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Interaction of Different Kinds of Advance Organizer Strategies and Reading Comprehension Skills: Right- and Left-Brain EFL Learners Across Gender

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Abstract
This study investigated the effects of different kinds of advanced organizers, such as graphic, verbal, and textual organizers, on the reading comprehension of left- and right-brained Iranian EFL learners. The participants of the study were 64 female and 54 male intermediate-level EFL learners with ages ranging from 19 to 28 (M = 23) and varying degrees of brain dominance from Mohaghegh Language Institute in Tabriz, Iran. Four intact classes, one control group and three experimental groups including graphic organizer, verbal organizer, and textual organizer groups participated in this study. The design of the study was aquasi-experimental design with a pretest and a posttest. The uniformity of the EFL students was ensured using the Oxford Placement Test (OPT). The Alert Scale of Cognitive Style (Crane, 1989) was used to identify left- and right-brained EFL students. The research recreated the pretest and posttest in this study to assess the participants' reading comprehension before and after the intervention. The ANCOVA results demonstrated a significant impact of the use of advance organizers on the participants' reading comprehension scores. The only significant difference in reading comprehension mean scores was between participants who used graphic organizers and textual organizers; there was no statistically significant difference between participants who used verbal organizers and textual organizers. Students with left and right brains performed about equally well in the textual organizer group. Students with right-brained personalities outperformed those with left-brained personalities in the graphic organizer group, but the reverse was true for the verbal organizer group. However, there was little difference in the reading comprehension levels between the groups. Additionally, the results demonstrated that females used advanced organizers more skillfully than males did. The results imply that various advance organizers ought to be included in L2 reading courses.

Keywords: Advance Organizers, Graphic Organizers, Left-Brained, Reading Comprehension, Right-Brained, Textual Organizers, Verbal Organizers

INTRODUCTION

Reading involves obtaining knowledge from a written text. Understanding the viewpoint of the author is frequently the goal of reading a passage. Reading involves more than just understanding the meaning of the words that are printed. It necessitates the ability to recognize words visually. The readers apply their interpretations in light of what they have read and comprehended. According to (Abdulloh & Usman, 2021)reading is the most important language skill among the four (listening, speaking, reading, and writing) in the study and teaching of English. Simply put, readers who do not possess strong reading skills in a second language will not be able to perform at the levels required

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to excel in reading. As a result, reading is an active process rather than a passive one in which the reader keeps a constant engagement with the text. A constant state of inference, speculation, verification, and comprehension is also required when reading. Reading is a process of communication, a transfer of meaning from writer to reader, according to (Khanal, 2013), who emphasizes the interactive nature of reading comprehension.

It can be noted that comprehension is a part of communication that entails getting the thoughts that were in the author's mind into the reader's mind, much like (Swanson & Alexander, 1997), who claimed that it is difficult to define comprehension. They continue by saying that this process is difficult because an idea must be communicated using a variety of dubious media. Given the significance of reading comprehension in the acquisition of a second language (L2), scholars and researchers have worked to develop efficient teaching strategies. With the aid of knowledge, concepts, skills, attitudes, and ways of thinking that will help them comprehend the meaning of the course material, the Advance Organizer is a teaching strategy that assists students in putting together their learning materials. Effective teaching and learning are supported by the Advance Organizers theory. Because it is a successful method for teaching language, this study used it to teach students how to read more comprehensively. Schema theory and Ausubel's Advance Organizer Assumption Theory from 2000 are connected in a number of ways. A student uses prior knowledge of objects and events to comprehend concepts presented in new material and then recalls that information. He also discusses the role of schema theory in relation to students' comprehension and memory.According to this theory, teachers can use this strategy in the classroom to help students learn to read better and to present the material in a way that will make it simple for them to remember when reading narrative texts. The information presented above has piqued the researcher's interest in researching the effectiveness of an advanced organizer learning approach in teaching reading comprehemsion skills. According to (Ausubel, 1960), for learning to be meaningful, students should draw connections between new knowledge (concepts and propositions) and what they already know.(Ausubel, 1960) suggested using advanced organizers to help students make connections between their ideas and fresh knowledge or ideas. More inclusive concepts or ideas can incorporate newly learned concepts, according to Ausubel's 1960 learning theory. These more general ideas serve as advance organizers. An advance organizer, according to (Ausubel, 1960), is a piece of content that is presented prior to a piece of unfamiliar content to facilitate assimilation. In any case, scaffolding is the term used by cognitive psychologists to describe the advance organizer's function (Rieber & Carton, 1987). Numerous attempts have been made to identify and pinpoint the factors influencing the challenging process of comprehension due to the importance of reading ability in learning and evaluating a foreign language.

