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THE USE OF GRAPHIC ORGANIZERS ON THE READING COMPREHENSION OF HIGH SCHOOL STUDENTS

by

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A dissertation submitted in partial fulfillment of the requirements
for the degree of Doctor of Education
in the Department of Education Leadership & Higher Education
in the College of Community Innovation and Education
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ABSTRACT

This study seeks to identify correlation in the use of graphic organizers in reading comprehension of twelfth grade English language arts students. Specifically, this study seeks to determine if the use of graphic organizers in the teaching of reading has impacts on the reading comprehension of 12th grade English language arts students. The study intends to contribute to closing an information gap surrounding the effects of using instructional strategies such as graphic organizers in reading comprehension in a twelfth-grade English class. The research questions helped to guide this study in identifying descriptive statistics within PSAT reading comprehension scores during the 2021-2022 school year using Prentice Hall workbooks and SAT reading comprehension scores during the 2022-2023 school year using Study Sync workbooks. Descriptive statistics between ESOL PSAT reading comprehension scores during the 2021-2022 using Prentice Hall workbooks and ESOL SAT reading comprehension scores during the 2022-2023 school year using Study Sync workbooks were analyzed. The study followed a quantitative method to study the correlation of graphic organizers on reading comprehension of students in the twelfth grade. A Pearson correlation was used to measure and interpret scores between 2021-2022 PSAT and 2022-2023 SAT was applied to identify correlation significance of using graphic organizers on reading comprehension of students in the twelfth grade. A G-power analysis was calculated to identify the sample size for a Pearson's r correlation for post hoc data. Findings may assist high school teachers and educational leaders to consider implementing graphic organizers as an instructional strategy in reading comprehension to increase student reading achievement.

To my dear sister-in-law Nicole Marie Prieto

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LIST OF ACRONYMS

EFL	English as a Foreign Language
ELA	English Language Arts
ELLs	English Language Learners
ESSA	Every Student Succeeds Acts
ESOL	English as a Second Language
FSA	Florida Standards Assessment
GO	Graphic Organizer
NAEP	National Assessment of Educational Progress
NRP	National Reading Panel
PSAT	Preliminary Scholastic Aptitude Test
SAT	Scholastic Aptitude Test

CHAPTER ONE: INTRODUCTION

Background of the Study

Reading is the basis to understand the various school subjects offered in educational curriculum to ensure well rounded students, however, research has shown that students are lacking reading skills and proficiency is low (Hollington, 2021). According to the National Reading Panel (NRP), reading comprehension is one of the key concepts at the core of reading instruction (Langenberg, 2000). Within the last ten years, there has been a decline in the average reading score performance of 12th graders. The National Assessment of Educational Progress (NAEP) reported that around 27,000 twelfth-grade students that participated in the 2019 reading assessment showed a two-point decline in the average reading score performance compared to 2015 results (NAEP Report Card: 2019 NAEP Reading Assessment., 2019). Considering this development, it is vital to consider how 12th grade students can leave high school with an increased reading proficiency so that they can be successful post-graduation. High school educators and principals are essential to the teaching of reading and the learning outcomes of students (Hollington, 2021; Kelly, 2020). Teachers that apply tools like graphic organizers to motivate learning and teach effectively help English language learners improve in reading comprehension (Aprianto & Syarifaturrahman, 2020).

Reading is a complex process in which those that study the topic follow theories to help better understand such a skill, especially educators (Ngabut, 2015). The bottom-up, top-down, and interactive models in reading have been reviewed to better understand reading comprehension (Ngabut, 2015). According to Feng (2010), the bottom-up model of reading focuses on the printed text and how reading is considered a progression that goes from obtaining meaning, followed by relating letter to sound, moving to words, and returning to meaning. This

process involves three levels that begins with the printed letter image entering the visual system which converts the letter to sound, the sound is changed into a word at the next level, the word then passes on to meaning that is assimilated into the knowledge system. The top-down model is known to be concept-driven since it involves the reader having previous knowledge and is driven by meaning thus known as a downward process. In other words, the reader does not depend on the knowledge of a single unit to grasp meaning like the bottom-up model suggests. The interactive model explains the reading process as one that combines patterns and applies or integrates all the previously identified knowledge sources (Feng, 2010).

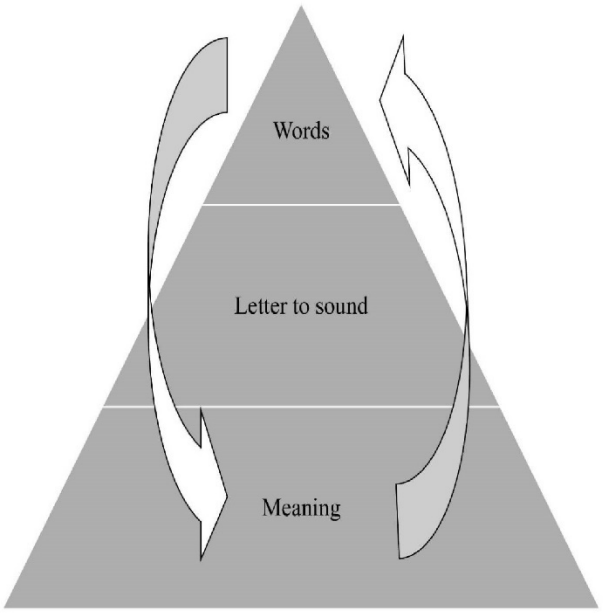


Figure 1 Bottom-up Model of Reading

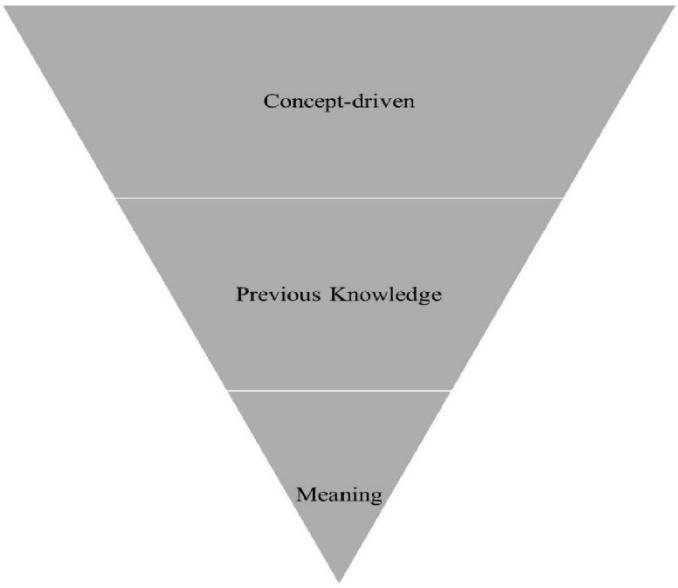


Figure 2 Top-down Model of Reading

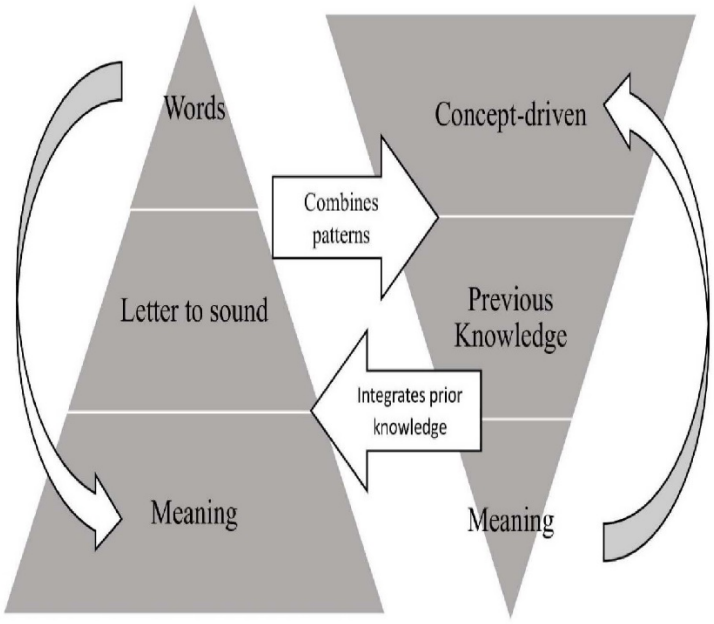


Figure 3 Interactive Model of Reading

Every Student Succeeds Act (ESSA) ensures that secondary students be guaranteed a "high quality education to close educational achievement gaps" (*Every Student Succeeds Act (ESSA) | U.S. Department of Education*, n.d.). Secondary level teachers in high school and leaders can help close such learning gaps. According to Eadens and Ceballos (2022), educational leadership contributes to advance school outcomes. Therefore, it is vital that principals lead schools to improve student success while assisting educators in reading instructional strategies (Grissom et al., 2021). These studies and theories highlight the importance of teaching reading comprehension using tools that improve student comprehension. The statement of the problem allows us to identify what needs to improve.

The background of this study, paved the way to investigate if reading comprehension can be measured by assessments that can determine student proficiency. The reading section of the PSAT and SAT is where students answer questions that test their ability to read and analyze information and ideas in passages (Reading and Writing Specifications SAT Suite College Board, 2024). Therefore, this study sough to analyze if the use of graphic organizers from workbooks used in the reading comprehension of students in the 12th grade English language arts improved students' reading comprehension during the 2021-2022 and 2022-2023 school year. by analyzing data of PSAT and SAT scores.

Statement of the Problem

According to Fraenkel et al. (2019), a research problem involves a condition that needs improvement. Therefore, as an English teacher and researcher, reading comprehension is a topic of much interest that needs to be studied to improve the conditions needed for students to succeed academically. The review of related literature indicated that while there are some studies on reading comprehension, instructional strategies like the use of graphic organizers and how

influences the reading comprehension process, there is still information and areas that would be useful to further explore. This study intended to contribute to the body of educational research by investigating the use of instructional strategies like graphic organizers in the reading comprehension of students in the 12th grade English language arts class since there are not many current studies in the review of literature on the use of graphic organizers on reading comprehension. Graphic organizers from the Prentice Hall and Study Sync workbooks were used as a method of improving reading comprehension during the 2021-2022 and 2022-2023 school year. Analyzing PSAT and SAT scores adds scientific and data driven knowledge to the educational community.

Purpose of the Study

The review of literature suggested that the use of instruments is an effective method to improving reading comprehension. A reading instrument that was used for improving reading comprehension was the graphic organizer. The purpose of the research was to identify the use of graphic organizers from different workbooks in reading comprehension of high school students, to determine if the use of graphic organizers in the teaching of reading had any impact on the reading comprehension of English language arts students in the 12th grade through the analysis of 2021-22 PSAT and 2022-23 SAT scores, and if graphic organizers improve the reading comprehension of students in the twelfth grade from a public high school. This purpose paves the way to consider the significance of using graphic organizers to improve reading comprehension.

Significance of the Study

The significance of the study was that if there were findings that the use of graphic organizers from the Prentice Hall and Study Sync workbooks as a method of improving reading

comprehension during the 2021-2022 and 2022-2023 school year of students in the 12th English language arts from PSAT and SAT scores that these findings might serve as recommendations to assist high school teachers to consider implementing graphic organizers as an instructional strategy in reading comprehension to increase student reading achievement. The findings of the study would then inform aspiring educational leaders about the importance of instructional strategies in their profession. Moving forward with the study, first, to better understand the research, a series of concepts were defined in the next section, definition of terms.

Definition of Terms

To clarify important elements of this study, the researcher provides the following key terms. Additionally, the researcher also included the terms public high school, English language learners and leadership to clarify their meaning related to this study. The Florida Standards Assessment (FSA), the National Reading Panel (NRP), and National Assessment of Educational Progress (NAEP) are included in this section to provide additional background. These terms tend to be unclear in other studies; therefore, it was necessary to separate and define each individually.

Access for English Language Leaners (ELLs)

Florida uses the ACCESS for ELLs assessments as a tool to measure English Language Learners (ELLs) proficiency in the English language to ensure the skills needed in school to achieve academic high levels (*Access for ELLs. K-12 Assessment*, 2022). Withing the scope of this study, English speakers of other languages are admitted to the ESOL program given the scores obtained in their ACCESS for ELLs assessments tool.

Comprehension Strategies

Plans that readers use and adapt to make sense of and get the most out of what they read (Flamingo Literacy Matrix, 2021). For the purpose of this research, comprehension strategies like graphic organizers are considered when used in the teaching of reading comprehension of English language arts students in the 12th grade.

English Language Arts (ELA)

Discipline that teaches reading, writing, speaking, and listening to develop human beings that can use a wide range of tools for communicating their own ideas, experiences, and perspectives and for receiving, analyzing, and evaluating the communication with others (*English Language Arts – Teaching Works Resource Library*, n.d.). This research focuses on students that studied the discipline of ELA, specifically the skill of reading comprehension.

English Language Learners (ELLs)

An English Language Learner (ELL) is a student who was not born in the U.S. and whose native language is other than English; or was born in the U.S. but who comes from a home in which a language other than English is most relied upon for communication; or is an American Indian or Alaskan Native and comes from a home in which a language other than English has had a significant impact on his or her level of English language proficiency; and who as a result of the above has sufficient difficulty speaking, reading, writing or understanding the English language to deny him or her the opportunity to learn successfully in classrooms in which the language of instruction is English (*English Language Learners, PK-12*, 2022). For the purpose of this research, English language learners are students in the English language arts courses learning reading comprehension and re in the ESOL program.

Graphic Organizers (GO)

A graphic organizer is a visual display that demonstrates relationships between facts, concepts, or ideas. It specifically guides the user's thinking as they build up and fill in the graphic organizer (*Graphic Organizers: Definitions and Uses*, n.d.). This research considered graphic organizers as a strategy used in the teaching of reading comprehension of students in the English language arts courses that took the 2021-22 PSAT and 2022-23 SAT.

National Assessment of Educational Progress (NAEP)

A national assessment of student achievement in different subject areas (NAEP Report Card: 2019 NAEP Reading Assessment., 2019). The National Assessment of Educational Progress is considered in the background of the study since English language arts is one of the subject areas reported in the NAEP.

National Reading Panel (NRP)

A fourteen-member panel composed of school administrators, working teachers, and scientists asked by Congress in conjunction with the Unites States Department of Education to evaluate existing research and evidence to find the best ways of teaching children to read. The final report was submitted on April 13, 2000 (National Institute of Child Health and Human Development [NICHD]., 2019). Within the scope of this research, the National reading Panel is mentioned in the background of the study since English language arts is one of the subject areas reported in the NRP.

Preliminary Scholastic Aptitude Test (PSAT)

The Preliminary Scholastic Aptitude Test (PSAT), also known as the NMSQT® (National Merit Scholarship Qualifying Test) is a practice version of the SAT and is taken once a year during the tenth and eleventh grades. Taking the PSAT during junior year and obtaining a high score allows the student to obtain scholarships. The test has a duration of 2 hours and 45 minutes. The highest score a student can obtain is 1520. The test measures skills in reading, writing, and math (*What Is the PSAT?,* 2023). The PSAT scores were analyzed using only the reading section for the purpose of this research.

Reading Comprehension

The term "Reading Comprehension" refers to interacting with text to make meaning of what is read (Flamingo Literacy Matrix, 2021). Within the scope of this study, it is measured through the PSAT and SAT reading comprehension subsections.

