. However, results from the VSL school year were higher: $F(1, 369) = .005$, $p > .05$, (V, M = 1574.55; NV, M = 1573.45). Research question two also analyzed data according to raw score, understanding/analysis across genres, understanding/analysis of literary texts, and understanding/analysis of informational texts. There were only two areas of statistical significance: (a) understanding/analysis of literary texts; and (b) understanding/analysis of informational texts. The results for understanding/analysis of literary texts were $F(1, 369) = 5.57$, $p < .05$, (V, M = 12.51; NV, M = 11.40). However, Levene's test of equality of variance was violated ($p < .10$), therefore results should be viewed with caution. The results for understanding/analysis of informational texts were $F(1, 369) = 7.48$, $p < .01$, (V, M = 10.05; NV, M = 11.26). Table 22 provides an overview of the results.

Table 22

MANOVA Results for Reading Scores from VSL and Non-VSL Academic Years

Variables	N	Mean	SD	F	*p*	Effect Size
Scale Score				.005	.943	.000
VSL	203	1574.55	165.56			
Non-VSL	176	1573.45	129.42			
Raw Score				.000	.995	.000
VSL	203	28.25	10.73			
Non-VSL	176	28.24	9.60			
Understanding/analysis Across Genres				.158	.691	.000
VSL	203	5.68	2.50			
Non-VSL	176	5.59	2.35			
Understanding/analysis of Literary Texts				5.57	.019	.015
VSL	203	12.51	4.89			
Non-VSL	176	11.40	4.15			
Understanding/analysis of Informational Texts				7.48	.007	.019
VSL	203	10.05	4.35			
Non-VSL	176	11.26	4.17			

The results showed statistically significant differences between VSL and non-VSL school years in reading sub-scales: understanding/analysis of literary texts; and understanding/analysis of informational texts. The VSL school year mean scores were higher than the non-VSL school year in understanding/analysis of literary texts but not understanding/analysis of informational texts. However, Levene's test of equality of variance for understanding/analysis of literary texts was violated, thus results should be viewed with caution. In addition, the effect sizes for all statistically significant results were low. Vogt (2007) noted that in educational research, Cohen's *d* is referred to as the measure of effect size. Evaluations of the magnitude of effect size with

Cohen's *d* are (a) small (*d* = 0.2), (b) medium (*d* = 0.5), and large (*d* = 0.8) (Gravetter & Wallnau, 2008).

RQ3: Math Performance Based on Demographic Background

What is the difference in STAAR testing 8th grade mathematics scores between academic years 2014-2015 and 2015-2016 due to the implementation of Varied Strategic Learning according to demographic background? This third question analyzed data according to specific demographic categories: (a) gender; (b) ethnicity; (c) economically disadvantaged; (d) English as a second language; and (e) special education. However, there were too few cases in English as a second language for further statistical analysis.

In analyzing data according to gender, there were only two areas of statistical significance: (a) scale score; and (b) geometry and measurement. The results for scale score were $F(1, 18.20) = .004$, $p < .01$, (V, M = 1490.27; NV, M = 1544.16). However, Levene's test of equality of variance was violated ($p < .10$), therefore results should be viewed with caution. The results for geometry and measurement were $F(1, .365) = .419$, $p < .05$, (V, M = 6.31; NV, M = 7.12). Table 23 provides an overview of the results.

Table 23

MANOVA Results for Math Scores Based on Gender.

Variables	N	Mean	SD	F	*p*	Effect Size
Scale Score				.004	.003	.000
VSL	203	1490.27	209.45			
Non-VSL	176	1544.16	127.94			
Raw Score				.016	.069	.000
VSL	203	19.94	10.76			
Non-VSL	176	21.77	8.45			
Numerical Representations and Relationships				.031	.123	.000
VSL	203	2.16	1.51			
Non-VSL	176	2.39	1.34			
Computations and Algebraic Relationships				.249	.330	.001
VSL	203	8.21	4.63			
Non-VSL	176	8.63	3.75			
Geometry and Measurement				.419	.027	.001
VSL	203	6.31	3.69			
Non-VSL	176	7.12	3.36			
Data Analysis and Personal Finance Literacy				2.44	.057	.006
VSL	203	3.26	1.98			
Non-VSL	176	3.64	1.75			

The results showed statistically significant differences between VSL and non-VSL school years in math scale score as well as geometry and measurement. The VSL school year mean scores were lower than the non-VSL school year. However, Levene's test of equality of variance for math scale score was violated, thus results should be viewed with caution. In addition, the effect sizes for all statistically significant results were low. Vogt (2007) noted that in educational research, Cohen's *d* is referred to as the measure of effect size. Evaluations of the magnitude of

effect size with Cohen's *d* are (a) small (*d* = 0.2), (b) medium (*d* = 0.5), and large (*d* = 0.8) (Gravetter & Wallnau, 2008).

In analyzing data according to ethnicity, there were no areas of statistical significance. Table 24 provides an overview of the results.

Table 24

MANOVA Results for Math Scores Based on Ethnicity.

Variables	N	Mean	SD	F	*p*	Effect Size
Scale Score				1.44	.657	.018
VSL	37	1500.30	198.45			
Non-VSL	46	1518.49	155.36			
Raw Score				1.26	.990	.015
VSL	37	20.30	10.79			
Non-VSL	46	20.37	8.71			
Numerical Representations and Relationships				.009	.576	.000
VSL	37	2.46	1.71			
Non-VSL	46	2.26	1.48			
Computations and Algebraic Relationships				.799	.781	.010
VSL	37	8.24	4.63			
Non-VSL	46	8.00	3.82			
Geometry and Measurement				3.01	.648	.036
VSL	37	6.22	3.61			
Non-VSL	46	6.59	3.32			
Data Analysis and Personal Finance Literacy				.488	.744	.006
VSL	37	3.38	1.98			
Non-VSL	46	3.52	1.82			

In analyzing data according to economically disadvantaged, there were only two areas of statistical significance: (a) scale score; and (b) geometry and measurement. The results for scale score were $F(1, 40.19) = .669$, $p < .05$, (V, M = 1473.96; NV, M = 1558.59). However, Levene's test of equality of variance was violated ($p < .10$), therefore results should be viewed with caution. The results for geometry and measurement were $F(1, .748) = .287$, $p < .05$, (V, M = 5.67; NV, M = 7.59). Table 25 provides an overview of the results.

