An Examination of Reading Comprehension Test Scores and the Use of Graphic Organizers for Adult English as a Second Language Learners

by

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Abstract

The vast majority of the studies concerning graphic organizer use for the improvement of reading comprehension have been carried out with first language (L1) learners. The recommendations to employ graphic organizers as part of reading instruction are frequently found in L1 reading literature (Blachowicz & Ogle, 2001; McKenna & Robinson, 1997; Readance, Bean & Baldwin, 1981; Vacca & Vacca, 1999). However, there is an apparent dearth of graphic organizer research with second language (L2) learners in spite of the growing population of English Language Learners (ELLs) in the United States. As L2 learners come into contact with more dense and complex reading materials, they need special scaffolding devices to facilitate their reading comprehension (Jiang & Grabe, 2007). Graphic organizers that more closely resemble the discourse organization of a text can be used as scaffolding instruments to raise reading comprehension levels.

The purpose of this mixed-methods study was to determine the relationship between graphic organizers and reading comprehension levels among adult ELLs. This study examined the effects of using graphic organizers that represent the discourse structures of a text on the reading comprehension test scores of adult ELLs. Data was collected using quantitative and qualitative mixed-methods, including the reading comprehension section of the English as a Second Language Assessment Battery (ESLAB), and follow-up interviews. The participants of this study included adult English as a Second Language (ESL) students from the Intensive English Program (IEP) of a Southeastern University.

The quantitative data obtained from the reading comprehension test results were analyzed by using the IBM SPSS Statistics 24 software employing different statistical descriptive analyses and t-test analyses. The qualitative data collected from the follow-up interviews were transcribed and analyzed using a phenomenological approach with the aid of Atlas.ti software, which included a coding technique used to generate categories and to elicit emergent themes. The results of this study provide meaningful data about the impact graphic organizers can have on the reading comprehension test scores of adult ELLs. Findings from this study reveal that the use of graphic organizers that represent discourse text structures significantly improve the reading comprehension test scores of adult ELLs. These findings are consistent with the findings of Carrell (1985) who found that the instruction and use of graphic organizers facilitated reading comprehension in ESL contexts. The present study also confirms the findings of Martinez (2002) and Li, Wang, Cao, and Li (2014) that have highlighted the link between drawing students' attention to discourse structures in texts and facilitating improved reading comprehension.

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¡Sí Se Puede!

César R. Bazo Quintana

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Chapter I: Introduction

Effective comprehension strategies for improving reading levels and achievement with adult English language learners (ELLs) is a current topic in the field of education due to the constantly changing diversity of the United States (Olson, 2014). Over the past twenty years, the population of ELLs has grown dramatically throughout the United States. ELLs are the fastest-growing student population in the country, growing 60% in the last decade, as compared with 7% growth of the general student population (Chao, Schenkel, & Olsen, 2013). Since the ELL population will continue to increase in size, attention to effective reading comprehension strategies has been emphasized for the entire population (Helfrich & Bosh, 2011).

Reading comprehension levels have been decreasing for many years in the United States (Egan, 1999). Critics have frequently criticized school systems in regard to their abilities to educate students in reading. Indeed, the students' poor performance in reading compared to those in other countries has been a constant topic of discussion (Keene, 2010). Moreover, diverse student populations may be disadvantaged in reading skills and achievement, making the reading achievement levels of the diverse student populations even lower than other students' reading achievement levels (Weigel & Gardner, 2009). With the rapid growth of adult ELL populations across the nation and only 29% of those students reading at, or above the basic level, action is necessary to help this diverse population achieve the same academic and career successes as other adult students (Perez & Holmes, 2010). One research-based strategy for improving success in reading comprehension is using graphic organizers.

A graphic organizer is defined by Egan (1999) as "a visual representation of knowledge, a way of structuring information, and of arranging essential aspects of an idea or topic into a pattern using labels" (p. 641). Graphic organizers are also referred to as knowledge maps,

concept maps, story maps, cognitive organizers, advance organizers, or concept diagrams. Research affirms that graphic organizers are helpful tools in improving reading comprehension (Chang, Sung, & Chen, 2002). Ellis (1998) indicated that graphic organizers present an overview of what is to be learned, providing clearer and more meaningful expectations to students. By using graphic organizers, students are able to focus on what is important as essential knowledge. Important information is learned while irrelevant information is discarded. Graphic organizers have many advantages including organizing information so that the content is easier to understand, reducing the amount of information to be learned, and allowing students to become more strategic learners (Ellis, 1998).

Statement of the Problem

The vast majority of the studies concerning the use of graphic organizers for the improvement of reading comprehension have been carried out with first language (L1) learners. The recommendations to employ graphic organizers as part of reading instruction are frequently found in L1 reading literature (Blachowicz & Ogle, 2001; McKenna & Robinson, 1997; Readance, Bean & Baldwin, 1981; Vacca & Vacca, 1999). Robinson (1997) reported that 14 out of 16 studies in L1 instruction found beneficial effects for using graphic organizers compared to studying texts alone. However, there is an apparent dearth of graphic organizer research with learners of English as a Second Language (ESL) in spite of the growing population of ELLs in the United States. As second language (L2) learners come into contact with more dense and complex reading materials, they need special scaffolding devices to facilitate their reading comprehension (Jiang & Grabe, 2007). Graphic organizers that more closely resemble the discourse organization of a text can be used as scaffolding instruments to raise reading

comprehension levels. Therefore, research that focuses its attention on the use of graphic organizers to improve reading comprehension of ELLs is more necessary than ever before.

Significant testimony presented to Congress revealed that ELLs' academic performance levels are significantly below those of their peers in nearly every measure of achievement (Zamora, 2007). According to the National Assessment of Educational Progress (2005), only 29 percent of ELLs scored at or above the basic level in reading comprehension, compared with 75 percent of non-ELLs. These percentages have not dramatically changed over the years. According to the National Clearinghouse for English Language Acquisition (2011), within the ELL population, 70% of fourth-grade students and 71% of eighth-grade students score below the basic reading level. This is in stark contrast to the non-ELL population, where only 30% of fourth-grade students and 23% of eighth-grade students score below the basic reading level. Due to the low reading comprehension scores obtained by ELL students, and owing to historical and current attention to improving reading literacy across the nation, educational leaders and theoreticians have come to realize the immediate need for improving reading literacy in ELLs, the fastest-growing student population in the educational system (Finn, 2011).

All students need attention and learning opportunities for improving reading comprehension, and diverse student populations, such as ELLs, are no exception to the rule. According to Tindall (2010), figuring out the best instructional strategies for improving reading comprehension with diverse learners can be a challenge. While there is a profusion of studies that focus on research-based strategies and methods for improving reading comprehension within the general student population, there is a lack of research for improving reading comprehension among adult ELLs. Hence, studies focusing on effective reading comprehension strategies are necessary in order to meet the growing demands for enhancing reading comprehension in current

and future cohorts of adult ELLs (Ray-Subramanian & Coffee, 2010). In order to improve the reading literacy of ELLs, an understanding of how ELL students comprehend is necessary for improving reading comprehension within this subgroup. In order to provide ELLs with the reading skills necessary for academic success, it is important to provide effective reading instruction that addresses their unique needs (Snyder, Witmer, & Schmitt, 2017). Graphic organizers are precisely one of the teaching strategies that can be used to provide effective reading instruction that can help improve reading comprehension in adult ELLs (Daniel & Parada, 2008).

Purpose of the Study

The purpose of this study was to determine the relationship between graphic organizers and reading comprehension levels among adult ELLs. This study examined the effects of using graphic organizers that represent the discourse structures of a text on the reading comprehension test scores of adult ELLs. It was also the purpose of this study to ascertain if the variable of gender had any significant influences on the outcomes of this research. Additionally, this study intended to find out the perceptions of adult ELLs regarding their use of graphic organizers to improve their reading comprehension.

This study employed the reading comprehension section of the English as a Second Language Assessment Battery (ESLAB), a teaching instrument from the Educational Testing Service (ETS), to assess the participants' general reading comprehension ability at the beginning of the study as a pretest, and at the end of the study as a post-test. The participants of this study, which included adult ESL students and ESL instructors from two reading classes of the same English language proficiency from the Intensive English Program (IEP) of a Southeastern University, constituted the control and the experimental groups of this

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study. The reading comprehension section of the ESLAB was administered to both the control group and the experimental group at the beginning of the study, and at the end of the study to compare the results prior to the intervention and after the intervention was applied.

Besides employing the reading comprehension section of the ESLAB, during the investigation different kinds of graphic organizers that represent the discourse structures of a text were used with the adult ELLs of the experimental group receiving the intervention. These graphic organizers representing the interrelationships among ideas and patterns of discourse organization constitute one of the major ways to teach "the organization of ideas in text" (Taylor, 1992, p. 221). Students are expected to comprehend texts better when shown visually how information in the text is organized (Jiang & Grabe, 2007).

Research Questions

The following research questions were addressed in this study:

1. Does the use of graphic organizers that represent the discourse structures of a text improve the reading comprehension test scores of adult English language learners?

2. Does the variable of gender affect the outcomes of this study?

3. What are the beliefs of adult English language learners about the use of graphic organizers to aid in improving reading comprehension?

Significance of the Study

Even though reading comprehension has been identified as one of the major goals for reading instruction in the United States, many critics agree that students are not taught successful reading comprehension strategies (Norton, 1997). Indeed, the students' poor performance in reading tests compared to those students in other countries has been a constant topic of discussion (Keene, 2010). According to Adler (2001), reading comprehension strategy

instruction helps students become purposeful, active readers who are in control of their own reading comprehension. Graphic organizers, which are one type of reading comprehension strategies, have research-based evidence for improving text comprehension (Adler, 2001).

Graphic organizers are visual representations of information from a text that depict the relationships between concepts, the text structure, and/or key concepts of the text (Griffin & Tulbert, 1995; Jiang & Grabe, 2007; Kim, Vaughn, Wanzek, & Wei, 2004; Tang, 1992). Several researchers have investigated the effect of using graphic organizers on the reading comprehension of general education students. Recommendations to use graphic organizers as part of reading instruction are frequently found in the L1 reading literature (e.g. Blachowicz & Ogle, 2001; Dymock, 1999; Maria, 1990; Parks & Black, 1992). The effectiveness of using graphic organizers, particularly those that reflect the discourse structure of the texts, has been empirically supported by studies with L1 students (Jiang, 2007). However, a fewer number of empirical studies have been conducted investigating their use with adult ELLs, except for Tang (1992). Further research on the use of different kinds of graphic organizers and their impact on reading comprehension in adult ELLs can contribute to the emerging body of knowledge in this field, which is of considerable importance to ESL educators, researchers, curriculum developers, and international students alike.

Limitations of the Study

Some limitations exist when interpreting the validity and reliability of this study.

1. This study was limited to college-level adult learners of ESL who were nineteen and older.

2. This study was conducted with a limited number of international students from an intensive English program (IEP) at a four-year higher education institution located in the South.

3. The sample was limited to students who voluntarily participated in the study, which involved the use graphic organizers during their reading courses, and their participation in semi-structured interviews.

4. The length of time each adult ELL had been living in the country, the length of time they had been taking reading courses, and the reading background of the adult English learners posed possible limitations to the study.

Consequently, making generalizations of the findings to larger populations of adult ELLs among international students from other four-year higher education institutions or from other English language learning contexts, such as community colleges, churches, or private English language teaching institutions should be handled with care.

Assumptions of the Study

The following assumptions were made for the purpose of this study:

1. The academic characteristics of the participants varied since there was a difference in the length of time they had been living in the country, as well as, in the span of time they had been taking reading courses.

2. The reading background of the adult ELLs differed.

3. Adult ELLs who voluntarily participated in the study completed a demographics survey honestly and consistently.

4. The ESLAB is a reliable and suitable instrument to measure adult ELLs' reading comprehension level.

Definition of Terms

The following terms were used in this study:

- Academic Achievement: specific to this study "some measure of reading comprehension or reading achievement in the language of instruction" (Lietz, 2006, p.130).

- Adult English Language Learner: Any learner whose primary language is not English over the age of 19 (in the state of Alabama) in a higher education setting.

- Advance Organizer: A visual graphic of ideas or other media that the students complete before reading (and sometimes while reading) a text that helps to establish prior knowledge and comprehension.

- Comprehension: Making meaning or understanding of a given set of words and experiences.

- Diverse Populations: Any educational student not classified as the majority; also classified as subgroups.

- English as a Foreign Language (EFL): EFL refers to language learning and instruction of English to speakers of other languages in a non-English-speaking community or country where English is generally not a local medium of communication by non-native speakers.

- English Language Learners (ELLs): Any individual learners who learn English as a second or foreign language for school or for other purposes, such as jobs or hobbies whose first language is not English.

- English as a Second Language (ESL): ESL refers to English as a second language learning and instruction of English in an English-speaking community or country where English is spoken as a first language or an official language to students whose first language is not English.

- ESLAB: ESLAB is the English as a Second Language Assessment Battery, a teaching instrument from the Educational Testing Service (ETS).

- Graphic Organizer: They are instructional techniques that display text structures and content information visually and hierarchically (Simmons, Griffin, & Kameenui, 1988).

- Intensive English Program (IEP): IEP refers to an intensive English program which provides more than eighteen hours a week of instruction at a four-year institution where international students take English classes, such as writing, grammar, reading, and listening to improve their overall English skills.

- L1: L1 refers to a first language or native language of a second language learner.

- L2: L2 refers to a second language or target language.

- Reading: The complex, cognitive act of creating meaning out of words.

- Reading Comprehension: It is "understanding what is read, learning new concepts, getting deeply involved in reading, critically evaluating text, and applying new knowledge to solve intellectual and practical problems" (REL-MRE & NCEERA, 2007, p.4).

- Reading Strategies: They consist of any strategy or aid that helps the reader to better understand a given text.

- Scaffolding: In education, scaffolding refers to a variety of instructional techniques used to move students progressively toward stronger understanding and, ultimately, greater independence in the learning process.

- Text Structure: Text structures are "knowledge structures or basic rhetorical patterns in texts" (Grabe, 2003, p. 1; Mohan, 1986), "the organization of ideas in text" (Taylor, 1992, p. 221), or the way in which "the ideas of a text are interrelated to convey a message to the reader" (Meyer & Rice, 1984, p. 319).

Organization of the Study

Chapter 1 introduced the subject of this study, which is the relationship between graphic organizers and reading comprehension. This chapter also provided the background of the study, the statement of the problem, the purpose of the study, the research questions, the significance of the study, the limitations of the study, the assumptions of the study, and the definitions of terms. Chapter 2 includes a review of relevant literature concerning adult learners, English language learners, reading comprehension, and graphic organizers, specifically graphic organizers that represent the discourse structures of a text. The review of literature concludes by presenting the principal findings of previous studies that have considered the relationship between graphic organizers and reading comprehension, particularly studies in the effects of graphic organizers that reflect text structures among L1 and L2 learners. Chapter 3 discusses the methods used in this investigation. It describes the research design, the instruments employed, the participants of the study, the data collection techniques used, as well as the procedures used for instruction, assessment, and data analysis. Chapter 4 presents the results of the data analysis and the findings of the study. Chapter 5 includes the summary of the findings of the study, the conclusions, the pedagogical implications, and the recommendations for future research.

Chapter II: Literature Review

Reading comprehension levels have been decreasing for many years in the United States (Egan, 1999). Critics have frequently criticized school systems in regard to their abilities to educate students in reading. These lower reading achievement levels are not limited to first language (L1) learners, but similarly afflict second language (L2) learners. One of the factors that has contributed to this decline is the lack of considerable emphasis on reading strategy instruction. Even though the No Child Left Behind Act (2002) challenged teachers to use research-based interventions, such as strategy instruction, to improve students' overall reading achievement, few teachers have the knowledge, training, or resources to properly implement strategy instruction (Pilonieta, 2010). It is critical that researchers begin to reveal more data showing that strategy instruction improves reading comprehension (Ballou, 2012). Among the different research-based strategies for teaching reading comprehension, this study focuses on graphic organizers. A graphic organizer is defined by Egan (1999) as "a visual representation of knowledge, a way of structuring information, and of arranging essential aspects of an idea or topic into a pattern using labels" (p. 641). Graphic organizers can help students focus on text structure differences as they read, and provide learners with tools they can use to examine and show relationships in a text.

A number of researchers have investigated the effect of using graphic organizers on the reading comprehension of L1 learners; however, there is an apparent dearth of graphic organizer research with learners of English as a Second Language (ESL). As L2 learners come into contact with more dense and complex reading materials, they need special scaffolding devices to facilitate their reading comprehension (Jiang & Grabe, 2007). Graphic organizers that more closely resemble the discourse organization of a text can be used as scaffolding instruments to

raise reading comprehension levels. This study examines the effects of using graphic organizers that represent the discourse structures of a text on the reading comprehension test scores of adult ELLs.

This chapter first presented a review of literature, which focused on adult learners and adult English language learners, the participants of this study. The literature review then introduced the two major theoretical foundations this study rests upon: the investigations on discourse structuring in texts and the research base that exists to support the use of graphic organizers for improving reading comprehension. The investigations on discourse structuring in texts focused on the different approaches developed to explain text structures. The research base that exists to support the use of graphic organizers for improving reading comprehension can be found in certain cognitive theories of learning. The dual coding theory, the cognitive load theory, and the schema theory provide the basis for explaining the characteristics of graphic organizers that support the learning process (Ellis, 2005).

This chapter subsequently focused on relevant literature concerning graphic organizers. The section on graphic organizers included information on the origin of graphic organizers, the functions of graphic organizers, the classification of graphic organizers, and graphic organizers that represent the discourse structures of a text. This review concluded by presenting the principal findings of previous studies that have considered the relationship between graphic organizers and reading comprehension, among first language learners and second language learners.

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Adult Learners

Regarding the term adults, Patterson (1979) noted that there are numerous definitions that exist that take into account different notions, such as the following:

- Adult as a biological state (post-puberty),

- Adult as a legal state (aged 18 or over; aged 21 or over),

- Adult as a psychological state (their 'self-concept' is that of an 'adult'),

- Adult as a form of behavior (adulthood as being in touch with one's capacities whatever the context is),

- Adult as a set of social roles (adulthood as the performance of certain roles e.g. working, raising children, etc.).

In describing an adult as opposed to a child, Hiemstra (1976) indicated that an adult is "a person who has reached the maturity level where he or she has assumed responsibility for himself or herself and sometimes for others and who typically is earning an income" (p. 15).

An issue of critical importance regarding what it means to be an adult or a child is the way they learn. Child learning is different from adult learning, just as pedagogy is different from andragogy. While pedagogy focuses on teaching children, andragogy, a term conceived by

Malcolm Knowles in the 1960s, is "the art of science of helping adults learn" (Knowles, 1980, p.43). According to Knowles (1974), adults become more self-directive in their learning; they take charge of when, how, and why they learn. Moreover, adults' motivation to learn is associated with their social status, and adults seek instantaneous results of their learning. Besides, adults' experiences play a more notable role in learning than in children (Finn, 2011).

As a basis for the use of the term andragogy, Waldron & Moore (1991) establish five key differences between children learning and adult learning. One of the primary differences between adult and child learning has to do with volunteerism. Formal childhood learning is compulsory; adult learning is voluntary. As such, the adult learning experience must be highly related to the learning needs of adults. Adults learn what they want and need to learn, not what society thinks is good for them to learn. The adult may learn incidentally from the mass media, from reading, travelling, and from participation in voluntary organizations (Tough, 1971).

Another major difference between adult and child learning is that adult learning is highly non-institutionalized, whereas in the case of child learning, an external agent, as represented by a Board of Education or a State Department of Education establishes objectives, curriculum and methodologies. Adult learners, on the other hand, may participate in the development of learning objectives, the selection of subject matter, and the manner in which the subject matter may be learned.

Still another distinction between adult and child learning is that adult learning is highly experience-related while child learning is not. Adults come to the learning setting with their cultural baggage attached to them. These experiences are the total sum of their life experiences including their experiences with previous learning. Adults seem to enjoy and appreciate the opportunity to relate their experiences. In terms of teaching and learning, the relating of life

experiences can add an important dimension to what goes on in a class.

The fact that adult learning is related to an independent self-concept makes it different from child learning as well. The very state of adulthood implies independence as one becomes responsible for oneself, and, in many cases, responsible for others. The child starts life in a totally dependent fashion and moves toward independence during the teenage years. Because so many of our attitudes toward learning are based on our childhood experiences, it can come as a shock to the adult learner to find that it is necessary to be self-motivated, self-disciplined, and self-directed (Merriam, 2001).

Last but not least, Waldron and Moore (1991) asseverate that adult learning is more participatory in nature than child learning. Adult learners like to be involved in specifying their objectives concerning what they want to learn. They also have the ability to design their own learning projects (Tough, 1971). When they are involved in an actual learning sequence, they also like to have the opportunity to participate actively. This is contrasted with passive learning, whereby learning is something that is done to the learner, rather than something the learner does. Some people argue that child learning is also active. However, many child learning events are passive in nature, with the learner having little opportunity to participate in the setting of objectives, designing the learning experience, and deciding how one's progress toward objectives should be evaluated (Waldron & Moore, 1991).

Adult English Language Learners

Over the past twenty years, the population of ELLs has grown dramatically throughout the United States. ELLs are the fastest-growing student population in the country, growing 60% in the last decade, as compared with 7% growth of the general student population (Chao, Schenkel, & Olsen, 2013). ELLs are a unique group of students, due in part to the diverse

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number of nations and cultures from which students derive information (Olson, 2014). With the

expanding ELL population in America, it is crucial that the educational system provide support

that meets the direct needs of this diverse student population, especially since the majority of

ELLs are seeking academic programs in order to further their career goals (Tindall, 2010).

Panek (2004) discovered that the majority of ELLs did not assimilate well with other

native speakers in academic settings on university campuses, and many times felt embarrassed

by speaking a language other than English. Although many literature reviews lack quantitative

research regarding best practices for low achieving adult diverse learners, and there is a dearth of

research on adult ELLs, best practice research pedagogy does offer some possible strategies for

reading instruction in adult learners (Tindall & Nisbet, 2010; Paradis, Schneider, & Duncan,

2013).

According to the Institute of International Education (2007), roughly 583,000 ELLs

attend American colleges and universities and often come from other countries where little or no

English was spoken and face many cognitive, social, and academic challenges. Additionally,

non-native speakers are often termed learning disabled and placed in special education settings

(Lombardi, 2008). Johnson and Chang (2012) found that ESL teachers face diversity in the

classroom unlike any other educators and are challenged with devising effective teaching

strategies that meet a diverse range of learners with many language and social barriers. Since

there is little adequate research in the field of ELLs, providing effective resources and successful

educational experiences for ELLs can be arduous (Bifuh-Ambe, 2011; Coleman & Goldenberg,

2012). In addition, adult ELLs arrive in postsecondary institutions of learning at various

language acquisition levels (Widin, Yasukawa, & Chodkiewicz, 2012). Tindall (2010) indicated

that adult learners of English need to know why what they are learning is important to them and

how they can use it in the future.

Many ELLs have also experienced gaps in their education and possibly low to minimal literacy experiences, due to a number of factors including war, poverty, and gender differences (Olson, 2014). Zacarian (2012) showed that ELLs tend to have few skills that transfer directly to the American educational system. They not only need to learn the English language and the academic curriculum, but they are also required to be proficient in literacy skills in order to be successful in the academic and social environments of the United States. Nevertheless, Perez and Holmes (2010) stated that ELLs can bring academic experiences from other countries into the classroom, which can provide a springboard for increasing class engagement and motivation in adult ELL learners by accessing known experiences and building new academic experiences.