Scholastic Aptitude Test (SAT)

The Scholastic Aptitude Test (SAT) is the annual admissions exam most colleges and universities use for admittance of new students. The test has a duration of three hours and measures high school readiness skills of reading, writing and math (The Princeton Review, 2023). The highest score to obtain on the SAT is 1600. For the purpose of this study, the SAT scores were analyzed using only the reading section.

Theoretical Framework

The conceptual framework is organized by the constructs of the science of reading and learning. The latter intends to "generate or discover a theory inductively from data gathered

about a specific phenomenon", in this case the phenomenon of reading comprehension (Lunenburg & Irby, 2008, p. 102). In the following sections, the concepts featured are examined in this order: the science of reading explains the concepts considered within the phenomenon which include comprehension, fluency, phonemic awareness, phonics, and vocabulary and the science of learning principles explores the concepts related to teaching how to learn.

Science of Reading

The science of reading is a set of research-based resources that contains scientific evidence from experts on the matter covering years of study. The science of reading uses research designs, experimental methods, and statistical analyses to further understand how we learn to read, the skills involved in reading and how these skills work together, and the parts of the brain responsible for reading development (Pajor, 2022). To further understand the process, the science of reading identifies a series of essential elements, known as structured literacy, needed to master the skill of reading: phonemic awareness, phonics, fluency, vocabulary, and comprehension. According to Pajor (2022), this approach has demonstrated to be necessary to achieve students reading success. Hattie (2009) noted that much support for "the five pillars of good reading instruction" and emphasized that "focusing on all five elements is more critical than a program teaching one of the five as opposed to another" (Hattie 2009, p. 140). The same elements were identified as being highly effective in providing reading instruction based on scientific research according to the National Reading Panel (Langenberg, 2000).

Phonemic Awareness

The National Reading Panel (Langenberg, 2000) has identified phoneme isolation, identification, categorization, blending, segmentation, and deletion as the various commonly

used functions to evaluate and improve phonemic awareness. As stated by Pajor (2022), phonemic awareness is highlighted as a required pre-reading skill where teachers acknowledge and target the sequence of skills to build phonological awareness from primary to more advanced skill levels.

Phonics

Phonics is the application of the alphabetic principle which allows for students to read unfamiliar words and when taught should build automaticity in matching graphemes to phonemes through systematic, explicit instruction (Really Great Reading, 2015). Scientific research has agreed that teaching phonics in an explicit and systematic way is key to successful reading instruction since sounds correspond to letter sequences (Really Great Reading, 2015).

Fluency

Fluency is the combination of automaticity (the ability to decode words) and prosody (the ability to read with appropriate expression reflecting the text's meaning) thus making both the connectors between word recognition and reading comprehension. (Rasinski, 2010). Research over the years has demonstrated that fluency and the combination between automaticity and prosody are highly correlated with comprehension as noted by Rasinski (2010).

Vocabulary

The Science of Reading defines vocabulary as the identification of words and their meanings which is essential to both language and reading development (Rasinski, 2010). Research has proven that expanding the knowledge of vocabulary words through prefixes, suffixes and root words helps students develop their reading skills as stated by Rasinski (2010).

Hattie (2009) identified the importance of exposure to vocabulary instruction thus improving reading comprehension.

Comprehension

The science of reading defines comprehension as the ability to understand meaning from language while background knowledge throughout the process since this knowledge plays an important role (Langenberg, 2000). The National Reading Panel states that research has shown how reading comprehension instruction motivates readers to use strategies that improve comprehension (Langenberg, 2000).

Science of Learning

The science of learning is a scientific research-based collection of resources where cognitive processes are considered to understand how students learn while making connections to what entails teaching practices (Weinstein et al., 2018). The science of learning identifies several principles that can be associated with teaching practices such as proposing that students use background knowledge to associate newly acquired ideas or concepts, transferring information to long-term memory, providing spaced practice when learning new information, aiding in problem-solving, providing feedback, transferring prior knowledge to new ideas, providing examples, encouraging the idea that intelligence is important to channel positive behavior, instructing self-monitoring personal thinking and self-motivation (Deans For Impact, n.d.).

Research Questions

The following research questions were designed to guide the study in fulfilling its purpose:

RQ: 1A. What are the descriptive statistics between PSAT reading comprehension scores and SAT reading comprehension scores for all 12th English language arts students that used graphic organizers in the teaching of reading comprehension?

RQ: 1B. What are the descriptive statistics for ESOL students?

RQ: 2. Is there a correlation between PSAT reading comprehension scores and SAT reading comprehension scores for all 12th English language arts students that used graphic organizers in the teaching of reading comprehension?

Hypotheses

The following null and alternative hypotheses were tested to determine whether there is a relationship between 11th grade PSAT reading comprehension scores during the 2021-22 school year using the Prentice Hall workbooks and 12th grade SAT reading comprehension scores during the 2022-23 school year using the Study Sync workbooks and ESOL 11th grade PSAT reading comprehension scores during the 2021-22 using the Prentice Hall workbooks and ESOL 12th grade SAT reading comprehension scores during the 2022-23 school year using the Study Sync workbooks.

Null Hypothesis. There is no correlation between PSAT reading comprehension scores and SAT reading comprehension scores.

Alternative Hypothesis. There is a correlation between PSAT reading comprehension scores and SAT reading comprehension scores.

Limitations

Limitations of a study are the aspects that a researcher cannot control, nevertheless influences the interpretation of the findings or on the results (Lunenburg & Irby, 2008). In this study, only students from twelfth grade the secondary level high school were included to conduct the study. Also, the weeks of instruction and treatment were considered as an additional limitation of the study. A Spearman correlation limitation was also identified; therefore, a Pearson correlation was utilized to analyze data. A final limitation was the types of graphic organizers implemented as an instructional strategy in reading comprehension.

Delimitations

The delimitations utilized for this study follow Lunenburg and Irby (2008), which defined delimitations as boundaries set by the researcher. Since this study investigated the effects of graphic organizers on reading comprehension, the sample of the study was limited to students in secondary level English language arts classes from a secondary level twelfth grade public high school. These delimitations provided an important framework for analysis; however, it limited opportunities for involving other instructional leadership departments. Such delimitation did not allow for other students from other subjects and grade levels to be considered in this study.

Assumptions

The researcher assumed that the participants in the study would improve their reading comprehension when using graphic organizers as an instructional strategy. It was expected that the study's participants who received treatment in their reading comprehension would show improvement and thus influence the perceptions of secondary principals in educational leadership. The researcher assumed that the data collected accurately reflects the effects of

graphic organizers in reading comprehension and the perceptions of secondary principals in educational leadership when studying the effects of graphic organizers in reading comprehension. Finally, the researcher assumed that the interpretation of data appropriately reflects students' reading comprehension improvement when using graphic organizers as an instructional strategy that can be suggested as an implementation on behalf of leadership.

Organization of the Study

This study was organized into five chapters. The first chapter provided an introduction, the problem and purpose statements, terms, limitations, the conceptual framework, and research questions. The literature review is found in Chapter two. Chapter three describes the methodology and results which are also presented in Chapter four. Chapter five contains a summary and discussion of the results followed by suggestions for future study about teacher preparation and its relationship to learning sciences.

Summary

Over the years research has shown that students are lacking reading skills and proficiency is low (Hollington, 2021). Educators and instructional leaders have been on a quest to identify strategies that help improve reading comprehension in secondary level schools. Suggestions for future research include student factors like attendance, principal's contributions, and relationship between selected teachers and school factors at the elementary and high school levels (Hollington, 2021). Reading is important to understand the various school subjects offered in educational curriculum, yet research has shown that students are lacking reading skills needed to succeed (Hollington, 2021). Teachers and principals may add to the learning outcomes of students (Hollington, 2021; Kelly, 2020). English language learners may improve reading

comprehension when using graphic organizers are used by teachers that educate effectively (Aprianto & Syarifaturrahman, 2020). The goal of the research was to identify the use of graphic organizers in reading comprehension of high school students, to determine if the use of graphic organizers in the teaching of reading had any impact on the reading comprehension of English language arts students in the 12th grade, and if graphic organizers improve the reading comprehension of students in the 12th grade from a public high school. The findings of the study also informed teachers and educational leaders about the importance of instructional strategies in their profession.

CHAPTER TWO: LITERATURE REVIEW

Introduction

The literature review is a compilation done on behalf of the researcher where scholarly journals, articles, texts, and University of Central Florida online libraries and databases were searched in relation to the concepts of this study including reading comprehension, graphic organizers (GO), and reading comprehension strategies. Keywords used during the literature search included the following: public high school, comprehension strategies, secondary level school, instructional strategies, English language learners (ELL's), student performance, reading strategies, reading instruction, and instructional leadership. Additional searches were conducted through websites and databases offered by (a) U.S. Department of Education, (b) National Center for Education Statistics, (c) The Florida Department of Education, (d) National Council for Teacher Quality, and (e) National Institute of Child Health and Human Development.

Graphic Organizers as Comprehension Strategy

Studies using graphic organizers as a comprehension strategy have been conducted to improve reading comprehension in students. A mixed mode study that used questionnaires and correlations was conducted to determine English as a foreign language students' active role while using graphic organizers in creative writing. According to Jameel (2022), teaching English as a foreign language show that writing in English is a challenge for Iraqi EFL students (Jameel, 2022). Therefore, students need to be equipped with techniques and strategies that will help them to overcome any related anxiety (Jameel, 2022). The issue, however, is that learning writing skills through a specific strategy is not enough to ensure that students have mastered writing skills and that using the cluster diagram technique will not be sufficient for creative writing.

Graphic organizers enable students to take an active role in their education since they allow them to create more abstract comparisons, assessments, and conclusions (Jameel, 2022).

According to a 2022 study by Jameel, a pretest, a posttest, and an attitudinal questionnaire was designed and administered to the experimental and control groups to collect the data. The pretest was designed to ensure an equal number of participants in both groups, while the posttest was designed to reveal the effect of the experiment. The attitudinal questionnaire was distributed twice, once before conducting the experiment and then after conducting the experiment, to reveal students' attitudes towards creating compositions in English, as well as the impact of the teaching techniques on students' attitudes. The participants of this study were 60 (33 male and 27 female) students in the 4th year of study in the Department of English, College of Arts, University of Anbar, Iraq. Mean scores, standard deviations, and t values of the two groups were used to calculate the results. The Pearson correlation coefficient for the students' attitudes and achievements was calculated.

The results indicated that students who learned via the story mapping technique with the support of writing hortatory exposition text, achieved higher scores than the students who learned via communicative language teaching methods. Also, students had learned a new way to portray their own personality. The students' attitudes towards writing were not positive, they did not prefer to write, given many factors, before the experiment. Their pretest responses revealed that they felt they lacked the necessary skills for generating and organizing ideas as well as connecting paragraphs logically and that they lacked the ability to express their attitudes and points of view. Their previous experiences were restricted to themselves, and they lacked the opportunity and the ability to present them to audiences. It was suggested by the researcher that EFL professors implement the story mapping technique and hortatory exposition technique in

teaching reading and listening skills, composition, essay writing, and short stories in literature courses. By using the mentioned techniques, Iraqi EFL students at the Department of English, from grade one to grade four can better understand and comprehend literature (Jameel, 2022).

Another study using a quantitative method and descriptive design determined that graphic organizers are intended to motivate learning and teach effectively in English language learners' perceptions. According to Aprianto and Syarifaturrahman (2020), graphic organizers are used as a reading comprehension strategy to help English language learners in reading comprehension. The issue, however, is that there are two conflicting views regarding graphic organizers. One view has to do with speaking proficiency, which can simultaneously be developed with a reading comprehension skill as stated by Aprianto and Syarifaturrahman, (2020). The other view deals with how using properly developed graphic organizers before a learner can read with comprehension plays an important role in the reading acquisition process (Aprianto & Syarifaturrahman, 2020).

As explained by Aprianto and Syarifaturrahman (2020), the data was analyzed using a quantitative method which allowed the researcher to discover what are the English language learners' perception of using graphic organizers in class-presentation task. The results were analyzed using a descriptive statistical design. The sample consisted of 35 students selected through statistically random stratified random sampling. An eight-item questionnaire was developed to obtain the data and constructed to describe the ESL learners' perception on the use of graphic organizers as class presentation strategies.

The results indicated that the mean scores obtained by both categories through measuring the overall mean scores of each item of the questionnaire per-category indicated little difference. Low proficiency English speakers got moderate perception (M=3.7). On the other, good English

speakers indicated their mean scores positive perception on the use of GOs (M=4.5). One limitation of the study was to discover what the ESL learners' perception to the use of graphic organizers as class-presentation strategies were (Aprianto & Syarifaturrahman, 2020).

A study by Barzilai et al. (2018) sought to investigate how integrating multiple texts meaningfully and critically is an ability that is vital for twenty-first century literacy. The issue, however, was that there are research gaps that include insufficient research with young students; inadequate consideration of new text types; limited attention to students' understandings of the value of integration, integration criteria, and text structures; and lack of research regarding how to promote students' motivation to engage in intertextual integration as stated by Barzilai et al., 2018).

Consequently, Barzilai et al. (2018) analyzed the results from studies that were published from 1996 to 2017 and originated from the USA, Europe, and Asia. Most studies were experimental or quasi-experimental, descriptive, and design-based research. Some studies were conducted by researchers and some researchers collaborated with teachers in designing and/or delivering instruction. Research addressed mostly secondary school and higher education populations. Improving students' capabilities to integrate information meaningfully and critically from multiple texts should continue to be studied considering the limitations in diversity of terms and studies (Barzilai et al., 2018).

A study by Hutabarat and Hotmauli (2019), sought to identify the relationship between the story mapping technique and students' performances in writing hortatory exposition composition, while also examining the influence of this technique on students' attitudes towards writing in the English language.

As stated by Hutabarat and Hotmauli (2019), reading English texts is considered an important skill for students of English as a foreign language because reading is not only a subject, but also a service skill (Hutabarat & Hotmauli, 2019). Since reading comprehension is very crucial to master, it is very important to find beneficial strategies to help reading comprehension (Hutabarat & Hotmauli, 2019). The issue, however, is if the use of graphic organizers has a positive effect on students' reading comprehension.

According to Hutabarat, H & Hotmauli (2019), the results indicated that the post-test mean score of the experimental class is 84.66, and the post-test mean score of the control class was 56.33. The hypothesis test showed there was a significant effect of graphic organizers' use. The value of significance of equality variances (0. 043) was lower than the significance of α (0.05). Therefore, it was concluded that there was a significant effect of using graphic organizers in advancing the eleventh grade English as a foreign language students' reading comprehension in SMA Negeri 102 Jakarta. The study pointed out that graphic organizers can be an effective technique to improve English as a foreign language students' reading comprehension (Hutabarat & Hotmauli, 2019).

Another study focused on how graphic organizers are tools specifically designed for facilitating learning and instruction of context (Kansızoğlu, 2017). Graphic organizers are accepted as important and effective educational tools for organizing ideas, knowledge, and comprehension of new information that benefit learners at all age levels (Kansızoğlu, 2017). The issue, however, is whether the students' academic successes change significantly compared with traditional techniques if examined with a meta-analytic approach when graphic organizers are used as a special teaching technique in all education levels from preschool to undergraduate.