Table 25

MANOVA Results for Math Scores Based on Economically Disadvantaged.

Variables	N	Mean	SD	F	*p*	Effect Size
Scale Score				.669	.047	.009
VSL	45	1473.96	207.34			
Non-VSL	29	1558.59	67.11			
Raw Score				.761	.120	.011
VSL	45	18.51	10.25			
Non-VSL	29	22.10	6.54			
Numerical Representations and Relationships				1.38	.446	.019
VSL	45	1.93	1.50			
Non-VSL	29	2.24	1.35			
Computations and Algebraic Relationships				.380	.475	.005
VSL	45	7.73	4.50			
Non-VSL	29	8.48	2.95			
Geometry and Measurement				.287	.014	.004
VSL	45	5.67	3.28			
Non-VSL	29	7.59	2.81			
Data Analysis and Personal Finance Literacy				1.23	.205	.017
VSL	45	3.18	2.06			
Non-VSL	29	3.79	1.42			

The results showed statistically significant differences between VSL and non-VSL school years in math scale score as well as geometry and measurement. The VSL school year mean scores were lower than the non-VSL school year. However, Levene's test of equality of variance for math scale score was violated, thus results should be viewed with caution. In addition, the effect sizes for all statistically significant results were low. Vogt (2007) noted that in educational research, Cohen's *d* is referred to as the measure of effect size. Evaluations of the magnitude of effect size with Cohen's *d* are (a) small ($d = 0.2$), (b) medium ($d = 0.5$), and large ($d = 0.8$) (Gravetter & Wallnau, 2008).

In analyzing data according to special education status, there were no areas of statistical significance. Table 26 provides an overview of the results.

Table 26

MANOVA Results for Math Scores Based on Special Education.

Variables	N	Mean	SD	F	*p*	Effect Size
Scale Score				.081	.133	.001
VSL	38	1478.13	213.39			
Non-VSL	30	1549.10	134.10			
Raw Score				.074	.218	.001
VSL	38	19.18	9.79			
Non-VSL	30	22.00	8.90			
Numerical Representations and Relationships				.233	.207	.004
VSL	38	2.11	1.64			
Non-VSL	30	2.60	1.25			
Computations and Algebraic Relationships				.100	.307	.002
VSL	38	7.95	4.24			
Non-VSL	30	8.97	4.07			
Geometry and Measurement				.209	.116	.003
VSL	38	5.63	3.17			
Non-VSL	30	6.87	3.37			
Data Analysis and Personal Finance Literacy				.070	.850	.001
VSL	38	3.50	1.80			
Non-VSL	30	3.57	1.74			

RQ4: Reading Performance Based on Demographic Background

What is the difference in STAAR testing 8th grade reading scores between academic years 2014-2015 and 2015-2016 due to the implementation of Varied Strategic Learning according to demographic background? This final question analyzed data according to specific demographic categories: (a) gender; (b) ethnicity; (c) economically disadvantaged; (d) English as

a second language; and (e) special education. However, there were too few cases in English as a second language for further statistical analysis.

In analyzing data according to gender, there were only two areas of statistical significance: (a) understanding/analysis of literary texts; and (b) understanding/analysis of informational texts. The results for understanding/analysis of literary texts were $F(1, .467) = 6.85$, $p < .05$, (V, M = 12.51; NV, M =11.40). However, Levene's test of equality of variance was violated ($p < .10$), therefore results should be viewed with caution. The results for understanding/analysis of informational texts were $F(1, .439) = 2.11$, $p < .01$, (V, M = 10.05; NV, M = 11.26). Table 27 provides an overview of the results.

Table 27

MANOVA Results for Reading Scores Based on Gender

Variables	N	Mean	SD	F	*p*	Effect Size
Scale Score				2.98	.999	.008
VSL	203	1574.55	165.56			
Non-VSL	176	1573.45	129.42			
Raw Score				5.25	.931	.014
VSL	203	28.25	10.73			
Non-VSL	176	28.24	9.60			
Understanding/analysis Across Genres				4.74	.756	.012
VSL	203	5.68	2.50			
Non-VSL	176	5.59	2.35			
Understanding/analysis of Literary Texts				6.85	.024	.018
VSL	203	12.51	4.89			
Non-VSL	176	11.40	4.15			
Understanding/analysis of Informational Texts				2.11	.005	.006
VSL	203	10.05	4.35			
Non-VSL	176	11.26	4.17			

The results showed statistically significant differences between VSL and non-VSL school years in reading: understanding/analysis of literary texts; and (b) understanding/analysis of informational texts. The VSL school year mean scores were higher than the non-VSL school year for understanding/analysis of literary texts but lower in understanding/analysis of informational texts. However, Levene's test of equality of variance for understanding/analysis of literary texts was violated, thus results should be viewed with caution. In addition, the effect sizes for all statistically significant results were low. Vogt (2007) noted that in educational research, Cohen's *d* is referred to as the measure of effect size. Evaluations of the magnitude of

effect size with Cohen's *d* are (a) small (*d* = 0.2), (b) medium (*d* = 0.5), and large (*d* = 0.8) (Gravetter & Wallnau, 2008).

In analyzing data according to ethnicity, there were no areas of statistical significance. Table 28 provides an overview of the results.

Table 28

MANOVA Results for Reading Scores Based on Ethnicity.

Variables	N	Mean	SD	F	*p*	Effect Size
Scale Score				9.03	.636	.101
VSL	37	1567.78	186.80			
Non-VSL	46	1551.70	180.68			
Raw Score				11.15	.928	.122
VSL	37	27.65	11.88			
Non-VSL	46	27.59	11.14			
Understanding/analysis Across Genres				5.36	.664	.063
VSL	37	5.35	2.52			
Non-VSL	46	5.61	2.45			
Understanding/analysis of Literary Texts				7.42	.194	.085
VSL	37	12.19	5.38			
Non-VSL	46	10.85	4.70			
Understanding/analysis of Informational Texts				14.96	.343	.158
VSL	37	10.11	4.76			
Non-VSL	46	11.13	4.95			

In analyzing data according to economically disadvantaged, there was only one area of statistical significance: understanding/analysis of informational texts. The results for understanding/analysis of informational texts were $F(1, 1.01) = .358$, $p < .05$, (V, M = 8.82 ;

NV, M = 11.10). Table 29 provides an overview of the results.