While effective instruction is important for any classroom, targeted instruction that comprises techniques that make information more useful to ELLs is crucial (Olson, 2014). ELL adult students have all of the same traits in higher education as other adult learners. In his investigation on reading comprehension in Iran, Rassaei (2012) determined that adult diverse learners need targeted interventions in order to improve comprehension and competence. Diverse students face other unique characteristics in higher education settings. Adult ESL learners tend to have direct employment goals as their purpose for attending higher learning institutions (Tindall, 2010). Coleman and Goldenberg (2012) addressed the added pressure on ELLs with the Common Core State Standards (CCSS) by advocating for more adaptations for ELLs in the classroom to include the following: objectives for language and content, clear expectations, graphic organizers, use of primary language, appropriate texts, and more practice time. Accessing prior knowledge through questioning also maximizes the ELLs opportunities to make connections to a text (Nisbet, 2010). While all these modifications would be expected in most

traditional classrooms, the alterations are necessary for ELLs to accomplish success. Helrich and Bosh (2011) propounded efforts to meet the educational needs of diverse ELLs in order to provide them with the same opportunities as primary English speaking students in the United States and around the globe.

In terms of the future of ELLs, the trend is that their number will undoubtedly increase as the United States continues to house immigrants from all over the globe. Hence, more and more ESL programs will need to be created to satisfy this growing demand.

Theoretical Foundations

The current study rests upon two major theoretical foundations. The investigations on discourse structuring in texts and the different approaches to explaining text structures represent one significant theoretical foundation for the present study. The other important theoretical foundation for this study lies on the research base that exists to support the use of graphic organizers for improving reading comprehension.

Discourse structuring in texts. The investigations on discourse structuring in texts and the different approaches to explaining text structures represent one significant theoretical foundation for the present study. One of the most significant assumptions in reading studies and instruction is that all texts have discourse structures above the sentence level, and that this arrangement is composed of a comparatively small number of patterns that reoccur across texts (Jiang & Grabe, 2007). This assumption is substantially upheld by a broad range of research on written discourse analysis, cognitive psychology, and rhetoric (Hoey, 2001; Kintsch & van Dijk, 1978; Meyer, 1975, 1985; Mohan, 1986, 1990). Specialists in these areas mostly agree that there are patterns in the organization of texts (e.g., definition, comparison and contrast, cause and effect, process, problem and solution, for and against, description and classification), and that

these organizational patterns play important roles in how readers read and writers write. Nevertheless, various perspectives have been put forward on how to interpret text structures, among which are Hoey's "culturally popular patterns of organization" (2001), Meyer's expository text structures (1975, 1985), Kintsch and van Dijk's macro-structures and micro-structures (Kintsch & van Dijk, 1978), and Mohan's "knowledge structures" (1986, 1990). Table 1 condenses the characteristics of each of these perspectives.

Table 1

Different Patterns of Discourse Structuring in Texts

Authors	Approaches	Descriptions
Hoey	culturally popular patterns of organization	culturally specific, reoccurring, hierarchical with varied combinations
Meyer	Expository text structures	five basic structures: sequence, description, causation, problem/solution, and comparison
Kintsch & van Dijk	Macro-structures and micro-structures	the global coherence of the discourse and the hierarchical organization of texts vs. sentence and multi-sentence level structure
Mohan	Knowledge structures	uniform representation of the six basic patterns of organization in a variety of combinations in all texts: description, sequence, choice, classification, principles, and evaluation

Note: adapted and modified from *The impact of graphic organizer instruction on English as a Foreign Language college students' reading comprehension* (Jiang, 2007, pg. 10).

Hoey (2001) chose to tag text structures as "culturally popular patterns of organization" (p. 122), in which the term "culturally" expresses the cultural specificity and lack of universal status of the patterns of organization, and "popular" concedes the repeated recurrence of some of the patterns. The word "patterns" alludes to hierarchical structuring and the term "organization" is selected over "structure" to indicate that "there is no impossible sequence or combination of elements" (p.122). Hoey alleges that the Problem-Solution pattern is the most common pattern of all and supplies a complete description of the characteristics of the pattern. Other culturally popular patterns include the Opportunity-Taking pattern, the Gap in Knowledge-Filling pattern,

the Desire Arousal-Fulfillment pattern, and the Goal-Achievement pattern. The implications of Hoey's "culturally popular patterns of organization" lie in their function as ready-made templates for developing writers and learners (Jiang, 2007). Learners are encouraged to search for pattern signals when they read and use the patterns to form their texts when they write.

Drawing on rhetoric and linguistics, Meyer (1975, 1985) identified five basic patterns to organize expository discourse: sequence, description, causation, problem/solution, and comparison. Each type of expository text structure is depicted by a different organizational pattern and presents information in a different way (Jiang, 2007). Researchers assessing the effects of text structure instruction (Bohaty, 2015) commonly use these expository text structures.

Studies by Kintsch and van Dijk have highlighted the conception of levels of text structure, frequently making a distinction between macro- and micro- structures in texts (Kintsch & van Dijk, 1978). The notion of macro-structure was established to describe the global coherence of the discourse and the hierarchical organization of texts. Conversely, micro-structures concentrate on sentence and multi-sentence level structure in a text (Jiang, 2007). Empirical research has increasingly demonstrated the hierarchical structuring of texts, and it is well accepted that levels of text structure have a strong impact on reading comprehension (Singer, 1990).

The final approach to be presented to teaching text structure awareness for literacy development purposes was conceived by Mohan (1986, 1990). His work focuses on the development of text structure knowledge in the area of content-based instruction based on his notion of "knowledge structures" (Mohan, 1986, p.35). Mohan's framework of knowledge structures consists of six basic structure types: description, sequence, choice, classification,

principles, and evaluation. The first three are regarded particular and practical, and they can be found in a procedure, process, or story depicting specific events, objects, and problem situations; the last three are general and theoretical; they organize principles and abstract information (Jiang, 2007). Mohan (1990) contends that all texts have a uniform portrayal of these six essential patterns of organization in a diversity of combinations. When learners are conscious that texts are structured in a finite number of ways, "they will be able to understand better the coherence and logic of the information being presented, and they will be able to locate the main ideas and distinguish them from less important information" (Grabe & Gardner, 1995, p.78).

  Reading comprehension and graphic organizers. The second important foundation for this study lies on the research base that exists to support the use of graphic organizers for improving reading comprehension. Reading comprehension is the process of constructing meaning from a text and involves the complex coordination of several processes, including "decoding, word reading, and fluency along with the integration of background knowledge and previous experiences" (Klinger & Geisler, 2008, p.65). Reading comprehension research has significantly increased the knowledge of best practices for instructing students to comprehend better (Mastropieri, Scruggs, & Graetz, 2003). Hence, different kinds of reading comprehension strategies have been developed and are currently being used worldwide.

  Reading comprehension strategies are conscious plans — sets of steps that good readers use to make sense of a text. Comprehension strategy instruction helps students become purposeful, active readers who are in control of their own reading comprehension. According to Armbruster, Lehr, and Osborn (2001) from the National Institute for Literacy, the following seven strategies have research-based evidence for improving text comprehension:

1. Monitoring comprehension. Students who are good at monitoring their comprehension know when they understand what they read and when they do not. They have strategies to "fix" problems in their understanding as the problems arise. Research shows that instruction, even in the early grades, can help students become better at monitoring their comprehension.

2. Metacognition. Metacognition can be defined as "thinking about thinking." Good readers use metacognitive strategies to think about and have control over their reading. Before reading, they might clarify their purpose for reading and preview the text. During reading, they might monitor their understanding, adjusting their reading speed to fit the difficulty of the text and "fixing" any comprehension problems they have. After reading, they check their understanding of what they read.

3. Answering questions. Questions can be effective because they give students a purpose for reading, they focus students' attention on what they are to learn, they help students to think actively as they read, they encourage students to monitor their comprehension, and they help students to review content and relate what they have learned to what they already know.

4. Generating questions. By generating questions, students become aware of whether they can answer the questions and if they understand what they are reading. Students learn to ask themselves questions that require them to combine information from different segments of text. For instance, students can be taught to ask main idea questions that relate to important information in a text.

5. Recognizing story structure. In story structure instruction, students learn to identify the categories of content (characters, setting, events, problem, and resolution). Often, students learn to recognize story structure through the use of story maps. Instruction in story structure improves students' comprehension.

6. Summarizing. Summarizing requires students to determine what is important in what they are reading and to put it into their own words. Instruction in summarizing helps students to identify or generate main ideas, connect the main or central ideas, eliminate unnecessary information, and remember what they read.

7. Graphic organizers. Graphic organizers illustrate ideas and relationships between concepts in a text using diagrams. Graphic organizers are known by different names, such as maps, webs, graphs, charts, frames, or clusters. Regardless of the label, graphic organizers can help readers focus on concepts and how they are related to other concepts. Graphic organizers can help students focus on text structure differences between fiction and nonfiction genres as they read, provide students with tools they can use to examine and show relationships in a text, and help students write well-organized summaries of a text.

Cognitive theories and graphic organizers. Three major cognitive theories lend support to the use of graphic organizers for improving reading comprehension: the dual coding theory, the cognitive load theory, and the schema theory.

Dual Coding Theory. According to Allan Paivio's theory of dual coding, humans process information in both visual and verbal forms (Paivio, 1986). This theory attempts to give equal weight to verbal and non-verbal processing.

Paivio (1986) states the following:

> Human cognition is unique in that it has become specialized for dealing simultaneously with language and with nonverbal objects and events. Moreover, the language system is peculiar in that it deals directly with linguistic input and output (in the form of speech or writing) while at the same time serving a symbolic function with respect to nonverbal objects, events, and behaviors. Any representational theory must accommodate this dual functionality. (p. 53)

The dual coding theory assumes that memory has two systems for processing information –verbal and visual. The verbal system processes and stores linguistic information, while the visual system processes and stores images. Both of these systems interconnect to allow dual coding of the information, which helps with understanding, comprehension, retention, and recall. Figure 1 shows a model of dual coding theory from Paivio.
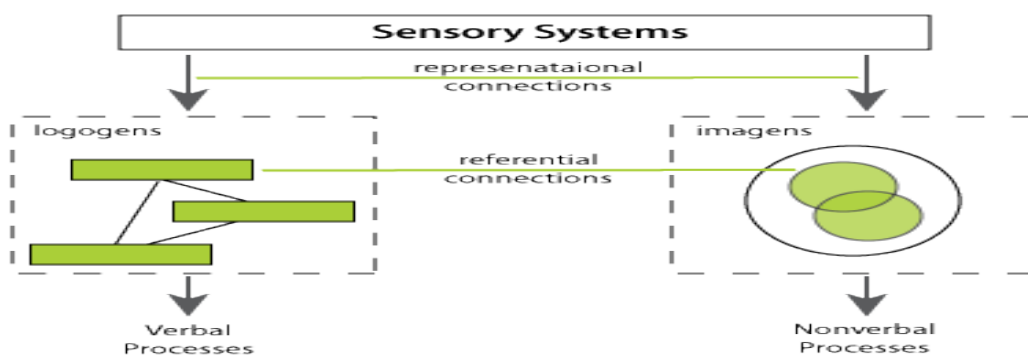
Figure 1. A dual coding model. Adapted from *InstructionalDesign.org* (Culatta, 2016).

The dual coding model presented in Figure 1 depicts the two cognitive subsystems that memory consists of. One system is specialized in processing non-verbal objects/events (e.g.,

imagery), and the other is specialized in dealing with language. While each system can be activated independently, there are connections between the systems that allow for the dual coding of information (Ellis, 2005). Paivio (1986) also posits the existence of two different types of representational units: "imagens" for processed and stored mental images, and "logogens" for stored linguistic information or verbal entities. Paivio describes both imagens and logogens as meaningful units of memory similar to "chunks" as described by Miller (1956). Logogens are organized in terms of associations and hierarchies while imagens are organized in terms of part-whole relationships. According to Saavedra (1999), dual coded information is easier to retrieve and retain because of the availability of two mental representations, verbal and visual, instead of one. The more students use both forms, the better they are able to think about and recall information (Marzano, Pickering, & Pollock, 2001).

Dual coding theory has been expanded to reading research by Sadoski, Paivio, Goetz, and their collaborators (Jiang, 2007). The theory proposes that mental imagery is a principal component in the reading comprehension process. Imagery is said to arise "as a spontaneous, consistent, and natural process during reading" (Sadoski & Paivio, 1994, p. 591), despite the nature of the text, or individual differences among readers. Sadoski and his colleagues' work with college students revealed the regular effect of imagery in assisting reading comprehension and long-term recall of information coming from a text (Sadoski & Quast, 1990; Sadoski, Goetz, & Fritz, 1993).

Dual coding theory also provides a theoretical foundation for research on the graphic representation of text structures in reading (Jiang, 2007). The verbal data in the text enables readers to create verbal representations. The utilization of graphic organizers helps readers construct visual representations (by illustrating discourse structures in graphics), build

relationships between single ideas, and form associations between the verbal and visual systems by filling in verbal information in the graphics. Marzano, Pickering, and Pollock (2001) affirm that graphic organizers "enhance the development of non-linguistic representations in students and therefore, enhance the development of that content" (p. 73). The use of graphic organizers also helps students generate linguistic representations. As a visual tool, graphic organizers help learners process and remember content by facilitating the development of "imagens." As a linguistic tool, text-based graphic organizers also facilitate the development of "logogens," thereby dual coding the information (Ellis, 2005).

Graphic organizers are directly applicable to the dual coding theory because almost all types of graphic organizers involve both verbal and visual displays (Anderson & Bower, 1973; Mazoyer et al., 2002). Additionally, the findings of several studies (e.g., Alverman & Boothy, 1986; Ritchie & Volkl, 2000; Robinson & Schraw, 1994) corroborate the point that graphic organizers enhance the memory of a text because these organizers separate processing in the brain, which belong to different channels, concurrently.

Grabe (1997) and Tang (1992) have recognized the position of dual coding theory in graphic organizer research. However, no empirical studies have been administered on the use of graphic organizers that precisely assume dual coding as a starting point (Jiang, 2007). Nonetheless, some researchers have acknowledged that certain graphic organizers tasks exhibit greater difficulties for readers, demanding higher-level cognitive skills and deeper levels of processing. These ideas suggest meaningful connections with a more widespread concept of learning: cognitive load theory.

Cognitive load theory. Cognitive load refers to the amount of mental resources required for information processing (Adcock, 2000). "Cognitive load is a term used to describe the

amount of information processing expected of the learner. Intuitively, it makes sense that the less

cognitive load a learner has to carry, the easier learning should be" (Chalmers, 2003, p. 598).

Cognitive load theory, which was created by Sweller, maintains that the working memory can

deal with only a limited amount of information at one time, and that if its capacity is exceeded,

learning does not take place (Sweller, Merrienboer, & Paas, 1998). According to Cooper (1998),

working memory has a capacity of between four to ten components depending on the student's

existing schemas, or combinations of elements.

Working memory load is determined by the complexity of the task to be learned, known

as intrinsic cognitive load, and the instructional methods used to deliver the task information,

referred to as extraneous cognitive load (Sweller, Merrienboer, & Paas, 1998). The cognitive

space left over to process the new information is called germane cognitive load. If these three

loads, when added all together, exceed the resources available in working memory, learning will

not take place. Therefore, cognitive load theory research had focused on methods for reducing

extraneous cognitive load and, more recently, intrinsic cognitive load. The level of extraneous

cognitive load can be altered through distinct modes of instruction, thus facilitating student

learning (Ellis, 2005).

Sweller's cognitive load theory is best applied in the area of instructional design of

cognitively complex or technically challenging material (Sweller, 1999). His focus is on the

reasons that people have difficulty learning material of this nature. Cognitive load theory has

many implications in the design of learning materials which must, if they are to be effective,

keep the cognitive load of learners at a minimum during the learning process (Sweller,

Merrienboer, & Paas, 1998)**.** While in the past this theory has been applied primarily to technical

areas, it is now being applied to more language-based discursive areas, such as that of graphic

organizers that represent the discourse structures of a text.

Visual learning tools, such as graphic organizers can reduce the cognitive load, and, consequently, enable more of the working memory to attend new material (Adcock, 2000). In this way, the working memory would be freed to continue to learn. Due to the fact that the working memory's capacity is low, the usefulness of different learning techniques depends on their capability to decrease the amount of excessive and unessential cognitive load in the memory (Hashemian, Jam, & Naraki, 2014). Kintsch and van Dijk (1978) noted that through eliminating unimportant and extraneous details, graphic organizers emphasize more important points, structures, and relationships of content and facilitate the learning process. Besides, what has changed the viewpoints of a number of instructional designers in favor of using graphic organizers was the point that by employing these techniques, learners did not have to spend that much time trying to get the intended message, and putting the information in the appropriate locations (Robinson & Schraw, 1994).

Moreover, content can be addressed at more sophisticated and complex levels through the use of graphic organizers (Ellis, 2005). Hence, the fact that certain graphic organizers tasks exhibit greater difficulties for readers, demanding higher-level cognitive skills and deeper levels of processing suggest meaningful connections with the cognitive load theory.

Schema theory. A third theory that supports the use of graphic organizers is the schema theory. The educational psychologist Richard Anderson (1977) is accredited with having introduced the schema theory into the educational community. In his schema theory, Anderson (1977) states that memory is constituted of a network of schemata. A schema is a knowledge structure created by the learner based on existing knowledge that accompanies or facilitates a mental process. Using graphic organizers allows the learner to insert the information in his

existing schema. According to Winn and Snyder (1996), the definitions of the schema theory include the following characteristics:

1. A schema is an organized structure that exists in our memory and that combined with other schemata, contains the sum of an individual's knowledge.

2. A schema consists of nodes and links that describe relationships between node pairs.

3. A schema is formed through generalities, not specific information.

4. Schemata are dynamic. As new information is learned, it is assimilated into existing schemata or causes the formation of new schemata.

5. Schema provides contexts for how new experiences are interpreted. How information is interpreted is based on existing schemas.

According to Dye (2000), "The graphic organizer has its roots in schema theory" (p. 72). The schema theory states that new information must be linked to preexisting knowledge. A person takes this new information and stores it in preexisting hierarchies or channels. When students learn something new, they must be able to retain the information for later use. Our knowledge is stored in a scaffold-like hierarchy, which includes our way of organizing the information (Ellis, 2005).

According to Slavin (1991), people encode, store, and retrieve information based on this hierarchy. Information that adjusts into a learner's existing schema is more easily comprehended and remembered than information that does not. The teacher's task is to make sure that the student has prior knowledge related to the concept and to provide a way for helping the student make connections between prior knowledge and what is being taught (Dye, 2000). Graphic organizers make it simpler to connect new information to existing knowledge and help students build the schema they require to understand new concepts (Guastello, Beasley, & Sinatra, 2000).

If prior knowledge is activated, the schema will be able to provide a framework to which new information can be attached and learning and comprehension will be improved (Ellis, 2005). To add to the prior knowledge that learners have, graphic organizers organize this information and help students begin processing it. Then, the information can be built into the existing scaffold of the students' mind, fundamentally increasing learning and knowledge.

Based on the schema theory, learners obtain new information and store it in their existing channels, structures, or hierarchies of their mind (Dye, 2000). Dunston (1992), concerning the effectiveness of graphic organizers, states that they "organize information to be learned, connect it to what is known, and allow the reader to interact with the text" (p.59). Furthermore, as Ausubel (1963) mentioned, graphic organizers can be very effective techniques to activate learners' existing knowledge, and next establish connections between their background knowledge and the new information.

According to Guastello, Beasley, & Sinatra (2000), an essential duty of teachers is to make sure learners have enough background knowledge connected to the new information, and also provide learners with special tools or techniques to relate the new information to their previously learned knowledge. They justified their claims by alleging that if learners do not have enough background knowledge to connect it with the new information, they may not be able to comprehend the new materials. Hence, "our ability to understand and remember new information critically depends upon what we already know and how our knowledge is organized" (Clifton & Slowiaczek, 1981, p. 142). By making use of graphic organizers, learners can make connections between new materials and their prior knowledge, and create suitable schema for attaching new concepts to them (Guastello et al., 2000).

The dual coding theory, the cognitive code theory, and the schema theory all lend support

to the use of graphic organizers in helping students process and retain information. They provide

the basis for explaining the characteristics of graphic organizers that support the learning process

(Ellis, 2005).

Graphic Organizers

      Origin of graphic organizers. Graphic organizers are visual representations of

information from a text that depict the relationships between concepts, the text structure, and/or

key concepts of the text (Griffin & Tulbert, 1995; Jiang & Grabe, 2007; Kim, Vaughn, Wanzek,

& Wei, 2004; Tang, 1992). Graphic organizers have their roots in Ausubel's theories and

research on advance organizers (Ellis, 2005). An advance organizer is information that is

presented prior to learning that can be used by the learner to organize and interpret new incoming

information (Mayer, 2003). Ausubel (1963) advanced the belief that a learner's existing

knowledge, which he termed cognitive structure, greatly influences student learning. When the

cognitive structure expands by incorporating new information, learning takes place. Ausubel first

introduced the concept of graphic organizers in 1960 in his work using advance organizers to

link pre-reading information with a reader's prior knowledge (Cummins, Kimbell-Lopez &

Manning, 2015). This pre-reading introduction to a topic was modified to an outline format

called a structural overview by Baron (1969). A structured overview is a "diagrammatic

representation of the basic vocabulary of a unit so as to show relationships among the concepts

represented by those words" (Earle, 1969, p. 4). Structured overviews are now referred to as

graphic organizers (Hawk, 1986). Graphic organizers, just like their precursors, advance

organizers, were originally intended to be introduced in advance of learning itself to promote the

learning and retention of new information. The term graphic organizer replaced structured

overview in the mid-1980s, and began being used, as appropriate, before, during, and/or after

reading as a visual aid to help students in learning information (Cummins, Kimbell-Lopez & Manning, 2015). Since this time, the term graphic organizers has often been utilized in a broad sense with more specific names being given to represent their use with both narrative and informational texts (i.e. story map, compare and contrast, Venn diagram).

According to McTighe (1992), graphic organizers can be used in the reading process before instruction, during instruction, and after instruction. Before instruction, these organizers can be used to activate schema, make connections, and set a purpose for reading. During instruction, graphic organizers can be employed by learners to think logically, organize their thoughts, and take notes about the important information found in the text they are reading. After instruction, graphic organizers can help students recall and summarize information from the text, and can serve as pre-writing pieces when asked to write responses to a text. If a student can connect prior knowledge with what was learned and identify relationships between those ideas, it means graphic organizers have successfully assisted them in the course of their learning process.

Functions of graphic organizers. Graphic organizers are representations, pictures or models used for processing visual and verbal information. They facilitate understanding of knowledge when there is a large amount of information to work with, in a given limited time. According to Ciascai (2009), the functions of graphic organizers in the learning process are the following:

1. Graphic organizers clarify knowledge and reasoning. The function of graphic organizers is to explain the relations between concepts. There are graphic organizers that organize information into categories, facilitating in this way the definition of different concepts. Also, the visual organization of knowledge represents an efficient support for the process of thinking.

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2. Graphic organizers strengthen the learning process. Filling in a graphic organizer is a complex process that requires taking the decision on which graphic organizer is the most suitable for the given type of knowledge and cognitive processes. This decision involves the selection of the necessary knowledge and the evaluation of the approach and of the intermediary and final results. This type of work with knowledge contributes to the increase of learning comprehension and critical thinking in education.