Kansızoğlu (2017) analyzed 70 experimental/quasi experimental studies conducted between 2000-2016 using the meta-analysis method. The effect size of studies (Hedge g), the analysis of heterogeneity, publication bias, and intervening variable were conducted with Comprehensive Meta-Analysis v2.0 (CMA) statistics. The data obtained were interpreted within random effects model.

Therefore, the results indicated that graphic organizers have a wider effect size on academic success rather than traditional teaching methods. In the analysis of the remaining variables, no significant difference in the effect size values according to certain study characteristics which include graphic organizer types, language learning areas, publication type in which the application has been reported, the field of study, education level and application time was found. For more generalizable results, future studies should include other languages, types of graphic organizers, and types of dependent variables (Kansızoğlu, 2017).

In a study conducted by Norris (2019) graphic organizers were used to determine if these can be used as a motivation strategy in the reading comprehension of high school students According to Norris (2019), reading is an ability that many students in the secondary level have not mastered. Many of these students are not prepared for the demands presented in high school and are faced with low academic outcomes (Norris, 2019). Graphic organizers are a tool that can be used before, during, and after reading lessons that can help in reading comprehension according to Norris (2019). The issue, however, is that if graphic organizers are used as a motivation strategy, how effective are graphic organizers as a motivating strategy to increase reading comprehension of high-school students.

Accordingly, the results indicated that the application of graphic organizers during reading instruction does not impact high school students' reading comprehension skills, thus the

null hypothesis was rejected for reading levels. Therefore, it was concluded that graphic organizers can be a useful tool to aid in a students' comprehension of a text and can keep students more motivated to use them for a specific task while they can also be used with visual and kinesthetic learners. The researcher suggested making use of other measures for reading comprehension and to add an additional group for comparison in future studies (Norris, 2019).

Additional research on graphic organizers as an instructional strategy conducted by Sargent (2020), set out to examine the use of graphic organizers as an instructional strategy that previously showed to be effective by teachers whose classes included large numbers of struggling readers and to examine if the use of these graphic organizers resulted in significant positive outcomes for students. According to Sargent (2020), students with disabilities are now placed in regular classroom settings to allow them the same learning methods as the rest of the students (Sargent, 2020). Students with disabilities are struggling to keep up with the academic demands of a regular classroom setting (Sargent, 2020). The issue, however, was what are the strategies that can be implemented in the classroom for students with disabilities to become proficient in regular classroom setting.

According to Sargent (2020), the results indicated that in examining the 4,739 minutes of instruction across 20 teachers, 10 were recorded using graphic organizers in their instruction and the average time spent using the organizer was 17 minutes and 5 seconds. Meaning that teachers are making use of graphic organizers to support learning in their classrooms. Nevertheless, the study did not find significant positive outcomes for students and time spent using a graphic organizer was not found to be a significant predictor of student's outcomes. A future consideration for research was that in most of the graphic organizer studies examined, short interventions with several of the studies lasted one week or less. Therefore, more time needs to

be spent using graphic organizers for them to have an impact. Sample size can be increased and other methods of recording the teachers use of graphic organizers should be considered for future practice (Sargent, 2020).

An alternative study performed by Singh et al. (2020) was done to determine if the use of strategies was proved to be more interesting and favorable to students' comprehension. Singh et al. (2020) stated that students who take courses where PowerPoint presentations are used more likely found the course more organized, clear, and interesting. Students often rated the professors higher and were more likely to take another class from a professor using a PowerPoint presentation (Singh et al., 2020). The issue, however, is that if the goal for the role of the PowerPoint presentation is basically for the students to have more favorable experiences in the classroom, then instructors should develop the PowerPoint in ways that are much more interesting to the students.

Singh et al. (2020) based their investigation on a on a qualitative case study research design that investigated the methods employed by ESL teachers to incorporate higher order thinking skills when teaching writing to learners. The samples were collected through the snowball sampling technique where four ESL teachers were selected from two different secondary schools in Malaysia. Classroom observations were carried out during the English language lessons. The teachers were observed twice, and classroom observation forms and video recordings were used as the main sources in data collection. The data obtained from the classroom observations were validated with researchers' field notes and verified by participating ESL teachers. Observational and reflective notes were carefully studied to ensure that repeated patterns and themes were observed and would provide a clear picture of the findings.

According to the researchers, the results indicated that ESL teachers had used several strategies to foster higher-order thinking skills when teaching writing to weak ESL learners. The strategies that were employed by the ESL teachers were explaining to the students on the necessity of mastering higher-order thinking skills and its importance, assisting students to connect the concepts in writing, assisting students to infer through real-life situations, the use of graphic organizers, teaching students problem-solving skills, and encouraging students to be imaginative. It was concluded that teachers were aware of the importance of developing higher-order thinking skills when teaching writing and that teachers play an important role in developing higher-order thinking skills among students. Therefore, it is important to educate students on how to think and guide them in cultivating their thinking skills. The study also revealed that students showed more enthusiasm for writing since they engaged actively in the learning process and were able to share and discuss ideas with their peers, students felt they were given autonomy as learners towards personal discovery and self-expression, students were able to record their knowledge and develop ideas for the writing tasks given, and students felt that the teachers respected their ideas and feelings during the writing tasks on certain topics (Singh et al., 2020).

Similarly, Kourea et al. (2019) examined the effectiveness of guided notes with other non-English–speaking students as a way to offer insight in to strategies that benefit student comprehension. Students' note-taking quality predicts their academic performance (Kourea et al., 2019). Secondary teachers teach content-specific subjects with abstract vocabulary and difficult learning concepts (Kourea et al., 2019). As a learning strategy, effective and efficient note-taking skills is important for secondary students (Kourea et al., 2019). The issue, however, that there is limited empirical research that has examined the effectiveness of guided notes with

other non-English–speaking students. Therefore, the purpose of the study was to investigate the effects of a guided notes intervention program on the academic performance of five students with learning difficulties during history class in a high school setting in Cyprus.

Kourea et al. (2019) studied an urban Lyceum upper secondary school in Cyprus. A teacher who taught history in several classes with low performing students was selected for the study. The subjects for this study also included 5 students in Year 1 Lyceum with only one student diagnosed with learning disabilities receiving special education services. The remaining students were receiving remedial instruction due to learning difficulties. The history class was taught in 45-min instructional blocks three times a week and the experimental study lasted 12 weeks. A 15-item quiz during a 10-min assessment at the beginning of each history class was administered. An experimental single-subject reversal design, known as the ABAB design was selected to investigate the effects of a guided notes program on the students' quiz and note-taking performance. This allowed researchers to exercise experimental control by introducing, withdrawing, and re-introducing the intervention over the course of the research. Among the guided notes intervention, graphic organizers were used as a component of the guided notes intervention package. Students and teachers were administered a questionnaire using a 4-point rating scale. The data was analyzed through the gathering of observations and results obtained from the questionnaires and quizzes.

As stated by the researcher, the results indicated that there was a strong functional relation between students' academic performance and the guided notes program for all students. Student quiz performance improved during intervention. Similar findings were noted for note-taking performance. It was also observed that the teacher strongly agreed that the guided notes intervention was effective in helping his students with learning disabilities and learning

difficulties to improve their academic performance in history. For future investigation, the researchers suggest having quizzes and tests instruments standardized, determine if students became better note-takers instead of only measuring the quality of the students' notes, have teachers develop the materials instead of the researcher, and further research should focus on the implementation across other content areas. The researcher found that guided notes using graphic organizers increased student achievement and were well received by the teacher and students based on their social validity ratings (Kourea et al., 2019).

Another study on reading comprehension as a comprehension strategy, this time conducted by Minaabad (2017), examined the effects of two reading comprehension strategies, Dynamic Assessment (DA) and Graphic Organizers (GO), on English as a foreign language learners' reading comprehension ability. Minaabad (2017) explained that reading is one of the four skills in language learning that has a great role in learner's future academic life and career success. Students face the difficulty of moving from learning how to read to reading as a way of learning meaningfully (Minaabad, 2017). The issue, however, originates from coming across unknown words when reading text and not knowing how to organize text.

Minaabad (2017) gathered 90 participants to carry out the study from Payame Noor University of Ardabil. An Oxford Placement Test (OPT) was given to the subjects and based on their performance on the test, 45 students in elementary level were selected to take part in the main phase of the research. The students were divided into three groups of 15 students per group. Both the reading passages for the treatment sessions and a reading comprehension served as pretest and posttest. The experimental study had 10 sessions and incorporated one dependent and one independent variable. The dependent variable was the reading comprehension ability of students, and the independent variable was strategy type which had 3 levels. A t-test on ANOVA

was run among two groups texts. The researcher followed-up with Mann -Whitney U tests between the pairs of groups and made use of Bonferroni correction for the alpha value. The Kruskal-Wallis tests were also used to analyze the data.

The results of the Minaabad (2017) study indicated that students who used Dynamic Assessment outperformed those who received graphic organizers and traditional instruction. The researcher suggested that using dynamic assessment procedures with standardized test instruments, more insight into the reading profile of the student can be achieved and that students can profit more from dynamic assessment than graphic organizers. Dynamic assessment intervention as a mediation resource was shown to have a significant role in the diagnostic perspective of students' problem areas (Minaabad, 2017).

Further research on reading comprehension and graphic organizers was performed by Imsa-Ard (2022). They examined the effectiveness of utilizing graphic organizers to enhance Thai EFL students' reading comprehension abilities and their opinions regarding using graphic organizers for reading comprehension. Imsa-Ard (2022) stated that reading is an important element of language learning, thus when it comes to studying English, one of the most significant and challenging parts of the four language skills is reading, which most students find to be a difficult and boring process (Imsa-Ard, 2022). The issue, however, is that several studies have been determined to investigate the use of graphic organizers in reading instruction in general, but very little attention has been paid to their utility in reading instruction for low-ability students in Thailand.

The researcher gathered information from sixty-four upper secondary school students in a tenth-grade English reading course at a public school in Bangkok. The research study used instructional instruments that consisted of ten reading passages from a course book and ten

graphic organizers designed by the researcher and research instruments that consisted of two English reading comprehension tests with multiple-choice, true/false, and short-answer questions, and focus-group interviews about students' opinions toward English reading instruction using graphic organizers. A ten-week reading instruction treatment using graphic organizers was used to improve the reading comprehension abilities of an experimental group. Focus-group interviews, two English reading comprehension tests and interviews about students' opinions about reading comprehension instruction were used to collect the data. The data was analyzed using descriptive statistics, including mean scores, normalized gains, standard deviations, inferential statistics, and the dependent t-test and Cohen's d. The pre- and post-test scores within an experimental group were analyzed using a paired samples t-test, and the scores between the control and experimental groups were analyzed using an independent samples t-test.

Imsa-Ard's (2022) research results indicated that the mean score on the reading comprehension post-test was significantly higher than the mean score on the pre-test and the experimental group acquired a higher score than the control group with the effect size measured. The mean score on the post-test was significantly higher in the experimental group than in the control group which might indicate that graphic organizers had a beneficial effect on students' reading comprehension abilities. The interviews revealed that graphic organizers assisted students in their efforts to learn to read English. The researcher suggested that further studies should be conducted allowing for more times and longer period of lessons because this would lead students to be more familiar with using graphic organizers (Imsa-Ard, 2022).

Lastly, Warsono (2018) aimed to identify strategies that can help English as a foreign language learners become better at reading comprehension and if there are significant differences

when using strategies. One of the biggest challenges in teaching English as foreign language is how to teach reading skill, yet it is one of the most beneficial skills of language (Warsono, 2018).

The results indicated that even though the results yielded no significant differences between the GIST strategy and the graphic organizer strategy, graphic organizers and GIST strategies are effective to enhance reading comprehension of students with good and poor reading habit. The researcher suggested that for future studies, students from various levels should be included, other study variables should be considered, other forms of GIST and graphic organizers should be implemented, and other subjects apply the strategies to gather more generalizable research (Warsono, 2018).

Instructional Leaders

Studies on instructional leadership practices that support teachers and students have been conducted to improve reading comprehension. According to Dixson (2021), middle school students with learning disabilities are underachieving at grade level as measured by standardized state tests in literacy and mathematics. The issue, however, is that a problem existed among middle school principals in that they appeared to inconsistently apply instructional leadership practices while supporting their teachers' teaching students with learning disabilities. How the principals perceived these inconsistencies and the possible effects on practice were not fully understood (Dixson, 2021). Therefore, the purpose of the study was to understand the perceptions of middle school principals regarding their instructional leadership practices to consistently support teachers who teach students with learning disabilities.

To collect the data, a purposive sampling was used to select the participants for this basic qualitative research study. The data was collected by using interviews conducted via Zoom and Microsoft Forms. The participants were 12 middle school principals and assistant principals from

a local school district that had been employed at the school for at least one academic school year. The researcher used an interview protocol used in this study which included 10 open-ended interview questions that were developed based on the conceptual framework of Murphey et al. (1983) instructional leadership theory. The data was analyzed by using thematic analysis for emergent themes. The themes were collaboration, modeling, balanced literacy interventions, and professional learning communities.

Dixson (2021) stated that the results of their research indicated that the twelve participants agreed that professional learning was a key recommendation for the consistency of their instructional leadership practices and classroom management and the environment was important for students to learn. Also, the findings suggested that teachers benefit from collaboration and professional development geared toward the knowledge of their specific student needs. The implications for positive social change include the use of the themes for middle school principals to better support teachers of students with learning disabilities. The researcher identified only twelve principals from only one district which results in a small sample and can be considered for future research, interviews were not conducted in person due to the COVID 19 pandemic, elementary and high schools can be considered for future studies. Teachers' perceptions of their principals' instructional leadership practices regarding supporting students with learning disabilities may also be considered for future studies (Dixson, 2021).

Another study by Gomez (2018) revealed the relationship between the story mapping technique and students' performances in writing hortatory exposition composition, while also examining the influence of this technique on students' attitudes towards writing in the English language and to identify and describe obstacles to the implementation of best practices of English language development in rural South San Joaquin Valley elementary schools from the

perspective of principals. According to Gomez (2018), many students in California speak other languages other than English. English language learners are expected to learn the language at an adequate pace thus to ensure academic success and college and career opportunities (Gomez, 2018). The issue, however, is that prior to 1967 English learners were not required to take English language development courses and there were not many programs that were offered for such students. Most of the programs offered in the present are not on par with English learners' needs (Gomez, 2018). Given this fact, there is an urgent call for model ELD programs for EL students attending elementary rural schools in California (Gomez, 2018).

To collect the data, the researcher followed a qualitative phenomenological study. A series of face-to-face semi-structured interviews that addressed the different aspects of the research questions. After the interviews were concluded, the researcher analyzed the transcription of the interviews and coded for emergent themes. The data generated from the codes was used to address the research problem. The sample for this study was five principals of high-achieving rural elementary schools in South San Joaquin Valley, including Madera, Fresno, Tulare, Kings, and Kern Counties. Triangulation of multiple data sources was conducted. In-depth, semi structured interviews, either face-to-face, or via telephone or electronic media such as Google Hangout. Each interview lasted roughly one hour. All interviews were recorded through Rev Transcription for transcription and analyzed and coded the using NVivo research and coding software for themes that correlated to the research questions (Gomez, 2018).