Table 29

MANOVA Results for Reading Scores Based on Economically Disadvantaged

Variables	N	Mean	SD	F	*p*	Effect Size
Scale Score				.696	.207	.010
VSL	45	1537.64	185.05			
Non-VSL	29	1582.76	104.98			
Raw Score				.902	.264	.013
VSL	45	25.53	11.36			
Non-VSL	29	28.21	10.11			
Understanding/analysis Across Genres				1.41	.396	.019
VSL	45	5.04	2.52			
Non-VSL	29	5.48	2.53			
Understanding/analysis of Literary Texts				.920	.948	.013
VSL	45	11.67	5.52			
Non-VSL	29	11.62	4.13			
Understanding/analysis of Informational Texts				.358	.024	.005
VSL	45	8.82	4.25			
Non-VSL	29	11.10	4.15			

The results showed statistically significant differences between VSL and non-VSL school years in reading for understanding/analysis of informational texts. The VSL school year mean scores were lower than the non-VSL school year. The effect size for the statistically significant result was low. Vogt (2007) noted that in educational research, Cohen's *d* is referred to as the measure of effect size. Evaluations of the magnitude of effect size with Cohen's *d* are (a) small (*d* = 0.2), (b) medium (*d* = 0.5), and large (*d* = 0.8) (Gravetter & Wallnau, 2008).

In analyzing data according to special education status, there were no areas of statistical

significance. Table 30 provides an overview of the results.

Table 30

MANOVA Results for Reading Scores Based on Special Education.

Variables	N	Mean	SD	F	*p*	Effect Size
Scale Score				6.85	.155	.095
VSL	38	1534.82	197.93			
Non-VSL	30	1575.33	97.85			
Raw Score				14.31	.201	.180
VSL	38	25.76	12.00			
Non-VSL	30	27.60	9.57			
Understanding/analysis Across Genres				9.37	.444	.126
VSL	38	4.95	2.56			
Non-VSL	30	5.13	2.33			
Understanding/analysis of Literary Texts				20.34	.425	.238
VSL	38	11.47	5.52			
Non-VSL	30	11.63	4.19			
Understanding/analysis of Informational Texts				6.84	.076	.095
VSL	38	9.34	4.81			
Non-VSL	30	10.83	3.90			

Summary

Chapter Four provided a description of data analyses procedures used to examine the effects of the policy decision to implement Varied Strategic Learning for mathematics and reading achievement of 8th grade students. The dependent variable was the VSL program with two levels: (a) VSL; and (b) no VSL. The dependent variable was the mathematics and reading STAAR scores. The study relied on multiple analysis for each of the four primary research

questions. Each research question required further statistical analysis according to reporting categories or demographics.

Descriptive statistics were calculated for all variables: (a) independent variables-VSL and no VSL groups; (b) dependent variables-academic achievement in mathematics and reading scores with sub-categories consisting of reporting categories; and (c) demographics. The SPSS software was used to conduct all analysis and answer the research questions. The researcher used random selection, as well as chi-square tests and Manova to examine the effectiveness of the policy to use VSL and an influence on test scores.

Overall, the results showed some statistically significant differences. Most of the differences showed higher scores for the non-VSL school year. It suggests the policy to implement VSL was not effective. The following chapter will provide a discussion of the results.

Chapter 5

Introduction

This study examined the effects of the policy decision to implement Varied Strategic Learning for mathematics and reading achievement of 8th grade students. The VSL was selected by district administration as an intervention to increase student performance on the State of Texas Assessments of Academic Readiness (STAAR) tests. The academic standing of the middle school with the Texas Education Agency (TEA) was dire as a result of failing to attain a *Met Standard* rating on STAAR since its inception in 2012. It was imperative that district leadership identify an intervention with proven academic success to improve student performance immediately. Having already undergone TEA sanctions, district leadership elected to fund the VSL to increase academic achievement and avoid further TEA sanctions. Thus, it was expected that the VSL would have a positive impact during its first year of implementation on student achievement. By implementing the VSL, the district anticipated the number of students meeting standard on STAAR would increase and the campus would attain a *Met Standard* rating.

In order to achieve success with the VSL, the program was implemented with fidelity through continuous coaching and support for teachers during the school year. District leadership, campus administration, and program consultants closely monitored the implementation of the VSL and student progress. With the assistance of the designated VSL district coach, adjustments were made when necessary to ensure a consistent and accurately implemented intervention was provided for the students. For the sake of the academic standing of the campus, it was critical that the VSL have a positive relationship to mathematics and reading achievement scores on STAAR. Thus, a strong coordinated effort was required by district leadership to effectively implement the VSL. As instructional leaders, administrators are held accountable for STAAR

results and continually seek best practices and effective interventions to meet standard on state assessments. The funding and implementation of the VSL was a leadership decision to increase scores to meet state accountability requirements at the middle school. This initiative was also supported by campus leadership with the belief that the VSL would make a difference on STAAR testing and the campus would receive a *Met Standard* rating.

This strong effort by district leadership to implement the VSL on a campus seriously deficient on the state assessment is an example of leadership decisions administrators must make as they contend with the pressures of high-stakes testing. Administrators have been molded by the demands of standardized testing to continually focus on scores and interventions in order to meet academic standards. Intervention after intervention is implemented until a strategy proves to be successful. However, standardized testing keeps evolving and standards keep rising which makes reaching the moving target even more challenging for administrators.

The decision to implement the VSL at the middle school in this study was a policy decision by district leadership as an attempt to raise STAAR achievement scores. This academic intervention was a strong effort to change the instructional practices in the classrooms and was firmly supported by both district and campus administration. The desired result was for the campus to attain of *Met Standard* rating on STAAR after three unsuccessful years of receiving an *Improvement Required* rating. Thus, the purpose of the study was to examine the effects of the VSL on mathematics and reading achievement of 8th grade students at the middle school.

Conclusions

The middle school chosen for this study was facing additional TEA sanctions for failing to meet standard on the STAAR assessments. After three years of receiving an *Improvement Required* state rating, district leadership made the decision to implement Varied Strategic

Learning (VSL) as an intervention for mathematics and reading. With the implementation of the VSL in 2015-2016 school year, it was expected that results would yield a higher percentage of students meeting passing standards the STAAR assessment. The VSL incorporated of a variety of best instructional practices to address the individual needs of students with a history of low performance on state assessments. The VSL's approach to teaching and learning was aligned closely to Vygotsky's Zone of Proximal Development (ZPD) theoretical framework. According to Vygotsky's (1978) ZPD, students use their current knowledge in the ZPD and are supported by adult or peer interaction to master content previously unattainable. In the ZPD, the VSL provided targeted intervention in the student's ZPD level. Once assessments indicated students mastered a concept, targeted instruction increased into a new ZPD level. The VSL's specific instructional approach ensured students mastered STAAR readiness and supporting standards in preparation for the STAAR assessment.