3. Graphic organizers integrate the new knowledge with the prior knowledge system. This association of the new knowledge with the previous knowledge leads to a superior learning process.

4. Graphic organizers help identify the conceptual errors and misconceptions. Filling in a graphic organizer shows the teacher and the student the conceptual and perceptual errors. Therefore, both teacher and student can proceed with the required revisions.

Graphic organizers can have various forms, from representations of objects (mushroom, tree, sun, etc.) to hierarchical and cyclical structures. Although their use in learning activities is preferred by people who have a visual style of learning, graphic organizers are extremely useful to different kinds of learners (Ciascai, 2009). Semantic map, structured overview, web, concept map, semantic organizer, story map, graphic organizer, etc. no matter what the special name, a graphic organizer is a visual representation of knowledge. It is a way of structuring information, of arranging vital aspects of a concept or topic into a pattern using labels (Bromley, Irwin-De Vitis, & Modlo, 1995).

Classification of graphic organizers. Graphic organizers have been classified into five major categories according to their structures: star web, chart matrix, tree map, chain, and sketch.

Graphic organizers have also been classified into eight categories according to their purposes for learning (Li, 2008). The eight categories of graphic organizers are the following: KWL charts, history frames, word maps, zooming in and zooming out -concepts, zooming in and zooming out -people, inquiry charts, Venn diagram, and column notes. A KWL chart, which tracks what a student knows (K), wants to know (W), and has learned (L) about a topic can be employed as a teacher-led task before, during, and after the lesson to introduce a new topic. A history frame permits learners to look at historical events and break the information down to understand its significance, the people and places involved, and any other relevant information. A word map helps students analyze a new or complex vocabulary word from many different angles. A zooming in and out - concept graphic organizer allows students to delve deeper into a more complex concept. In this kind of graphic organizer, there is usually a box in the middle of the page for the main concept, and there are other boxes branching out from the middle for the secondary concepts. A zooming in and out – people graphic organizer is similar to the one for concepts, but it focuses on people instead. In this kind of organizer, the center box is for the name of a person and the surrounding boxes include spaces for the most and least important information, similar people, related events, surprising facts, and a summary statement. An inquiry chart or I-chart is a way of organizing information obtained during research. It contains four columns across the top, each for a different question. A Venn diagram is used to compare two ideas, events or people. It contains two overlapping circles. A column notes organizer is simple to set up and versatile in its applications. To organize notes, all a learner needs to do is to divide a piece of paper into two sections, each with its own heading (Praveen & Rajan, 2013).

  Discourse structure graphic organizers. The traditionally held view of written texts as being stagnant or static has been challenged by current reading research that considers written

texts as interactive, as they promote a dialog between reader and writer. Written texts require

readers to move beyond the word and sentence level to the discourse level. The term discourse

refers to extended written language that has unity, meaning and purpose. Learners need to be

equipped with knowledge of certain textual characteristics and strategies that can help them

guide their reading. (Zarrati, Nambiar, & Maasumb, 2014). Texts contain two kinds of

information: content information and structural information. Readers use content information to

build a meaningful mental representation of a text, and they employ structural information to

help them organize the content. Lack of sensitivity to structural information of texts is stated as

one of the factors that leads to difficulties in comprehension (Williams, 2007). Text structure

awareness, which according to Grabe (2009) encompasses recognizing, and attending to, a

number of discourse-signaling systems has been shown to be an effective reading strategy for

improving reading comprehension and recall of information. Making learners conscious of the

rhetorical organization of texts also contributes to reading fluency and efficiency (Villanueva de

Debat, 2012). Similar terms such as discourse structure, discourse pattern, text type, rhetorical

information, and top-level structure are used interchangeably with text structure, and refer to the

way information is organized in a text (Zarrati, Nambiar, & Maasumb, 2014).

A large number of students are unaware of the structural organization of texts, especially

expository texts, and often face many difficulties while reading such texts. Taking into account

the fact that most academic texts are expository in nature, making students aware of expository

text structure is fundamental (Nambiar, 2005). Learners ought to be taught to recognize and use

the structural organization of a text to improve reading comprehension and recall. Grabe (2009)

states that students need to know that texts are not a collection of words or sentences, but that

they have rhetorical structures that organize information in a way that serves the writers'

purposes. When instructing text-organizing features, learners should be made aware it is the writers' goals and expectations that determine basic discourse organization (Grabe, 2009).

A numbers of researchers have agreed that written texts have structures beyond sentences. Texts are arranged into different kinds of organizational patterns (e.g. definition, comparison-contrast, cause-effect, process and sequence, problem-solution, description and classification, argument, for-against, timeline). Graphic organizers representing the interrelationships among ideas and patterns of discourse organization constitute one of the major ways to teach "the organization of ideas in text" (Taylor, 1992, p. 221). Students are expected to comprehend texts better when shown visually how information in the text is organized (Jiang & Grabe, 2007). Graphic organizers are visual frameworks assisting in seeing structures of a text. A well-designed graphic organizer reflects the main points in a text, their relations with each other, and helps comprehension of the text holistically (Jones, Pierce, & Hunter, 1988). Graphic organizers can be generic or specific. They can be versatile so that they can be utilized for similar text structures; however, some of them do not work with some kinds of texts (Ozturk, 2012). They can also be presented in many shapes and sizes (Grabe & Stoller, 2001). Figures 2 through 10 illustrate examples of graphic organizers designed to match specific recurring text structures. These graphic organizers that represent the discourse structures of a text come from *Graphic organizers in reading instruction* (Jiang & Grabe, 2007).

	is a		that	

Figure 2. Example of graphic organizer: Definition

	1	2
comparison		
contrast		
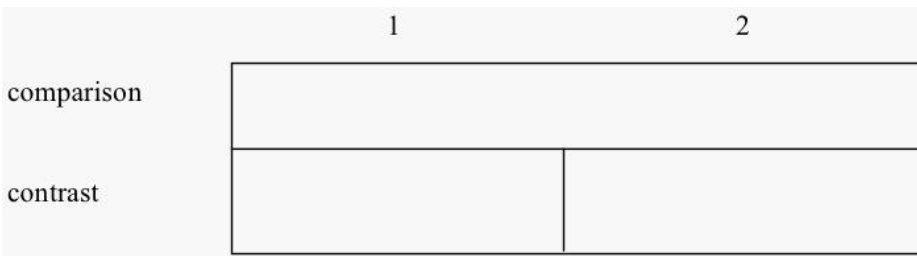
Figure 3. Example of a graphic organizer: Compare and Contrast

(a) [ ] → [ ]

(b) [ ] → [ ]

(c) [ ] → [ ]
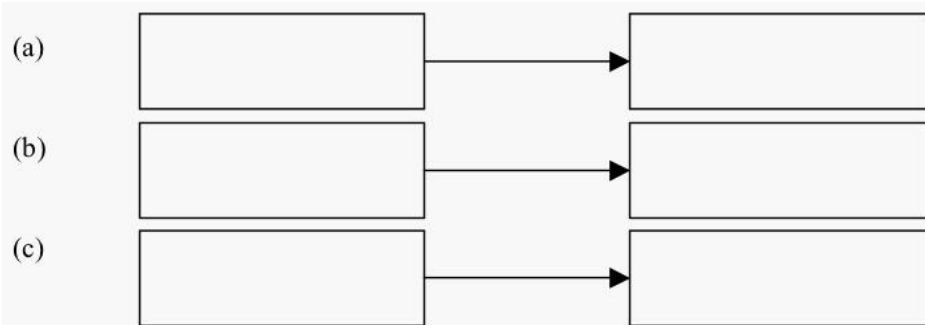
Figure 4. Example of a graphic organizer: Cause-Effect (in any number as needed)

[ ] → [ ] → [ ]
                        ↓
[ ] ← [ ] ← [ ]
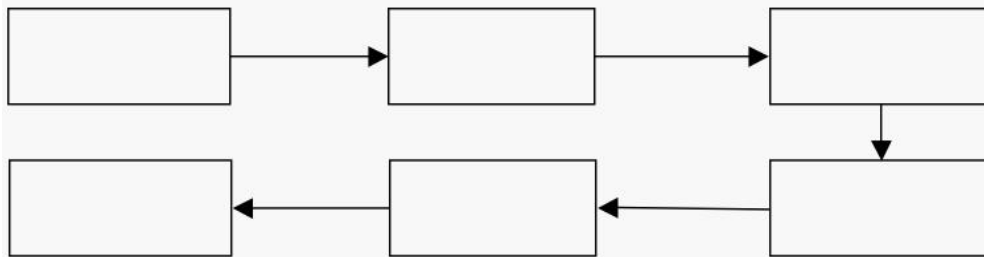
Figure 5. Example of a graphic organizer: Process and Sequence

Problem (who, what, why)	→	Solutions 1. 2. 3.
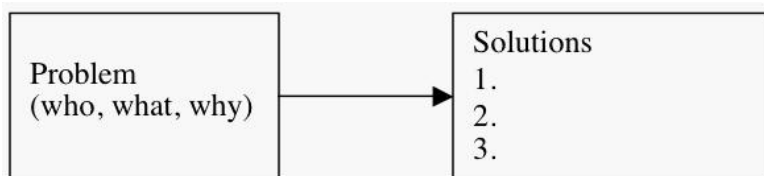
Figure 6. Example of a graphic organizer: Problem-Solution (in any number as needed)

or
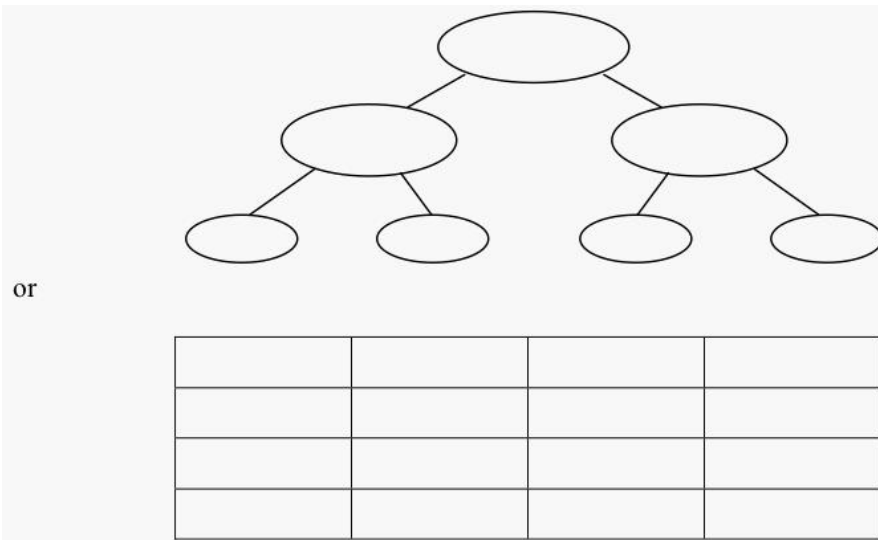
Figure 7. Example of a graphic organizer: Description and Classification
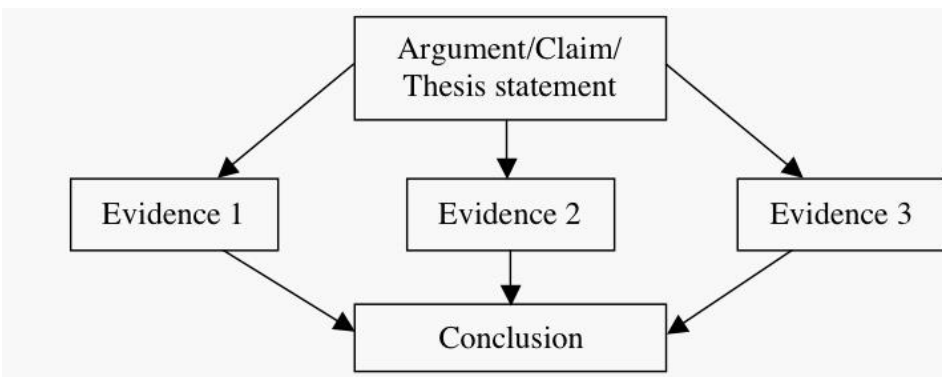
Figure 8. Example of a graphic organizer: Argument

Figure 9. Example of a graphic organizer: For-Against

Figure 10. Example of a graphic organizer: Timeline

The graphic organizers shown above can be used to apply to an extensive set of instructional texts. These graphic organizers can represent either principal or particular patterns of discourse structures in these texts and illustrate the interrelationships among ideas and details. It is essential to recognize that the use of text structures is not limited to "top-level" structures (Jiang & Grabe, 2007). Actually, the majority of the texts are a combination of numerous text structures, often nested one within another. As information varies in a text, distinct text structures are used to communicate this information consistently in ways that are easily identifiable by fluent readers. The central point in developing graphic organizers depicting text structure is simplicity. Graphic organizers need to be as explicit and direct as possible (Jiang & Grabe, 2007).

The design of the above graphic organizers may seem rather simplistic; however, they represent the common text structures clearly and can be applied again and again to sections of different instructional texts with appropriate adaptations. It is vital that instructors not insist on only one pattern in a text or that there is only one way to represent major information. Longer texts will especially use a number of discourse patterns to organize sub-sets of information, and that is common in texts for instructional purposes.

Graphic Organizer Research in Reading Comprehension

The research on graphic organizers is often based on the assumption that all texts have some kind of organizational patterns, and that there are a finite number of patterns that are regularly found in texts, including "cause-effect, problem-solution, comparison-contrast,

classification, definition, process, argument-reasoning, for-against, time sequence, and description" (Jiang & Grabe, 2007, p. 43). Graphic organizers provide a means of teaching students how to identify text structures. "Students are expected to comprehend texts better when shown visually how information in the text is organized" (Jiang & Grabe, 2007, p.39).

The vast majority of the studies concerning the use of graphic organizers for the improvement of reading comprehension have been carried out with first language (L1) learners. In L1 reading research, a number of studies have explored the effects of graphic organizer instruction on discourse structure awareness and reading comprehension (Jiang, 2012). The literature review to follow highlights key research studies on the impact of graphic organizers in L1 settings. In this review, the term graphic organizer is used interchangeably with such terms as flowchart, frame, tree-diagram, or matrix.

Graphic organizer research on first language learners. Geva (1983) taught first-year L1 community college students to represent prior knowledge and text structure in node-relation flowcharts. Geva (1983) found that learning to identify text structure by means of flowcharts contributed positively to the understanding of expository texts. Armbruster, Anderson, and Meyer (1991) described the effectiveness of a type of graphic organizer called "frame" in helping fifth grade L1 students study their social studies text. Guri-Rosenblit (1989) inquired into the efficacy of using a tree diagram in helping Israeli L1 college students comprehend the principal ideas in an expository text in the social sciences. The outcomes indicated that students who received the tree diagram performed significantly better in understanding the main ideas and on the recall of relations between several elements in the text than those who were subjected to either the original or the annotated text without a diagram (Jiang, 2012). Armbruster, Anderson, and Ostertag (1987) investigated the effects of graphic organizer instruction on learners with

varying capacities and provided confirmation that graphic organizer instruction benefits students of both stronger and weaker ability groups. Alvermann and Boothby (1986) reported that length of graphic organizer treatment was a chief variable in determining the amount of graphic organizer transfer. The study demonstrated that students in the 14-day graphic organizer group comprehended and recalled significantly more information than the comparison group.

In the 1990s, two studies by Robinson and collaborators strengthened earlier research findings. Robinson and Kiewra (1995) noticed that students studying graphic organizers learned more hierarchical and coordinate relations than students who studied outlines or texts in themselves. Moreover, they were more successful in applying that knowledge to essay writing. Robinson and Schraw (1994) compared the computational efficiency of matrix, outline, and text reading alone. They found that studying a matrix allowed college-level students to grasp the conceptual relations in a text more efficiently when compared to studying an outline or the text alone (Jiang, 2012).

In addition, Balajthy and Weisberg (1990) examined the effect of training in the use of graphic organizers and summary writing on the identification of the compare-contrast text structure by college L1 freshman in a developmental reading class. They wanted to discover if the training effect would be transferred to the real-world textbook materials. The results of the posttests indicated that the experimental group outscored the control group in both graphic organizers and summarizing after four taining sessions of 40 minutes each over a 2-week period (Jiang & Grabe, 2007). The authors came to the conclusion that the developmental college students were able to transfer their learning in the graphic organizers and summaries to real-world textbook materials.

Later, Williams et al. (2005) noted that children were reactive to text structure in expository passages as early as second grade. A program, which included the use of a matrix as an instructional procedure to teach compare-contrast text structure, enhanced students' skills to understand compare-contrast texts and permitted them to transfer their newly learned abilities to uninstructed compare-contrast texts. Williams and collaborators (2007) expanded the findings of Williams et al (2005) to the content area of social studies and found that the explicit comprehension instruction, which comprised the use of graphic organizers for each cause-effect structure, improved the understanding of instructional cause-effect texts.

Even though the majority of the studies in L1 reading research have consistently demonstrated the beneficial effects of graphic organizers in reading instruction, a small number of studies have produced disputable or inconclusive findings (Jiang, 2012). Armbruster, Anderson, and Meyer (1991) found that graphic organizers had positive results on the study of social science texts among the fifth graders, but not among the fourth graders. Hoffman (2010) studied the effect of using a matrix diagram on the comprehension of compare-contrast texts among a group of fifth grade students. The graphic organizer group showed no improvement in comprehension scores nor test scores on a standardized test of reading comprehension. In spite of these controversial studies, the greater number of graphic organizer studies have consistently indicated positive effects of graphic organizers in reading instruction. In a review article, Robinson (1997) reported that 14 out of 16 studies in L1 instruction found beneficial effects for using graphic organizers compared to studying texts alone, and the effectiveness of graphic organizers has been affirmed in a diverse set of situations.

The findings in L1 reading research on graphic organizer instructional approaches have significant implications for L2 reading research (Jiang, 2007). In the L2 context, discourse

structure awareness more generally has been found to consistently facilitate the understanding and recall of text information (Carrell, 1984; Ghaith & Harkouss, 2003; Goh, 1990; Hague & Olejnik, 1990; Martinez, 2002). Nonetheless, very few discourse structure training studies in L2 reading instruction have investigated the use of graphic organizers as instructional tools.

Graphic organizer research on second language learners. In contrast to the number of graphic organizer studies on L1 readers, there are fewer graphic organizer investigations in L2 reading comprehension. Tang (1992) reported on an experiment that investigated the effect of the graphic representation of knowledge structures of classification on reading comprehension. The study was designed as quasi-experimental with a pretest, posttest, and nonequivalent control group. In this study, Tang strove to understand how an instructor-designed tree graph presenting structural knowledge of classification could help facilitate text comprehension and instant recall (Jiang, 2012). The partakers in this experiment were 45 intermediate (seventh grade) ESL students. In the training, the graphic group was presented with the content of the passage in the form of a tree graph, completed a partially complete graph, and wrote a recall (Jiang & Grabe, 2007). The non-graphic group read the same passage, but as being the control group it just focused on learning key vocabulary, answering questions based on the reading material, and writing a recall. Tang found that the difference in mean score on the posttest for the graphic organizer group and the control group was statistically significant, with the intervention group showing significant increases in the amount of textual information recalled during testing (Miranda, 2011). Furthermore, the majority of the students in the graphic group agreed that using graphic organizers helped them understand the text.

Jiang (2012) also focused her research on the use of discourse graphic organizers to improve the reading comprehension of adult English language learners. Her study investigated

the effects of a 16-week reading instruction program with discourse structure graphic organizers on the development of English reading comprehension among college-level English as a Foreign Language (EFL) students. 340 students of non-English majors at a Chinese university were the participants of this study. A discourse structure completion test and a TOEFL (Test of English as a Foreign Language) reading comprehension test were administered before, immediately after, and seven weeks following the instructional treatment (Jiang, 2007). The results of the study demonstrated that the discourse structure graphic organizer instruction significantly improved students' reading comprehension as measured by graphic organizer completion and TOEFL reading comprehension test scores, and the instructional effect was retained seven weeks after instruction (Jiang, 2012). Moreover, overall students' attitudes towards the use of graphic organizers were positive.

Tang and Jiang's investigations are the only two published L2 empirical graphic organizer studies that focus on discourse structure graphic organizers. In 2012, Jiang affirmed, "Tang's research was the only published empirical investigation on the effects of discourse structure graphic organizers on English text comprehension among ESL learners" (p. 87). Jiang's 2007 study is the first longitudinal, large scale study with EFL students showing improved reading comprehension through graphic organizer training. Given the strong potential of discourse structure graphic organizer training for L2 reading development, there is a pressing need for further research on this issue.

Even though there is a general lack of research on discourse structure graphic organizer instruction in L2 settings, there are a few studies that focus on the generic use of graphic organizers to improve reading comprehension of adult ELLs. Amer (1994) investigated the effect of using two reading study strategies (i.e., knowledge maps and underlining) on the students'

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reading comprehension of scientific texts in English. Students participating in the study were randomly assigned to "knowledge map" treatment, "underlining" treatment, or "control" group. Two measures of reading comprehension were used: open-ended questioning and summarizing. Results showed that although both treatment groups outperformed the control group on open-ended questioning, the difference between the two treatment groups on this measure was not statistically significant. Both treatment groups outperformed the control group on summarization, with the knowledge map group performing significantly better (Manoli & Papadopoulou, 2012).

El-Koumy (1999) compared the effectiveness of three classroom methods for teaching semantic mapping to college-level EFL learners. Subjects were 187 freshmen at an Egyptian university. They were randomly assigned to three treatment groups: teacher-initiated semantic mapping; student-mediated semantic mapping, and teacher-student interactive semantic mapping. Treatment was administered over five months in one session per week. Subjects were pre- and post-tested in reading comprehension. While the pretest indicated no significant differences in the groups, post-test results revealed students in the teacher-student interactive semantic mapping group scored significantly higher than the other two groups (Abed & Salameh, 2010).

Chularut & DeBacker (2004) investigated the effectiveness of concept mapping used as a learning strategy with students in ESL classrooms. 79 ESL students participated in the study. Variables of interest were students' achievement when learning from an English-language text, students' reported use of self-regulation strategies (self-monitoring and knowledge acquisition strategies), and students' self-efficacy for learning from an English-language text. A randomized pre-test–post-test control group design was utilized. The findings showed a statistically significant interaction of time, method of instruction, and level of English proficiency for self-

monitoring, self-efficacy, and achievement. For all four outcome variables, the concept mapping group showed significantly greater gains from pre-test to post-test than the individual study group (Manoli & Papadopoulou, 2012).

Ozturk (2012) investigated the effects of graphic organizers on reading comprehension achievement of L2 learners. An experimental design with a control group was used in this study. 50 intermediate level EFL learners from Dokuz Eylul University in Turkey formed the group of participants, who were given a reading comprehension achievement test before the treatment. Graphic organizers were utilized with the experimental group in conjunction with selected reading passages. The same reading materials were employed by the control group without the use of graphic organizers. After a twelve-week treatment, both groups were administered the reading comprehension test again. The study showed that there was a significant difference in the reading comprehension achievement of the groups in favor of the experimental group, as the mean of this intervention group was much higher than the mean for the control group (Ozturk, 2012).