The data recorded indicated that creating a culture of high expectations for all students, ensuring that designated English Language Development occurs daily, intentional teacher professional development, and a focus on students' production of academic language which implicated that school boards create and enforce progressive policies that promote native

language as a vehicle to proficiently developing academic English language, as well as literacy in the native language in dual-immersion programs. Recommendations for further research included the exploration of whether the change in local control with Local Control Funding Formula (LCFF) funding and the district created Local Control Accountability Plan (LCAP), has changed the implementation of English language development programs in rural elementary schools, hence improving academic achievement of English Learners (Gomez, 2018).

Similarly, Kelly (2020) conducted a study to further understand the problem of poor literacy achievement among high school students and to design interventions for school leaders to impact and improve high school students' literacy. Kelly (2020) indicated that literacy achievement among secondary students has declined and the impact is seen in the workforce and in the post-secondary classroom. Instructional leadership behaviors of secondary school principals may be the guidance needed by high school teachers to have a positive impact on student learning outcomes (Kelly, 2020). The issue, however, is that there is a reading failure among secondary school students and has even been considered a health problem and how principals can help in achieving literacy among the population they lead.

To collect the data, the researcher utilized a multimethod research design for the study since the quantitative and qualitative data collection were independent of one another and analyzed archival student data and principal self-reported instructional leadership behaviors were identified using the PIMRS. Five principals were interviewed while student academic achievement was determined based on the school mean score on the FSA ELA reading assessment from the Florida public PK–12 Education Portal. Data about principal instructional leadership behaviors was gathered through self-reported responses to the 50-item PIMRS Likert-style survey. The FSA ELA mean scale scores of high school students in Grade 10 were

analyzed during the 2016–2017 school year. A Pearson product moment correlation was used as a measure of the linear correlations between the variables. Three Pearson product moment correlations were run, a Bonferroni correction was necessary, and three t-tests were also conducted. The mean and standard deviation was calculated for principal age and years of experience as a teacher and as a principal (Kelly, 2020).

The results indicated that there were no significant relationships between FSA ELA scores and any of the three dimensions (defining the school mission, managing the instructional program, and developing the school learning climate) on behalf of school principals. Regardless of the results, the researcher did recognize the importance of having competent principals leading the high schools analyzed throughout the study. Principals, teachers, and reading coaches must have the capability to work together using timelines and resources that will allow them to achieve successful student learning outcomes. The limitations of the study included few participations on behalf of principals, self-reported survey data, which tend to be subjective and possibly overestimated, and the researcher did not always ask follow-up questions since the surveys were conducted during the summer months. The researcher recommended that a case study be conducted with a principal whose FSA ELA scores have increased for three consecutive years to explore the impact the principal's instructional leadership behavior had on sustained results, a quantitative study be conducted among schools with high and low FSA ELA scores to determine if there is a difference in principal instructional leadership behaviors, and quantitative study be conducted among South Carolina secondary school principals to determine their instructional leadership effect on secondary students' reading achievement scores (Kelly, 2020).

PSAT and SAT

Studies in standardized testing have been performed to analyze whether they are effective in determining student success in academics. According to Leddo et al. (2019), these types of tests help to identify course mastery, if a students can graduate, or to become admitted into higher education. Nevertheless, these tests have proven to be challenging among test takers. The problem arises when students rely on various strategies to prepare for standardized test, yet the results do not show significant increase in scores. A study conducted by Leddo et al. (2019), sought to investigate if SAT scores would increase when strategies were implemented as a skill that would help to increase test scores. The researchers focused on metacognitive strategies since these are general skills students use in the learning process and involve thinking, planning, practicing, and applying knowledge (Leddo et al., 2019).

According to the researchers the study was conducted in the United States and China. The participants consisted of 36 students from the United States and 24 students from China that were taking PSAT and SAT tutoring in preparation for taking the test in the future. For the research, SAT practice tests were utilized with randomly selected participants. One group was given metacognitive strategies to help them respond to the practice test while the other group was given standard strategies of re-reading, taking notes, and answering all questions in the practice test. A two-way analysis of variance (ANOVA) was performed to analyze the data. The results showed that that there was a statistically significant effect for reading strategy which suggested that students using the metacognitive reading strategies performed better than those using the standard reading strategies (Leddo et al., 2019). Moreover, the results of the ANOVA showed no effect between American and Chinese students. Nevertheless, metacognitive reading strategies did show greater performance in both American and Chinese students, yet the effect was stronger in American students than in Chinese students (Leddo et al., 2019). The researchers

concluded that using test taking strategies can increase scores, thus metacognitive strategies should be adopted as test preparation. Also, the researchers identified that standardized test not only measure skill but also content and this study can be extended to other subjects to help improve test scores (Leddo et al., 2019).

Reading Comprehension

Over the years, reading comprehension studies have been performed to identify ways in which this skill can be improved in students. A reading comprehension study performed by Hollington (2021) sought to identify relationships between reading achievement and teacher retention rate, reading achievement and teachers with advanced degrees, reading achievement and average teacher salary, reading achievement and middle schools' school size, reading achievement and the average per-pupil cost, reading achievement and expenditure for school districts' instruction and reading achievement and expenditure for school districts' salaries in middle schools across South Carolina. According to Hollington (2021), reading is considered the basis to understand the various school subjects offered in educational curriculum to ensure well rounded students (Hollington, 2021). However, Hollington (2021) found that over the years research has shown that students are lacking reading skills and proficiency is low. Teachers are an essential part of teaching reading, the issue, however, is that there are various factors that impact how a teacher achieves reading comprehension among students. Therefore, the purpose of the study is to examine the magnitude of the relationship between middle schools' reading achievement and teacher and school factors (Hollington, 2021).

The results in the Hollington's (2021) study indicated that there was no significant relationship between reading achievement and teacher retention rate, reading achievement and teachers with advanced degrees, reading achievement and average teacher salary, reading

achievement and middle schools' school size, reading achievement and the average per-pupil cost, reading achievement and expenditure for school districts' instruction and reading achievement and expenditure for school districts' salaries in middle schools across South Carolina. However, the research found that there was some relationship between variables in that positive outcomes come from having teachers remain in their positions, obtain advanced degrees, earn reasonable salaries, having reasonable school sizes, and funding for students and school districts. Suggestions for future research include student factors like attendance, principal's contributions, and relationship between selected teachers and school factors at the elementary and high school levels (Hollington, 2021).

Another reading comprehension study performed by Moody et al. (2018) investigated how research has focused on the impact of vocabulary instruction on reading skills, word knowledge, and reading comprehension through a qualitative design. The issue, however, is that knowledge of the underlying theories that guide vocabulary instruction and their potential impact on teachers' performance and/or students' achievement has not been investigated. Therefore, the study aimed to uncover the theories behind the vocabulary instructional practices recommended for practitioners, and to cross-reference our findings with those of a literature review of empirical vocabulary studies. The effects of vocabulary instruction on word acquisition and the impact of vocabulary instruction on reading comprehension teacher attitudes towards theories was reviewed (Moody et al., 2018).

As stated by (Moody et al., 2018), researchers identified the underlying theories behind recommendations made for vocabulary instruction within two practitioner journals; Reading Teacher and Journal of Adolescent and Adult Literacy (Moody et al., 2018). A total of 76 articles

were identified for analysis. The articles were published between 2007 and 2017. The articles selected focused on vocabulary instructional strategies.

Moody et al. (2018) indicated that a parallel coding was made for the study to determine whether the underlying theories that guide the word-learning strategies recommended in practitioner journals are the same as those recommended in empirical research journals. Five coders collaborated in the process of coding the articles. The articles were stratified and randomly selected for re-coding. Coders met several times to reach a satisfactory percentage and resolve all remaining differences regarding the coding process. The articles were stratified and randomly selected for re-coding. Coders met several times to reach a satisfactory percentage and resolve all remaining differences regarding the coding process.

According to Moody et al. (2018), the results indicated that recommendations guided by social constructivism/sociocultural theories were the most dominant, followed by schema/psycholinguistic theories, motivation theory. Motivation was another coded theory among the researched studies. Twenty-eight percent of the reviewed articles explicitly focused on vocabulary instruction for ELLs. The findings proved to be like those of another content analysis that focused on the underlying theories guiding instructional recommendations for science literacy. Another finding from the study was that very few theories were explicitly referenced within the Reading Teacher and Journal of Adolescent and Adult Literacy journals. As a future recommendation, teacher knowledge of theories' impacts their implementation should be examined. Recommendations for vocabulary instruction was less common for ELLs, struggling readers, and students in middle and high school which is another consideration to be made for further research (Moody et al., 2018).

In another study regarding reading comprehension, Wanzek (2021) observed how high school students encounter many difficulties withing content area learning since they do not reach reading proficiency by the time, they enter high school level, therefore, hindering college and career opportunities for their future (Wanzek, 2021). Content-area social studies teachers try to engage students with content area knowledge nonetheless, face challenges when they try to help students meet all they academic needs (Wanzek, 2021). The issue, however, is that social studies teachers are trying to determine ways to help students learn content while at the same time these students have reading difficulties. Therefore, the purpose of the study is to identify instructional practices that can enhance and improve the student's ability to understand content.

As part of the study, Wanzek (2021) collected the data from 11th graders in social studies' classes and analyzed the standard deviations results. This helped to outline five instructional practices that can be implemented in the classroom to help students with limited content knowledge including those with reading disabilities, learn content information while overcoming limitations among adolescent academic literacy (Wanzek, 2021). Based on studies of high school 11th graders in social studies' classes, the standard deviations were analyzed and revealed that disparities between students are sharp and fall reading achievement scores in a typical class spanned more than 2.5 standard deviations of reading achievement meaning that reading achievement in many classes can span more than 70 percentile points.

According to Wanzek (2021), the results indicated that social studies teachers can imbed practices into their existing instruction to further engage students in the subject matter and provide support for discipline-specific reading. Middle and high school social studies teachers who have integrated instructional practices in their units regularly see increased student content knowledge as compared with typical instructional practices, including for students with

disabilities. The instructional practices outlined in the article were the comprehension canopy which serves as a unit starter and consists of establishing a purpose, asking an overarching question, and priming initial background knowledge. Another instructional practice is the introduction of explicit words where four or five essential words or concepts necessary for understanding the content of the unit are touched upon since they are necessary to understand the unit. The critical readings instructional practice is another instructional practice that helps ensure that all students, even those who are still developing as readers, work through and comprehend content within primary and secondary text sources. Team-based learning, a practice first used in higher education and adapted for middle and high school involves the use of heterogeneous, permanent teams of students (three to five students at the high school level) to discuss and apply content throughout the unit. The fifth instructional strategy involves the use teams to apply content knowledge at the end of the unit where students apply the knowledge they have acquired while working in their teams to integrate the unit content in a problem-solving or perspective-taking activity. It is important to note that students should do most of the reading and graphic organizers can be implemented to help students work effectively (Wanzek, 2021).

Additional research conducted by Shemshadsara et al. (2019) on reading comprehension studied the effects of reading instruction by raising the students' awareness of different expository text structures on their reading comprehension ability as a reading comprehension strategy. English as a second language or as a foreign language students face difficulties in reading comprehension (Shemshadsara et al., 2019). These may read a text, but it seems difficult for them to understand the meaning, therefore making it difficult for them to find employment (Shemshadsara et al., 2019). The issue, however, is that even when reading comprehension is an

important skill, the teaching of reading comprehension strategies has not been given as much importance in the field of English language teaching (Shemshadsara et al., 2019).

Shemshadsara et al. (2019), selected the participants for this study which included 60 upper-intermediate students from two intact classes. This test included 60 items in multiple-choice format related to vocabulary and grammar with a maximum possible score of 60 points. The students were randomly placed into the experimental and control groups of 30 each after taking the Oxford Quick Placement Test. The participants were given a pre and post-test. The treatment sessions were conducted for ten weeks. The experimental group was exposed to various types of expository texts. The control group was given the same texts during the treatment period. After ten weeks, the experimental and control groups were given the reading comprehension post-test to determine the effect of text awareness. The pre-test and post-test scores of the experimental and control groups were entered into a statistics software for data analysis. Preliminary assumptions checking was conducted, and no violation of the assumptions was observed. To compare the groups' performances before and after the treatment, a set of independent-samples t-test was carried out and the alpha level for testing the significance of the mean difference was set at .05.

As indicated by Shemshadsara et al. (2019), the results showed that that the students' mean score in the experimental group was not too much different in comparison with the students in the control group, revealing that the groups were different to a small extent. The post-test descriptive statistics showed a mean difference of about 3.34 concerning the experimental group's ($M = 13.74$, $SD = 1.70$) reading comprehension ability in comparison with the control group ($M = 10.40$, $SD = 2.09$), which meant an outperformance of the experimental group compared to the control group. All p-values for the pre-tests and post-tests of the experimental

and control groups were more than the set alpha-level (.05) indicating a normal distribution of the data. The study revealed that the experimental group significantly outperformed the control group after the treatment, indicating that the instruction was successful in improving the students' reading comprehension ability. The findings of the study provided sufficient evidence regarding raising the students' awareness of text structure and prove that teachers and students benefit from this type of instruction. Researchers suggest that similar research be done on argumentative texts to compare its results with the results of this study (Shemshadsara et al., 2019).

Summary

This chapter was focused on the review of the literature pertaining to the topic of this research. Synthesized overview of the literature reviewed in this chapter is presented in Table 1 below. Reading is considered the basis to understand the various school subjects offered in educational curriculum to ensure well rounded students (Hollington, 2021). High school students encounter many difficulties withing content area learning since they do not reach reading proficiency by the time they enter high school level (Wanzek, 2021). As stated by Norris (2019), reading is an ability that many students in the secondary level have not mastered. Graphic organizers are a tool that can be used before, during, and after reading lessons that can help in reading comprehension (Norris, 2019). Graphic organizers are designed to motivate learning and teach effectively and are used as a reading comprehension strategy to help English language learners in reading comprehension (Aprianto & Syarifaturrahman, 2020).

However, to be effective, instructional leadership behaviors of secondary school principals may be the guidance needed by high school teachers to have a positive impact on student learning outcomes (Kelly, 2020). A study conducted by Dixson (2021) showed a

problem that existed among middle school principals in that they appeared to inconsistently apply instructional leadership practices while supporting their teachers' teaching students with learning disabilities. Finally, by identifying strategies that help students achieve a proficient reading level such as the application of graphic organizers, leaders and educators can obtain beneficial results (Jameel, 2022; Aprianto & Syarifaturrahman, 2020; Kelly, 2020).

CHAPTER THREE: METHODOLOGY

Introduction

This study investigated the effects of graphic organizers in reading comprehension test scores of secondary level students twelfth-grade students in high school as measured by the reading comprehension PSAT and the differences between use of graphic organizers in reading comprehension with English students in high school and their reading comprehension SAT scores. The data were collected from the SCPS database. The data was analyzed to answer the research questions guiding the present study. This chapter contains the following parts: (a) research design, (b) population and sampling, (c) instrumentation, (d) validity and reliability, (e) internal validity, (f) data collection, (g) data analyses, and (h) summary. The methodology for the purpose of this research followed a quantitative, correlation design. The PSAT scores from the 2021-2022 school year which used the Prentice Hall workbooks were analyzed. The SAT scores from the 2022-2023 school year which used the Study Sync workbooks were analyzed. A Pearson correlation test to measure and interpret scores to measure the effects of using graphic organizers on reading comprehension was implemented. After considering the introduction to this chapter, the process of selecting participants was considered.

Design of Study

This study followed a quantitative research methodology with a descriptive and correlational design. This study analyzed the existing relationship between variables (Fraenkel et al., 2019).