Without a doubt, the brain contributes to this process. In reality, from processing visual stimuli to deciphering the meaning, reading involves a complex set of cognitive processes that interact at each step. Reading is frequently seen as a single skill that depends on a unitary cognitive process, despite the fact that many academics believe that reading is actually a progressive process that progresses from visual symbol recognition to letter-sound correspondence to phonetic decoding to text comprehension. When thinking about how the brain works, understanding its structure seems essential. The structure of the brain can be divided into two nearly identical mirror images due to the way nerves connect it to the rest of the body. The left and right halves of the brain, which are symmetrical, are divided into hemispheres, each of which has a distinct function (Kitterle et al., 1990). The left hemisphere's primary areas of focus are speaking, reading, and other verbally taxing tasks like reasoning and inductive and aductive reasoning. Non-verbal skills like spatial cognition, pattern recognition, musical expression, and emotional expression are areas where the right hemisphere excels. Each hemisphere appears to process information in a slightly different manner. The left hemisphere considers information sequentially, one bitat a

time, while the right brain hemisphere tends to process information globally, considering it as a whole (Gazzaniga, 1983).

Whether the left or right brain is dominant must be taken into consideration when formulating a theory of L2 acquisition. As the child's brain develops, various functions are lateralized to the left or right hemisphere. Logical, analytical thought, mathematical processing, and linear information processing are all associated with the left hemisphere. Information that is holistic, integrative, and emotional is processed more effectively by the right hemisphere. Additionally, it perceives and retains auditory, visual, and tacit images. At the very least, the variations in hemispheric functioning suggest that there may be unique variations in each hemispheric strength. Therefore, the more developed side of our brain may have an impact on the areas of life where we excel (Feldman, 1989). This study sought to determine whether reading comprehension ability is influenced by left or right brain dominance. Generally speaking, the aforementioned context enables us to identify the study's objective: (1) To assess the students' reading comprehension abilities before and after they are taught the Advance Organizer learning method. 2. The association between left/right brain dominance in EFL learners and reading comprehension of academic and general reading.

LITERATURE REVIEW

Since the 1980s, there has been a shift in how languages are taught as a result of the increased focus on communication and interpersonal interaction. Language learning no longer has as its primary objective the acquisition of communicative competence in a foreign language, which is defined as the capacity to act in a foreign language in a linguistically, sociolinguistically, and pragmatically appropriate manner (Division, 2001). When a previously learned schema that has been stored in the long-term memory is retrieved to aid in the processing and understanding of new, unfamiliar information, first language reading comprehension, according to (Anderson & Pearson, 1984), takes place. Making schemata out of incoming knowledge and information requires a lot of cognitive and mental effort. Native language speakers frequently have trouble reading when their subject knowledge is lacking. But second-language readers can also run into the same problems as readers of first languages. Lack of background knowledge hinders top-down processing of the new information, and second- or foreign-language learners' limited language proficiency makes the decoding process even more difficult. Studies on the learning and use of second languages focus on how native speakers of at least one other language learn and use them. Theoretically and practically, this field of study is significant. According to research, instruction can have a big impact on how quickly people pick up a second language and how successfully they use it over the long term (Williams & Burden, 1997).