To measure the influence of the VSL on the academic achievement of 8th grade students on the STAAR assessment, pre-existing STAAR data from the Texas Education Agency was analyzed. Descriptive statistics were calculated for all variables and random selection was completed for three categories: (a) ethnicity; (b) economically disadvantaged; and (c) special education. There was an equal number of cases for gender and English as a second language had too few cases; thus, no further analysis was completed. Chi-square analysis was also completed to identify any statistically significant differences for each group. The analysis resulted in no statistical differences which meant the groups could be considered similar. For many research results, however, Levene's test of equality of variance was violated and the effect sizes for all statistically significant results were low. Thus, results should be viewed with caution. The following research questions guided the study.

RQ1: What is the difference in STAAR testing 8th grade mathematics scores between academic years 2014-2015 and 2015-2016 due to the implementation of Varied Strategic Learning? Research question one analyzed data according to scale score, raw score, and reporting categories: (a) numerical representations and relationships; (b) computations and algebraic relationships; (c) geometry and measurement; and (d) data analysis and personal finance literacy. The 2015-2016 school year included the VSL group and the 2014-2015 school year included the non-VSL group.

The study found that there was a statistical significance between the VSL and non-VSL school years based on scale score. However, it was the non-VSL group that outperformed the VSL group with a higher scale score mean. A statistical significance was also found in two reporting categories: (a) geometry and measurement; and (b) data analysis and personal finance literacy. Both reporting categories had a higher mean score during the non-VSL school year. In these cases, VSL results were lower than non-VSL results. There were no other statistical differences in the other areas analyzed. Thus, the study revealed there was a difference in STAAR testing 8th grade mathematics scores between academic years 2014-2015 and 2015-2016 due to the implementation of VSL. However, the results were not in favor of the VSL. In all three areas of statistical significance, the VSL mean scores were lower than the non-VSL. For this research question, the results indicated that the VSL did not have a strong positive influence on the achievement of 8th grade students on the STAAR assessment.

RQ2: What is the difference in STAAR testing 8th grade reading scores between academic years 2014-2015 and 2015-2016 due to the implementation of Varied Strategic Learning? Research question two analyzed data according to scale score, raw score, and reporting categories: (a) understanding/analysis across genres; (b) understanding/analysis of

literary text; and (c) understanding/analysis of informational texts. The 2015-2016 school year included the VSL group and the 2014-2015 school year included the non-VSL group.

The study found that there were only two areas of statistical significance in the following reporting categories: (a) understanding/analysis of literary texts; and (b) understanding/analysis of informational texts. In understanding/analysis of literary texts, the mean score was higher in the VSL school year. In understanding/analysis of informational texts, however, the mean score of the non-VSL school year was higher. There were no other statistically significant differences. Thus, the study revealed that there was a difference in STAAR testing 8th grade reading scores between academic years 2014-2015 and 2015-2016 due to the implementation of VSL in two areas of statistical significance. The VSL school year mean scores were higher than the non-VSL school year in understanding/analysis of literary texts but not in understanding/analysis of informational texts. For this research question, then, results indicated that the VSL did have a positive relationship with the achievement of 8th grade students on the STAAR reading assessment but only in one area of study: understanding/analysis of literary texts.

RQ3: What is the difference in STAAR testing 8th grade mathematics scores between academic years 2014-2015 and 2015-2016 due to the implementation of Varied Strategic Learning according to demographic background? Research question three involved further statistical analysis of student performance on the STAAR mathematics assessment by measuring performance based on demographics. The demographic categories included the following: (a) gender; (b) ethnicity; (c) economically disadvantaged; (d) English as a second language; and (e) special education. There were, however, not enough cases to run data for English as a second language.

In analyzing data according to gender, there were two areas of statistical significance

between the VSL and non-VSL years: (a) scale score; and (b) geometry and measurement. In both cases, the VSL school year mean scores were lower than the non-VSL school year. Data analysis according to economically disadvantaged showed two areas of statistical significance: (a) scale score; and (b) geometry and measurement. Again, the VSL school year mean scores were lower than the non-VSL school year. In analyzing data according to ethnicity and special education, there were no areas of statistical significance. For this research question, the data indicated that there was a difference in STAAR testing 8th grade mathematics scores between academic years 2014-2015 and 2015-2016 due to the implementation of VSL according to demographic background. However, the difference shows that the VSL group performed lower than the non-VSL group.

RQ4: What is the difference in STAAR testing 8th grade reading scores between academic years 2014-2015 and 2015-2016 due to the implementation of Varied Strategic Learning according to demographic background? Research question three involved further statistical analysis of student performance on the STAAR reading assessment by measuring performance based on the following demographics. The demographic categories included the following: (a) gender; (b) ethnicity; (c) economically disadvantaged; (d) English as a second language; and (e) special education.

In analyzing data according to gender, there were two areas of statistical significance between the VSL and non-VSL school years: (a) understanding/analysis of literary texts; and (b) understanding/analysis of informational texts. The VSL school year mean scores were higher than the non-VSL school year for understanding/analysis of literary texts but lower in understanding/analysis of informational texts. Data analysis according to economically disadvantaged showed statistically significant differences between VSL and non-VSL school

years in reading for understanding/analysis of informational texts. The VSL school year mean scores were lower than the non-VSL school year. In analyzing data according to ethnicity and special education, there were no areas of statistical significance. For this research question, the data indicated that there was a difference in STAAR testing 8th grade reading scores between academic years 2014-2015 and 2015-2016 due to the implementation of VSL according to demographic background. However, the difference shows that the VSL group performed lower than the non-VSL group in two of the three statistically significant areas.

The premise of the research is that the VSL would have a positive relationship with the mathematics and reading achievement of 8th grade students in a Texas middle school, as measured by 2016 STAAR results. Multivariate analysis of the data was completed to analyze the relationship for each research question posed. In most of the cases studied, the analysis of data showed that the VSL groups performed at a lower academic level than the non-VSL groups in the majority of the outcome measures. Thus, analysis of the data at the multivariate level showed that the decision to implement raised several concerns as conveyed in the Discussion below in that VSL did not have a positive influence on the mathematics and reading achievement scores of 8th grade students on STAAR.