Praveen & Rajan (2013) also conducted an investigation to determine the effectiveness of using graphic organizers to improve reading comprehension skills. The participants of this study were 70 Indian ESL middle school students who constituted the experimental and control groups of this research. This study aimed at determining whether graphic organizers used as information organizers in order to identify the main idea and the supporting details of a text as well as to distinguish facts from opinions and making inferences had positive effects on the L2 learners reading comprehension. A reading comprehension pretest and a posttest were administered to both the experimental and control groups in order to examine the extent to which graphic organizers' instruction affected L2 learners' reading comprehension. The results of this study

suggested that the experimental group students outperformed the students from the control group in their reading comprehension test scores, implying that the use of graphic organizers as information organizers contributed significantly in the improvement of reading comprehension skills (Praveen & Rajan, 2013).

Heidarifard (2014) equally examined the effect of graphic organizers on L2 learners' reading comprehension. An experimental design with a control group was used in this study, which involved 80 Iranian high school students. The participants were divided into two groups of equal levels based on their Oxford Placement Test (OPT) scores. 40 participants received the graphic organizer intervention as Group A, and the other partakers received the traditional reading instruction as Group B, the control group. The participants' level of reading comprehension was tested via a reading comprehension pretest, and a posttest was administered in order to examine the extent to which graphic organizers' instruction affected L2 learners' reading comprehension. According to descriptive statistics of the participants' performance on the posttests, the mean score was higher in Group A and showed that there was a significant difference between the reading comprehension scores of Group B and Group A (Heidarifad, 2014). The results of this study demonstrated that the instruction of graphic organizers had a positive effect on the reading comprehension achievement of these Iranian high school English language learners.

Hashemian, Jam, & Naraki (2014) similarly investigated the effects of graphic organizers on L2 learners' reading comprehension. The participants of their study were 53 female 3rd year Iranian high school EFL learners. They were divided into two groups of 25 homogeneous students: one experimental group and one control group. Participants were given a reading comprehension test before the treatment. Later, the experimental group received the graphic

organizers intervention, and the control group received traditional reading instruction. After an eight-week treatment, both groups were given the reading comprehension test again as an immediate posttest. Finally, after a six-week delay, participants were given a delayed posttest. Statistical analysis showed a significant difference in the reading comprehension achievement of the groups in favor of the experimental one. The results of this study demonstrated that the use of graphic organizers had positive effects on the L2 learners' reading comprehension.

There is an apparent dearth of graphic organizer research with ESL and EFL learners around the world, especially in the United States despite the growing population of ELLs. Most of the studies concerning graphic organizers and reading comprehension have been carried out with L1 learners. As L2 learners come into contact with more dense and complex reading materials, they need special scaffolding devices to facilitate their reading comprehension (Jiang & Grabe, 2007). Graphic organizers that more closely resemble the discourse organization of a text can be used as scaffolding instruments to raise reading comprehension levels. Therefore, research that focuses its attention on the use of discourse structure-based graphic organizers to improve the reading comprehension of adult ELLs is more necessary than ever before.

Summary

This chapter provided a review of the literature that focused on graphic organizer and reading comprehension research. The first section included investigations on the different patterns of discourse structuring in texts, which play an important role in reading comprehension. The second section covered the research base that exists to support the use of graphic organizers for improving learning, particularly reading comprehension. Three major theories provide psychological support for the use of graphic organizers: the dual coding theory, the cognitive load theory, and the schema theory. The third section focused on the origin of graphic organizers,

the functions of graphic organizers, the classification of graphic organizers, and graphic organizers that directly represent the discourse structures of a text. The review of literature concluded by presenting the principal findings of previous studies that have considered the relationship between graphic organizers and reading comprehension, particularly studies in the effects of graphic organizers that reflect text structures among first language learners and second language learners.

Chapter III: Methods

This chapter presents the methods used in this study. This includes a background and description of the research design, a review of the instruments used to collect data, and a description of the sample population. The instruments used include a demographic survey, the reading comprehension section of the English as a Second Language Assessment Battery (ESLAB), and semi-structured interview questions. Data analysis study will be included to address the research questions followed by a summary of the chapter.

Purpose of the Study

The purpose of this study was to determine the relationship between graphic organizers and reading comprehension levels among adult English language learners (ELLs). This study examined the effects of using graphic organizers that represent the discourse structures of a text on the reading comprehension test scores of adult ELLs. It was also the purpose of this study to ascertain if the variable of gender had any significant influences on the outcomes of this research. Additionally, this study intended to find out the perceptions of adult ELLs regarding their use of graphic organizers to improve their reading comprehension.

This study employed the reading comprehension section of the English as a Second Language Assessment Battery (ESLAB), a teaching instrument from the Educational Testing Service (ETS), to assess the participants' general reading comprehension ability at the beginning of the study as a pretest, and at the end of the study as a post-test. The participants of this study, which included adult English as Second Language (ESL) students and ESL instructors from two reading classes of the same English language proficiency from the Intensive English Program (IEP) of a Southeastern University, constituted the control and the experimental groups of this study. The reading comprehension section of the ESLAB was

administered to both the control group and the experimental group at the beginning of the study, and at the end of the study to compare the results prior to the intervention and after the intervention was applied.

Besides employing the reading comprehension section of the ESLAB, during the investigation different kinds of graphic organizers that represent the discourse structures of a text were used with the adult ELLs of the experimental group receiving the intervention. These graphic organizers representing the interrelationships among ideas and patterns of discourse organization constitute one of the major ways to teach "the organization of ideas in text" (Taylor, 1992, p. 221). Students are expected to comprehend texts better when shown visually how information in the text is organized (Jiang & Grabe, 2007).

Research Questions

The following research questions were addressed in this study:

1. Does the use of graphic organizers that represent the discourse structures of a text improve the reading comprehension test scores of adult English language learners?
2. Does the variable of gender affect the outcomes of this study?
3. What are the beliefs of adult English language learners about the use of graphic organizers to aid in improving reading comprehension?

Research Design

This study employed a mixed-method approach, which included the use of quantitative and qualitative methods. The first phase involved quantitative research, as it included the use of a demographic survey as well as the utilization of the reading comprehension section of the English as a Second Language Assessment Battery (ESLAB). The second phase of this research

involved qualitative research, as it included interviews with five participants using a semi-structured interview questionnaire composed of ten questions.

Mixed-methods research design entails "research in which the investigator collects and analyzes data, integrates the findings, and draws inferences using both qualitative and quantitative approaches or methods in a single study or program of inquiry" (Tashakkori & Creswell, 2007, p.4). By integrating both quantitative and qualitative methods, the researcher can capture the strengths of both approaches while counteracting the weaknesses of using only one method. The mixed-method approach allows for a more comprehensive level of understanding and justification within a study (Creswell & Plano Clark, 2011; Johnson & Onwuegbuzie, 2004). Johnson and Onwuegbuzie (2004) also claimed that one of the benefits of the mixed-method approach is "its methodological pluralism or eclecticism, which frequently results in superior research (compared to mono-method research) … [and] research in a content domain that is dominated by one method often can be better informed by the use of multiple methods" (p. 15).

According to Greene, Caracelli, and Graham (1989), there are five principal objectives that support the use of the mixed-method approach in research. These comprise triangulation, complementarity, development, initiation, and expansion. Triangulation pursues convergence and collaboration of outcomes from the different methods. Complementarity pursues elaboration, enhancement, illustration, and classification of the results from one method with the results from the other method. Development aims at utilizing the outcomes from one method to assist, develop, and inform the other method. Initiation looks into possible contradictions from the results. Expansion attempts to increase the extent of the inquiry or examination by employing a variety of methods.

The research design for this study used a mixed-methods design that included

quantitative research, as it comprised the use of a demographic survey as well as the utilization

of the reading comprehension section of the English as a Second Language Assessment

Battery (ESLAB), followed by qualitative research, as it included interviews with five

participants using a ten semi-structured interview questionnaire. The investigator used a

phenomenological approach as a framework for the qualitative part of this study. According to

Creswell (2013), "a phenomenological study describes the common meaning for several

individuals of their lived experiences of a concept or phenomenon" (p.76). A

phenomenological framework provides meaning by sharing the commonalities among

participants during these shared experiences of the phenomenon. It requires the researcher to

"leave his or her own world behind and enter fully, through the written description, into the

situations of the participants" (Wertz, 2005, p. 167). Phenomenology is focused less on the

interpretations of the researcher and more on a description of the experiences of the

participants (Moustakas, 1994). Ultimately, within phenomenological research, the

investigator's purpose is to describe the "universal essence" based on the lived experiences of

the participants regarding the phenomenon. In phenomenology, data is analyzed for significant

statements, meaning units, textual and structural description, and description of the essence of

a concept or phenomenon (Creswell, 2013).

In this study, the phenomenon involved the lived experiences of adult ELLs who

employed discourse structure graphic organizers as a means to improve their reading

comprehension skills in their ESL reading classes in a Southeastern university in the United

States for a period of eight weeks. This study incorporated a mixed-methods design to gain a

deeper, more comprehensive awareness of the perceptions of adult ELLs concerning their use of

graphic organizers to improve their reading comprehension.

Population and Participants

The population and participants in this study included both adult English as a Second Language (ESL) students and two ESL instructors from two ESL reading classes of the same English language proficiency level from an Intensive English Program (IEP) at a Southeastern university in the United States. The adult ELLs who participated in this study were 19 years or older, and were randomly selected by enrollment in the two ESL reading classes. There were 40 adult ELLs participating in this study. 20 of them were in the experimental group, and the other 20 were in the control group. In addition, there was an equal distribution with regard to gender of ten males and ten females in each experimental and control grouping in this study. One of the ESL instructors was in charge of the experimental group while the other one was in charge of the control group. Different kinds of graphic organizers that represent the discourse structures of a text were used with the adult ELLs of the experimental group receiving the intervention. In order to execute this intervention, the ESL instructor of the experimental group was trained in the use of discourse structure graphic organizers by the researcher and employed the discourse structure graphic organizers in his or her reading class. In contrast, the ESL instructor of the control group did not use discourse structure graphic organizers in his or her reading class. He or she taught in the way he or she usually taught without the use of discourse structure graphic organizers. Both classes had a duration of eight weeks. Classes met four times per week: 80 minutes two times per week and 50 minutes twice a week. Five selected volunteer adult ELLs from the experimental class participated in semi-structured interviews.

Since the participants of this study were adult ELLs studying ESL in an IEP at a Southeastern university, initially an email requesting permission to conduct the study was sent to

the Director of the IEP, and approval was granted via an authorization letter (see Appendix A). Adult ELLs, who were prospective participants in this study, were sent an invitation to participate via email (see Appendix B). ESL instructors, who were prospective partakers in this study, were also sent an invitation to participate via email (see Appendix C).

Instrumentation

This study employed a mixed-method approach, which included the use of quantitative and qualitative methods. Two data collection instruments were utilized in this study to collect quantitative data: (1) a demographic survey developed by the researcher to obtain information about the participants' demographic features and general information, and (2) the reading comprehension section of the English as a Second Language Assessment Battery (ESLAB), a testing instrument from the Educational Testing Service (ETS). Qualitative data was collected using a semi-structured interview questionnaire composed of ten questions designed by the researcher.

Demographic survey. The demographic survey developed by the researcher included ten individual background questions to find out more about the characteristics of the adult ELLs, the principal participants of this study (see Appendix D). It included questions such as gender, age, country of origin, first language, highest education level attained, and length of time in the United States. Some of the questions were related to the participant's English background, such as the number of years they had been studying English, the ESL reading course they were enrolled in, and their self-rated reading ability in English as well as their self-rated overall English proficiency level.

English as a Second Language Assessment Battery (ESLAB). The reading comprehension section of the English as a Second Language Assessment Battery (ESLAB), a

teaching instrument from the Educational Testing Service (ETS), was used in this study to assess the participants' general reading comprehension ability at the beginning of the study as a pretest, and at the end of the study as a post-test. The participants of this study, which included adult English Language Learners (ELLs) from two reading classes of the same English language proficiency from the Intensive English Program (IEP) of a Southeastern University, constituted the control and the experimental groups of this study. The reading comprehension section of the ESLAB was administered to both the control group and the experimental group at the beginning of the study, and at the end of the study to compare the results prior to the intervention and after the intervention was applied.

The ESLAB was retrieved from the Online Test Collection of the ETS website. The ETS organization expressly authorizes the use of tests in this collection to be used for research purposes. It states that it is possible to duplicate the tests for use in research (see Appendix E). The ESLAB, originally designed by Rivera and Lombardo (1979), was developed to meet the need for a valid and reliable criterion-referenced instrument to assess the English language proficiency skills of ESL students (see Appendix F). The instrument was devised to assess both receptive (listening/reading) and expressive or productive (speaking/writing) language skills. Andrew Cohen's language model (1975) was used as a theoretical frame of reference for the development of the ESLAB. Cohen's model is based on the premise that oral and written proficiency must be considered as overall components of language proficiency.

The receptive components of the ESLAB included the Aural Comprehension Test, the Structural Competency Test, and the Informal Reading Inventory. The productive components of the ESLAB included the Oral Screening Test, the Oral Competency Test, the Dictation Exercise, and the Writing Sample. The Informal Reading Inventory (IRI), which is the reading

comprehension component of the ESLAB, was used in this study. The ESLAB IRI consists of a set of eight original reading passages, which range in length from 30 to 300 words. Each passage is followed by ten multiple-choice questions, each with four answer choices. The questions, which were constructed in order to evaluate the student's reading comprehension level, were based on Barrett's Taxonomy (Smith & Barrett, 1974). The IRI is administered as a group test. Students read the passages silently, and then answer the questions at the end of each selection. The time limit allotted for this test is 55 minutes.

In scoring the ESLAB IRI, the student results are tabulated first. The pre/post design of this study allows for a comparison of results prior to the intervention and after the intervention is applied, as a control group and an experimental group are utilized. In addition, the data is disaggregated by gender, allowing the researcher to determine if there is a difference in pre/post ESLAB IRI scores for adult ELL males and/or adult ELL females with an intervention of discourse structure graphic organizers. The ESLAB IRI was given prior to the start of the control and treatment classes as a pretest of reading comprehension levels. Then, the test was administered again to both classes after eight weeks of instruction to allow for contrasting. Analysis was conducted to determine if there was a difference in scores by gender and if there was a difference in scores in the treatment.

Validity and reliability of the English as a Second Language Assessment Battery.
Validity is the extent to which a test measures what it purports to measure (Heaton, 1975). For the ESLAB, validity was based on curricular and empirical analyses (Green, 1975). Curricular examinations included face and content validity analyses. These were determined by having examiners and examinees evaluate the tests, and by having language and reading experts inspect each of the test items. In most cases, items were rated favorably. In cases in which items were

not rated approvingly, suggestions were made for modifying the items (Rivera & Lombardo (1979). Empirical analysis was also of two types. The first type was predictive validity for which Kendall's tau (Nie, et. al., 1975) was used to correlate each test component's level results with four teacher estimates and ESL grades. Outcomes showed positive correlations at $p<.01$, indicating statistically significant results. The second type was concurrent validity. The Pearson correlation coefficient indicated a high correlation or close relationship between the ESLAB Informal Reading Inventory (IRI) and three other reading comprehension tests indicating that they may have produced similar results.

Reliability is defined as the accuracy with which a test measures whatever it is intended to measure (Thorndike & Hagen, 1969). It is the degree to which an assessment tool produces stable and consistent results. For the ESLAB, two kinds of reliability indices, internal consistency and interrater reliability were obtained. The index of internal consistency "is an index of the consistency of the subtests, or the degree to which the subtests measure the same thing" (Nelson, 1974, p. 280). In other words, internal consistency records whether a complete test score measures common skills rather than the individual distinct ones. In this study, this means that all items should be measuring linguistic abilities, and not, for instance, intellectual functioning or attitudes (Rivera & Lombardo (1979). The index of reliability was determined for both the receptive and productive language areas through the computation of Cronbach's alpha resulting in .74, indicating a higher internal consistency. Interrater reliability was established only for the expressive or productive subtests. For this purpose, the reliability of the ratings of three raters was correlated on a sample of 30 ESL students. This procedure was followed in order to ensure their reliability in assessing students. Approximately half of the students tested were randomly selected to be subjects for obtaining interrater reliability. On the whole, the interrater

reliability coefficients were quite significant demonstrating a high degree of agreement among raters (Rivera & Lombardo (1979). Overall, both the receptive and expressive or productive subtests of the ESLAB proved to be valid and reliable measures of language proficiency.

Follow-up interviews. The qualitative portion of this mixed-methods study included follow-up interviews, which intended to gain a deeper, more comprehensive awareness of the perceptions of adult ELLs concerning their use of graphic organizers to improve reading comprehension. Adult ELLs who were part of the intervention group were invited to participate in the follow-up interviews via email (see Appendix G). Five students from the experimental group who agreed to participate were randomly selected to be interviewed by the researcher using a semi-structured format as described by Brinkman and Kvale (2015).

The follow-up interviews consisted of ten questions (see Appendix H). The interview questions were conducted in a semi-structured format, allowing participants opportunities to expand on their responses. The researcher elicited personal classroom experiences and insights from each participant in order to help them focus on the topic. Questions 1 and 2 asked participants whether they found the graphic organizer activities interesting and if they found them easy or difficult to work with. Questions 3 and 4 centered on the value of employing discourse structure graphic organizers. Participants were asked whether these kinds of graphic organizers actually helped them see organizational patterns and understand texts better. Question 5 asked participants for suggestions regarding the construction of graphic organizers. Questions 6 and 7 asked participants about their perceptions of the prolonged effects of the use of graphic organizers on reading comprehension. Question 8 asked participants to evaluate the experience of employing graphic organizers. Participants were questioned whether they thought their overall reading ability had improved after utilizing graphic organizers. Question 9 asked participants to

select the advantages of using graphic organizers identified by researchers they agreed with the most. For this purpose, they were provided with a list of five advantages. Question 10 asked participants to identify the most valuable aspect of participating in this educational experience.

Data Collection

Data collection for this mixed-methods study involved the gathering of quantitative data followed by the collection of qualitative data.

Quantitative data. Quantitative data was obtained via a demographic survey and the reading comprehension section of the English as a Second Language Assessment Battery (ESLAB). Since the prospective participants in this study were adult English language learners (ELLs) studying English as Second Language (ESL) in an Intensive English Program (IEP) at a Southeastern university, initially an email requesting permission to conduct the study was sent to the Director of the IEP, and approval was granted via an authorization letter. Then, adult ELLs from two reading classes of the same English language proficiency level from the IEP were sent invitations to participate via email. Those adult ESL students who decided to participate in this study were asked to meet in a designated room at a certain date and time. There the characteristics of the study were carefully explained, and the participants were requested to read and sign informed consent forms (see Appendix I). After signing the informed consent forms, the adult ELLs participating in this study responded to a demographic survey developed by the researcher, which included ten individual background questions, and then took the initial reading assessment, the reading comprehension section of the ESLAB, as a pretest. These same adult ELLs were asked to take the ESLAB again eight weeks later at the conclusion of the study as a post-test. The time limit allotted for this test was 55 minutes each time it was administered.

ESL instructors of reading classes from the IEP were also sent invitations to participate in this study via email. Two of those ESL reading instructors, who wanted to participate in the study and who taught reading classes of the same English language proficiency level, were asked to meet in a designated room at a certain date and time. There the characteristics of the study were carefully explained, and the ESL instructors participating in this study were requested to read and sign informed consent forms (see Appendix I). One of the ESL instructors was in charge of the experimental group while the other one was in charge of the control group. Different kinds of graphic organizers that represent the discourse structures of a text were used with the adult ELLs of the experimental group receiving the intervention. In order to execute this intervention, the ESL instructor of the experimental group was trained in the use of discourse structure graphic organizers by the researcher and employed the discourse structure graphic organizers in his or her reading class. In contrast, the ESL instructor of the control group did not use discourse structure graphic organizers in his or her reading class. He or she taught in the way he or she usually taught without the use of discourse structure graphic organizers.

The data obtained from the ESLAB pretests and post-tests from both the control and experimental groups was analyzed using quantitative methods by entering the information into IBM SPSS Statistics 24.

Qualitative data. Qualitative data was obtained via follow-up interviews, which intended to gain a deeper, more comprehensive awareness of the perceptions of adult ELLs concerning their use of graphic organizers to improve reading comprehension. Adult ELLs who were part of the intervention group were invited to participate in the follow-up interviews via email. Five students from the experimental group who agreed to participate were randomly selected to be

interviewed by the researcher using a semi-structured format as described by Brinkman and Kvale (2015).

The follow-up interviews, which consisted of ten questions, were conducted face-to-face. Interviews lasted between 45 minutes and one hour, depending on the participant's willingness to elaborate on their responses. The interview questions were conducted in a semi-structured format, allowing participants opportunities to expand on their responses. The researcher elicited personal classroom experiences and insights from participants in order to help them focus on the topic. The interview data were audio-taped and transcribed. After the transcribing procedure was completed, the researcher sent each of the five participants a copy of their interview transcript via email to review and confirm the accuracy of the responses. To protect the privacy of the participants, pseudonyms were used when analyzing and reporting the interview data. The interview data was analyzed using qualitative methods with the aid of Atlas.ti software, including coding to generate categories and themes. All in all, the purpose of these interviews was to determine the perceptions of adult ELLs regarding their use of discourse structure graphic organizers to improve their reading comprehension.

Data Analysis

This study incorporated a mixed-methods approach in order to analyze the collected data. Data analysis was carried out in two stages, including the analysis of reading comprehension test scores followed by the analysis of transcribed follow-up interviews. Once each section of the data was analyzed, both the quantitative and qualitative data were integrated for interpretation of the results.

Reading comprehension test scores. The reading comprehension section of the English as a Second Language Assessment Battery (ESLAB) was employed to assess the participants'

general reading comprehension ability at the beginning of the study as a pretest, and at the end of

the study as a post-test. Pre- and post-reading comprehension tests were administered to both the

experimental group and the control group. This pre/post design allowed for a comparison of

results prior to the intervention, and after the intervention was applied. The data obtained from

the ESLAB pretests and post-tests from both the control and experimental groups was analyzed

using quantitative methods by entering the information into International Business Machines

(IBM) Statistical Package for the Social Sciences (SPSS) Statistics 24. The researcher used IBM

SPSS Statistics 24 to analyze data and show descriptive data, Pearson r correlations, and samples

T-tests. An alpha level of $p=.05$ was used for all statistical analyses. Data by gender was

disaggregated in order to determine if there were differences in the reading comprehension test

scores with the application of the intervention.

Descriptive statistics were used to evaluate and provide descriptive data. Descriptive

statistics that included the frequency distributions, the means, and the standard deviations were

calculated to represent demographic information.

Research question 1 "Does the use of graphic organizers that represent the discourse

structures of a text improve the reading comprehension test scores of adult English language

learners?" was analyzed using samples T-tests and Pearson r correlations. Research question 2

"Does the variable of gender affect the outcomes of this study?" was analyzed using samples T-

tests.

Follow-up interviews. The qualitative portion of this mixed-methods study included

follow-up interviews, which intended to gain a deeper, more comprehensive awareness of the

perceptions of adult ELLs concerning their use of graphic organizers to improve reading

comprehension. Follow-up interview data were used to answer research question 3 "What are the

beliefs of adult English language learners about the use of graphic organizers to aid in improving reading comprehension?" The follow-up interview responses were analyzed through a phenomenological lens (Creswell, 2013; Moustakas, 1994). The researcher employed Atlas.ti software for coding and categorized themes based on the interview data. Emerging themes were identified, coded, and expanded on from the interview content. The investigator conducted horizontalization, which is a phenomenological procedure, whereby the researcher gives equal value to all of the participants` statements. By making use of horizontalization, researchers remove all the repetitive statements as well as those that do not relate to the research questions (Eddles-Hirsch, 2015). Meaningful statements from the transcriptions were included to help build a deeper understanding of the perceptions of adult ELLs concerning their use of graphic organizers to improve reading comprehension.