Advance organizers are helpful tools for this task because they have the capacity to present an overview of a new topic and visually connect the concepts to be learned. Despite the lack of research on their use in digital multimedia environments, graphic organizer as one kind of advanced organizer, is helpful tools for students with special needs to comprehend text in print-based environments (Kim et al., 2004). The characteristics of a successful advance organizer were outlined by (Mohammadi et al., 2010). Briefly, it provides a bridge between what is known and what is unknown, introduces new information, and restates what is already known while also providing an abstract summary of new knowledge. An advance organizer contains specific intellectual information that is easy for students to transfer and apply, and it also aids in organizing new knowledge. Advance organizers are advantageous for a course that relies on sequences and concept building, according to (Togo, 2002). By utilizing advance organizers, teachers are giving their students the chance to concentrate on what needs to be learned and use this knowledge to support subsequent learning. According to (Ausubel, 1978), advance organizers are especially effective at enhancing the learning of subsequent material when two conditions are met. First, distinct topics or collections of concepts that are closely related should be covered in the educational material. They learned that when the ideas were presented in a highly varied way, it

was very difficult to create a single advance organizer that would include all of them. Second, real advance organizers are made while taking into account how the learner already organizes his or her knowledge. Learning difficulties were aggravated when a student was given the advanced organizer and the intended instructional material but was unable to understand it. An advance organizer can contain images, written descriptions, keywords, pre-questioning techniques, and details about the cultural context (Herron, 1994).

Meaningful verbal learning requires the internalization of the information taught to the learner, which occurs as a result of progressive differentiation and integrative reconciliation. Reception learning or meaningful verbal learning is the term used to describe this type of learning, in which the majority of conceptual understandings are presented rather than sought out. On the other hand, meaningful learning depends on higher-order thinking. Such thinking happens when we comprehend the relationships between a few ideas, both fresh and established. According to (Ausubel & Robinson, 1969), a prerequisite for meaningful learning is the material's ability to be related to the learner in some sort of logical way. A larger framework or whole must be integrated with the new data. The learner needs prior knowledge to relate to or anchor the new concept, which is the second requirement. The necessary subsuming concepts must already be present in the learner's cognitive structure. Finally, the student must actually try to make a rational connection between the new concepts and what he already knows. It is important to note that in addition to the actual structure of the lesson, Ausubel's advance organizers provide a structure for student thought. By doing this, students add active learning to the current lecture and other potentially passive activities that are offered in the classroom. An advance organizer helps with the organization of new material by outlining, organizing, and sequencing the main idea of the new material based on what the learner already knows. By making connections between what they already know and the new information that will be taught in the lesson using well-known terms and concepts, advanced organizers assist students in transforming their knowledge and creatively applying it to new situations. This process helps to store new information in long-term memory. Advance organizers don't have to be lengthy or difficult to understand; they just need to be applicable to the topic at hand.

The findings of studies have shown that different types of advance organizers used to support reading comprehension are much more effective than others. (Evans, 2003)examined the effects of graphic teaching materials, one type of advance organizer for Japanese readers, on expository texts written in English and found that student-generated graphic organizers support a variety of learning styles, encourage meaningful learning, and enhance reading comprehension. According to (Chun & Plass, 1996), investigation into how the use of a dynamic visual advance organizer can aid second language learners' reading comprehension, it is effective on the macro level of processing while reading. Recent advancements in instructional technology have made it possible to create educational materials that include a variety of visualizations. Normally static or presented in print and computer-based environments, animated or dynamic diagrams and images can now vividly present abstract concepts or phenomena that are invisible to human eyes (Rieber, 1996). Visualization has a long history in educational materials, despite the fact that research has shown that simply implementing a new technology does not always lead to improved learning (Hegarty, 2004). The effective presentation of motions or movements that are invisible to the human eye or changes in the shapes or motions of objects is more likely with animated (dynamic) visualization than with static visuals in general (H. Lin & T. Chen, 2007). (C. Y. Y. Lin & M. Y. C. Chen, 2007) study found that using static visuals to accompany verbal information in the authentic material was just as effective as using dynamic visualization.

Finally, research in educational and cognitive psychology has demonstrated that learning is facilitated by coding information in both verbal and visual forms (Cl, 2005). Finally, research in cognitive psychology and educational psychology supports the use of graphic organizers in

reading instruction. Students are better able to understand information, relate it to other ideas, and incorporate new knowledge into their existing knowledge when visual learning strategies are used. More specifically, in terms of different types of advance orgnizers, the impact of English textual orgnizers on EFL learners' reading ability was looked at in a study by(Aslrasuli & Bakhshian, 2014). This study involved sixty upper-intermediate EFL learners. There were 20 sessions total. The control group and the experimental group were given these participants. There was a pretest given before each lesson. To acquaint the students with English textual patterns, some authentic texts were chosen.