Discussion

The school district leadership made a policy decision affecting the Texas middle school in this study. The decision was to implement Varied Strategic Learning as an academic intervention to increase student achievement. The decision to fund the program and personnel needed was made by district administration as an effort to overturn the undesirable state rating of *Improvement Required*. To meet the challenge of the annual state assessment, STAAR, schools continually seek effective, best practices to ensure required passing standards are attained.

Schools failing to meet standard must endure state sanctions and engage in the Texas Accountability Intervention System (TAIS) school improvement process. The school in this study failed to meet minimum state standards on STAAR for three consecutive years and the district's policy decision to implement the VSL was made as an effort to improve the school's academic performance and avoid further sanctions.

The review of literature showed the transformation and evolution of education reform in the United States. To remain globally competitive, waves of education reform urged educators to improve instructional practices and increase student achievement. Today, education reform influenced by political agendas continues to evolve as educators scramble to meet standardized testing requirements. In the study, the implementation of the VSL was driven by a district initiative to support a middle school in a dire academic situation by providing a known effective intervention program. However, the program did not produce the type results expected to increase scores.

The study aimed to address four specific questions to show if the policy decision to implement VSL had a positive influence on the mathematics and reading achievement scores of 8th grade students in the Texas middle school. A discussion on each research question follows.

RQ1: What is the difference in STAAR testing 8th grade mathematics scores between academic years 2014-2015 and 2015-2016 due to the implementation of Varied Strategic Learning? The data analysis revealed, generally, that the VSL school year had a lower scale score mean than the non-VSL school year. In two reporting categories, the VSL school year also had lower mean scores than the non-VSL school year. In all three areas of statistical significance, the VSL group scored lower than the non-VSL group. For this research question, the VSL did not have a positive influence on the mathematics achievement of students.

From a theoretical framework perspective, the results provide challenges to the policy decision to implement the VSL. Vygotsky's (1978) Zone of Proximal Development (ZPD) has three components: (a) what is known; (b) zone of development; and (c) what is not known. What is known refers to the student's current level of academic performance. Whether testing results were from the VSL school year or non-VSL school year, what is known and zone of development were clear. It was the what is not known aspect of the theory that was under scrutiny. The what is known component of the theory applied to students' current level of academic performance. It was below standard. This, in part, led to an administrative policy decision to implement VSL. However, the policy decision is not just a matter of an attempt to increase scores. It is high stakes decision making. The state legislature from the 76th and 81st legislative sessions developed the Student Success Initiative, subsequently signed into law. The initiative was to ensure students met benchmark standards in mathematics and reading in one grade before being promoted to the next grade. Implementing VSL was not only an attempt to increase scores, but also to comply with state law.

Unfortunately, the scores fell short of intent. Thus, Vygotsky's (1978) second component of ZPD, zone of development, is of concern. The zone of development is directed toward providing learners with opportunities to learn concepts where they are weakest and support them toward advancing their achievement. This is aligned with VSL. The VSL approach is an intervention program to close gaps in achievement in mathematics and reading. There are scripted lessons designed to individualize instruction to each students' needs. Thus, it was expected that the VSL approach would increase students' academic performance. It did not. The results are disconcerting because each individual receiving VSL support was placed at the appropriate performance level and continually monitored toward progress.

The progress of students, however, needs to be understood in light of two general learning outcomes. First, students may very well have made tremendous strides in learning in mathematics because of VSL intervention. This could be revealed by pre- and post-assessments, knowledge and demonstration of mathematical skills, and ability to apply knowledge and skills across a variety of mathematical settings. Whereas Vygotsky's (1978) ZPD and VSL may be relevant for academic progress, they do not appear to account for demonstration of learning in a high stakes testing environment. Therefore, the skills do not appear to be transferrable to the STAAR assessment setting, which leads to a discussion on the third component of Vygotsky's ZPD, what is not known.

The third component of the ZPD is now known. Test results from STAAR based on VSL intervention did not improve as expected. It needs to be reiterated that VSL may have contributed to student learning, but it did not transfer to increased STAAR testing results. A major underpinning of the ZPD component of what is not known is to support students to master more and more difficult tasks through a scaffolding approach to instructional practices. This also is consistent with VSL. Students take what they know, are gradually presented with more difficult information, provided support to learn it, and achieve the knowledge. Theoretically, the theory and approach provide positive results. However, there appears to be a gap between the process of learning tied to type of knowledge needed and the skills students need to relate the information on standardized tests. In order to make more sense of this, a different perspective of the data provides insights into the value of the administrative decision to implement VSL.

It is now known that VSL was not statistically significant in a positive manner to relate to increased mathematic scores. Nonetheless, how were the scores distributed in relation to non-VSL scores? By answering this question, it gives further insights into how well VSL may have

worked with regard to knowledge versus a high stakes testing level. In all mathematic categories, the mean score for the VSL year was lower than the non-VSL year, however the standard deviation was larger. For example, the scale score for mathematics revealed mean scores of 1490 (VSL) and 1544 (non-VSL). The standard deviation was 209 (VSL) and 128 (non-VSL). Overall, VSL students would score higher than non-VSL students in standard deviations above the mean in a normal distribution. This means that although more VSL students have lower scores (1490) than non-VSL (1544) students and as acceptable by state standards (1583-1595), the VSL approach would place students with higher scores as acceptable by state standards just one standard deviation above the mean (VSL:1699 vs. non-VSL: 1672), indicating a larger increase in knowledge. Conversely, VSL students also would score lower below the mean. This indicates that although there is potential for VSL to influence higher overall scores (as well as low ones), the data are less reliable. The task, then, is to identify where in the VSL process does the program contribute the most and maximize its approach.

RQ2: What is the difference in STAAR testing 8th grade reading scores between academic years 2014-2015 and 2015-2016 due to the implementation of Varied Strategic Learning? The data analysis showed that there were only two areas of significance and both were found in the reporting categories. The VSL school year had a higher mean score in one reporting category but the non-VSL school year had a higher mean score in the second reporting category. For this research question, there was only one positive influence on the 8th grade reading scores and it was in one reporting category. Thus, the data suggests that the influence of the VSL was once again not significant.