Validity and reliability. Validity and reliability are both necessary when considering data quality. According to Carmines and Zeller (1979), validity is defined as "the extent to which any measuring instrument measures what it is intended to measure" (p.17) while reliability involves "the extent to which an experiment, test, or any measuring procedure yields the same results on repeated trials" (p.11). The English as a Second Language Assessment Battery (ESLAB), which was used in this study to collect quantitative data, has established validity and reliability. Both the receptive and expressive or productive subtests of the ESLAB have proven to be valid and reliable measures of language proficiency (Lombardo, 1981).

The use of a control group helped to minimize any threats to internal validity. This study had internal validity as it could be applied to other various groups. Since the participants were selected randomly, any threats to external validity were minimized.

Creswell (2013) considers validity in qualitative research as "an attempt to assess the accuracy of the findings, as best described by the researcher and the participants" (p. 249). Creswell (2013) also views validity as a distinct strength of qualitative research in that "the account made through extensive time spent in the field, the detailed thick description, and the closeness of the researcher to participants in the study all add to the value or accuracy of a study" (p. 250). The investigator utilized particular validation strategies, such as building trust, member checking, and triangulation, to ensure the validity of this study. During the interviews, the researcher built trust with participants by engaging with them with a view to learning their beliefs, and checking for misinformation that stems from distortions introduced by the researcher himself or herself (Ely, 1991; Erlandson, Harris, Skipper & Allen, 1993). The investigator conducted member checking by emailing the interview transcripts to each participant to review and provide any correction if necessary. This technique is considered by Lincoln and Guba (1995) to be "the most critical technique for establishing credibility" (p.314). Triangulation was used by the researcher to corroborate evidence from different sources to shed light on a theme or perspective. It was achieved by employing diverse instruments to collect data and to analyze it. When qualitative researchers locate evidence to document a code or theme in different sources of data, they are triangulating information and providing validity to their findings (Creswell, 2013).

Reliability can be addressed in qualitative research in different ways (Silverman, 2005). Creswell (2013) considers "reliability can be enhanced if the researcher obtains detailed field notes by employing a good-quality tape for recording and by transcribing the tape (p. 253). Creswell (2013) also states that the tape needs to be transcribed to indicate the trivial, but often critical, pauses and overlaps. Therefore, the researcher employed the best quality voice recorder for the follow-up interviews in order to obtain accurate and detailed interview notes and

transcriptions of the data. During the transcription process, close attention was paid to the pauses and overlaps.

Ethics. In compliance with the Institutional Review Board (IRB) at Auburn University, all ethical concerns were addressed. The investigator's protocol #17-308 EP 1709 entitled "An Examination of Reading Comprehension Test Scores and the Use of Graphic Organizers" was approved as "Expedited" under federal regulation 45 CFR 46.110(6,7) (see Appendix K). The IRB Research Protocol was submitted to provide detailed information pertaining this study, such as the contact information of both the researcher and advisor, proof of mandatory CITI training, research methods employed, participant information, potential risks to participants, research purpose, recruiting process of participants, data collection procedures, data analysis procedure, and protection of data.

In compliance with the IRB, the investigator also submitted authorization letters, email invitations for participants, instruments used for the study, as well as informed consent forms. The data for this study were collected confidentially with collection and protection of linkages to identifiable information. When analyzing and reporting the interview data, pseudonyms were employed. Participants were notified that they could opt out of the study at any point in time. All the quantitative and qualitative data were only accessible to the investigator, and data were kept in a locked cabinet in the researcher's office. After completing the study, all the data including answer sheets, transcripts, audio files, and notes were destroyed. The researcher also informed the participants that the collected data would only be used for a doctoral dissertation, conference presentations, and future publications.

Summary

This chapter discussed the methods used in this investigation. It described the research design, the participants of the study, the three instruments used for data collection (a demographic survey, a reading comprehension test, and a follow-up interview questionnaire), the data collection protocol, and the procedures employed for data analysis. Descriptive statistics, samples T-tests, and Pearson r correlations were administered with the use of SPSS software to analyze the quantitative data. A phenomenological approach was utilized to analyze qualitative data from the follow-up interviews. This chapter also examined the validity and reliability of this study as well as how ethical concerns were addressed.

Chapter IV: Results

This chapter presents the findings and results of this study obtained from both quantitative and qualitative data. This includes demographic results, discussion of findings, and a summary. The study incorporated a mixed-methods design for data collection and analysis by making use of the English as a Second Language Assessment Battery (ESLAB) and follow-up interviews.

Purpose of the Study

The purpose of this study was to determine the relationship between graphic organizers and reading comprehension levels among adult English language learners (ELLs). This study examined the effects of using graphic organizers that represent the discourse structures of a text on the reading comprehension test scores of adult ELLs. It was also the purpose of this study to ascertain if the variable of gender had any significant influences on the outcomes of this research. Additionally, this study intended to find out the perceptions of adult ELLs regarding their use of graphic organizers to improve their reading comprehension.

This study employed the reading comprehension section of the English as a Second Language Assessment Battery (ESLAB), a teaching instrument from the Educational Testing Service (ETS), to assess the participants' general reading comprehension ability at the beginning of the study as a pretest, and at the end of the study as a post-test. The participants of this study, which included adult English as Second Language (ESL) students and ESL instructors from two reading classes of the same English language proficiency from the Intensive English Program (IEP) of a Southeastern University, constituted the control and the experimental groups of this study. The reading comprehension section of the ESLAB was administered to both the control group and the experimental group at the beginning of the study,

and at the end of the study to compare the results prior to the intervention and after the intervention was applied.

Besides employing the reading comprehension section of the ESLAB, during the investigation different kinds of graphic organizers that represent the discourse structures of a text were used with the adult ELLs of the experimental group receiving the intervention. These graphic organizers representing the interrelationships among ideas and patterns of discourse organization constitute one of the major ways to teach "the organization of ideas in text" (Taylor, 1992, p. 221). Students are expected to comprehend texts better when shown visually how information in the text is organized (Jiang & Grabe, 2007).

Research Questions

The following research questions were addressed in this study:

1. Does the use of graphic organizers that represent the discourse structures of a text improve the reading comprehension test scores of adult English language learners?

2. Is there a difference in reading comprehension test scores by gender in adult English language learners who use graphic organizers that represent the discourse structures of a text to improve reading comprehension?

3. What are the beliefs of adult English language learners about the use of graphic organizers to aid in improving reading comprehension?

Demographic Results

Participants in this study included adult English as a Second Language (ESL) students of the same English language proficiency level from an Intensive English Program (IEP) at a Southeastern university in the United States. The adult English language learners (ELLs) who participated in this study were 19 years or older, and were randomly selected by enrollment in

two ESL reading classes. There were 40 adult ELLs participating in this study. The reading comprehension section of the English as a Second Language Assessment Battery (ESLAB) was administered to the 40 adult ELLs participating in this study to assess their general reading comprehension ability at the beginning of the study as a pretest, and at the end of the study as a post-test. 20 of the adult ELLs participating in this study comprised the experimental group while the control group was composed of the other 20 participants.

Table 2 shows the frequency distribution of the 40 adult ELLs participating in this study by each demographic group. The participants were all enrolled in Level 4 ESL reading classes. None of them was enrolled in Levels 1, 2, 3, or 5. The participants were between the ages of 19 and 48. Out of the 40 participants, 22 (55%) were between the ages of 19-24, 14 (35%) were between the ages of 25-30, and four (10%) were 31 or older. The majority of the participants in this study were between the ages of 19 to 30, which consisted of 90% of the total number of participants.

Considering gender, there were 20 (50%) male and 20 (50%) female participants. There was an equal ratio of male and female participants in this study. Furthermore, there was an equal distribution with regard to gender of ten males and ten females in each experimental and control grouping in this study.

Regarding the length of stay in the United States, there were three participants that had been staying in the U.S. for one month, which was the shortest time. Conversely, the participant that had been staying in the U.S. the longest had been in the United States for 120 months or 10 years. Nine (22.5%) participants reported that they had been staying in the U.S. for less than four months. Eight (20%) participants declared that they had been staying in the U.S. between four months and eight months. 17 (42.5%) participants reported that they had been staying in the U.S.

between 9 and 12 months, and six (15%) participants revealed that they had been staying in the U.S. more than 12 months. The majority (85%) of the participants reported that they had been living in the U.S. for 12 months or less.

There were 16 (40%) participants who reported that their reading ability in English was fair. 22 (55%) participants declared that their reading ability in English was good while two (5%) participants reported that it was excellent. No participants rated their reading ability in English as being poor. The majority (95%) of the participants reported their reading ability in English to be either fair or good.

There were 19 (47.5%) participants who reported that their overall English proficiency was fair. 20 (50%) participants declared that their overall English proficiency was good while one (2.5%) participant reported that it was excellent. No participants rated their reading ability in English as being poor. The majority (97.5%) of the participants reported their overall English proficiency to be either fair or good.

Out of the 40 participants, 20 (50%) were Asian (16 South Koreans, 2 Japanese, 1 Vietnamese, and 1 Turkish). There were nine (22.5%) participants from South America (7 Brazilians, 1 Chilean, and 1 Venezuelan). There were also eight (20%) Arab/Middle Eastern participants (8 Saudi Arabians), two (5%) participants from Africa (1 Congolese and 1 Ivorian), and one (2.5%) participant from Europe (Germany). The majority (92.5%) of the participants were either Asian, South American, or Arab/Middle Eastern.

With regard to the highest educational level attained, 30 (75%) of the participants reported that they were either currently undergraduate students in college or had completed an undergraduate degree in college. 7 (17.5%) of the participants revealed that they had finished high school, and 3 (7.5%) of the participants reported that they were either currently pursuing a

master's degree or already had a master's degree. The majority (92.5%) of the participants either were undergraduate students in college or had already finished high school.

Regarding the number of years studying English, the participant with the shortest time studying English had studied it for six months, and the participant with the longest time studying English had studied it for 17 years. One (2.5%) participant reported studying English for less than one year. 16 (40%) participants reported studying English between one year and five years. 17 (42.5%) participants reported studying English between six years and ten years, and six (15%) participants reported studying English for more than 10 years. The majority (82.5%) of the participants in this study reported studying English between one year and ten years.

With regard to the first language spoken by the participants, 17 (42.5%) participants spoke Korean as their native language, eight (20%) spoke Arabic as their native language, seven (17.5%) spoke Portuguese as their native language, two (5%) spoke French as their native language, two (5%) spoke Japanese as their native language, and two (5%) spoke Spanish as their native language. In addition, one (2.5%) participant spoke Turkish, and one (2.5%) spoke Vietnamese. The majority (80%) of the participants spoke Korean, Arabic or Portuguese as their native or first language.

Table 2

Frequency Distribution of Reading Comprehension Assessment Participants for Each Demographic Category

Category	Description	*n*	%
Age	19-24	22	55
	25-30	14	35
	31+	4	10
Gender	Male	20	50
	Female	20	50
Length of stay in the U.S.	Less than 4 months	9	22.5
	4 - 8 months	8	20
	9 - 12 months	17	42.5
	12+ months	6	15
Self-rated reading ability	Excellent	2	5
	Good	22	55
	Fair	16	40
	Poor	0	0
Self-rated English proficiency	Excellent	1	2.5
	Good	20	50
	Fair	19	47.5
	Poor	0	0
Race/Ethnicity	Asian	20	50
	South American	9	22.5
	Arab/Middle Eastern	8	20
	African	2	5
	European	1	2.5
Educational Level	Graduate	3	7.5
	Undergraduate	30	75
	High School	7	17.5
Years studying English	Less than 1 year	1	2.5
	1 - 5 years	16	40
	6 - 10 years	17	42.5
	10 + years	6	15
Native Language	Korean	17	42.5
	Arabic	8	20
	Portuguese	7	17.5
	French	2	5
	Japanese	2	5
	Spanish	2	5
	Turkish	1	2.5
	Vietnamese	1	2.5

n = 40

Follow-up interview participants. Follow-up interviews intended to gain a deeper, more comprehensive awareness of the perceptions of adult ELLs concerning their use of graphic organizers to improve reading comprehension. Adult ELLs who were part of the intervention group were invited to participate in the follow-up interviews via email. Five students from the experimental group who agreed to participate were randomly selected to be interviewed by the researcher using a semi-structured format as described by Brinkmann and Kvale (2015). The five randomly selected students to be interviewed were assigned pseudonyms in order to protect their identities and ensure confidentiality. Table 3 shows the disaggregated demographic information of the interview participants. The interview participants were all enrolled in Level 4 ESL reading classes.

Table 3

Interview Participants' Demographic Profiles

Demographic Variable	Participant (Pseudonym)				
	Diego	Emma	Jana	Leo	Nancy
Age Range	25-30	31+	19-24	19-24	25-30
Gender	Male	Female	Female	Male	Female
Length of stay in the U.S.	Less than 4 months	12+ months	4 - 8 months	Less than 4 months	Less than 4 months
Self-rated reading ability	Good	Fair	Good	Excellent	Good
Self-rated English Proficiency	Good	Fair	Fair	Good	Good
Race/Ethnicity	Brazilian	Korean	Korean	Brazilian	Brazilian
Educational Level	Graduate	Undergraduate	High School	Undergraduate	Undergraduate
Years studying English	6 - 10 years	6 - 10 years	10+ years	10+ years	1 - 5 years
Native Language	Portuguese	Korean	Korean	Portuguese	Portuguese

n=5

Table 4 shows the overall aggregated frequency distribution of the follow-up interview participants organized by demographic categories. The interview participants were all enrolled in

Level 4 ESL reading classes. None of them was enrolled in Levels 1, 2, 3, or 5. The interview participants were between the ages of 22 and 48. Out of the five interview participants, two (40%) were between the ages of 19-24, two (40%) were between the ages of 25-30, and one (10%) was 31 or older. The majority of the interview participants in this study were between the ages of 19 to 30, which consisted of 80% of the total number of interview participants.

Considering gender, there were two (40%) male and three (60%) female interview participants. The majority of the interview participants in this study were female, which consisted of 60% of the total number of interview participants.

Regarding the length of stay in the United States, three (60%) interview participants reported that they had been staying in the U.S. for less than four months. One (20%) interview participant declared that he or she had been staying in the U.S. between four months and eight months. No (0%) interview participants reported that they had been staying in the U.S. between 9 and 12 months, and one (20%) interview participant revealed that he or she had been staying in the U.S. more than 12 months. The majority (80%) of the interview participants reported that they had been living in the U.S. for 12 months or less.

There was one (20%) interview participant who reported that his or her reading ability in English was fair. Three (60%) interview participants declared that their reading ability in English was good while one (20%) interview participant reported that it was excellent. No interview participants rated their reading ability in English as being poor. The majority (60%) of the interview participants reported their reading ability in English to be good.

There were two (40%) interview participants who reported that their overall English proficiency was fair. Three (60%) interview participants declared that their overall English proficiency was good. No interview participants rated their reading ability in English as being

poor or excellent. The majority (60%) of the interview participants reported their overall English proficiency to be good.

Out of the five interview participants, three (60%) were from South America (three Brazilians). There were also two (40%) interview participants from Asia (two Koreans). The majority (60%) of the interview participants were South American.

With regard to the highest educational level attained, three (60%) of the interview participants reported that they were either currently undergraduate students in college or had completed an undergraduate degree in college. One (20%) of the interview participants revealed that he or she had finished high school, and one (20%) of the interview participants reported that he or she was either currently pursuing a master's degree or already had a master's degree. The majority (60%) of the interview participants were undergraduate students in college.

Regarding the number of years studying English, no (0%) interview participants reported studying English for less than one year. One (20%) interview participant reported studying English between one year and five years. Two (40%) interview participants reported studying English between six years and ten years, and two (40%) interview participants reported studying English for more than ten years. The majority (80%) of the interview participants in this study reported studying English between six years and more than ten years.

With regard to the first language spoken by the interview participants, three (60%) interview participants spoke Portuguese as their native language, and two (40%) interview participants spoke Korean as their native language. The majority (60%) of the interview participants spoke Portuguese as their native or first language.

Table 4

Overall Frequency Distribution of Follow-Up Interview Participants for Each Demographic Category

Category	Description	*n*	%
Age	19-24	2	40
	25-30	2	40
	31+	1	20
Gender	Male	2	40
	Female	3	60
Length of stay in the U.S.	Less than 4 months	3	60
	4 - 8 months	1	20
	9 - 12 months	0	0
	12+ months	1	20
Self-rated reading ability	Excellent	1	20
	Good	3	60
	Fair	1	20
	Poor	0	0
Self-rated English proficiency	Excellent	0	0
	Good	3	60
	Fair	2	40
	Poor	0	0
Race/Ethnicity	Asian	2	40
	South American	3	60
Educational Level	Graduate	1	20
	Undergraduate	3	60
	High School	1	20
Years studying English	Less than 1 year	0	0
	1 - 5 years	1	20
	6 - 10 years	2	40
	10 + years	2	40
Native Language	Portuguese	3	60
	Korean	2	40

Discussion of Findings

Research Question 1. The first research question for this study was "Does the use of graphic organizers that represent the discourse structures of a text improve the reading comprehension test scores of adult English language learners?"

The null hypothesis was the following**:** Adult English language learners, who use graphic organizers that represent the discourse structures of a text, demonstrate equal reading comprehension to those adult English language learners who do not use graphic organizers.

H_o: $\mu E = \mu C$

The alternative hypothesis for this investigation was the following**:** Adult English language learners, who use graphic organizers that represent the discourse structures of a text, demonstrate greater reading comprehension than those adult English language learners who do not use graphic organizers.

H_a: $\mu E > \mu C$

The E represents the experimental group. It is the group to which the intervention was applied. During the investigation, different kinds of graphic organizers that represent the discourse structures of a text were used with the adult ELLs of the experimental group receiving the intervention (see Appendix M). The C represents the control group. It is the group to which no intervention was applied.

In this study that measured the effects of using graphic organizers that represent the discourse structures of a text on reading comprehension test scores in adult English language learners, the dependent variable was the gain score, which is the difference between the pre-test reading comprehension test scores and the post-test reading comprehension test scores. The reason why the gain score was used as a dependent variable in this study was because at the beginning of the study it was unknown whether the students from the control and the experimental groups had the same reading comprehension level even though both groups were all enrolled in Level 4 ESL reading classes. Hence, employing the gain score constituted a way of controlling the pre-test results.

The independent variable was the use of graphic organizers that represent the discourse structures of a text. During the investigation, different kinds of graphic organizers that represent the discourse structures of a text were only used with the adult ELLs of the experimental group receiving the intervention.

Statistical analyses were conducted to find out the results of the study. The data from the pre-test, which was given to both the control group and the experimental group before the intervention was employed with the experimental group, was analyzed to statistically prove that there was no significant difference between the experimental group and the control group before the treatment. The pre-test results are shown in Table 5:

Table 5

Descriptive Statistics for Research Question 1

	Control Group (*n=20*)		Experimental Group (*n=20*)		Overall (*n=40*)	
	Mean	**SD**	**Mean**	**SD**	**Mean**	**SD**
Age	25.3	4.26	25.9	6.71	25.6	5.555
Years studying English	6.78	3.3245	7.6	4.2969	7.19	3.8147
Months of stay in the U.S.	8.75	5.5902	18.45	28.7722	13.60	21.0394
Pre-test score	56.95	10.5704	56.55	16.741	56.75	13.8207
Post-test score	56.4	11.6276	70.6	7.8767	63.5	12.1571
Gain score	-0.5500	5.17560	14.05	16.7787	6.75	14.3129

As it is shown in Table 5, there was no significant difference between the pre-test scores of both the experimental group and the control group just before the treatment with graphic organizers that represent the discourse structures of a text. The mean of the pre-test scores of the control group ($M = 56.95$) was a little higher than the mean of the pre-test scores of the experimental group ($M = 56.55$) at the beginning, yet this difference was not statistically significant.

After the 8-week treatment, the participants were given the reading comprehension assessment test again. The results of the post-test are shown in Table 5 as well. As it is shown in Table 5, the mean of the post-test scores of the experimental group ($M = 70.6$) was much higher than the mean of the post-test scores of the control group ($M = 56.4$). This difference was statistically significant. The 8-week treatment positively affected the reading comprehension test scores of the participants of the experimental group.

Table 5 also shows that there was no significant difference in the gain score, which is the difference between the pre-test and the post-test reading comprehension test scores, of the control group. The gain score was -0.5500. The mean of the pre-test scores of the control group ($M = 56.95$) was a little higher than the mean of the post-test scores of the same group ($M = 56.4$), yet this difference was not statistically significant.

In addition, Table 5 shows that there was a significant difference in the gain score, which is the difference between the pre-test and the post-test reading comprehension test scores, of the experimental group. The gain score was 14.05. The mean of the pre-test scores of the experimental group ($M = 56.55$) was a notably lower than the mean of the post-test scores of the same group ($M = 70.6$). This difference was statistically significant. The 8-week treatment positively affected the reading comprehension test scores of the participants of the experimental group. As shown in Table 6, an independent samples T-test was used to determine if there was a significant difference in the gain score between the control group and the experimental group.

Table 6

Independent Samples T-Test for Research Question 1

		Levene's Test for Equality of Variances		t-test for Equality of means					95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Difference	Lower	Upper
Gain Score	Equal variances assumed	31.596	.000	-3.719	38	.001	-14.60000	3.92626	-22.54830	-6.65170
	Equal variances not assumed			-3.719	22.583	.001	-14.60000	3.92626	-22.73039	-6.46961

The significant level α was set at .05. The independent samples t-test results indicated that there was a significant difference in the gain score between the control group and the experimental group, t (22.58) = -3.72, p = .001, large effect size, d = 1.02.

Levene's test of equal variance assumption was violated ($p < .001$). From this result, the null hypothesis that stated that adult English language learners, who used graphic organizers that represented the discourse structures of a text, demonstrated equal reading comprehension to those adult English language learners who did not use graphic organizers was rejected, and the alternative hypothesis that stated that adult English language learners, who used graphic organizers that represented the discourse structures of a text, demonstrated greater reading comprehension than those adult English language learners who did not use graphic organizers was accepted.

The experimental group that was subject to the graphic organizer intervention had higher gain scores than the control group that was not subject to the graphic organizer intervention. The gain score is the difference between the pre-test reading comprehension test scores and the post-

test reading comprehension test scores. The 8-week treatment positively affected the reading comprehension test scores of the participants of the experimental group.

It can be concluded from this study that the use of graphic organizers that represent the discourse structures of a text improve the reading comprehension test scores of adult English language learners.

Research Question 2. The second research question for this study was "Is there a difference in reading comprehension test scores by gender in adult English language learners who use graphic organizers that represent the discourse structures of a text to improve reading comprehension?"

The null hypothesis was the following: There is not a difference by gender in adult English language learners' reading comprehension test scores when graphic organizers, which represent the discourse structures of a text, are used to improve reading comprehension.

H_o: $\mu M = \mu F$

The alternative hypothesis was the following**:** There is a difference by gender in adult English language learners' reading comprehension test scores when graphic organizers, which represent the discourse structures of a text, are used to improve reading comprehension.

H_a: $\mu M \neq \mu F$

The M represents the male participants of the study. The F represents the female participants of the study. There were 20 males and 20 females who participated in this investigation.

In this study that measured the effects of using graphic organizers that represent the discourse structures of a text on reading comprehension test scores in adult English language learners, the dependent variable was the gain score, which is the difference between the pre-test

reading comprehension test scores and the post-test reading comprehension test scores. The independent variable was gender.