Selection of Participants

The population of this research were ELA students from a twelfth-grade public high school that took the 2021-22 PSAT and 2022-23 SAT and used graphic organizers from Prentice Hall and Study Sync workbooks. The population selected was one that was generalizable to English Language Arts students focusing on reading comprehension (Fraenkel et al., 2019). The sampling method used was a purposive sample. Fraenkel et al. (2019) define a purposive sample as one that is selected on purpose since a specific group or participants were analyzed for the purpose of this study. The data points or sample size that were made available to the researcher totaled 292 participants. Instrumentation, threats, and reliability were discussed to further ensure the research is valid and consistent based on the data collected.

Instrumentation

The variables for the purpose of this research are reading comprehension and graphic organizers. The reading comprehension variable was the dependent variable while the graphic organizer was the independent variable considered as a treatment in the teaching of reading comprehension. As defined by Fraenkel et al. (2019), the variables or concepts considered are quantitative or continuum since these variables can be assigned numbers to different participants. Additional variables considered are categorical, nominal, and dichotomous since these do not vary, but are qualitatively different (Fraenkel et al., 2019). Additional variables were the reading section of the 2021-22 PSAT and 2022-23 SAT scores which are independent and measured continuously; gender which is a categorical, nominal, and dichotomous; race which is a categorical and nominal variable; and ESOL, non-ESOL students which is a categorical, nominal, dichotomous variable.

The PSAT is a practice version of the SAT and is taken once a year during the tenth and eleventh grades and allows students to obtain scholarships (*What Is the PSAT?,* 2023). The reading section of the PSAT and SAT is where students answer questions that test their ability to read and analyze information and ideas in passages (Reading and Writing Specifications SAT Suite College Board, 2024). According to College Board (2024), these tests keep pace with student progress, matching the scope and difficulty of work in the classroom. The PSAT reading section has 47 questions and has a duration of 60 minutes (How Long Is the PSAT? Tips to Manage Your Time Best Colleges, 2024). The SAT is the annual admissions exam most colleges and universities use for admittance of new students and measures high school readiness skills of reading, writing, and math (The Princeton Review, 2023). The SAT reading section has 52 questions and has a duration of 65 minutes (Admin, 2023). According to College Board (2024), a passing score for the PSAT reading section is 320 points and for the SAT is 300 points.

Validity

To assess the validity of the measure, content-related evidence would be appropriate to select since according to Fraenkel et al. (2010), this validity type refers to "the content and format of the test" (p. 145).

PSAT Validity

The PSAT is a practice test that is used for student scholarships, yet it is a shorter form of the SAT. Like the SAT, the test examines skills in reading comprehension therefore it has been analyzed for validity like the SAT since they both measure the same academic skills (Moody, 2021).

SAT Validity

The College Board (2023) conducted a 2019 national validity study that allowed to obtain notable findings. Some predictive taken form the national validity show how students that score high on the SAT test are likely to have high grades at college level, students are predicted to stay the course of a college degree during their sophomore year when scoring high on the SAT test. Another predictive taken from the validity of SAT is how students can get academic support when colleges use their SAT scores to identify this population (*National Validity Study – SAT Suite | College Board*, n.d.).

Internal Validity

To minimize threats to internal validity the researcher identified "testing", where the use of the PSAT in intervention studies may create a "practice effect" that can affect the results of a study and/or how participants respond to an intervention"(p. 166); subject attitude, which refers to the way participants view a study and their partaking of the test (p.162), location refers to the particular settings in which data are collected, or in which an intervention is carried out that may create alternative explanations for results (p. 164); and instrumentation, which is the ways in which instruments are used, may create an internal validity threat (p.164-165). Possible instrumentation threats included changes in the instrument and how it is scored, intervention studies where data are collected over a period as is the case of the PSAT during junior year and SAT senior year (Fraenkel et al., 2019, p. 167). Another possible threat is the history threat where the responses of a study can be affected given unanticipated events. One example might be students during their junior year received English language arts form a teacher that resigned mid academic year and were impacted by taking classes solely buy a substitute teacher. Maturation (Fraenkel et al., 2019) changes over the course of testing is another threat considered

since participants grow a year older and gain different experience over the period of a year during PSAT and SAT.

Reliability

The reliability of a measure, defined as "the consistency of the scores obtained—how consistent they are for each individual from one administration of an instrument to another and from one set of items to another" (Fraenkel et al., 2019, p.150). The reliability method appropriate for the purpose of this research is the PSAT test-SAT retest method because the same test was administered twice to the same group after a certain time has passed and a reliability coefficient is then calculated to show the relationship between the two sets of scores found (Fraenkel et at., 2019). The process of data collection was further discussed in the next section.

Data Collection

To minimize some of the limitations on the generalizability, the researcher considered the external validity of the study through population generalizability which refers to a sample that represents a population of interest and ensures relevant characteristics of the population since the results from the data must be generalized to the population (Fraenkel et at., 2019).

The purpose of the following research was to study the use of graphic organizers in reading comprehension of twelfth grade high school students that took the 2021-22 PSAT and 2022-23 SAT while using graphic organizers from Prentice Hall and Study Sync workbooks. The following is the data collection and the analysis procedure that was used to carry out the research:

1. Request School District and UCF IRB (Appendix A and B)

2. Request data from School District

3. Input and Code Deidentified Data into SPSS v. 28

4. Analyze findings using Pearson and Spearman correlations and G-Power Post Hoc Power Analysis

The data collected used PSAT and SAT scores. After collecting data, an SPSS program was used to calculate and analyze the results. The results were compared to analyze if there is a correlation between PSAT and SAT scores. A Spearman correlation was performed. A Pearson correlation was used to compare results. A statistical correlation is significant at the 0.01 level (2-tailed). Therefore, a statistical significance level of 0.01 was used by the researcher to determine if there was a correlation when analyzing PSAT and SAT scores in reading comprehension of high school students.

Data Analysis

In accordance with the correlation design that was utilized in the current study, the collected data was of a quantitative nature. (Fraenkel et al., 2019). Consequently, the research questions in this study were designed for quantitative analyses. The research questions were listed in chapter one. The statistical analyses included a Spearman and Pearson correlation to analyze PSAT and SAT scores, and descriptive statistics to analyze categories like gender, race, ESOL and non-ESOL students. This data was analyzed in SPSS, version 28. A G-power analysis (Table 8) was calculated to identify the sample size for a Pearson correlation for post hoc data or secondary data that was made available to the researcher.

Table 1 Research Questions Data Matchup

Research Question	Variables	Statistical Test
RQ: 1A. What are the descriptive statistics between PSAT reading comprehension scores and SAT reading comprehension scores for all 12th English language arts students that used graphic organizers in the teaching of reading comprehension? RQ: 1B. What are the descriptive statistics for ESOL students?	Race (categorical, nominal) Gender, ESOL and non-ESOL (dichotomous)	Descriptive Statistics
RQ: 2. Is there a correlation between PSAT reading comprehension scores and SAT reading comprehension scores for all 12th English language arts students that used graphic organizers in the teaching of reading comprehension?	PSAT and SAT scores (continuous)	Pearson Correlation Spearman Correlation G-Power for post hoc analysis

Summary

This chapter explained how the study was completed to answer the three stated research questions in Chapter 1: What are the descriptive statistics between PSAT reading comprehension scores and SAT reading comprehension scores for all 12th English language arts students that used graphic organizers in the teaching of reading comprehension? What are the descriptive statistics for ESOL students? Is there a correlation between PSAT reading comprehension scores and SAT reading comprehension scores for all 12th English language arts students that used graphic organizers in the teaching of reading comprehension?

The participants were identified as students in 12th grade that used graphic organizers from different workbooks and that took the 2021-22 PSAT and the 2022-23 SAT. The

instrumentation was reviewed, including the validity and reliability of the instruments. The method of data collection and analysis was described. The results of this investigation are presented in the next chapter.

CHAPTER FOUR: PRESENTATION AND ANALYSIS OF DATA

Introduction

This study intended to investigate the use of graphic organizers in the reading comprehension of 12th grade students in a public high school. The purpose of the research was achieved by implementing the use graphic organizers in reading comprehension of high school students to determine if the use of graphic organizers in the teaching of reading had any relationship on the reading comprehension of English language arts students in the 12th grade, and if graphic organizers improve the reading comprehension of students in the 12th grade from a public high school. The 2021-22 Preliminary Scholastic Aptitude Test (PSAT) scores and the 2022-23 Scholastic Aptitude Test (SAT) were used to gather student achievement information. This chapter presents the results of the data analysis for the stated research question.

Table 2 Research Question Data Matchup

Research Question	Variables	Statistical Test
RQ: 1A. What are the trends between PSAT reading comprehension scores and SAT reading comprehension scores for all 12th English language arts students that used graphic organizers in the teaching of reading comprehension? RQ: 1B. What are the descriptive statistics for ESOL students?	Race (categorical, nominal) Gender, ESOL and non-ESOL (dichotomous)	Descriptive Statistics
RQ: 2. Is there a correlation between PSAT reading comprehension scores and SAT reading comprehension scores for all 12th English language arts students that used graphic organizers in the teaching of reading comprehension?	PSAT and SAT scores (continuous)	Pearson Correlation Spearman Correlation G-Power for post hoc analysis

Descriptive Statistics

The 2021-22 Preliminary Scholastic Aptitude Test (PSAT) scores and the 2022-23 Scholastic Aptitude Test (SAT) were used to gather student achievement information. This data on student achievement is utilized to study the achievement of the students in the public high school used in this study. Research question one sought to analyze the trends among the variables.

Table 3 illustrates the descriptive statistics for the PSAT and SAT scores. On average, a score of 541 was attained by the students given a minimum score of 200 and a maximum score of 800 for the 2022-23 SAT. An average score of 503 was attained by the students given a minimum score of 160 and a maximum score of 740 for the 2021-22 PSAT. The significance of the mean score in the SAT denotes that scores were higher than PSAT scores, reflecting a positive improvement from the PSAT scores.

Table 3 PSAT and SAT scores

Variable Name	***N***	***Minimum***	***Maximum***	***Mean***	***Std. Deviation***	***Variance***
SAT	292	200	800	541.40	107.129	11476.716
PSAT	292	160	740	503.39	115.547	13351.009
Valid N (listwise)	292					

Table 4 shows the descriptive statistics for the category of race from students that took the 2022-23 SAT and the 2021-22 PSAT. Among the population, 14 students were Asian, representing 4.8% of the population, 34 students were Black representing an 11.6% of the population, 81 students were Hispanic representing a 27.7% of the population, 12 students were multi-racial representing a 4.1% of the population, 1 student was Native-Hawaiian representing a 3% of the population, and 150 students were White representing 51.4% of the total population of 292 students.

Table 4 Frequency Table for Race

Category	***Frequency***	***Percent***	***Cumulative Percent***
Asian	14	4.8	4.8
Black	34	11.6	16.4
Hispanic	81	27.7	44.2
Multi-racial	12	4.1	48.3
Native-Hawaiian	1	.3	48.6
White	150	51.4	100.0
Total	292	100.0	

Figure 4 represents a simple histogram of PSAT by race. Approximately 700 was the highest score among the Asian population, approximately 650 was the highest score among the black population, approximately 730 was the highest score among the Hispanic population, approximately 630 was the highest score among the multi-racial population, approximately 610 was the score among the Native Hawaiian population, and approximately 780 was the highest score among the white population.

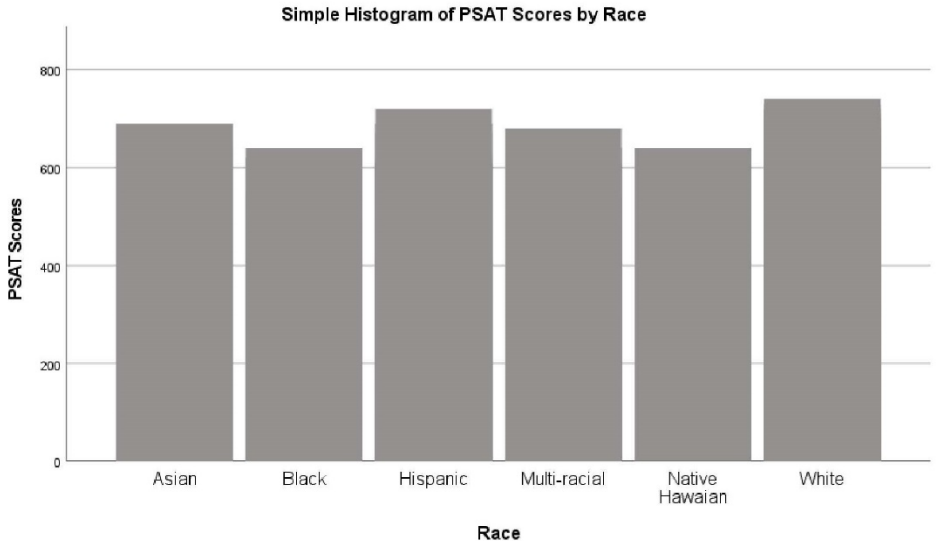


Figure 4 Histogram of PSAT Scores by Race

Figure 5 shows a simple histogram of SAT by race. Approximately 790 was the highest score among the Asian population, approximately 620 was the highest score among the black population, approximately 790 was the highest score among the Hispanic population, approximately 630 was the highest score among the multi-racial population, approximately 630 was the score among the Native Hawaiian population, and approximately 800 was the highest score among the white population.

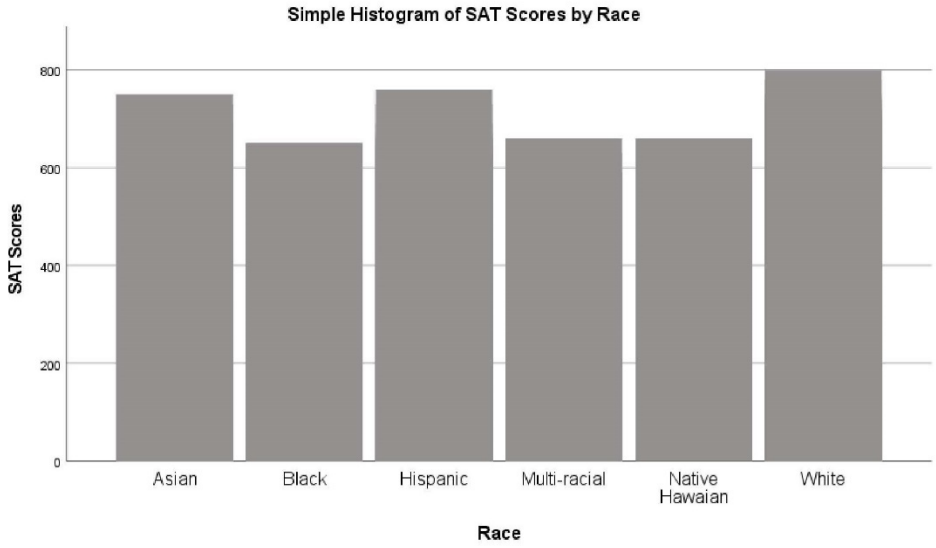


Figure 5 Histogram of SAT Scores by Race

Table 5 shows the descriptive statistics for the category of gender from students that took the 2021-22 PSAT and the 2022-23 SAT. From a total of 292 students, 173 were male which represented 59.2% of the population whereas 119 were female which represented 40.8% of the total population.