When considering the theoretical framework of the study, the data again challenge the policy decision made by district leadership to implement the VSL. The first component of

Vygotsky's (1978) Zone of Proximal Development is what is known. What is known is the student's current level of knowledge and academic performance which was below standard. Therefore, the effort was made to implement the VSL to increase student achievement in reading. It is also important to note that this grade level is included the Student Success Initiative which requires students to meet the STAAR standard in reading and mathematics for promotion to high school. These critical issues made it essential for the VSL to have a positive effect on the STAAR reading assessment.

Vygotsky's (1978) second component is the zone of development which is aligned with the VSL because instruction is provided to students at their academic level. In the zone of proximal development, students are able to master challenging concepts and skills through peer interaction and adult support. The VSL provides students opportunities to work in groups or with the teacher as well as use the technology component to develop new learning. Once students show mastery, the instructional level increases into another academic level and new concepts are introduced. However, this alignment between the zone of proximal development and the VSL did not yield the reading scores expected, overall. Even though VSL scores were slightly higher in all categories except one in reading, only one area was statistically significant. In the area of understanding/analysis of literary texts, it was statistically significant and VSL academic year scores were higher. There are several possibilities that could explain why the VSL scores are higher in this category. One, it is possible the students in this group already had a strong understanding of the concepts and skills in this category. Second, it is also a possibility that this particular category was a content strength for the teacher in the VSL classroom. Third, there might be a closer alignment between the STAAR assessment and this category in the VSL program.

There could be, however, other indicators of student achievement in reading besides the STAAR assessment. There is continuous data during the school year that can be viewed to determine if individual student progress can be noted. Besides classrooms assessments, the district also administers benchmark assessments to monitor student progress. These instructional data can reveal whether the VSL improved student knowledge and application of reading skills. If so, Vygotksy's (1978) ZPD and the VSL may contribute to student academic progress but not at the level of rigor required by the STAAR assessment. This depth of knowledge is not a product of the alignment between the zone of proximal development and the VSL. This leads to the third component of Vygotsky's (1978) ZPD, which is what is not known.

This gap in academic achievement makes clear what is not known. The knowledge of skills as required by readiness and supporting standards did not transfer to the STAAR assessment. Again, student progress may be demonstrated on other campus and district assessments but not on the STAAR assessment. The expectation was that the potential developmental zone, what is not known, might have been reached through targeted instruction by the VSL and through peer and adult interaction as described by Vygotsky's (1978) ZPD. However, the scores do not indicate this achievement in reading.

The VSL was not statistically significant in raising achievement scores as measured by STAAR. Further discussion on the scores can reveal how the VSL might have affected student knowledge of reading apart from measures on standardized testing. In all reading categories, the VSL scores were higher except in one. The VSL mean score for reading is 1575 and the non-VSL score is 1573. The standard deviation for the VSL group was higher, though, which indicates there was an increase in learning and level of knowledge. The standard deviation for the VSL group was 166 and for the non-VSL group it was 129. These data indicate that the VSL

can contribute to academic progress in some reading areas which should be an instructional focus for district and campus administration. Even where there were statistically significant differences, the VSL scores had higher standard deviations. Whether VSL scores were higher or not, the standard deviations were always higher. This is similar to the math scores. This indicates that although there is potential for VSL to influence higher overall scores (as well as low ones), the data are less reliable. In other words, VSL has the potential to produce higher scores on STAAR testing, but the approach is less likely to be aligned with the intent of the district to use VSL to increase STAAR test results. It may be a viable approach to increase student learning in the reading areas, but less likely to produce transferrable skills to STAAR testing.

RQ3: What is the difference in STAAR testing 8th grade mathematics scores between academic years 2014-2015 and 2015-2016 due to the implementation of Varied Strategic Learning according to demographic background? The data analysis according to gender revealed two areas of statistical significance and the VSL school year mean scores were lower than the non-VSL school year in both areas. Data analysis according to economically disadvantaged resulted in two areas of statistical significance and the VSL school year scored lower than the non-VSL school year in both areas as well. For this research question, all four statistically significant areas revealed that the VSL scores were lower. Therefore, the data show that the VSL was not a positive influence on the 8th grade mathematics score even when analyzed according to demographics.

Once again, the data from this research question challenge the policy decision made by district leadership to implement the VSL as an intervention to raise mathematic achievement scores. Further analysis of mathematic data by demographics indicates that the approach of the VSL aligned with Vygotsky's (1978) Zone of Proximal Development theoretical framework was

not successful in increasing student achievement on STAAR. In all four statistically significant areas, the VSL group scored lower than the non-VSL group. The data revealed a commonality to carefully consider since all four statistically significant results are in scale score and geometry and measurement for both gender and economically disadvantaged. One possibility to explain these results include the thought that geometry and measurement might be an area of low academic performance on previous assessments for this group of students. Also, it is possible that the VSL teacher needed additional support and professional development to effectively deliver instruction for this category. The VSL curriculum might also have been less aligned with the STAAR assessment for this category in the level of rigor and depth of knowledge required. Furthermore, the data could be a result of a combination of any of these possibilities.

The first component of Vygotsky's (1978) Zone of Proximal Development is what is known which was the low academic student performance. The second component, zone of proximal development, provided students opportunities to master new skills through guidance, interaction and targeted instruction. The third component is what is not known or the level of potential development. Data analysis according to demographics makes this third component now known since STAAR test results did not yield desired results. These data bring under scrutiny the second the component of Vygotsky's (1978) ZPD theoretical framework as a concern. Even though students were provided targeted instruction in an interactive learning environment through the VSL, mathematic achievement fell below the expected results. Thus, the zone of proximal development supported with the VSL instructional approach did not produce the positive results needed.

The demographic data analysis for mathematics reveals that the VSL was not statistically significant in increasing achievement scores. The statistically significant areas were shown to

have lower VSL scores. Mean scores in all areas were lower in VSL than non-VSL scores. However, a closer look at the data can indicate the VSL might have impacted student progress in general knowledge of mathematics. In other words, does the VSL have a positive influence on students acquiring knowledge of mathematics versus standardized testing? There is evidence to consider this possibility.