Statistical analyses were conducted to find out the results of the study. Table 7 shows that there was no significant difference in the gain score between male and female ESL students participating in this study. The mean of the gain score of male participants ($M = 2.85$) was slightly lower than the mean of the gain score of female participants ($M = 10.65$), yet this difference was not statistically significant.

Table 7

Descriptive Statistics for Research Question 2

	Male (n=20)		Female (n=20)		Overall (n=40)	
	Mean	SD	Mean	SD	Mean	SD
Age	26.1	5.428	25.1	5.7756	25.6	5.5553
Years studying English	7.78	4.2476	6.6	33.09	7.19	3.8147
Months of stay in the U.S.	12.55	16.1619	14.65	25.3985	13.60	21.0394
Pre-test score	59	13.0988	54.5	14.4859	56.75	13.8207
Post-test score	61.85	11.2684	65.15	13.0637	63.5	12.1571
Gain score	2.8500	7.45001	10.65	18.2476	6.75	14.3124

As shown in Table 8, an independent samples T-test was used to determine if there was a significant difference in the gain score between male and female ESL participants in this study.

Table 8

Independent Samples T-Test for Research Question 2

		Levene's Test for Equality of Variances		t-test for Equality of means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Gain Score	Equal variances assumed	13.912	.001	-1.1770	38	.085	-7.80000	4.40726	-16.72203	1.12203
	Equal variances not assumed			-1.770	25.163	.089	-7.80000	4.40726	-16.87395	1.2795

The significant level α was set at .05. The independent samples t-test results indicated that there was no significant difference in the gain score between male and female ESL students who participated in this study, t (25.163) = -1.77, p = .09.

Levene's test of equal variance assumption was violated (p=.001). Based on these results, the investigator failed to reject the null hypothesis that stated that there was not a difference by gender in adult English language learners' reading comprehension test scores when graphic organizers, which represent the discourse structures of a text, were used to improve reading comprehension. The independent samples t-test did not identify a consequential relationship between gender and reading comprehension test scores.

It can be concluded from there is not a significant difference in improvement of reading comprehension test scores by gender in adult English language learners who use graphic organizers that represent the discourse structures of a text to improve reading comprehension.

Research Question 3. The third research question for this study was "What are the beliefs of adult English language learners about the use of graphic organizers to aid in improving

reading comprehension?" This question intended to gain a deeper, more comprehensive awareness of the perceptions of adult ELLs concerning their use of graphic organizers that represent the discourse structures of a text to improve reading comprehension. The qualitative data for this question was collected from the follow-up interviews. Five emerging themes unfolded from the analysis of interview transcripts: (1) Beliefs about the design and construction of graphic organizers; (2) Beliefs about the effectiveness of graphic organizer application in reading instruction; (3) Beliefs about the drawbacks of using graphic organizers: (4) Beliefs about the distant or long term effects of using graphic organizers to improve reading comprehension; and (5) Beliefs about the successful implementation of graphic organizers in the classroom.

Design and construction of graphic organizers. Participants' responses varied regarding their comments and suggestions on the design and construction of graphic organizers. Two participants commented on the directions or instructions of graphic organizers, and provided suggestions for improvement. Two other participants discussed the visual appearance of graphic organizers, and how to improve it. One participant addressed the issue of pre-training or modeling, and how this could help learners be successful when filling in graphic organizers. Leo commented on the directions or instructions of graphic organizers:

> *Clear directions about the task need to be included in the graphic organizer activities. Instructors should tell us if we should paraphrase or copy from the text.*

Nancy also made a comment concerning directions or instructions about the use of graphic organizers:

> *Instructors need to inform us whether we should use complete sentences, phrases, or just key words to complete the graphic organizers. Besides, they should provide us with cues,*

such as paragraph numbers, consistently and explicitly, so that we can approach the task with ease.

Diego brought up a comment related to the visual appearance of graphic organizers:

We should be provided with equal size boxes to fill out with information from the text. If the size of the boxes varies, we might feel misled, as we might think that we need to gather more information from the text to complete those boxes which are bigger.

Jana also commented on the visual appearance of graphic organizers:

As learners, we need to be explained the directions of the arrows that are found in the graphic organizers by our instructors. Sometimes it is hard for us to figure us the intent of the graphic organizer if we do not know why arrows point in certain directions.

Emma addressed the issue of modeling:

Instructors need to explain the common text structure types to us and provide us with some pre-training or modeling. If we are not trained enough in terms of the common text structure types, we will not know in which direction to fill out the graphic organizers. It would be great if instructors could provide us with some pre-training or modeling before we are asked to comply with these tasks.

Effectiveness of graphic organizer application in reading instruction. All the participants agreed that the practice of applying graphic organizers in ESL reading instruction would help nonnative students understand the text better, especially complex texts. Specifically, graphic organizers could draw learners' attention to the organizational patterns of the text and raise their awareness of text structures. In addition to better understanding the text structures, organizers would help learners develop different reading skills.

Leo described how the use of graphic organizers helped him understand reading texts better:

Graphic organizers allowed me to focus on the main ideas of the text I was reading. They provided me with a purpose for reading that let me get straight to the principal points of

the text. Graphic organizers made it easier and faster for me to understand the central ideas of a text.

Emma commented on how graphic organizers helped her visualize the contents of a reading text:

Whenever I am exposed to a graphic organizer before I am a given a text to read, I can visualize in my mind how the text is organized. This is really helpful for me because when I actually start reading the text, I feel that I understand it and that I can focus on its contents without difficulties.

Diego pointed out that the visual elements of a graphic organizer provide invaluable help in understanding reading texts:

When I use a graphic organizer together with a text, I feel that I become more involved with the text itself. In some way, the visual elements of the graphic organizer help me understand the way the text is organized. I can't explain how this happens, but it just happens. After using the graphic organizer, the text just seems clearer and more digestible.

Jana mentioned that graphic organizers helped her develop different reading skills:

Graphic organizers have really helped me improve my reading skills. When using graphic organizers, I can find specific information in texts more quickly. I am also developing the habit of reading a text more than once. Besides, I am reading a text in different ways.

Nancy also stated that graphic organizers assisted her in improving her reading skills:

Graphic organizers have helped me depict a mental picture of what I am reading. Besides, they have helped me develop note-taking strategies as well as the ability to organize my own writing.

Drawbacks of using graphic organizers. Participants' responses varied regarding their views on the disadvantages of using graphic organizers. Two participants commented on the difficulties learners may encounter when trying to fill in graphic organizers, and provided

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suggestions for improvement. Two participants questioned the timing of graphic organizers, and offered recommendations on how to improve it. One participant addressed the issue of learning styles in connection with the use of graphic organizers in the classroom.

Diego pointed out that it could sometimes be difficult for students to fill in graphic organizers:

Graphic organizers need to reflect or mirror the pattern of organization of texts. Therefore, they should be prepared very carefully and precisely by instructors. I had trouble filling in a graphic organizer based on a reading about the American constitution because I honestly think that the graphic organizer that was employed did not really focus on the main ideas of the text.

Emma also made a comment related to the complications that may arise when trying to fill in a graphic organizer:

Something that can really affect my ability to fill in a graphic organizer has to do more with the text in itself than with the organizer I am using. If the text is too difficult for me to understand, it would be very hard for me to fill in the graphic organizer. The organizer can be well designed, but if I don't understand the text I am reading, it would be very tough for me to complete it.

Leo brought up a comment connected with the timing of graphic organizers:

I really think graphic organizers should not be used before you read a text, but after you read a text. If you look at the organizer first without reading, you may not know what information you are expected to use to fill it in since you have not read the text. I find this confusing. I feel graphic organizers can improve our reading comprehension, but I insist that they should be employed after reading as a way of summarizing and recalling the main ideas of a text.

Jana also commented on when graphic organizers should be employed:

I felt a little overwhelmed when I was first introduced to graphic organizers. My ESL instructor presented the organizers before he had us read the text. I felt confused, as I did

not have any previous knowledge about the text topic. I would prefer to be given the text

first, then told to read it, and finally asked to fill in the graphic organizer based on it.

Nancy focused on the issue of learning styles in connection with the use of graphic

organizers in the classroom:

I feel that graphic organizers can help students who are mainly visual learners, as they

can help visualize the patterns of organization of a text as well as help distinguish

between the main ideas and the relevant details of a text. However, I am not that much of

a visual learner. I consider myself more an auditory learner, so what really helps me

understand a text is listening to it. Besides, graphic organizers may not appeal to

kinesthetic learners either, as these kinds of learners learn more by carrying out physical

activities.

Long term effects of graphic organizer use on reading comprehension. Most of the

participants agreed that the practice of applying graphic organizers in ESL reading instruction

over time would bring about positive outcomes. Indeed, the majority of the participants

acknowledged that their overall reading ability improved after being exposed to graphic

organizers throughout the eight weeks that their ESL reading course lasted. However, one

participant was unsure whether the results would be as optimistic and long-lasting as the others

thought they would be.

Diego was convinced that the constant exposure to graphic organizers would improve his

reading comprehension skills:

Having been exposed to graphic organizers for eight weeks, I strongly feel that my

reading comprehension has greatly improved. Graphic organizers have helped me see

the interrelationships and patterns of organization of the texts that I have read in this

ESL reading class. I firmly believe that my reading comprehension abilities will become

better if I keep on using organizers.

Emma also agreed that her overall reading ability had improved due to the graphic organizer intervention she had been exposed to:

Using the graphic organizers together with the reading texts has positively influenced my reading comprehension over the last eight weeks of class. Using these organizers has forced me to think about the relationships between paragraphs, and has helped me to connect and frame my ideas. I feel quite confident that my reading comprehension abilities will keep getting better if I continue using graphic organizers.

Nancy also commented that she felt her reading comprehension skills had improved during the course due to the use of graphic organizers:

Even though this reading class has lasted for only eight weeks, I think that I can understand texts better because my ESL instructor has used graphic organizers to help us focus on the contents of the readings since the first week of class. I feel closer to a text now because in order to fill in the organizers I have had to refer back to the text several times.

Jana concurs with Diego, Emma, and Nancy, as she felt that her reading comprehension abilities considerably improved along the ESL reading course she was taking after being exposed to graphic organizers:

In spite of the fact that I had never used graphic organizers before, I felt very comfortable when using them. I feel that they have helped me understand the reading texts I have been exposed to. They have helped me find specific information as well as the main ideas in texts. At first, it was not that easy, but as I started doing it more often, I got better at it.

Leo was the only participant who was unsure whether the practice of applying graphic organizers in ESL reading instruction over time would bring about positive results:

I must say that I have not noticed that my reading comprehension skills have improved throughout these last eight weeks due to the use of graphic organizers. Maybe it is just because eight weeks of graphic organizer exposure is not enough, but I still have my

reservations. In order for me to give a fair opinion, I would need to employ them for at least a year.

Successful implementation of graphic organizers in the classroom. Participants'

responses varied regarding their ideas on the successful implementation of graphic organizers in

classroom instruction. Three participants commented on ways in which learners needed to be

prepared in order to use graphic organizers successfully. Two other participants discussed what

classroom teachers needed to do to make sure graphic organizers were being successfully

implemented in ESL reading classes.

Leo commented on learner preparation:

I think that we, as learners, need to have some knowledge of recurrent text structures such as cause/effect, problem/solution, comparison/contrast, classification, and definition.

In this way, we will be more prepared to fill in the graphic organizers that reflect those common text structures.

Diego also addressed the issue of learner preparation:

I feel that being told about the benefits or advantages of using graphic organizers to improve reading comprehension is crucial. At least, it has worked well with me. In general, when I am told by my instructors about the reasons why we work on certain tasks or activities in our language classes, I feel more comfortable and confident about my own learning.

Nancy concurs with Leo and Diego, as she pointed out the importance of learner

preparation:

I honestly think that if I had not been trained on how to use graphic organizers, the results of my learning would not have been as successful as they were. Now I feel that I can approach a reading text with much more confidence than before. I can even create

my own simple graphic organizers that can help me distinguish between the main ideas
and the relevant details of a text.

Jana described what ESL reading instructors needed to do to assure graphic organizers
were being successfully utilized in class:

I think that my ESL instructor used the right steps to teach us how to employ graphic
organizers. He first told us about the kind of organizer we were going to use and the kind
of information that we needed to look for in the reading text in order to complete it. Then,
he had us work individually to fill in the graphic organizer. Next, he had us work
collaboratively in pairs or in small groups to compare our work. Finally, we discussed as
a class some difficulties we faced when working on this task.

Emma mentioned an additional step that ESL reading instructors could incorporate to
make sure graphic organizers were successfully being implemented in reading classes:

Something that I found quite valuable was that after being exposed to graphic organizers
by our ESL reading instructor, he engaged us in post graphic organizer tasks, such as
answering questions and writing a summary based on the reading text that we had been
exposed to. I felt that I could comply with these two activities with ease, so now reflecting
on the experience, I believe that this was possible because of our dedicated work on
graphic organizer tasks.

Summary

In this chapter, results from both quantitative and qualitative data were presented to
answer the research questions of this study: (1) Does the use of graphic organizers that represent
the discourse structures of a text improve the reading comprehension test scores of adult English
language learners?, (2) Is there a difference in reading comprehension test scores by gender in
adult English language learners who use graphic organizers that represent the discourse
structures of a text to improve reading comprehension?, and (3) What are the beliefs of adult

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English language learners about the use of graphic organizers to aid in improving reading comprehension?

To answer Research Question 1, the independent samples t-test results indicated that there was a significant difference in the gain score, which is the difference between the pre-test and the post-test reading comprehension test scores, between the control group and the experimental group, t (22.58) = -3.72, p = .001, large effect size, d = 1.02. Levene's test of equal variance assumption was violated (p < .001). From this result, the null hypothesis that stated that adult English language learners, who used graphic organizers that represented the discourse structures of a text, demonstrated equal reading comprehension to those adult English language learners who did not use graphic organizers was rejected, and the alternative hypothesis that stated that adult English language learners, who used graphic organizers that represented the discourse structures of a text, demonstrated greater reading comprehension than those adult English language learners who did not use graphic organizers, was accepted.

The experimental group that was subject to the graphic organizer intervention had higher gain scores than the control group that was not subject to the graphic organizer intervention. The 8-week treatment positively affected the reading comprehension test scores of the participants of the experimental group. Hence, it can be concluded from this study that the use of graphic organizers that represent the discourse structures of a text improve the reading comprehension test scores of adult English language learners.

To answer Research Question 2, statistical analyses indicated that there was no significant difference in the gain score between male and female ESL students participating in this study. The mean of the gain score of male participants (M = 2.85) was slightly lower than the mean of the gain score of female participants (M = 10.65), yet this difference was not statistically

significant. The independent samples t-test results indicated that there was no significant difference in the gain score between male and female ESL students who participated in this study, t (25.163) = -1.77, p = .09.

Levene's test of equal variance assumption was violated (p=.001). Based on these results, the investigator failed to reject the null hypothesis that stated that there was not a difference by gender in adult English language learners' reading comprehension test scores when graphic organizers, which represent the discourse structures of a text, were used to improve reading comprehension. The independent samples t-test did not identify a consequential relationship between gender and reading comprehension test scores.

It can be concluded from this study that there is not a significant difference in reading comprehension test scores by gender in adult English language learners who use graphic organizers that represent the discourse structures of a text to improve reading comprehension.

To answer Research Question 3, qualitative data obtained from the follow-up interviews was analyzed, and it revealed five emerging themes, which included: (1) Beliefs about the design and construction of graphic organizers; (2) Beliefs about the effectiveness of graphic organizer application in reading instruction; (3) Beliefs about the drawbacks of using graphic organizers; (4) Beliefs about the distant or long term effects of the use of graphic organizers on reading comprehension; and (5) Beliefs about the successful implementation of graphic organizers in the classroom. It can be concluded from this study that the perceptions of adult ELLs concerning their use of graphic organizers that represent the discourse structures of a text to improve reading comprehension were mostly positive and constructive.

Chapter V: Summary, Conclusions, Implications, and Recommendations

This chapter presents the summary of this study, conclusions based on the data analysis, implications of the findings and results as well as recommendations for future research.

Purpose of the Study

The purpose of this study was to determine the relationship between graphic organizers and reading comprehension levels among adult English language learners (ELLs). This study examined the effects of using graphic organizers that represent the discourse structures of a text on the reading comprehension test scores of adult ELLs. It was also the purpose of this study to ascertain if the variable of gender had any significant influences on the outcomes of this research. Additionally, this study intended to find out the perceptions of adult ELLs regarding their use of graphic organizers to improve their reading comprehension.

This study employed the reading comprehension section of the English as a Second Language Assessment Battery (ESLAB), a teaching instrument from the Educational Testing Service (ETS), to assess the participants' general reading comprehension ability at the beginning of the study as a pretest, and at the end of the study as a post-test. The participants of this study, which included adult English as Second Language (ESL) students and ESL instructors from two reading classes of the same English language proficiency from the Intensive English Program (IEP) of a Southeastern University, constituted the control and the experimental groups of this study. The reading comprehension section of the ESLAB was administered to both the control group and the experimental group at the beginning of the study, and at the end of the study to compare the results prior to the intervention and after the intervention was applied.

Besides employing the reading comprehension section of the ESLAB, during the investigation different kinds of graphic organizers that represent the discourse structures of a text were used with the adult ELLs of the experimental group receiving the intervention. These graphic organizers representing the interrelationships among ideas and patterns of discourse organization constitute one of the major ways to teach "the organization of ideas in text" (Taylor, 1992, p. 221). Students are expected to comprehend texts better when shown visually how information in the text is organized (Jiang & Grabe, 2007).

Research Questions

The following research questions were addressed in this study:

1. Does the use of graphic organizers that represent the discourse structures of a text improve the reading comprehension test scores of adult English language learners?

2. Is there a difference in reading comprehension test scores by gender in adult English language learners who use graphic organizers that represent the discourse structures of a text to improve reading comprehension?

3. What are the beliefs of adult English language learners about the use of graphic organizers to aid in improving reading comprehension?

Summary

This study employed a mixed-methods approach. The first phase involved quantitative research. The adult ESL students participating in this study, who came from two reading classes of the same English language proficiency level, initially responded to a demographic survey. Then, these same participants took the reading comprehension section of the English as a Second Language Assessment Battery (ESLAB) to assess their general reading ability both at the beginning of the study as a pretest, and at the end of the study as a post-test. The time limit

allotted for this test was 55 minutes each time it was administered. The two ESL instructors, who taught the two reading classes where the adult ESL students came from, also partook in this investigation. These two sets of participants constituted the control and the experimental groups of this study. The instructor of the experimental group was trained in the use of discourse structure graphic organizers by the principal investigator, and was expected to employ them in his reading class throughout the term which lasted 8 weeks. On the other hand, the instructor of the control class taught in the way she usually taught without the use of discourse structure graphic organizers for the same amount of time. The quantitative data obtained from the ESLAB pretests and post-tests from both the control and experimental groups were analyzed by using the IBM SPSS Statistics 24 software employing different statistical descriptive analyses and t-test analyses.

The second phase of this research involved qualitative research. Five ESL volunteer students from the experimental reading class were interviewed by the principal investigator using a semi-structured format as described by Brinkmann and Kvale (2015). The interviews were audio-taped. The qualitative data was transcribed and analyzed using a phenomenological approach with the aid of Atlas.ti software, including a coding technique to generate categories and to elicit emergent themes. The purpose of these interviews was to determine the perceptions of adult ELLs regarding their use of discourse structure graphic organizers to improve their reading comprehension. This chapter presents conclusions, implications, and recommendations for future research.

Conclusions

It can be concluded from this study that the use of graphic organizers that represent the discourse structures of a text improve the reading comprehension test scores of adult English

language learners. The findings of this research are consistent with the findings of Carrell (1985) who found that the instruction and use of graphic organizers facilitated reading comprehension in ESL contexts. The present study also confirms the findings of Martinez (2002) and Li, Wang, Cao, & Li (2014) that have highlighted the link between drawing students' attention to discourse structures in texts and facilitating improved reading comprehension. The results of this study will provide meaningful data to educators, researchers, and administrators of English as a Second Language (ESL) programs about the impact that the use of graphic organizers that represent the discourse structures of a text can have on the reading comprehension test scores of adult ESL learners. This, in turn, can lead English language professionals to improve their teaching practices, which will benefit ESL students from improved instruction.

Research Question 1. The first research question examined if there was a relationship between the use of graphic organizers and reading comprehension levels among adult English language learners (ELLs). The study specifically investigated the effects of using graphic organizers that represent the discourse structures of a text on the reading comprehension test scores of adult ELLs. Studies by Tang (1992) and Jiang (2012) revealed that there was a correlation between the use of discourse structure graphic organizers and reading comprehension test scores of L2 learners. Tang found that the difference in mean score on the posttest for the graphic organizer group and the control group was statistically significant, with the intervention group showing significant increases in the amount of textual information recalled during testing (Miranda, 2011). The results of the Jiang's study demonstrated that discourse structure graphic organizer instruction significantly improved students' reading comprehension as measured by graphic organizer completion and TOEFL reading comprehension test scores, and the instructional effect was retained seven weeks after instruction (Miranda, 2011). In these two

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studies, which employed control and experimental groups, the intervention of the graphic organizers that represent the discourse structures of a text significantly improved the reading comprehension test scores of the adults ELLs who participated in these studies.

Like these studies, the results of the current study indicated that there was a significant difference in the gain score between the control group and the experimental group, $t (22.58) = -3.72$, $p = .001$, large effect size, $d = 1.02$. The gain score is the difference between the pre-test reading comprehension test scores and the post-test reading comprehension test scores. The experimental group that was subject to the graphic organizer intervention had higher gain scores than the control group that was not subject to the graphic organizer intervention. The 8-week treatment positively affected the reading comprehension test scores of the participants of the experimental group. The alternative hypothesis that stated that adult English language learners, who used graphic organizers that represented the discourse structures of a text, demonstrated greater reading comprehension than those adult English language learners who did not use graphic organizers, was accepted.

Research Question 2. The second research question examined if the variable of gender had any significant influences on the reading comprehension levels of adult English language learners (ELLs). The study specifically investigated if there was a difference in reading comprehension test scores by gender in ELLs who used graphic organizers that represent the discourse structures of a text. A study by Olson (2014) supported gender differences in reading comprehension test scores when graphic organizers were employed as interventions. The research in this study demonstrated that there was a significant difference in gender with the male participants improving more than the female participants in the experimental group, while

the female participants improved more than the male participants in the control group (Olson, 2014).

Unlike the study by Olson (2014), the results of the current study indicated that that there was no significant difference in the gain score between male and female ESL students who participated in this study, t (25.163) = -1.77, p = .09. The gain score is the difference between the pre-test reading comprehension test scores and the post-test reading comprehension test scores. The mean of the gain score of male participants ($M = 2.85$) was slightly lower than the mean of the gain score of female participants ($M = 10.65$), yet this difference was not statistically significant. Based on these results, the investigator failed to reject the null hypothesis that stated that there was not a difference by gender in adult English language learners' reading comprehension test scores when graphic organizers were used to improve reading comprehension. The results of the current study did not identify a consequential relationship between gender and reading comprehension test scores.

The results of this study coincide with Poole's (2005) study which revealed that there was not a significant difference with regard to male and female reading comprehension test scores when graphic organizers were utilized as interventions. The population and setting of Poole's (2005) study resemble this research, as the participants of his study also included adult ELLs from reading classes from the Intensive English Program (IEP) of a 4-year higher education institution.