One of the textual patterns was present in every text. The participants were also given pre-made text frames, forcing them to create text frames for the texts according to their own preferences. In the control group, these chosen texts were taught using bottom-up methods.In the experimental group, textual patterns were taught to the learners as well as teaching grammar and vocabulary for understanding the selected texts. The results of this study showed that teaching textual patterns had a positive effect on learners' reading ability.In another study, (Shoari & Farrokhi, 2014) looked at how GOs could help Iranian EFL learners learn vocabulary. The study's participants were 50 students. The experimental group and the control group were the two groups. Through the use of GOs in the form of clusters and images, some new vocabulary words were taught to the experimental group's students. There was no specific method of instruction used in the control group; instead, vocabulary words were taught using the standard method.

The Cambridge Mover Test was used to confirm the uniformity of the students' proficiency level. the pre-test used to gauge students' vocabulary proficiency. Then the therapy began. A posttest was given to assess how well the instruction worked after the treatment. The data were analyzed through the use of a t-test. According to the results, GOs had facilitative effects on the easiness of vocabulary learning. In the same line, (Yussof et al., 2012) explored the use of cognitive and graphic techniques to improve reading comprehension. 45 students were in the experimental group and 45 students were in the control group for this study, which had a quasi-experimental design. While the students in the control group were taught using the traditional method, the students in the experimental group received treatment using graphic and cognitive strategies. This study took place over a period of seven weeks of a quasi-experimental study. Cognitive strategies, questioning, visualization, inference, and five stages of cognitive activities were the foundation of the experimental group's reading comprehension. The study's control group received typical reading comprehension practice. Based on t-test analyses, it was determined that the experimental group outperformed the control group because its mean score and effect size were higher. (Mohammadi et al., 2010) looked at the impact of AO on second-language acquisition of the English language. In this study, 76 subjects were chosen as the control group, and 65 subjects were chosen as the experimental group. The control group only used the traditional method and received no treatment, while the experimental group used the AO for two months. During those two months, the members of the experimental group were instructed using graphic organizers (GO). Picture-word, block-word, and semantic mapping made up the GO. After receiving treatment, the participants took the posttest. The statistical analyses showed that the experimental group that received GO-based treatment performed significantly better than the control group.A study on the effects of teaching graphic organizers in terms of students' attitudes toward reading in English was done by (Mede, 2010). In this study, the significance of teaching GOs was emphasized, and the effects of teaching four GOs through visual displays in a text were examined. 54 intermediate students from a private university in Istanbul's foreign language department were selected for this study's one-year English course. Students were given a questionnaire to fill out before being taught how to apply GOs while reading in order to gauge their readiness. The participants then took part in a 4-week GO training course. The 4 GOs were used to create an instruction that included a storyboard, compare/contrast

matrix, series of events chart, and semantic map. Weekly, 20 minutes were set aside for teacher think-aloud time in the classroom. It was the start of this investigation. In the second section, groups were encouraged to work together and take turns during think-aloud protocols related to the GOs. In the end, the results of the questionnaires, focus groups, and think-aloud revealed that the GOs and learners' preferences for learning new reading passages in EFL classes were consistent.The purpose of the current study was to determine how advance organizers impacted English language second-language learners, reading comprehension more specifically.

The Problem

Reading comprehension is one of the most important skills of a second/foreign language learning. Reading is one of the most important ways to gain information and knowledge (Cho et al., 2021). It will be simpler for us to learn the material thoroughly the better we comprehend it. The degree of our comprehension of a topic that is presented to us in a variety of ways, such as speech and writing, is known as comprehension (Papageorgiou & Bailey, 2019). Reading in a first language and reading in a second language can differ. (Xie & Yeung, 2022) asserted that since the majority of us are proficient readers in our mother tongues, we automatically employ all the necessary reading skills. We make predictions about the text using our prior knowledge of it, we cross-check our predictions with textual cues, we create met textual impressions, we pose questions about the text in our minds, and we search for the answers to those questions. In order to comprehend and recognize the text in L1, learners reconstruct the text's structure in their minds. However, because the majority of these skills are unconscious and automatic, L2 learners frequently are not aware that they are doing these things (Yeung & Xie, 2022).