Table 5 Frequency Table for Gender

Category	***Frequency***	***Percent***	***Cumulative Percent***
Male	173	59.2	59.2
Female	119	40.8	100.0
Total	292	100.0	

Figure 6 represents a simple histogram of PSAT by gender. Approximately 790 was the highest score obtained among the male population. In contrast, approximately 770 was the highest score obtained among the female population.

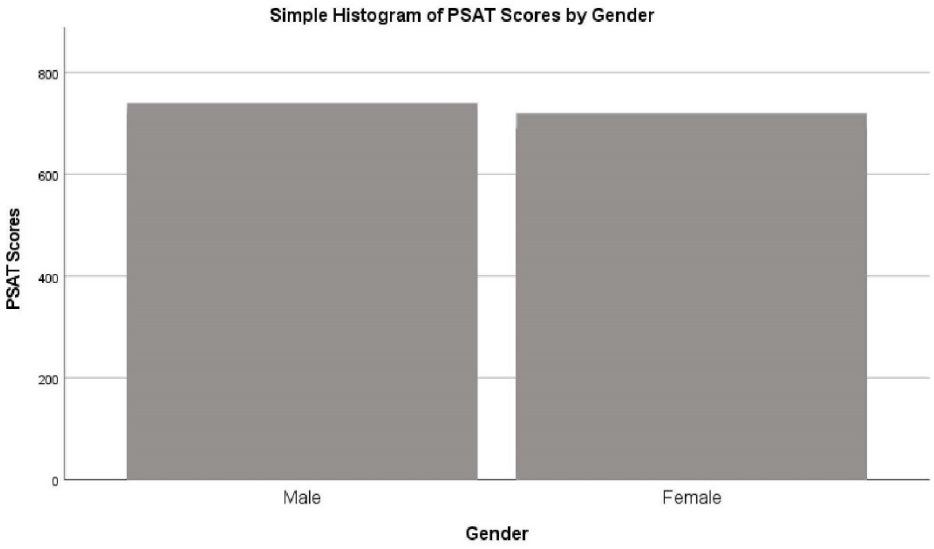


Figure 6 Histogram of PSAT Scores by Gender

Figure 7 represents a simple histogram of SAT by gender. Approximately 790 was the highest scores obtained among the female population. In contrast, approximately 800 was the highest score obtained among the male population.

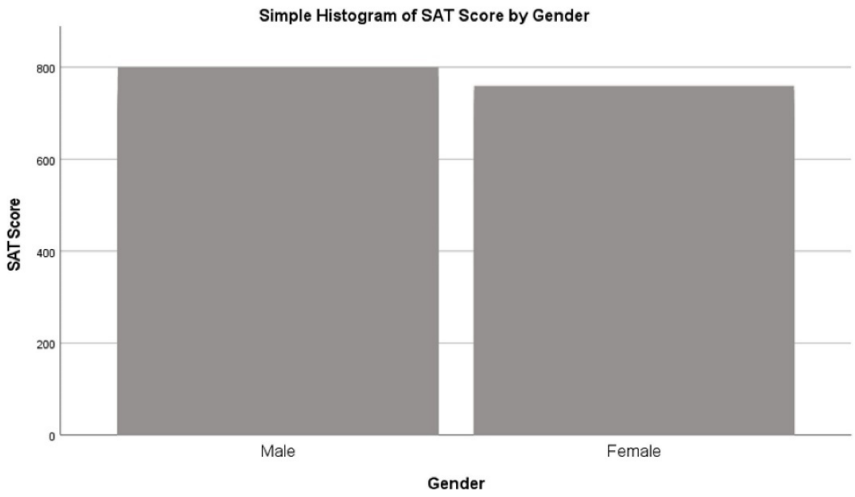


Figure 7 Histogram of SAT Scores by Gender

Table 6 shows the descriptive statistics for the category of ESOL and non-ESOL from students that took the 2021-22 PSAT and the 2022-23 SAT. Of a total of 292 students, 277 students were non-ESOL which represented 94.4% of students, while 15 students were ESOL which represented 5.1% of students.

Table 6 Frequency Table for English Language Learners (ESOL)

Category	***Frequency***	***Percent***	***Cumulative Percent***
ESOL	15	5.1	5.1
Non-ESOL	277	94.4	100.0
Total	292	100.0	

Statistical Assumptions

Pearson Correlation

To run a Pearson correlation, there are some basic requirements that must be met before testing the null and alternative hypotheses (Log In - Laerd Statistics, n.d.-b). Pearson correlation considers five assumptions. The first assumption states that variables should be measured on a continuous scale (Log In - Laerd Statistics, n.d.). For this research, PSAT and SAT scores are the continuous variables measured. The second assumption states that two continuous variables should be paired, which means that each case has two values: one for each variable (Log In - Laerd Statistics, n.d.; Price & Steinberg, 2021). In other words, each students have a PSAT and SAT scores.

The statistical assumptions that were also considered given the analysis of scores and the application of a Pearson's correlation were whether the observations within measures are independent, the variables are bivariate normally distributed meaning that data look like an oval, and there is a linear relationship between the two variables, thus the best line of fit is a

straight line (Log In - Laerd Statistics, n.d.; Price & Steinberg, 2021). A Pearson correlation must also meet three additional assumptions. This is related to the nature of the data in order to provide a valid result. Assumption three states that there should be a linear relationship between two continuous variables. Assumption four mentions that there should be no significant outliers, while assumption five identifies that there should be bivariate normality (Log In - Laerd Statistics, n.d.; Price & Steinberg, 2021). These assumptions were tested using SPSS Statistics. The Pearson correlation coefficient, *r*, is a sample coefficient since its value represents the strength and direction of the linear relationship that exists in the sample studied (Log In - Laerd Statistics, n.d.; Price & Steinberg, 2021). The Pearson correlation coefficient not only estimates the correlation coefficient in the population, but also determines whether the population correlation coefficient is not zero, in other words a linear relationship exists (Log In - Laerd Statistics, n.d.; Price & Steinberg, 2021).

Spearman Correlation

The Spearman's correlation measures the strength and direction of the association/relationship between two continuous or ordinal variables (Log In - Laerd Statistics, n.d.; Price & Steinberg, 2021). The Spearman's correlation has three assumptions. The assumptions include having two continuous or ordinal variables, having these two variables represent paired observations, and determining whether there is a flat relationship between two variables (Log In - Laerd Statistics, n.d.; Price & Steinberg, 2021).

Inferential Statistics

According to Fraenkel et al. (2019), correlational research shows the relationship between two or more variables in this case the PSAT and SAT scores for English Language Arts

reading comprehension for the same group of high school students. Scores for the same students were analyzed with a gap year in between the PSAT and SAT testing. For this research, research question two sought to analyze the correlation between variables and a hypothesis was formulated. A G-power analysis was performed to determine whether post hoc data, showed enough power to be analyzed using sample size for a Pearson correlation.

Pearson Correlation

It is important to note that to run a Pearson correlation, the data must be normally distributed to prove that the assumptions were appropriately met which was the case in this research (Log In - Laerd Statistics, n.d.; Price & Steinberg, 2021). To run the Pearson correlation, the descriptive statistics and the five assumptions needed to apply the Pearson's correlation allowed for the research to analyze the data using this methodology. For the descriptive statistics, a scatter plot of SAT and PSAT scores, histograms for SAT by PSAT scores, race, gender, and ESOL and non-ESOL students were used to visually illustrate the data are normally distributed and no outliers were observed.

Table 7 illustrates the Pearson correlation for the 2022-2023 SAT and the 2021-2022 PSAT scores. A correlation of .855** for both scores show there was a high correlation representing above 80%. The correlation is significant at the 0.01 level. This study met the assumptions for the Pearsons correlation; therefore, it was determined that the Pearson's correlation was appropriate to analyze the SAT and PSAT scores.

Table 7 Pearson Correlation for PSAT and SAT Scores

		PSAT Score	SAT Score
PSAT Score	**Pearson Correlation**	1	.855**
	Sig. (2-tailed)		<.001
	N	292	292
SAT Score	**Pearson Correlation**	.855**	1
	Sig. (2-tailed)	<.001	
	N	292	292

**. Correlation is significant at the 0.01 level (2-tailed).

Figure 8 shows the Pearson correlation for the SAT and PSAT scores scatter plot. After using the bivariate correlation procedure, a correlation of .855** for both scores showed there was a high correlation above 80%. The correlation is significant at the 0.01 level. Figure 10 shows how the data is normally distributed.

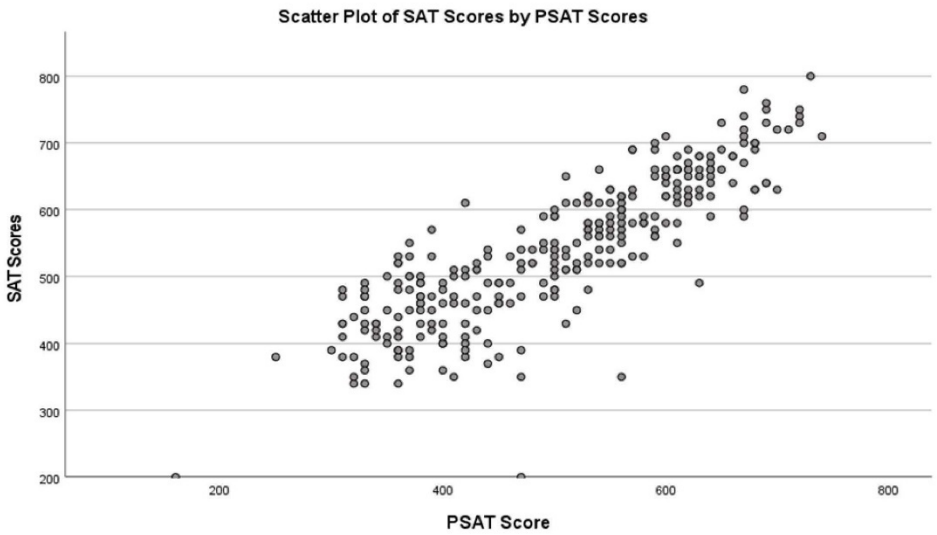


Figure 8 Scatter Plot of SAT Scores by PSAT Scores

Figure 9 shows the simple boxplot of PSAT scores by the ESOL students. The maximum upper quartile scores are approximately 775, while the minimum or lower quartile scores fall below 200, approximately 190. Non-ESOL students show scores of approximately 600 and 770 in the upper quartile, representing around 25% of the scores. The lower quartile, which represent about 25% of the data, shows how scores fall approximately below 200 and between 400 of the scores. The interquartile, which represents 50% of the data, ranges between 400 and 600 in scores. The median in the interquartile represents approximately a score of 520. When analyzing the ESOL boxplot, the upper quartile shows scores of approximately 400 and 430. The interquartile ranges between 400 and 390 in scores. The median in the interquartile represents approximately a score of 390. The lower quartile shows how scores fall approximately below 370 and between 380 of the scores. The maximum upper quartile scores are 470, while the minimum or lower quartile scores fall approximately on 370.

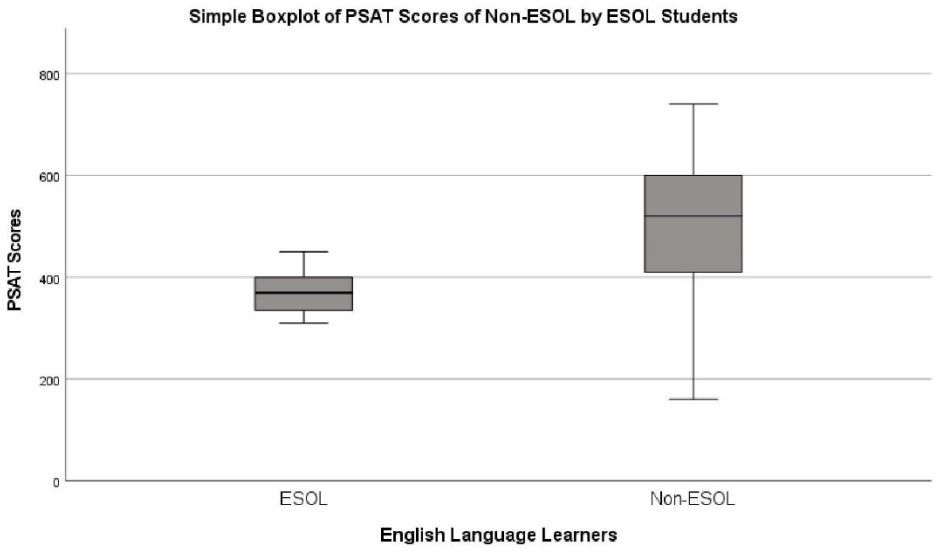


Figure 9 Boxplot of PSAT Scores by English Language Learners

Figure 10 illustrates the simple boxplot of SAT scores by the ESOL students. The maximum upper quartile scores are 800, while the minimum or lower quartile scores fall approximately on575. Non-ESOL students show scores of approximately 610 and 800 in the upper quartile, representing around 25% of the scores. The lower quartile, which represent about 25% of the data, shows how scores fall approximately below 420 and between 375 of the scores. The interquartile, which represents 50% of the data, ranges between 420 and 610 in scores. The median in the interquartile represents approximately a score of 375. When analyzing the ESOL boxplot, the upper quartile shows scores of approximately 575 and 450. The interquartile ranges between 450 and 390 in scores. The median in the interquartile represents approximately a score of 430. The lower quartile shows how scores fall approximately below 370 and between 390 of the scores. The maximum upper quartile scores are 575, while the minimum or lower quartile scores fall approximately on 370.

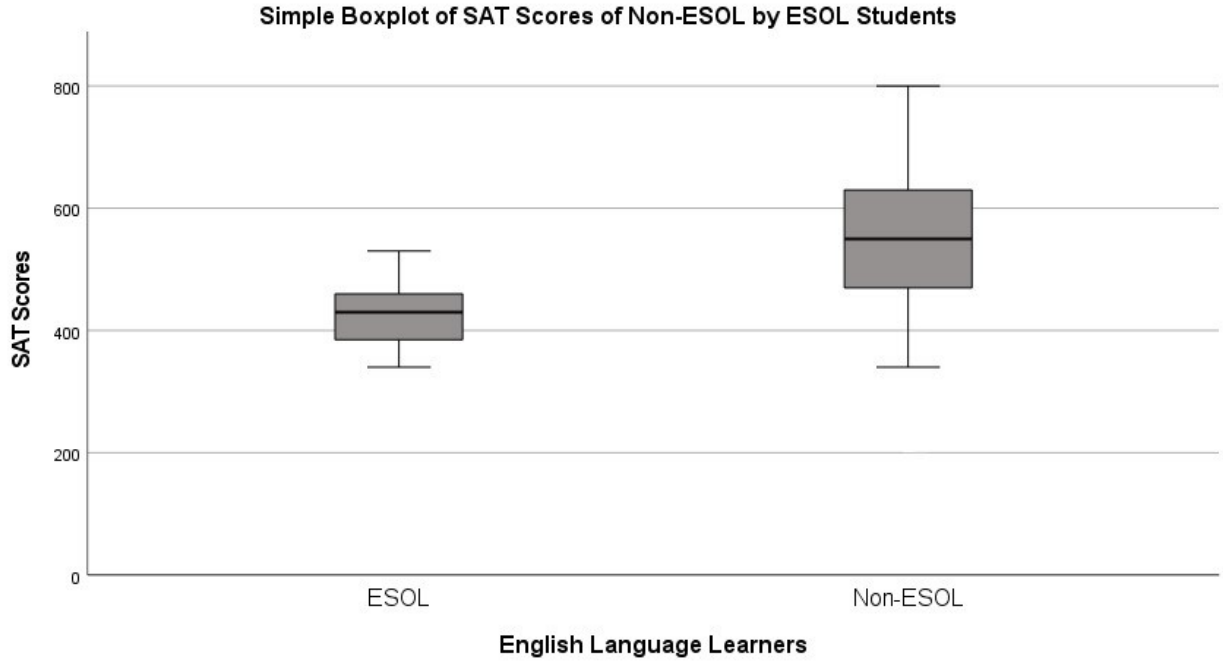


Figure 10 Boxplot of SAT Scores by English Language Learners

Spearman Correlation

Table 8 shows a Spearman correlation. The Spearman correlation is a non-parametric correlations test that was run for the PSAT and SAT scores for this research to determine relationships between variables and was added as a backup test in case data was not parametrically distributed. When interpreting the results to understand the correlation coefficient for the Spearman's rho, it was observed that the latter took a +1 value. This indicates a perfect positive (+1) given that the results revealed a significant correlation at the 0.01 level (2-tailed) (p-value < .01) of .870** or an 87 percent significance.