Research Question 3. The third research question explored the beliefs of adult English language learners about the use of graphic organizers to aid in improving reading comprehension. This question intended to gain a deeper, more comprehensive awareness of the perceptions of adult ELLs concerning their use of graphic organizers that represent the discourse

structures of a text to improve reading comprehension. The qualitative data for this question was collected from follow-up interviews. Jiang (2012), who focused her research on the use of discourse graphic organizers to improve the reading comprehension of college-level English as a Foreign Language (EFL) students at a Chinese university, also collected qualitative data from participants' interviews. Jiang's (2012) findings revealed that the students who received graphic organizer instruction and employed graphic organizers during reading instruction generally had a positive attitude toward the use of these organizers. Moreover, their perception of the immediate effect on their reading instruction was predominantly positive as well.

Five emerging themes unfolded from the analysis of interview transcripts of the current study: (1) Beliefs about the design and construction of graphic organizers; (2) Beliefs about the effectiveness of graphic organizer application in reading instruction; (3) Beliefs about the drawbacks of using graphic organizers: (4) Beliefs about the distant or long term effects of using graphic organizers to improve reading comprehension; and (5) Beliefs about the successful implementation of graphic organizers in the classroom. Regarding their beliefs about the design and construction of graphic organizers, interview participants agreed unanimously that graphic organizers helped them see the interrelationships and patterns of organization of the texts that they read. They added that graphic organizers helped them identify the main ideas of texts, as well as relevant details. Concerning their beliefs about the effectiveness of graphic organizer application in reading instruction, interview participants agreed that the practice of applying graphic organizers in ESL reading instruction would help nonnative students understand the text better, especially complex texts. Specifically, they mentioned that graphic organizers could draw learners' attention to the organizational patterns of the text and raise their awareness of text

structures. In addition to better understanding the text structures, according to interview participants, organizers would help learners develop different reading skills.

With regard to beliefs about the drawbacks of using graphic organizers, interview participants' responses varied considerably. Some participants commented on the difficulties learners may encounter when trying to fill in graphic organizers. Other participants questioned the timing of graphic organizers. With respect to beliefs about the distant or long term effects of using graphic organizers to improve reading comprehension, interview participants agreed that the practice of applying graphic organizers in ESL reading instruction over time would bring about positive outcomes. Indeed, the majority of the participants acknowledged that their overall reading ability improved after being exposed to graphic organizers throughout the eight weeks that their ESL reading course lasted. In reference to beliefs about the successful implementation of graphic organizers in the classroom, interview participants felt that the successful implementation of graphic organizers in classroom instruction would necessarily involve some preparation of the learners by their teachers. Based on qualitative data collected from the follow-up interviews, it can be concluded from this study that the perceptions of adult ELLs concerning their use of graphic organizers that represent the discourse structures of a text to improve reading comprehension were mostly positive and constructive.

Implications

The findings of this study suggest important pedagogical implications. Indeed, the current study has a number of implications for materials development and classroom instruction. First, it demonstrates that there are relatively few frequently used text structures (e.g., definition, comparison and contrast, cause and effect, process, problem and solution, for and against, description and classification), and that these organizational text patterns occur repeatedly in

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instructional texts. These text structures can be successfully represented employing graphic organizers. This study integrated discourse structure graphic organizer instruction into the existing Intensive English Program (IEP) reading classes' curricula by training instructors to construct graphic organizers for each reading text employed to reflect its discourse structures. Hence, the study reveals that the principles and fundamental designs of graphic organizers can be employed in an extensive range of instructional texts both efficiently and effectively. Publishers ought to consider including partly completed graphic organizers in published materials.

The second pedagogical implication from the current study is that the principles and basic discourse structure graphic organizer designs can be easily taught to ESL and EFL instructors by means of brief training sessions. These sessions can help language teachers understand text structure knowledge, and can help them learn how to use graphic organizers in reading instruction. Just as instructors can be trained to use graphic organizers, they can also be taught to develop and create their own graphic organizers to accompany the reading texts they employ in their classes. If this trend is replicated, it will lead to a new generation of teachers that views graphic organizers as standard practice in L2 reading instruction.

The third instructional implication from this study is that active involvement by the learners is indispensable to learning about graphic organizers that represent the discourse structures of a text. In this investigation, learners were asked to fill in the graphic organizers themselves rather than study the organizers done by their teacher. Jiang & Grabe (2007) remarked that the involvement of learners in filling in a graphic organizer provides them with a valuable opportunity to engage at a deeper level of information processing.

The last pedagogical implication from the current study is that the traditional instructional approach to developing reading comprehension skills, which emphasizes vocabulary and

sentence level understanding, can be ineffective and demotivating. The descriptive statistics of the pre-test and post-test reading comprehension test scores indicated that the performance of the control group did not show significant changes over the 8-week ESL reading course. Students in the control group did not improve as much as the students in the experimental group that were subject to the graphic organizer intervention along the 8-week ESL reading course. In other words, the results of this study demonstrated a more effective use of time by integrating the graphic organizer instruction into the curriculum.

Recommendations

There are several recommendations for future research to be made based on the results of the present study:

1. The current study was carried out with 40 participants and 5 follow-up interview participants. Studies with a larger number of participants are needed.

2. This study was limited to college level adult ESL learners from an IEP. More studies that include ESL students from different academic programs, such as undergraduate and graduate programs, should be conducted.

3. The vast majority of the studies concerning the use of graphic organizers for the improvement of reading comprehension have been carried out with L1 learners. Hence, more studies that focus on adult ELLs are necessary.

4. This study focused on adult ESL learners living in the United States. Studies that involve English as a Foreign Language (EFL) students around the world should be carried out.

5. More studies using an experimental research design (control vs. experimental) need to be conducted in order to have an in-depth understanding of how these two groups are similar and different.

6. Variables besides gender, such as age, length of stay in the United States, years studying English, and self-rated English proficiency, should be considered by future studies.

7. The participants of this study were all enrolled in Level 4 ESL reading classes. The same study could be replicated with the participation of language learners from different levels.

8. Qualitative data regarding the perceptions and the opinions of learners were collected via follow-up interviews. Additional quantitative data could be obtained using online questionnaires.

9. Five randomly selected students from the experimental group were interviewed by the researcher; however, the two ESL reading instructors that participated in this study were not interviewed. In future studies, valuable information could be obtained from instructor interviews.

10. Specific discourse structure graphic organizers should be compared against each other to find those organizers that contribute to a greater improvement in reading comprehension test scores.

11. Educators should adjust instructional practices accordingly, and employ more graphic organizers that represent the structures of a text as intervention tools in order to raise the reading comprehension achievement levels of adult ELLs.

12. It would be useful to conduct additional studies that explore the effectiveness of the graphic organizer treatment in improving other language skills besides reading.

13. The different performances of the experimental and control groups on the reading comprehension assessments may be ascribed to differences in motivation. It would be informative to address how learners' reading motivation influences the impact of graphic organizer instruction on reading ability.

14. It would be meaningful and significant to confirm the findings of the current study by replicating this study. Future replications of this study would broaden and deepen the understanding of graphic organizers and their utilization in L2 reading development.

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Appendix A

Authorization Letter from the Director of the Intensive English Program at Auburn University

AUBURN UNIVERSITY

OFFICE OF THE PROVOST

July 13, 2017

Auburn University Institutional Review Board
Office of Research Compliance
115 Ramsay Hall Auburn, AL, 36849

Dear Sir or Madam:

This is to inform you that Cesar R. Bazo, a Ph.D. student in the Department of Educational Foundations, Leadership and Technology in the College of Education at Auburn University, has the permission of the ESL Program to conduct research in our classes for his study, titled "An examination of reading comprehension test scores and the use of graphic organizers in adult English as a Second Language Learners."

Mr. Bazo will provide students with an information letter and administer a reading comprehension assessment at the beginning and at the conclusion of the 2017 Fall semester. In addition, he will invite three students to participate in semi-structured interviews. He will provide my office with a copy of the Auburn University IRB-approved, stamped consent document before he recruits participants, and will also provide a copy of his aggregate results.

If there are any questions, please contact my office at (334) 844-2122.

Sincerely,

Daniel Raffalovich, Ph.D.
Director, English as a Second Language Program

Appendix B

Email Invitation for the Recruitment of Adult English Language Learners

E-mail Invitation for the Recruitment of Adult English Language Learners

Hello,

My name is Cesar R. Bazo, and I am a graduate student from the Department of Educational Foundations, Leadership and Technology at Auburn University. I would like to invite you to participate in my research study entitled *An Examination of Reading Comprehension Test Scores and the Use of Graphic Organizers in Adult English as a Second Language Learners*. You may participate if you are 18 years old or older. Please do not participate if you are 17 years old or younger.

As a participant, you will be asked to take the Reading Comprehension section of the English as a Second Language Assessment Battery (ESLAB), which takes 55 minutes, at the beginning and at the end of the Fall I semester. Your responses to the ESLAB will be anonymous as you will not be required to write your name on the test paper. Completing this assessment instrument will not in any way influence your grade of the ESL classes in which you are enrolled. Moreover, there is no potential compensation or cost for your participation.

If you would like to participate in this research study, please respond to this email stating your desire to participate. If you have any questions, please contact me at crb0027@auburn.edu or you may contact my faculty advisor, Dr. Maria M. Witte, at wittemm@auburn.edu .

Sincerely,

Cesar R. Bazo

Appendix C

Email Invitation for the Recruitment of English as a Second Language Instructors

E-mail Invitation for the Recruitment of English as a Second Language Instructors

Hello,

My name is Cesar R. Bazo, and I am a graduate student from the Department of Educational Foundations, Leadership and Technology at Auburn University. I would like to invite you to participate in my research study entitled *An Examination of Reading Comprehension Test Scores and the Use of Graphic Organizers for Adult English as a Second Language Learners*. I am conducting this study under the direction of Dr. Maria M. Witte, professor of the Department of EFLT. You were selected as a possible participant in this study because you are currently an ESL instructor of a reading class in the Intensive English Program at Auburn University, and you are age 19 or older.

If you decide to participate in this research study, you will be asked to be in charge of the control group or the experimental group. The ESL instructor in charge of the experimental group will be trained by the principal investigator in the use of discourse structure graphic organizers (DSGOs). This instructor will then be asked to employ DSGOs when presenting reading passages throughout the term which lasts 8 weeks. On the other hand, the ESL instructor in charge of the control class will teach in the way he/she usually teaches without the use of DSGOs for the same amount of time.

There is no potential compensation or cost for your participation.

If you would like to participate in this research study, please respond to this email stating your desire to participate. If you have any questions, please contact me at crb0027@auburn.edu or you may contact my faculty advisor, Dr. Maria M. Witte, at wittemm@auburn.edu .

Sincerely,

Cesar R. Bazo

Appendix D

Demographic Survey

Demographic Survey

Please answer the following questions about yourself. Your answers will be treated in a confidential manner and only identified to the researcher for this study.

1. Gender:
    - o Male
    - o Female

2. Age: _____

3. Country of
   Origin:_____

4. First (Native) Language:
   _____

5. Highest Education Level:
   _____

6. How many years have you been studying
   English in your life? _____

7. Please indicate the ESL reading course you are
   now enrolled in:

   ☐ Level 1
   ☐ Level 2
   ☐ Level 3
   ☐ Level 4
   ☐ Level 5

8. How do you rate your reading ability in English?
    - o Excellent
    - o Good
    - o Fair
    - o Poor

9. How do you rate your overall English proficiency?
    - o Excellent
    - o Good
    - o Fair
    - o Poor

10. How long have you been in the U.S.?
    _____

Appendix E

Authorization to employ the English as a Second Language Assessment Battery (ESLAB)

Test Collection at ETS

Terms of Use

PLEASE READ THESE TERMS OF USE CAREFULLY BEFORE USING THE TEST LINK DATABASE. BY USING THE DATABASE, YOU AGREE TO THESE TERMS OF USE. IF YOU DO NOT AGREE TO THESE TERMS OF USE, PLEASE DO NOT USE THE DATABASE.

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It is recommended that access to the digital copies be limited to:

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- staff members of professionally recognized educational and psychological institutions
- organizations and individuals who are members of the
  - American Educational Research Association
  - American Psychological Association
  - National Council on Measurement in Education
  - Association of Measurement and Evaluation in Guidance

The qualifications of others not in these categories should receive careful consideration.

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Finally, the purchaser is urged to provide information about his/her use of these materials directly to the authors. Many cooperating authors are interested in collecting data on their instruments, which will make them more useful to others. Therefore, it is to the advantage of everyone concerned — authors and present and future users — that purchasers recognize their professional responsibility to initiate such communication. The address of the author of each instrument, as of the date on which the series is released, is listed on each microfiche and downloadable test.

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Appendix F

Extract from the Reading Comprehension Section of the English as a Second Language
Assessment Battery (ESLAB)

Story VIII

For the following six months, I worked long, tedious hours, undertaking as much overtime as I could. My goal was to send for my family. I admit I was a selfish, lonely man, but those were difficult times and I needed the comfort of my loved ones. Time elapsed slowly and the only thing that sustained me was the hope of being reunited with my family. Your grandmother corresponded with me but the much anticipated letters would often arrive late, causing me much worry. Finally, I was notified that the family would be arriving. Several weeks later, I greeted them as they disembarked from the Michelangelo. The family adjusted quickly and of course, I was elated. Unfortunately, grandmother would not accept America as her home, because she missed cultivating and producing her own vegetables. She missed the soft water of the river in which she washed our clothing.

We worked hard for your father, aunt, and uncle, to provide them with the things they needed. When your aunt turned nineteen, we did the right and accepted thing, of course. She married your Uncle Pedro who was the son of a very fine Italian family. Your father married late in life, but Mario never married because of his feeling of responsibility to his mama and papa.

Luciano, we struggled to get ahead and save enough money to buy a restaurant. We finally succeeded. It was a family enterprise. Your Uncle Mario was elected manager because he spoke the best English. We attained a great deal of money, then Mala Fortuna (misfortune) – the Depression was upon us. This was in 1930. We had to auction off the

restaurant in order to get enough money for food. We looked for work but jobs were scarce. Life continued to be miserable. Sure, the government gave us rations of food, but the lines were long and the winter was cold. See my hand? Two fingers were frostbitten and the doctor had to cut them off. The worst disaster for the family was when Uncle Mario caught pneumonia. We could not afford to cure him, so he died.

STORY VIII - QUESTIONS

1. Why did the narrator work so hard?

   a. The narrator worked so hard because he loved America.
   b. The narrator worked so hard because he liked to work.
   c. The narrator worked so hard because he wanted to bring his family to the United States.
   d. The narrator worked so hard because he was selfish.

2. What was the ship that took the family to America?

   a. The name of the ship was Andriadoria.
   b. The name of the ship was Marinara.
   c. The name of the ship was Titanic.
   d. The name of the ship was Michelangelo.

3. Why was Mario elected manager of the restaurant?

   a. Mario was elected manager because he managed money well.
   b. Mario was elected manager because he could speak English best.
   c. Mario was elected manager because he was the wealthiest of the family.
   d. Mario was elected manager because he inherited the restaurant from his wife.

4. How did Grandmother feel about America?

   a. Grandmother liked it better than Italy.
   b. Grandmother disliked the open fields and rivers.
   c. Grandmother disliked it because she could not grow fresh vegetables.
   d. Grandmother liked America because she found more friends.

5. What type of person was Uncle Mario?

   a. Uncle Mario was thoughtless and selfish.
   b. Uncle Mario was unselfish and devoted to his family.
   c. Uncle Mario was quiet and stubborn.
   d. Uncle Mario was quick-tempered and rude.

6. Who was the narrator of the story?

   a. The narrator was the aunt.
   b. The narrator was the uncle.
   c. The narrator was the grandfather.
   d. The narrator was the grandmother.

7. Which happened first?

   a. The purchase of the restaurant happened first.
   b. The sale of the restaurant happened first.
   c. The family's landing in America happened first.
   d. The Depression happened first.

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STORY VIII - QUESTIONS (Cont'd.)

8. How did the Depression affect the family?

   a. It made the family insecure.
   b. It delighted the family.
   c. It enriched the family.
   d. It made the family react positively.

9. What is the best title for the story?

   a. The Depression
   b. The Changing Family
   c. The Wedding
   d. An Italian Family in America

10. What was the difference between the pre- and post-Depression days for the family?

   a. Before the Depression, the family was settled and prosperous. After the Depression, they lost their money and possessions.
   b. Before the Depression, the family was not prosperous, but content. After the depression, they became wealthy.
   c. Before the Depression, the family auctioned off its restaurant. After the Depression, they sold their house.
   d. Before the Depression, the family sold its house. After the Depression, they sold their restaurant.

E-9

Appendix G

Email Invitation for Interview Participation

E-mail Invitation for Interview Participation

Hello,

My name is Cesar R. Bazo, and I am a graduate student from the Department of Educational Foundations, Leadership and Technology at Auburn University. I would like to thank you for volunteering to participate in the second phase of my research study, which involves semi-structured interviews.

As a participant, you will be asked to answer 10 open-ended questions, which will not take more than an hour, in order to find out your perceptions regarding the use of graphic organizers in your ESL reading class.

There is no potential compensation or cost for your participation. Your responses to the interview questions will be confidential, and participating in this interview will not in any way influence the grade you obtain in the ESL classes in which you are enrolled. Your responses will be audio recorded; however, I will discard the recorded audio file once I complete the study.

We will meet in a group study room at the Ralph Brown Draughton Library. Please let me know your available times this week. Once you let me know your preference, I will contact you again with a set time for getting together.

If you have any questions, please contact me at crb0027@auburn.edu or you may contact my faculty advisor, Dr. Maria M. Witte, at wittemm@auburn.edu .

Sincerely,

Cesar R. Bazo

Appendix H

Semi-structured Interview Questionnaire

Semi-structured Interview Questionnaire

1. Did you find the graphic organizer activities interesting? Why or why not?

2. How difficult or easy was it to fill in the graphic organizers?

3. Did the graphic organizers help you see the patterns of organization of the texts that you read?

4. To what extent are the main ideas of the texts presented by the graphic organizers?

5. What suggestions do you have regarding the construction of the graphic organizers?

6. To what extent will the use of graphic organizers in teaching ESL reading help you understand reading texts better?

7. Do you think that you would learn the same amount about the texts you read without using the graphic organizers?

8. Do you think that your overall reading ability has improved after using graphic organizers?

9. The following are some advantages of graphic organizers identified by researchers: Graphic organizers provide 1) an overview of the material, 2) a reference point for putting new vocabulary and main ideas into orderly patterns, 3) a cue for important information, 4) a visual stimulus for written and verbal information, and 5) a concise review tool. Which ones of the five do you agree with the most?

10. What stands out for you in this educational experience using graphic organizers?

Appendix I

Informed Consent Form for Adult English Language Learners

AUBURN UNIVERSITY

COLLEGE OF EDUCATION

EDUCATIONAL FOUNDATIONS, LEADERSHIP AND TECHNOLOGY
(NOTE: DO NOT AGREE TO PARTICIPATE UNLESS AN IRB APPROVAL STAMP WITH CURRENT DATES HAS BEEN APPLIED TO THIS DOCUMENT.)

INFORMED CONSENT
For a Research Study entitled
"An Examination of Reading Comprehension Test Scores and the Use of Graphic Organizers for Adult English as a Second Language Learners"

You are invited to participate in a research study whose purpose is to determine the impact graphic organizers that represent the discourse structures of a text can have on the reading comprehension test scores of adult ESL learners at Auburn University. This study is being conducted by Cesar R. Bazo, a graduate student in the Department of Educational Foundations, Leadership and Technology at Auburn University, under the direction of Dr. Maria M. Witte, professor of the Department of EFLT. You were selected as a possible participant in this study because you are currently enrolled as a student in the ESL program at Auburn University, and you are age 19 or older.

If you decide to participate in this research study, you will first be asked to complete a demographics survey, and then you will be required to take reading comprehension assessments at the beginning and at the end of the Fall I 2017 term. Your total time commitment for both reading assessments will be approximately 110 minutes. In addition, three to five selected volunteer participants will be asked to participate in audio recorded semi-structured interviews, which will take approximately one hour.

The risks associated with participating in this study are minimal, and include the potential for breach of confidentiality. Please note that breach of confidentiality is always a risk when using or accessing confidential or identifiable data. To minimize these risks, participants taking the reading comprehension assessments will be asked not to identify themselves by not writing their names down on their test papers. In addition, pseudonyms will be used when analyzing and reporting the interview data. Moreover, the recorded audio files from the interviews will be destroyed after the transcription process is completed.

If you decide to participate in this study, there will be no guaranteed direct benefit to you. However, your participation in this research study may help the researcher develop a better understanding of the effectiveness of using graphic organizers as a means to improving reading comprehension amongst adult ESL learners.

Participant's initials _____   Page 1 of 2

There is no potential compensation, and there are no direct costs associated with your participation.

If you change your mind about participating, you can withdraw at any time during the study. Your participation is completely voluntary. If you choose to withdraw, your data can be withdrawn as long as it is identifiable. Your decision about whether or not to participate or to stop participating will not jeopardize your future relation with Auburn University or the Department of Educational Foundations, Leadership, and Technology.

Information collected through your participation will be used to complete a doctoral dissertation, and may be used in conference presentations and future publications.

If you have any questions before, during, or after this study, contact Cesar R. Bazo by phone at (334) 734 9225, or by e-mail at crb0027@auburn.edu .

If you have any questions about your rights as a research participant, you may contact the Auburn University Office of Human Subject Research or the Institutional Review Board by phone at (334) 844 5966, or by e-mail at hsubjec@auburn.edu or IRBChair@auburn.edu .

HAVING READ THE INFORMATION PROVIDED, YOU MUST DECIDE WHETHER OR NOT YOU WISH TO PARTICIPATE IN THIS RESEARCH STUDY. YOUR SIGNATURE INDICATES YOUR WILLINGNESS TO PARTICIPATE.

Participant's signature	Date	Investigator obtaining consent	Date

Printed Name	Printed Name

The Auburn University Institutional Review Board has approved this Document for use from _____ to _____ Protocol # _____ .

Page 2 of 2

Appendix J

Informed Consent Form for English as a Second Language Instructors

AUBURN UNIVERSITY

COLLEGE OF EDUCATION

EDUCATIONAL FOUNDATIONS, LEADERSHIP AND TECHNOLOGY

(NOTE: DO NOT AGREE TO PARTICIPATE UNLESS AN IRB APPROVAL STAMP WITH CURRENT DATES HAS BEEN APPLIED TO THIS DOCUMENT.)

INFORMED CONSENT
For a Research Study entitled
"An Examination of Reading Comprehension Test Scores and the Use of Graphic Organizers for Adult English as a Second Language Learners"

You are invited to participate in a research study whose purpose is to determine the impact graphic organizers that represent the discourse structures of a text can have on the reading comprehension test scores of adult ESL learners at Auburn University. This study is being conducted by Cesar R. Bazo, a graduate student in the Department of Educational Foundations, Leadership and Technology at Auburn University, under the direction of Dr. Maria M. Witte, professor of the Department of EFLT. You were selected as a possible participant in this study because you are currently an ESL instructor of a reading class in the Intensive English Program at Auburn University, and you are age 19 or older.

If you decide to participate in this research study, you will be asked to be in charge of the control group or the experimental group. The ESL instructor in charge of the experimental group will be trained by the principal investigator in the use of discourse structure graphic organizers (DSGOs). This instructor will then be asked to employ DSGOs when presenting reading passages throughout the term which lasts 8 weeks. On the other hand, the ESL instructor in charge of the control class will teach in the way he/she usually teaches without the use of DSGOs for the same amount of time.