A person who is learning a second language with the intention of reading a text written in that language is not aware of the existence of this tool and must deliberately practice and learn many of these automatic processes once more.Due to this, language learners frequently rely too heavily on their L2 vocabulary. They frequently use the part-to-whole model, giving words meaning, and putting them together to try to understand the meaning of larger components. Unfortunately, this approach is frequently reinforced in language learners by current teaching strategies (Yeung & Xie, 2022). Making the students aware of the tools and procedures they can use to read in the L2 is therefore one of the teacher's key responsibilities.It has been discovered through the researcher's experience teaching English language that students struggle greatly with reading comprehension. It might be argued that this presents students with a significant challenge during their L2 learning journey. The majority of the passages that students encounter are lengthy and challenging. Deciphering them is therefore a difficult task for students. These issues may be brought on by ineffective teaching strategies that impair the students' capacity for reflective thought and reading comprehension. Due to these difficulties and challenges, L2 researchers and academics have been working on some techniques to come up with better solutions. Advance organizers were suggested by (Ausubel, 2012), a renowned expert in the field of education, as a significant and strategic methodology to teach and understand reading comprehension more effectively. Additionally, not every student in the room approaches learning in the same way. Numerous studies on the brains of individuals have revealed that people have different brain dominances and prefer to learn in different ways that are typically dissimilar to one another (Ward & Morris, 2005).

Teachers should use a variety of techniques and strategies to accommodate all the preferences in order to be effective in the classroom. For instance, the measurement of left and right braininess is used to categorize students. Two hemispheres of the brain are thought to have distinct functions and modes of controlling the body, according to scientific theories. This indicates that certain tasks are carried out in the right hemisphere and others in the left. According to this viewpoint, the brain differs from some other symmetrical organs like the lungs, kidneys, and ears. However, the brain is an organ that, despite its outward appearance, has given its left and right hemispheres distinct

functions (Pant et al., 2020). It is a common belief that left-brained people are more analytical and prefer logic to reasoning. Some of the characteristics of the left brained dominance are listed as being disciplined, following rules and regulations, verbal intelligence, interest in planning, attention to detail, and better mathematical mastery (Pant et al., 2020). In addition, right-brined people value originality, greater dominance in non-verbal communication, and the capacity for thought (Pant et al., 2020). Some of the techniques discussed in class appear to work better for right-brained people than for left-brained people. This is where the difficulties arise, and perhaps teachers are not familiar with the tactics tailored to people with different learning styles.

Using various advance organizers may have different effects on improving reading comprehension depending on whether the left or right brain is dominant. In most academic institutions, reading is not only a required course for English language learners (EFLs), but it is also the primary way that students learn other subjects outside of their core curriculum. The use of reading strategies by EFL learners is the subject of an increasing amount of research. However, little is known about the variations in preferred reading strategies between left- and right-brained individuals, as well as between male and female learners. Gender differences can be problematic for teachers, just as some L2 learners are thought to be right- or left-brained. Males and females can benefit differently from the use of different techniques. Reminding language learners that the text's meaning is not merely summed up in its words is crucial. Teaching and reinforcing that the grammar and syntactic structures of the second language also play a significant role in understanding the text, as well as teaching the use of various reading strategies before, during, and after reading the text, are all strategies that both teachers and students should employ to improve reading skills. As a result, the current study provided insight into how advanced organizer strategies can enhance reading comprehension ability. Accordingly, this study tried to answer the following research questions:

RQ1. *Does using advanced organizer strategies improve Iranian EFL learners' reading comprehension significantly?*

RQ2. *Does the type of advanced organizer strategies (textual, graphic, and verbal) make a difference in Iranian EFL learners' reading comprehension?*

RQ3. *Does using advanced organizer strategies affect left-brained and right-brained EFL learners differently in terms of their reading comprehension?*

RQ4. *Does the type of advance organizer strategies (textual, graphic, and verbal) make a difference across male and female students in terms of reading comprehension skill?*