When reviewing the demographic data according to standard deviation, the VSL students scored higher than the non-VSL students in every case but one. The demographic categories included (a) gender; (b) ethnicity; (c) economically disadvantaged; and (d) special education. In all but one area analyzed in every demographic, the standard deviation was higher for the VSL group which indicates the VSL students scored higher than the non-VSL students in a normal distribution. This is evidence of student growth in mathematics in general terms of knowledge and application. Therefore, district leadership can consider this area of growth to cultivate in the instructional program. The district does have to be cautious, though, because higher standard deviations lead to less reliability. Though there is potential for further consideration, VSL program administrators need to focus on those aspects of the program that contributes to the most increase in scores and reduce standard deviations. Particular attention needs to be paid to areas of statistically significance where VSL showed significantly lower scores.

RQ4: What is the difference in STAAR testing 8th grade reading scores between academic years 2014-2015 and 2015-2016 due to the implementation of Varied Strategic Learning according to demographic background? The data analysis indicated that according to gender there were only two areas of statistical significance and both were in reporting categories. The VSL school year had mean scores higher in one reporting category but lower in the second reporting category. In analyzing economically disadvantaged data, there was one area of

statistical significance in a reporting category and the VSL school year scored lower than the non-VSL school year. Thus, in two out of the three statistically significant cases, the VSL group scored lower than the non-VSL group.

For this research question, the results showed that the VSL did have some influence on the academic achievement of 8th grade students in reading according to demographic data analysis on the STAAR. In one of the three statistically significant areas, the VSL group had a higher mean score in the reporting category understanding/analysis of literary texts for gender. Gender did not look at male and female within a year across years. It looked at whether gender from year to year differed. For these data, it is possible the VSL curriculum incorporated higher level lessons with the necessary rigor to prepare students for the level of questioning experienced on STAAR. Thus, there could have been a greater alignment with STAAR and the VSL curriculum in the depth of knowledge needed to attain these results. It is also possible that VSL teacher had an instructional strength in this content which led to higher scores. Equally important to consider is that the non-VSL group had higher mean scores in understanding/analysis for informational texts than the VSL group for both gender and economically disadvantaged. Results in both of these two non-VSL areas suggest a lack of alignment between the STAAR assessment and the VSL in performance terms for this category. The data indicate that this reporting category is one where the VSL did not adequately prepare students for the rigor they encountered on the STAAR assessment. In this case, the VSL did not meet the expectations of the district to improve student performance on the STAAR assessment.

The first component Vygotsky's (1978) Zone of Proximal Development theoretical framework was known because of the low performance of students on prior assessments. Vygotsky's (1978) second component, zone of development, was aligned with the VSL

methodology because instruction was provided to students at their academic level. The third component of the framework, what is not known, was known when the data analysis showed the VSL did not produce the STAAR reading results the district expected. This is again an area of concern. A closer look at the data revealed areas where the VSL group did have a higher mean scores than the non-VSL group but the results were not statistically significant to indicate a positive relationship between the VSL and student achievement. However, it was important to consider again if the VSL had any effect on general achievement in reading knowledge.

Since other measures of student performance are used during the year to monitor student progress, it is possible the VSL might have a positive effect on student learning. Just as in the previous discussion, however, the newly acquired knowledge may not have transferred to the STAAR reading assessment because of the depth of knowledge and rigor built into the assessment. When reviewing demographic data according to standard deviation, the VSL students scored higher than the non-VSL students in almost every area. This data showed that the VSL students scored higher than the non-VSL students in standard deviations above the mean in a normal distribution again. Thus, VSL students learned at a higher level but may have lower scores than the mean. This is important information for the district to consider as it restructures the instructional program.

Implications

The implementation of the VSL has been in place for one year in the study's middle school in Texas. However, its effect on student achievement had not been systematically investigated, which presented the opportunity for this study. The study did demonstrate that the VSL had some effect on the mathematic and reading achievement of 8th grade students. The research showed that the VSL has the potential to improve learning but this new learning does

not transfer to higher test scores on the STAAR assessment. The data analysis revealed an increase in the general knowledge of mathematic and reading skills but not at the depth and rigor required on the STAAR assessment. One reason for this is that there are different skills applied to learning than to testing. Thus, students might be learning as measured in general assessments but in low academic thresholds not aligned to the level of STAAR. Information from TEA (STAAR Resources, n.d.) relates:

> The resources on this website provide information to familiarize Texas educators and the public with the design and format of the STAAR program. The information should help educators understand how the STAAR program measures the Texas Essential Knowledge and Skills (TEKS) curriculum standards. These resources should support, not narrow or replace, the teaching of the state-mandated curriculum, the TEKS (para. 4).

Since the TEKS align to the STAAR measurements, testing is curricular based. The VSL promotes a new science and technology to break down approaches to learning at granule levels. The implication is that the goals of VSL are not aligned with the TEKS and therefore not with STAAR testing. Thus, the district decision to implement VSL should consider how the VSL approach aligns to STAAR and TEKS.

Furthermore, the VSL is in its first year of implementation. Teachers might need further professional development in the curriculum and pedagogy. Even though support was available from the district and program specialists, additional time is needed for teachers to refine their practice and build their level of competence, as well as confidence with the VSL curriculum. The district invested large sums of money and committed extensive support for the program. It is too early in the program to suggest that is not working. It may not have produced the results the district expected in its first year, but there are some improvements in some areas. The

implication is that the district may need to redistribute its resources for administrative and faculty development with a focus on how to align VSL with STAAR outcomes and TEKS.

Another important consideration is the level of readiness among the students. Students may need time to adjust to this new instructional approach before the VSL can prove to be more effective. The pedagogical methodology of the VSL may be different to students but any confusion or uneasiness would ease with time. Besides student readiness, it is essential to note that adjustments were made to the implementation of the VSL, as would be expected during the first year of any program. Adjustments are sometimes necessary to problem-solve issues that arise during the school year. As the school plans for the implementation of the VSL for the second year, these issues should not be encountered leading to a smoother and more efficient execution of the program. An instructional strategy that can assist with the implementation of the VSL is utilizing a scaffolding approach. Scaffolding allows for instruction at the academic level of the student, interaction between the student and the teacher, and a slow reduction in support as the student grasps the new knowledge (Wood et al., 1976). Such an instructional model is closely aligned with the VSL as the student's zone of proximal development is a focus for instruction. Through scaffolding, the learning process promotes a deeper level of understanding and connections to new learning are made. This process would promote greater student achievement and more desirable VSL results with higher STAAR scores.