The risks associated with participating in this study are minimal, and include the potential for breach of confidentiality. Please note that breach of confidentiality is always a risk when using or accessing confidential or identifiable data. To minimize these risks, you can be assured that your names will not be used when collecting and analyzing data. What's more, they will not be used when reporting or writing a summary of the results of this study. In any case, pseudonyms will be employed.

If you decide to participate in this study, there will be no guaranteed direct benefit to you. However, your participation in this research study may help the researcher develop a better understanding of the effectiveness of using graphic organizers as a means to improving reading comprehension amongst adult ESL learners.

Participant's initials _____   Page 1 of 2

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There is no potential compensation, and there are no direct costs associated with your participation.

If you change your mind about participating, you can withdraw at any time during the study. Your participation is completely voluntary. If you choose to withdraw, your data can be withdrawn as long as it is identifiable. Your decision about whether or not to participate or to stop participating will not jeopardize your future relation with Auburn University or the Department of Educational Foundations, ·Leadership, and Technology.

Information collected through your participation will be used to complete a doctoral dissertation, and may be used in conference presentations and future publications.

If you have any questions before, during, or after this study, contact Cesar R. Bazo by phone at (334) 734 9225, or by e-mail at crb0027@auburn.edu .

If you have any questions about your rights as a research participant, you may contact the Auburn University Office of Human Subject Research or the Institutional Review Board by phone at (334) 844 5966, or by e-mail at hsubjec@auburn.edu or IRBChair@auburn.edu .

HAVING READ THE INFORMATION PROVIDED, YOU MUST DECIDE WHETHER OR NOT YOU WISH TO PARTICIPATE IN THIS RESEARCH STUDY. YOUR SIGNATURE INDICATES YOUR WILLINGNESS TO PARTICIPATE.

Participant's signature	Date	Investigator obtaining consent	Date

Printed Name	Printed Name

The Auburn University Institutional Review Board has approved this Document for use from _____ to _____ Protocol # _____ .

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Appendix K

Approval Email from the Office of Research Compliance of Auburn University

Approval, Protocol #17-308 EP 1709

IRB Administration <irbadmin@auburn.edu>

Thu 9/21/2017 1:03 PM

To: Cesar Bazo Quintana <crb0027@tigermail.auburn.edu>;

Cc: Maria Witte <wittemm@auburn.edu>;

📎 2 attachments (6 MB)

Investigators Responsibilities rev 1-2011.docx; Bazo 17-308 EP 1709 Revisions-1.pdf;

Use _IRBsubmit@auburn.edu_ for protocol-related submissions and _IRBadmin@auburn.edu_ for questions and information.
The IRB only accepts forms posted at _https://cws.auburn.edu/vpr/compliance/humansubjects/?Forms_ and submitted electronically.

Dear Mr. Bazo,

Your protocol entitled " An Examination of Reading Comprehension Test Scores and the Use of Graphic Organizers for Adult English as a Second Language Learners" has received approval as "Expedited" under federal regulation 45 CFR 46.110(6,7).

Official notice:
This e-mail serves as official notice that your protocol has been approved. A formal approval letter will not be sent unless you notify us that you need one.   By accepting this approval, you also accept your responsibilities associated with this approval. Details of your responsibilities are attached. Please print and retain.

Informed Consent:
Attached is a scan of your new, stamped informed consent. You must provide a copy for each participant to keep. Also attached is a copy of your approved protocol.

Expiration:
Your protocol will expire on September 20, 2018. Put that date on your calendar now. About three weeks before that time you will need to submit a final report or renewal request.

When you have completed all research activities, have no plans to collect additional data and have destroyed all identifiable information as approved by the IRB, please submit a final report.

If you have any questions, please let us know.

Best wishes for success with your research!

IRB Admin
Office of Research Compliance
115 Ramsay Hall
Auburn University, AL 36849
334-844-5966

Appendix L

Email Permission to Employ the List of Examples of Graphic Organizers

↺ Reply all | ∨   🗑 Delete   Junk | ∨   •••

Re: Permission to use your list of examples of graphic organizers

CQ   **Cesar Bazo Quintana**   📝   👍   ↺ Reply all | ∨
      Tue 7/11/2017, 2:45 PM
      William Peter Grabe <William.Grabe@nau.edu>   ∨

Sent Items

Thank you, Dr. Grabe!
I really appreciate it.

Sincerely,

Cesar R. Bazo
Adult Education Ph.D. Candidate
305 Foy Hall
Auburn University
(334) 844-2972
crb0027@auburn.edu

From: William Peter Grabe <William.Grabe@nau.edu>
Sent: Tuesday, July 11, 2017 2:20:33 PM
To: Cesar Bazo Quintana
Cc: Fredricka Louise Stoller; William Peter Grabe
Subject: Re: Permission to use your list of examples of graphic organizers

Hi Cesar:

Yes, you can use these examples of GOs for your study.

Good luck with your dissertation.

Bill

William Grabe
Regents Professor of Applied Linguistics
English Department
Northern Arizona University

Office: (928) 523-6274
Mobile: (928) 814-8372

↩ Reply all | ∨   🗑 Delete   Junk | ∨   •••

To: William Peter Grabe
Cc: Fredricka Louise Stoller
Subject: Permission to use your list of examples of graphic organizers

Dear Dr. Grabe,

This is Cesar R. Bazo, the Adult Education Ph.D. Candidate from Auburn University in Alabama who worked for ICPNA in Lima, Peru as an Academic Supervisor. I last saw you and your wife Dr. Stoller at the SETESOL 2016 conference in Louisville, Kentucky last October.

I am currently working on my dissertation on the relationship between graphic organizers and reading comprehension among adult ESL learners at a four-year institution. I am emailing you to ask you for permission to use the list of examples of graphic organizers that represent the discourse structures of a text in my study. Your list of examples appears on pages 44 to 46 of your article entitled *Graphic organizers in reading instruction: Research findings and issues* published in 2007.

I am looking forward to hearing from you soon.

Respectfully,
Cesar R. Bazo
Adult Education Ph.D. Candidate
305 Foy Hall
Auburn University
(334) 844-2972
crb0027@auburn.edu

Appendix M

Discourse Structure Graphic Organizers employed with the Experimental Group

Prediction/Definition Graphic Organizer: Bermuda Triangle

1. Based on the first illustration and the title of the text, what do you think the article will be about? Write down 3 predictions.

> **a.**
> **b.**
> **c.**

2. Work with your partner to come up with a definition of the **Bermuda Triangle**, using the following frame:

	is a		**where**		

3. Now look at the title and subtitles of the text, and then read paragraph 1.
4. Turn to your partner and discuss your predictions. Modify them if needed.
5. Based on your predictions up to this point, complete the sentence below with the correct answer. When you are done, explain your answer to your partner.

> **The reading is about _____.**
>
> > i. *Different types of supernatural happenings*
> > ii. *Comparisons between the Bermuda Triangle and other areas of the ocean*
> > iii. *The history, explanations, and incidents regarding the Bermuda Triangle*
> > iv. *The future of the Bermuda Triangle*

6. Go back and quickly look over the title, subtitles, illustrations, and paragraph 1.
   a. What do you expect to learn from the article? Complete the sentence below.
      I expect to learn _____
   b. Convert your goal (above) into a question that you hope the article will answer.

   _____

Point of View Graphic Organizer: Bermuda Triangle

Decide if the following investigators/authors/journalists believe that the Bermuda Triangle is a scientific truth or a hoax. Be prepared to explain the reasons for your choices.

Investigator/author/journalist	Scientific truth	Hoax
Edward Van Winkle Jones		
George X. Sand		
Vincent Gaddis		
Charles Berlitz		
Larry Kusche		
The United States Coast Guard		
Nova/Horizon		
Ernest Taves		
Barry Singer		

Description/Summary Graphic Organizer: Bermuda Triangle

Summarize Larry Kusche's conclusions about the Bermuda Triangle. Write the information in the boxes around the circle below. Compare with a partner.

Larry Kusche's Conclusions about the Bermuda Triangle
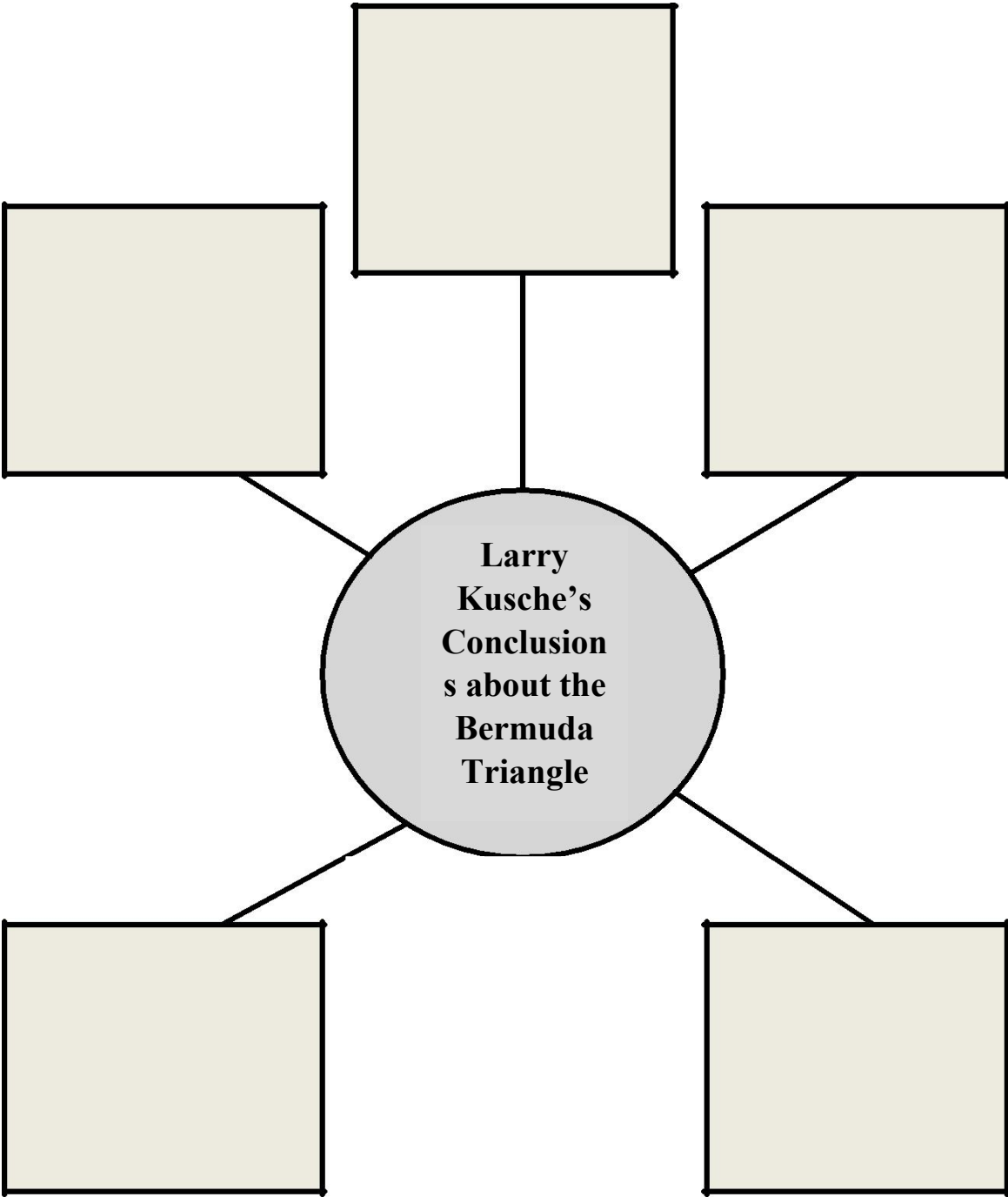
Classification Graphic Organizer: Bermuda Triangle

Decide which explanations from the list below are natural and which are supernatural. Be ready to explain the reasons for your choices.

acts of war/piracy *magnetic anomalies* *leftover technology from Atlantis* *human mistake* *rogue waves* *tropical storms* *methane hydrates* *aliens* *the Gulf Stream* *anomalous forces*	
Natural Explanations	**Supernatural Explanations**

Timeline Graphic Organizer: Bermuda Triangle

Notable Incidents

What happened in the Bermuda Triangle on these years? Add details along the lines from left to right.

| 1864 | 1918 | 1945 (2 events) | 1955 | 1963 (2 events) |
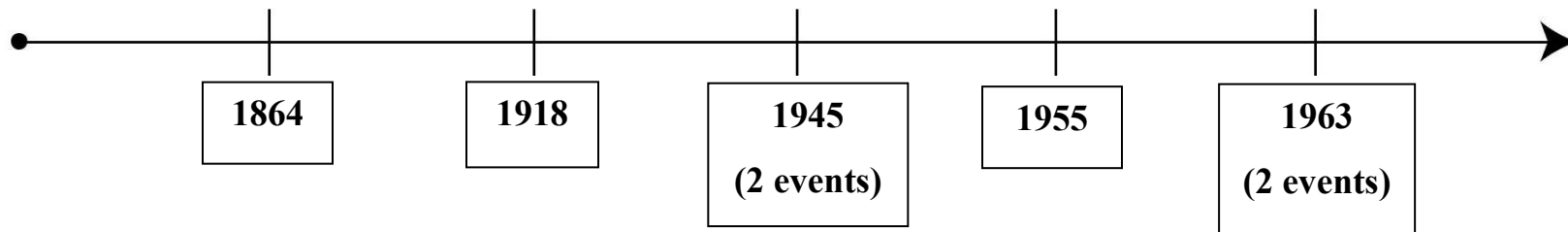
K-W-L Graphic Organizer: Healthcare & Limits of Powers of US Government

Know **(What I think I <u>know</u> about the powers assigned to the federal government by the US Constitution)**	***Wonder*** **(What I <u>want to know</u> about the powers assigned to the federal government by the US Constitution)**	***Learn*** **(What I <u>learned</u> about the powers assigned to the federal government by the US Constitution)**

Compare & Contrast Graphic Organizer: Healthcare & Limits of Powers of US Government

JAMES MADISON	ALEXANDER HAMILTON

How are they ALIKE?

How are they DIFFERENT?

Summary Graphic Organizer: Healthcare & Limits of Powers of US Government

You will be assigned one of the 10 amendments constituting the Bill of Rights. Read it carefully, and summarize it in writing using your own words in the space provided below. Be prepared to share this information orally with the rest of the class. As another classmate summarizes his or her assigned amendment, take notes in the spaces provided below.

Amendment I	Amendment II
Amendment III	**Amendment IV**
Amendment V	**Amendment VI**
Amendment VII	**Amendment VIII**
Amendment IX	**Amendment X**

Point of View Graphic Organizer: Healthcare & Limits of Powers of US Government

Decide if the following individuals agree with the following opinion:

Health insurance companies shouldn't be allowed to compete across state lines.

Be prepared to explain the reasons for your choices.

Individuals	Opinion	Reason
Back	**Agree** **Disagree**	
BekindtoAnimals22	**Agree** **Disagree**	
Jimbo	**Agree** **Disagree**	

Prediction/Definition Graphic Organizer: Thanksgiving

1. Based on the first illustration and the title of the text, what do you think the article will be about? Write down 3 predictions.

> **a.**
>
> **b.**
>
> **c.**

2. Work with your partner to come up with a definition of **Thanksgiving**, using the following frame:

	is a		**that**	

3. Now look at the title and subtitles of the text, and then read paragraph 1.
4. Turn to your partner and discuss your predictions. Modify them if needed.
5. Based on your predictions up to this point, complete the sentence below with the correct answer. When you are done, explain your answer to your partner.

   The reading is about _____.

   v. *Thanksgiving celebrations around the world*
   vi. *A comparison between Thanksgiving, Christmas, and New Year*
   vii. *The history and traditional celebrations of Thanksgiving*
   viii. *The future of Thanksgiving*

6. Go back and quickly look over the title, subtitles, illustrations, and paragraph 1.
   a. What do you expect to learn from the article? Complete the sentence below.
      I expect to learn _____
   b. Convert your goal (above) into a question that you hope the article will answer.
      _____

Timeline Graphic Organizer: Thanksgiving

What happened in these years?

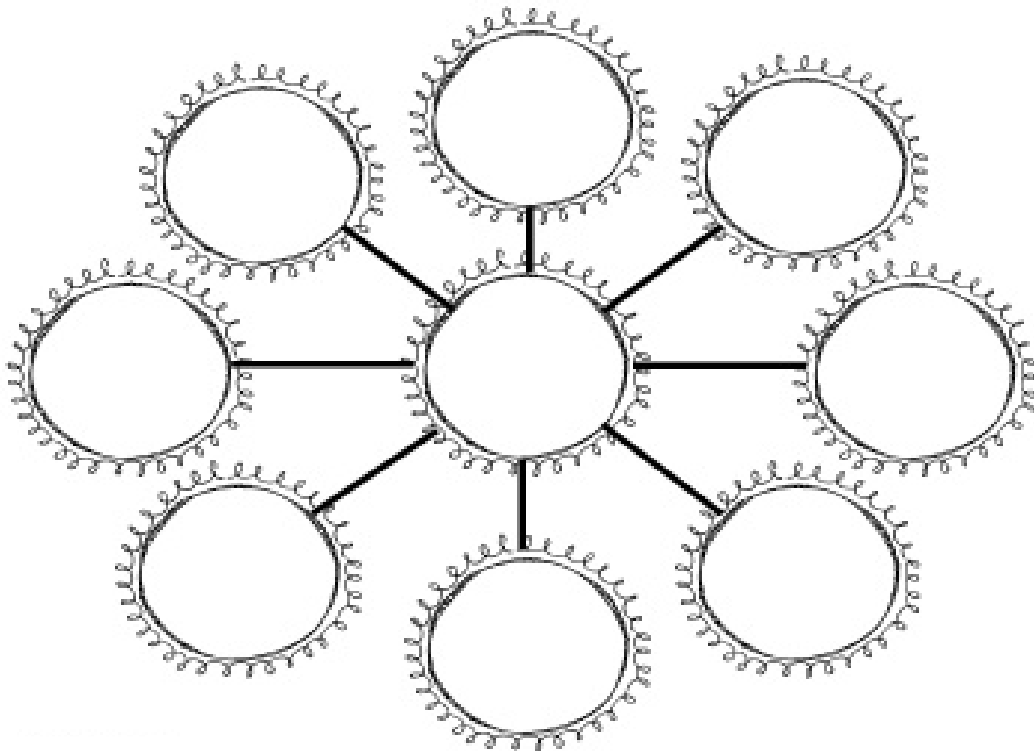1607 - _____

1619 - _____

1621 - _____
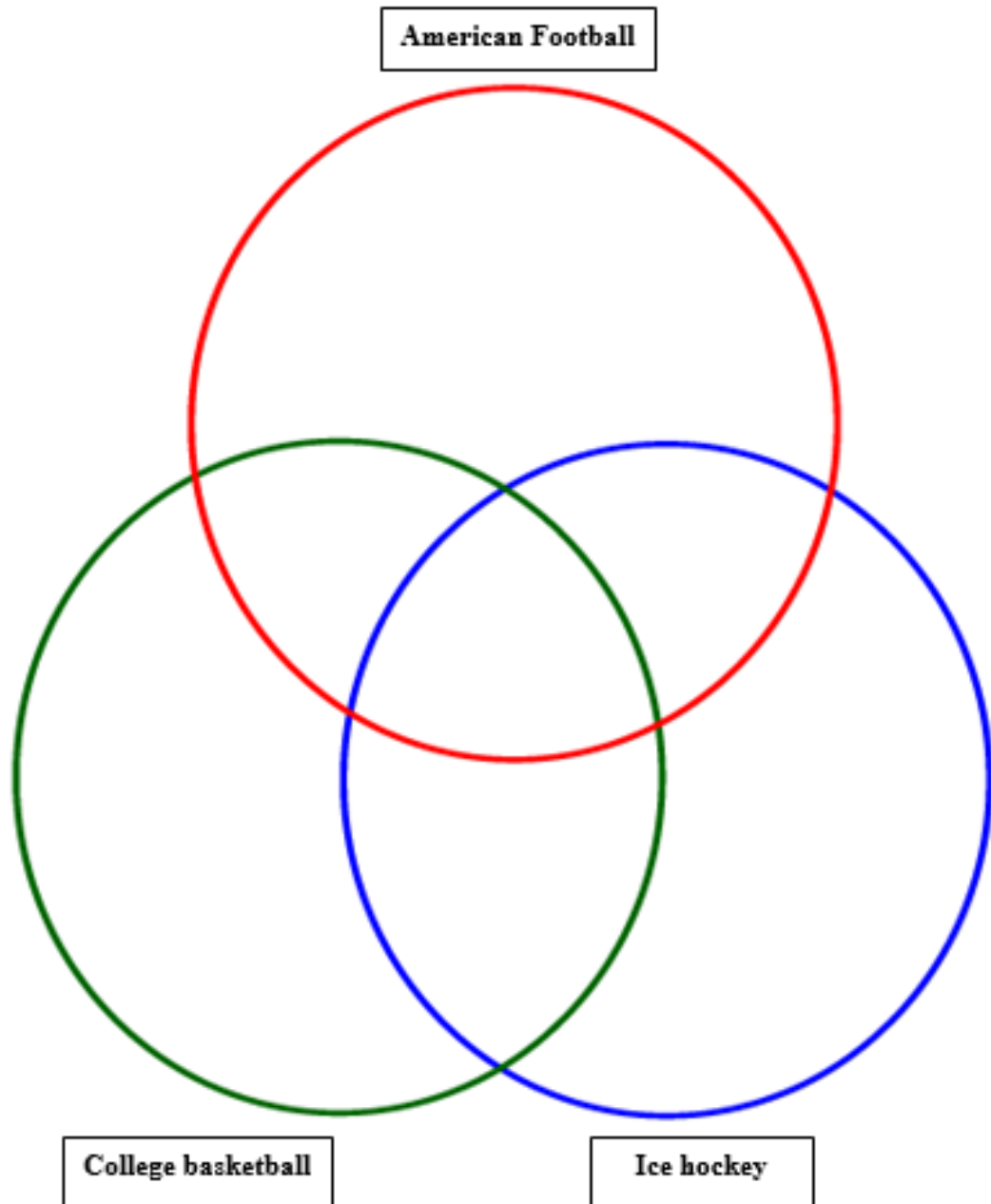
1863 - _____

1939 - _____

1941 - _____

Classification Graphic Organizer: Thanksgiving

Write down the names of the traditional kinds of food served at Thanksgiving meals. List the most commonly eaten food in the middle.

Compare & Contrast Graphic Organizer: Thanksgiving

Compare and contrast three sports played during Thanksgiving.

American Football

College basketball

Ice hockey

Event Graphic Organizer: Thanksgiving

Complete the following chart with information about the *Turkey Pardoning* event.

When	Where	Who	What	Why

Point of View Graphic Organizer: Thanksgiving

Decide if the following individuals/organizations/institutions favor or oppose the celebration of Thanksgiving. Be prepared to explain the reasons for your choices.

Individuals/organizations/institutions	Opinion	Reason
Professor Dan Brook	**Favor** **Oppose**	
Professor Robert Jensen	**Favor** **Oppose**	
the United American Indians of New England	**Favor** **Oppose**	
Native Americans of All Tribes	**Favor** **Oppose**	
Tim Giago	**Favor** **Oppose**	
the Oneida Indian Nation	**Favor** **Oppose**	
the American Association for the Advancement of Atheism	**Favor** **Oppose**	