METHODOLOGY

The impact of various advance organizers, including graphic organizers (GO), textual organizers (TO), and verbal organizers (VO), on reading comprehension among left- and right-brained EFL students was examined in this study. Accordingly, the four study groups at the Mohaghegh Language Institute in Tabriz, Iran, were divided into four complete classes of intermediate students. Three groups—GO, VO, and TO—were regarded as the experimental groups in this study, while one group served as the control group. In order to ensure the homogeneous entry behavior of the participants in terms of proficiency, the OPT with reasonable measures of validity and reliability was administered and those who obtained lower than the required score to be considered at intermediate level were excluded from the study. In addition, the cognitive style test (Alert Scale of Cognitive Style) was administered in order to distinguish left-brained and right-brained EFL learners. From124 students in these four classes, 118 students were selected and considered as participants of this study. These four classes had a total of 124 students, but only 118 were considered study participants. They were split into three experimental groups and one control group, with the GO group having 31 students, the VO group having 29 students, the TO group having 33 students, and the control group having 29 students. Following that, a 30-item multiple-choice English reading comprehension pretest based on the Top Notch (2006) book series was

given to each participant to gauge their prior familiarity with reading comprehension texts. The researcher visited the experimental groups for 20 minutes prior to the start of the treatment process to explain the study, what they would be expected to do, and what they would learn. Then, researcher attended the classes two sessions per week for 40 minutes and taught 10 reading texts which pertain to 10 units of *Top Notch 3A and 3B*.

Each class received a unique instruction on these texts. Based on the previously mentioned graphic organizers, the researcher taught the Top Notch 3A and 3B reading comprehension texts to the GO group. The connections between concepts, information, and facts can be visually represented using graphic organizers. Because it can be used to visually illustrate the relationships between the content and support the learning and teaching process, this type of organizer is popular in schools. For students to construct ideas, organize and sequence information, plan what to write, improve reading comprehension, brainstorm, organize problems and solutions, compare and contrast ideas, show cause and effect, and more, graphic organizers are useful and simple tools that can visualize and organize information. The GO group made an attempt to use this kind of planner in advance. The study's first reading comprehension sample dealt with culture and cultural change. Before teaching the reading passage, a number of videos and images depicting the cultures of various nations were broadcast. Students were prompted to pay close attention to the videos and share their opinions on how diverse the world's cultures are. Images from the local Amazonian culture to contemporary New York were shown to the class in chronological order, and the students were asked to carefully examine the images and discuss how human culture has changed from the beginning to the present. Additionally, the students were shown the text's confusing words with pictures before being given the desired text. Similar videos and clips were used in the instruction of the remaining texts in this group. The goals of the text were occasionally better advanced by using appropriate music. A graphic advance organizer can also be created using flashcards and other graphics.

Similar to a graphic advance organizer, a textual organizer can enhance learning and help students reach their academic objectives. The second group employed this style of organizer. This allowed students to express their understanding and perception of simple texts related to the main topic before the main text was presented. One of the texts taught in this group, for instance, discussed how the internet affects students' learning. Many straightforward and related texts, including those on the impact of technology on human life, the relationship between technology and education, Internet, the miracle of the twenty-first century, and others, were presented and taught in order to teach this text. The main text was introduced to the students after preparing and inspiring their prior knowledge. Additionally, during the lesson, pertinent and straightforward examples from supporting texts were used. At the conclusion, the students' issues and queries were addressed, and the material was reviewed and reminded once more.

The third organizer in the third experimental group was the verbal advance organizer. This kind of advance organizer calls for the researcher to begin talking about the title of the reading texts long enough to get the students' minds ready before presenting and teaching the original texts. The researcher may choose to use tales, memoirs, instructions, and more, depending on the topic of the text. One of the texts used in this group dealt with earthquakes. The researcher asked students to describe their experiences with the earthquake in order to teach this section. Do those who are close to them and their families remember the earthquake? How should one react in the event of an earthquake? What to do if there is an earthquake? These kinds of inquiries were made to elicit the student's history. The concept of earthquakes, what scientifically occurs in the layers of the earth that causes earthquakes, and, in brief, what an earthquake means, were then explained by the researcher. She then started telling him about his (real and made-up) earthquake experiences and how she managed to save her life. She also mentioned significant earthquakes that occurred in the nation and told the students everything about them. In the second part,

the main text of the earthquake was presented to the students and they were asked to answer the relevant questions after reading the text. At the end, the contents were reviewed again to establish their general meaning and significance.