Table 8 Nonparametric Spearman Correlation for PSAT and SAT Scores

		PSAT Score	SAT Score
Spearman's rho			
PSAT Scores	**Correlation Coefficient**	1.000	.870**
	Sig. (2-tailed)	.	<.001
	N	292	292
SAT Scores	**Correlation Coefficient**	.870**	1.000
	Sig. (2-tailed)	<.001	.
	N	292	292

**. Correlation is significant at the 0.01 level (2-tailed).

A G-power analysis (Table 9) was calculated to identify the sample size for a Pearson's r correlation (n=23) and for Power Analysis of the post hoc data. The statistical test selected was the correlation: bivariate normal model. Under the type of power analysis, a priori was used to compute required minimum sample size - given the alpha of .05, power/Beta of .80, and effect size, larger, was applied. Since the correlation travels in a certain direction, a positive correlation

was observed, meaning that PSAT and SAT scores traveled in the same positive upward direction. According to Fraenkel et al. (2019), correlation exists when scores withing a range on a variable are associated with scores within a range on the other variable. Additionally, a positive correlation means that high scores on one variable tend to be high on the other variable (Fraenkel et al., 2019). Such was the case for the data collected for the purpose of this research. For the correlation *p*, a large treatment effect of .50 was selected since 292 students comprised the total population in the research. A Power (1-beta err prob) of .80 was applied given the current empirical or clinical context. The calculated output parameters showed a lower and upper critical *r* of 0.3515312 with a total sample of 23 and an actual power of 0.81. This translates to having enough participants, 277 out of 292 total students, to analyze for the purpose of the research. In contrast, a power analysis was not considered for the ESOL students since only 15 out of 292 were the participants, meaning there is not enough power to analyze this population. Therefore, this small population may not be representative of the general population of English language arts students in ESOL.

Table 9 G-Power Power Analysis Post Hoc and a Priori Sample Size

		Input Parameters	Output Parameters
Statistical Test **Correlation** **Bivariate normal model**	**Directional Hypothesis (1-tailed)**	0.05	Lower critical r 0.3515312
	Correlation p H1		
Type of Power Analysis **A Priori: Compute required sample size given error, power, and effect size**	**Error probability**	0.05	Upper critical r 0.3515312
	Required Power	0.80	Total sample size 23
	Correlation p H0	0	Actual power 0.8103534

This gives way to testing both the null hypothesis which states that the population correlation coefficient is equal to zero. In contrast, the alternative hypothesis states that the population correlation coefficient is not equal to zero. The findings in this research showed a correlation of .855** as seen in Table 7. This can be translated to how the population correlation coefficient was not zero. Therefore, the null hypothesis was rejected and the alternative hypothesis was accepted since the population correlation coefficient is not equal to zero (Log In - Laerd Statistics, n.d.; Price & Steinberg, 2021).

Testing the Research Questions

When choosing to analyze data using Pearson correlation, part of the process involves checking to make sure that the data to be analyzed can be analyzed using Pearson correlation (Log In - Laerd Statistics, n.d.; Price & Steinberg, 2021). Therefore, it was appropriate to use the

Pearson correlation since the data met the five assumptions that are required for a Pearson correlation to provide a valid result.

Research Question One

Assumptions one and two of a Pearson correlation relate to this research's study design and variables which include having two continuous variables and these two continuous variables are paired, hence these were tested using descriptive statistics to answer research question one of this study (Log In - Laerd Statistics, n.d.; Price & Steinberg, 2021). After running the descriptive statistics, it was determined that assumptions one and two were met. This resulted in analyzing research question one:

RQ: 1A. What are the descriptive statistics between PSAT reading comprehension scores and SAT reading comprehension scores for all 12th English language arts students that used graphic organizers in the teaching of reading comprehension?

RQ: 1B. What are the descriptive statistics for ESOL students?

The descriptive statistics found when analyzing the data for the PSAT and SAT scores were on average 541 was attained by the students given a minimum score of 200 and a maximum score of 800 for the 2022-2023 SAT. An average score of 503 was attained by the students given a minimum score of 160 and a maximum score of 740 for the 2021-2022 PSAT (Table 3).

The descriptive statistics for ESOL students that took the 2022-2023 SAT and the 2021-2022 PSAT showed that from a total of 292 students, only 15 students were ESOL which represented 5.1% of students (Table 7).

Research Question Two

Assumptions three, four, and five are related to Pearson correlation itself, hence these were tested using SPSS Statistics to answer research question two of this research. After testing the assumptions, it was determined that the three assumptions were met. This resulted in testing research question two before accepting the hypothesis:

RQ: 2. Is there a correlation between PSAT reading comprehension scores and SAT reading comprehension scores for all 12th English language arts students that used graphic organizers in the teaching of reading comprehension?

Null Hypothesis. There is no correlation between PSAT reading comprehension scores and SAT reading comprehension scores.

Alternative Hypothesis. There is a correlation between PSAT reading comprehension scores and SAT reading comprehension scores.

The 2021-2022 Preliminary Scholastic Aptitude Test (PSAT) scores and the 2022-2023 Scholastic Aptitude Test (SAT) were used to gather student achievement information. According to the Pearson's correlation analysis for the PSAT and SAT scores (Table 7), there is a statistically high correlation of .855** (88 percent) since correlation is significant at the 0.01 level. Subsequently, the alternative hypothesis is accepted; there is a correlation between PSAT reading comprehension scores and SAT reading comprehension scores. It is important to note that correlation does not imply causation. This means that regardless of the strong positive correlation between PSAT and SAT scores, one score does not cause the other to be positive (Fraenkel et at., 2019; Log In - Laerd Statistics, n.d.; Price & Steinberg, 2021).

Summary

In this chapter, the results of the data analysis for the two stated research questions were presented. Results revealed a significant correlation at the 0.01 level (p-value < .001) with .855** between the 2021-2022 PSAT scores during which graphic organizers from the Prentice Hall workbooks were implemented in the reading comprehension of high school English Language Arts students and the 2022-2023 SAT scores during which graphic organizers from the Study Sync workbooks were implemented in the reading comprehension of high school English Language Arts students. Results from statistical tests for each research question revealed that a high correlation between the 2021-2022 PSAT scores during which graphic organizers from the Prentice Hall workbooks were implemented in the reading comprehension of high school English Language Arts ESOL students and the 2022-2023 SAT scores during which graphic organizers from the Study Sync workbooks were implemented in the reading comprehension of high school English Language Arts ESOL students.

The final chapter is five. This chapter offers an interpretation of the data analyses.

CHAPTER FIVE: SUMMARY, DISCUSSION, AND CONCLUSIONS

Introduction

In the previous chapter, the presentation and analysis of data were reported. This chapter consists of a summary of the study, a discussion of the findings, implications for practice, recommendations for further research, and conclusions. The section aims to expand on the concepts researched and provide insight into the effects of using graphic organizers in reading comprehension of twelfth grade students in a public high school, the impact on the reading comprehension of English language arts students in the 12th grade, and if graphic organizers improve the reading comprehension of students in the 12th grade from a public high school.

Summary of the Study

Chapter one presented the background of the study, statement of the problem, purpose and significance of the study, definition of terms, theoretical framework, research questions and hypothesis, limitations, delimitation, assumptions, and organization of the study which were centered on how research has shown that students are deficient in reading skills, thus proficiency is low (Hollington, 2021). In pursuit of identifying strategies that help improve reading comprehension at the secondary level, educators and instructional leaders have been on a mission to identify such strategies. English language learners may improve reading comprehension when graphic organizers are used by teachers that educate effectively (Aprianto & Syarifaturrahman, 2020). The goal of the research was to identify correlations in the use of graphic organizers and reading comprehension of high school students. The findings of the study also informed teachers and educational leaders about the importance of instructional strategies in their profession.

Chapter two focused on the review of the literature pertaining to the topic of this research. Reading is considered the basis to understand the various school subjects offered in educational curriculum to ensure well rounded students (Hollington, 2021). High school students encounter many difficulties withing content area learning since they do not reach reading proficiency by the time they enter high school level (Wanzek, 2021). Graphic organizers are designed to motivate learning and teach effectively and are used as a reading comprehension strategy to help English language learners in reading comprehension (Aprianto & Syarifaturrahman, 2020). Finally, by identifying strategies that help students achieve a proficient reading level such as the application of graphic organizers, leaders and educators can obtain beneficial results (Jameel, 2022; Aprianto & Syarifaturrahman, 2020; Kelly, 2020).

Chapter three explained the methodology of the study and how the latter was to be completed to subsequently answer the stated research questions in Chapter 1: What are the trends between PSAT reading comprehension scores and SAT reading comprehension scores. What are the trends in ESOL students. Is there a correlation between PSAT reading comprehension scores and SAT reading comprehension scores. The participants were identified as students in twelfth-grade students that took the PSAT and SAT. The instrumentation was discussed which included the validity and reliability of the instruments. The method of data collection and analysis were described before delving into the discussion of the study results.

Chapter four discussed the results of the data analysis for the stated research questions What are the descriptive statistics between PSAT reading comprehension scores and SAT reading comprehension scores for all 12^{th} English language arts students that used graphic organizers in the teaching of reading comprehension? What are the descriptive statistics for ESOL students? Is there a correlation between PSAT reading comprehension scores and SAT

reading comprehension scores for all 12th English language arts students that used graphic organizers in the teaching of reading comprehension? Results revealed a significant correlation at the 0.01 level (p-value < .001) with .85 between the 2021-2022 PSAT scores during which graphic organizers from the Prentice Hall workbooks were implemented in the reading comprehension of high school English Language Arts students and the 2022-2023 SAT scores during which graphic organizers from the Study Sync workbooks were implemented in the reading comprehension of high school English Language Arts students. Results from statistical tests for each research question revealed that a high correlation between the 2021-2022 PSAT scores during which graphic organizers from the Prentice Hall workbooks were implemented in the reading comprehension of high school English Language Arts ESOL students and the 2022-2023 SAT scores during which graphic organizers from the Study Sync workbooks were implemented in the reading comprehension of high school English Language Arts ESOL students.

Discussion of the Findings in Relation to Previous Findings

The review of literature in chapter two referenced studies conducted in reading comprehension, graphic organizers, and instructional leadership. These studies included a variety that were implemented as well as varied results. Previous research on graphic organizers and reading comprehension have showed that graphic organizers can be a useful instrument to help in student comprehension and provide motivation. Graphic organizers are effective to improve reading comprehension of students that are lacking reading habits, and graphic organizers can be used as a reading comprehension strategy to help English language learners improve their reading comprehension. Along with reading comprehension strategies, studies have shown that instructional leadership behaviors of secondary school principals are a helpful guide needed by

high school teachers in order to have a positive impact on student learning outcomes. Administrators and teachers that work together provide students with high expectations and encourage students to reach academic goals. Data driven research has helped educators and administrators make decisions regarding strategies and best practices that support student academic achievement and success in reading comprehension (Aprianto & Syarifaturrahman, 2020; Gomez, 2018; Imsa-Ard, 2022; Jameel, 2022; Kansızoğlu 2017; Kelly, 2020; Noris, 2019; Warsono, 2018; Wanzek, 2021; Weinstein et al., 2018).

Like previous research, the following research used quantitative, descriptive, and inferential statistics to analyze data. However, the Pearson's correlation was used for the purpose of this research. The Pearson's correlation coefficient value is a measure of the strength and direction of the association between the two variables (Log In - Laerd Statistics, n.d.; Price & Steinberg, 2021). After interpreting the results to understand the correlation coefficient, it was observed that there a was a positive correlation of a +1 value. This indicates a perfect positive (+1) given that the results revealed a significant correlation at the 0.01 level (p-value < .01) of .85. As the sign of the Pearson correlation coefficient is positive, it was concluded that there is a strong, positive correlation between SAT scores from the 2022-23 school year using graphic organizers from the Study Sync workbooks and PSAT scores from the 2021-22 school year using graphic organizers from the Prentice Hall workbooks. In other words, PSAT and SAT scores increased during the times that graphic organizers were used in reading comprehension.

Research Question One

RQ: 1A. What are the descriptive statistics between PSAT reading comprehension scores and SAT reading comprehension scores for all 12th English language arts students that used graphic organizers in the teaching of reading comprehension?

RQ: 1B. What are the descriptive statistics for ESOL students?

The descriptive statistics for the SAT and PSAT scores showed an average score of 541 obtained by the students given a minimum score of 200 and a maximum score of 800 for the 2022-23 SAT. An average score of 503 was obtained by the students given a minimum score of 160 and a maximum score of 740 for the 2021-22 PSAT as described in table 3. For the category of race from students that took the 2022-23 SAT and the 2021-22 PSAT, a population of 14 students were Asian, representing 4.8% of the population, 34 students were Black representing an 11.6% of the population, 81 students were Hispanic representing a 27.7% of the population, 12 students were multi-racial representing a 4.1% of the population, 1 student was Native-Hawaiian representing a 3% of the population, and 150 students were White representing 51.4% of the total population of 292 students as showed on table 4. Subsequently, the descriptive statistics for the category of gender from students that took the 2022-23 SAT and the 2021-22 PSAT were from a total of 292 students, 173 were male which represented 59.2% of the population whereas 119 were female which represented 40.8% of the total population as discussed from table 5. Lastly, table 6 focused on the descriptive statistics for the category of ESOL and non-ESOL from students that took the 2022-23 SAT and the 2021-22 PSAT from a total of 292 students, 277 students were non-ESOL which represented 94.4% of students, while 15 students were ESOL which represented 5.1% of students.

Research Question Two

RQ: 2. Is there a correlation between PSAT reading comprehension scores and SAT reading comprehension scores for all 12th English language arts students that used graphic organizers in the teaching of reading comprehension?

According to the Pearson correlation analysis for the PSAT and SAT scores (Table 7), there is a statistically high correlation of .85 (85 percent) since correlation is significant at the 0.01 level. Subsequently, the alternative hypothesis is accepted; there is a correlation between PSAT reading comprehension scores and SAT reading comprehension scores. These findings confirm that graphic organizers included in workbooks should continue to be used in the teaching of reading comprehension thus reflecting in strong correlation and achievement in PSAT and SAT scores.