Finally, the campus was reconstituted due to low performance on STAAR, which resulted in a majority of new teachers and administrators. Reconstitution occurs when a campus fails to attain a *Met Standard* rating on STAAR for two consecutive years (Texas Education Code). The process involves the removal or reassignment of administrative and instructional staff at a campus (Texas Education Code). This process allowed the school to retain current staff or hire

new highly qualified staff members. This organizational change is critical to consider when analyzing the overall results of the VSL because transition time for the new staff is important. Not only did new campus administration have to adjust to the school, staff, student population, parents and community, there was the immediate need to be familiar with the instructional program and make informed decisions to impact student achievement. Robinson (2009) made a strong reference to the importance of *element* which is the place where people are successful and enjoy what they do. Robinson (2009) stated that for people to find their *element* is essential to their success "…and by implications, to the health of our organizations and the effectiveness of our educational systems; that if we can each find our *element*, we all have the potential for much higher achievement and fulfillment" (p. 6). For a new administration and staff, the luxury of finding their *element* was not afforded because there was much to learn in a short period of time.

For the second year, that learning curve is somewhat lessened and campus leadership can focus on academic goals which include implementing the VSL effectively. After weighing these implications, the district will likely continue with the implementation of the VSL and correct the areas of low performance. The positive relationship, that the data did reveal between the VSL and academic achievement, could result in growth towards accountability, if the program concerns are addressed. The implication is that the school was overwhelmed with so many changes, it made it difficult to focus on ideal teaching and learning conditions.

Recommendations for Future Research

Future research should explore a longitudinal study of the effects of the VSL. Although initial research showed the VSL program did not have a positive influence on standardized test scores, standard deviations showed potential for higher scores. Future research can look at how much scores change over time. For example, if the VSL program is working, results should show

progressively higher scores and narrower standard deviations. The higher scores would indicate a growth in academic achievement and a greater transfer of learning to standardized testing. Additionally, administrators, faculty, support staff, and students might pick up on the additional skills provided by VSL to where it becomes standard practice. If so, the district could save revenue by discontinuing its relationship with VSL.

A future study can also focus on the overall effect of the VSL at this campus by analyzing the VSL data from 6th and 7th grades as well. The data can reveal if the VSL had a greater influence in the academic achievement of students in those grades as opposed to 8th grade. Such a study can reveal the indication of causes of the differences in outcome measures. This is important information for the future implementation of the VSL at this campus. It would behoove the campus to use the data to enhance the strengths and diminish the weakness of the VSL. It would be interesting to see if similar trends occur in future studies as they did in this one. Similar trends would lend itself to address gaps between the VSL approach and its tie to TEKS. Different trends, though, could be more problematic. For example, they might suggest an overall weakness with the VSL approach. It could suggest that it performs differently at different grade levels, indicating it needs adjustment. Finally, differing trends could suggest how it is introduced at both grade levels. A consistent approach may not be the best. Customizing approaches to grade level cultures may provide better scores.

Another item for future research is to study the effect of the VSL in other grade levels and schools in the district. Data analysis can reveal similar findings or other areas of strengths and weakness for the VSL. A more expansive study can yield more evidence about the effect of the VSL on student achievement in other grade levels and different demographic populations. This data would assist in determining if the VSL has a greater influence in some areas when

compared to others. The district would need to be optimistically cautious of results, at first. Similar to grade levels having different cultures, campuses have different cultures. Campus cultures are different, have been established overtime, and are even tied to statues, symbols, and relics (Mangan, 2015). Once a campus culture is established, it could take years to change it (Mangan, 2015). Thus, the implementation and overall success of the VSL can be affected by the campus culture which can determine the degree of influence.

There are different methods of implementation and this study could reveal best practices in the implementation of the VSL that leads to higher academic achievement. For example, the criteria used to enroll students in the VSL could be a determining factor on student success. Students can be enrolled for low performance on one STAAR assessment or both. However, enrolling in both the mathematics and reading VSL classes results in no schedule slots left for student electives. This is not always favored by students and parents who prefer at least one elective scheduled such as band, choir, or art. Also, the school may choose to create only one VSL class that serves both mathematics and reading on a rotating schedule. This approach, however, may not be effective since students spend half the class time on mathematics and the other half on reading. Other factors such as class size, teacher experience, and adding an instructional paraprofessional to the VSL classroom can all have an impact on program implementation and overall effectiveness of the VSL.

Another consideration for future research is replicating the study in a different school district. Such a study can yield different results which might also uncover differences in program implementation. Implementing the VSL with fidelity is critical in achieving the desired results as previously discussed. There are many variables between districts such as leadership, culture, and demographics that can determine expectations and consistency in implementation. Available

funding is also a significant factor for the VSL because additional funding can lead to additional coaching support, professional development and instructional materials. All of these resources, of course, can determine the success of the VSL in increasing student achievement.

Furthermore, the district needs to weigh the positive results of the VSL to the overall expenditures associated with its implementation. The question of whether the program is cost effective can be determined and the decision to continue the implementation of the VSL can be made. A more specific measure of the VSL effectiveness could be to examine the academic performance of a student group for two or more consecutive years in the program. Such a study could determine the effect of the VSL on student growth in scale scores and reporting categories from one year to the next. A longitudinal study focused on the same group of students can reveal if the VSL is adding academic value over time. Although the initial cost of the program does not seem to produce the results, it may be too early to make a cost versus performance judgment. If scores continue to rise across campuses and over time, district administrators would have a better data set to analyzed the worthiness of the VSL program.

Summary

Administrators are challenged with an enormity of school issues that continually unfold in the business of education. Perhaps, the greatest consequential challenge of all is meeting the required performance standard on the State of Texas Assessments of Academic Readiness (STAAR) assessment. Student achievement on the STAAR test determines a school rating and the success of the campus. As a result, campus and district administrators are persistent in their search to find proven interventions for struggling students in order to close achievement gaps that have detrimental effects on the STAAR results.

In this research study, the school had failed to reach a *Met Standard* rating on STAAR for

three consecutive years. District administration made the decision to implement Varied Strategic Learning (VSL) to support struggling learners to achieve academic success. Funding the program and supporting the implementation of the program with fidelity was essential for its success. Overall, results showed that the VSL did not positively affect mathematics and reading scores of 8th grade students. However, the data also showed the potential for the VSL to impact instruction, if the district refines the alignment between the VSL and STAAR. Thus the results of the study revealed the school leadership's policy decision to implement VSL to positively relate to STAAR test scores is challenged, however, there is enough evidence to suggest it would be too early to discontinue the program.

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