Implications for Practice

The results presented a significantly strong correlation between PSAT and SAT scores in reading comprehension when using graphic organizers graphic organizers during the 2021-22 and 2022-23 school year when using Prentice Hall and Study Sync workbooks. The data from the Pearson's correlation was analyzed and showed an 85% correlation between the PSAT and SAT scores of students in the 12th grade that used graphic organizers in both the Prentice Hall and Study Sync workbooks The results of this study have far-reaching implications for educators and educational administrators by presenting data which demonstrated how graphic organizers are a useful strategy to help students improve in reading comprehension. The research questions from this research provided descriptive and inferential statistics that showed positive strong correlations between PSAT and SAT scores. Therefore, this research is useful for instructional leaders to support current policy that keeps the practice of providing funding that allows for resources that make use of graphic organizers to improve reading comprehension that in turn is a skill tested in the PSAT and SAT.

Implications for Policy

This study will also be useful for stakeholders and policy makers to invest in science-based resources that include reading comprehension strategies to help students achieve success in reading comprehension (Hattie 2009; Pajor 2022). Instructional decisions based on data driven research provide better insight as to where resources are needed most to allow educational leaders work together with teachers resulting in applying reading comprehension skills and tools that will reflect on students' achievement scores like PSAT and SAT assessments. These strategies are also helpful when considering the diverse population that must develop appropriate reading comprehension competency. Differentiated instruction used in reading comprehension through varied strategies and resources like the use of graphic organizers should be considered on behalf of educators, stakeholders, and administrators when impacting students that are faced with the rigors of test scores that reflect academic achievement (Singh et al., 2020).

Recommendations for Further Research

The recommendations in this study resulted from the research questions that were answered through descriptive and inferential statistics. The first recommendation is based on the results from research question one and two which asked what are the trends in PSAT and SAT scores from ESOL and non-ESOL students and what are the correlations between the PSAT and SAT scores. A recommendation for future research is that future researchers perform quasi-experimental research where data can be collected from a population that can be generalizable to English language arts reading comprehension students from the public educational system (Fraenkel et at., 2019). A sub-category of ESOL students can also be studied with a greater population that can also be representative of ESOL students in English language arts learning reading comprehension from the public educational system. This can be done by getting a much

greater N or population allowing for the sample to be larger through random sampling to generalize back to the population (Fraenkel et at., 2019).

The research methodology can include performing a paired t-test to compare or to determine if there is a difference between paired observations and whether the differences are statistically significant where participants can be students tested at two time points or under two different conditions on the same dependent variable (Log In - Laerd Statistics, n.d.; Price & Steinberg, 2021). The treatment would include using graphic organizers in reading comprehension. Participants can then be given a pre and posttest to gather data. This study was limited to high school students; therefore, another recommendation would be to expand the scope of the research to elementary and middle school levels to determine whether using graphic organizers can be a helpful strategy to improve reading comprehension, thus generalizing back, directly to the English language arts population of ESOL and non-ESOL students.

Limitations

The study has the following limitations:

1. The researcher delimited the scope of the analysis by selecting only one public high school from, the 13th largest school district in central Florida. Due to the limited scope, the findings may not generalize to elementary, middle, special centers, problem solving incubator high schools, virtual school, or smaller rural school districts. However, applying simple random sampling from elementary, middle, and other educational sources can help represent the population (Fraenkel et al., 2019).
2. Maturation refers to the passing of time between tests, in this case the gap year between the 2021-22 PSAT and the 2022-23 SAT. According to Fraenkel et al. (2019), maturation

threat involves students, in this case from high school, change because of age and their experiences during the gap. Fraenkel et al. (2019) mention the fact that this threat only occurs in studies that use pre-post data. For the purpose of this study the 2021-22 PSAT would be considered the pre intervention, while the 2022-23 SAT would be considered the post intervention. Fraenkel et al. (2019), suggest including a well-selected comparison group to minimize maturation threat.

3. Only 15 students were ESOL students. Therefore, the sample size was limited and not generalizable to the high school English language arts population. For this reason, a Pearson's correlation and a G-power analysis for post hoc data was not appropriate given the sample size of the participants. Descriptive statistics shown in the scatter plots and histograms for race, gender, helped to visually identify trends among the ESOL population and answer research question one.
4. Attitudes of the subjects is another threat that could be considered for the purpose of this research. Since the PSAT is a practice test taken in the tenth and eleventh grades, student apathy, accounts for attitudes from students (What Is the PSAT?, 2023). The SAT is an assessment considered for college admissions (The Princeton Review, 2023). Fraenkel et al. (2019) suggest that students may perform better in a test when it is new to them. In this case, students might perform well when they take the test the first time on the PSAT or perform better on the SAT given that this test in considered for college admittance.

Summary

The contents of this chapter focused on discussing the summary of the study, discussion of the findings, implications for practice and policy, recommendations for further research, and conclusions. The results revealed a significant correlation. Therefore, it was concluded that there

is a positive correlation between SAT scores from the 2022-23 school year using graphic organizers from the Study Sync workbooks and PSAT scores from the 2021-22 school year using graphic organizers from the Prentice Hall workbooks. The findings of this research provide educators and educational administrators data which demonstrated how graphic organizers are a useful strategy that may help students improve in reading comprehension. The findings also pave the way for future research to be conducted using different methods that would further support the use of graphic organizers in reading comprehension.

Conclusion

This study explored the use of graphic organizers in the reading comprehension of high school students. Two research questions were evaluated. What are the trends between PSAT reading comprehension scores and SAT reading comprehension scores? What are the trends in ESOL students? Is there a correlation between PSAT reading comprehension scores and SAT reading comprehension scores? The research questions were answered through correlations between PSAT reading comprehension scores and SAT reading comprehension scores and analyzing and trends were analyzed through descriptive statistics. Findings indicated a statistically strong correlation between PSAT and SAT scores during the 2021-2022 and 2022-2023 school year when graphic organizers were implemented using the Prentice Hall and Study Sync workbooks. This study determined strong correlation when analyzing the data, thus proving that strategies help in reading comprehension. Recommendations for future research can help add to the body of knowledge of the educational community. This research is useful for instructional leaders and educators to support policy and funding for resources that use graphic organizers to improve reading comprehension and continue to use PSAT and SAT scores to further analyze data.

This dissertation was about the importance of reading comprehension; therefore, it aligns with Chomsky's (2013) quote, "There is no point in reading a book if you let it pass before your eyes and then forget about it ten minutes later. Reading a book is an intellectual exercise, which stimulates thoughts, questions, imagination".

APPENDIX A: INSTITUTIONAL REVIEW BOARD NOT HUMAN RESEARCH DETERMINATION

UNIVERSITY OF CENTRAL FLORIDA

Institutional Review Board
FWA00000351
IRB00001138, IRB00012110
Office of Research
12201 Research Parkway
Orlando, FL 32826-3246

NOT HUMAN RESEARCH DETERMINATION

November 9, 2023

Dear Beckylee Ramos Lorenzo:

On 11/9/2023, the IRB reviewed the following protocol:

Type of Review:	Initial Study
Title of Study:	THE EFFECTS OF GRAPHIC ORGANIZERS ON READING COMPREHENSION OF HIGH SCHOOL STUDENTS IN TWELFTH GRADE
Investigator:	Beckylee Ramos Lorenzo
IRB ID:	STUDY00005967
Funding:	None
Documents Reviewed:	• HRP-251 Faculty Advisor Review completed.pdf, Category: Faculty Research Approval; • HRP-250 - FORM - Request for NHSR (1).docx, Category: IRB Protocol;

The IRB determined that the proposed activity is not research involving human subjects as defined by DHHS and FDA regulations.

IRB review and approval by this organization is not required. This determination applies only to the activities described in the IRB submission and does not apply should changes outside of administrative ones (study personnel, timelines, etc.) be made. If non-administrative changes are made (design, information collected, instrumentation, funding, etc.) and there are questions about whether these activities are research involving human in which the organization is engaged, please submit a new request to the IRB for a determination by **clicking Create Modification / CR** within the study.

If you have any questions, please contact the UCF IRB at 407-823-2901 or irb@ucf.edu. Please include your project title and IRB number in all correspondence with this office.

Sincerely,

Tamiko Fukuda
UCF IRB

APPENDIX B: LETTER OF APPROVAL FROM SEMINOLECOUNTY PUBLIC SCHOOLS

Seminole County Public Schools

Anna-Marie Cote, Ed.D.
Interim Deputy Superintendent

Educational Support Center
400 E. Lake Mary Boulevard
Sanford, Florida 32773-7127
Phone: (407) 320-0000
Fax: (407) 320-0281

Visit Our Web Site
www.scps.us

November 6, 2023

Beckylee Ramos Lorenzo
316 Northwestern Ave.
Altamonte Springs, FL 32714

Dear Ms. Ramos Lorenzo,

I am in receipt of the proposal and supplemental information that you submitted for permission to conduct research in Seminole County Public Schools. You are granted permission to conduct the study described herein, *The Effects of Graphic Organizers on Reading Comprehension of High School Students in Twelfth Grade.*

Your first order of business is to verify with Mr. Hunter that you have permission to do your research project at his school. As you have indicated in prior communications, Ms. Kaitlin Trippany, SCPS Assessment and Accountability Analyst, will provide you with the de-identified data needed to conduct your study. In addition, all research related activities are to be conducted outside of your contracted hours, including your work with Ms. Trippany.

We would appreciate you sending a copy of your completed study to this office. Best of luck with your study!

Sincerely,

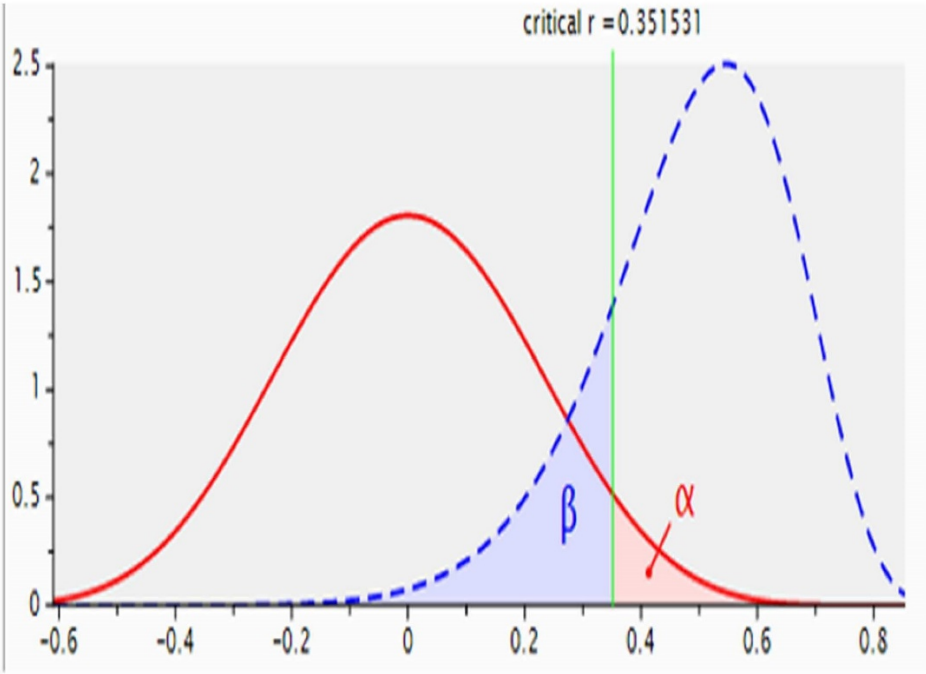
Anna-Marie Cote

Anna-Marie Cote, Ed.D.
Interim Deputy Superintendent, Instructional Excellence and Equity
Seminole County Public Schools

cc. Mr. Mike Rice, Assistant Superintendent, High Schools
Mr. Mr. Michael Hunter, Principal, Lyman High School
Ms. Kelly Thompson, Director, Assessment and Accountability
Ms. Kaitlin Trippany, Analyst, Assessment and Accountability

"A" Rated Academically High-Performing School District

APPENDIX C: POWER ANALYSIS FOR THE PEARSON CORRELATION IN GPOWER


critical r = 0.351531
2.5
2
1.5
1
0.5
0
-0.6
-0.4
-0.2
0
0.2
0.4
0.6
0.8
β
α

APPENDIX D: PRENTICE HALL GRAPHIC ORGANIZER

Name: _____ **Date:** _____

Directions: Use this graphic organizer to help you paraphrase difficult passages. Each time you come across a difficult passage, write it in the column labeled "Passage from". Then write any difficult words from that passage in the appropriate column. Define each difficult word, either by using words surrounding it to piece together its meaning or by looking it up in the dictionary. Next, determine the key ideas in the passage, and jot these down in the appropriate column. Finally, use the key ideas, along with your understanding of the difficult words, to paraphrase the passage.

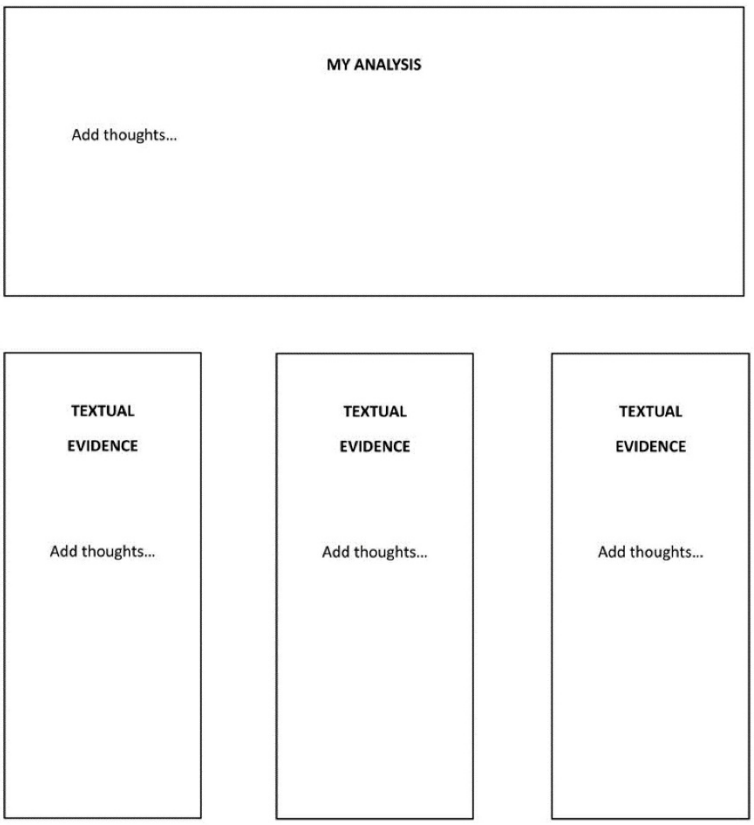
Passage from text	Difficult Words	Key Ideas	Paraphrase

APPENDIX E: STUDY SYNC GRAPHIC ORGANIZER

Graphic Organizer

Textual Evidence Chart

Directions: Use the chart below to help organize your thoughts before you begin writing. First, in the top box, write an analysis of the character of Beowulf as a hero. Then, in each of the smaller boxes, put textual evidence that supports your analysis.



[insert appendix content]

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