The control group, the final research group, did not receive any organizers, and the texts were taught using the conventional approach to teaching languages. The two conventional techniques used in this group were question-answer and memorization-repetition techniques. In this group, the students were given the primary texts without any background information or introduction, and after reading the texts, they were required to respond to pertinent questions. In order to understand complex texts and learn how to read, students must memorize challenging structures and words using this traditional method of teaching reading. These time-honored procedures are extremely tedious and monotonous. Finally, after ten sessions, the reading comprehension test, served as the posttest, assessed all the participants' achievement in reading comprehension.

RESULTS

Table 1 displays the descriptive statistics of pretest and posttest reading comprehension scores in all four groups of the study.

Table 1.
Descriptive Statistics of Reading Comprehension Scores in All Groups

Group	Variable	*N*	Range	Min	Max	Mean	Std. Deviation	Skewness	Kurtosis
								Statistics	
TOs	Pretest	28	15	12	27	17.54	3.294	.933	1.302
	Posttest	28	14	14	28	18.93	3.495	.843	.293
Vos	Pretest	27	17	11	28	18.41	4.994	.405	-.689
	Posttest	27	18	11	29	19.04	4.735	.186	-.733
GOs	Pretest	30	13	12	25	18.60	3.169	.143	-.188
	Posttest	30	13	13	26	20.70	3.640	-.265	-.623
Control	Pretest	33	15	11	26	17.55	3.063	.571	1.042
	Posttest	33	15	11	26	17.91	3.422	.401	-.102

The minimum pretest and posttest score was 11, and the maximum pretest and posttest scores were, respectively, 28, and 29, as shown in Table 1. In the VO group, the scores ranged from 18 to 17, respectively, on the pretest and posttest. Kurtosis values were below 1.5, indicating that the distributions tend to be mesokurtic (i.e., normal), and the skewness values were between -1 and +1, indicating that the distribution of all data sets was rather symmetrical around the mean. The GO group had the highest pretest mean score (18.60), while the TO group had the lowest one (17.54). Thus, the pretest indicates that the range of scores was 17.54 to 18.60. In other words, the participants in the study's various groups had some initial successes in common. This backed up the pretest score homogeneity. The GO and Control groups' respective mean posttest scores were 20.70 and 17.91, respectively. In other words, the posttest means ranged from 17.91 to 20.70, which was significantly higher than the same range for pretest scores. The GO group showed the greatest amount of improvement in scores from pretest to posttest (2.10) and the control group showed the least improvement (.36), but all groups demonstrated an increase from the pretests to the posttests to some extent. Table 2, also, shows the descriptive statistics of pretest and posttest reading comprehension scores for participants with different brain dominance (left brained and right brained) in all groups of the study.

Table 2
Descriptive Statistics of Reading Comprehension Scores in All Groups in Terms of Brain Dominance

Group	Variable	Brain Dominance	*N*	Range	Min	Max	Mean	Std. Deviation	Skewness	Kurtosis
									Statistics	
TO	Pretest	Left	12	11	12	23	17.42	3.753	.637	1.232
		Right	16	13	14	27	17.62	3.030	.564	1.091
	Posttest	Left	12	11	14	25	19.10	3.908	.637	1.232
		Right	16	13	15	28	18.88	3.284	.564	1.091
VO	Pretest	Left	12	17	11	28	18.92	5.900	.637	1.232
		Right	15	16	12	28	17.93	4.183	.580	1.121
	Posttest	Left	12	14	11	25	19.17	5.557	.637	1.232
		Right	15	16	13	29	18.93	4.166	.580	1.121
GO	Pretest	Left	11	10	13	23	17.45	3.078	.661	1.279
		Right	18	13	12	25	19.33	3.181	.536	1.038
	Posttest	Left	11	11	14	25	19.09	3.590	.661	1.279
		Right	19	13	13	26	21.63	3.419	.524	1.014
Control	Pretest	Left	14	12	14	26	18.57	2.848	.597	1.154
		Right	19	13	11	24	16.79	3.066	.524	1.014
	Posttest	Left	14	11	15	26	18.71	3.245	.597	1.154
		Right	19	14	11	25	17.32	3.513	.524	1.014

As Table 2 demonstrates, the pertest scores in all groups ranged from 11 to 28. The minimum and maximum pertest scores (11 and 28 respectively) belonged to the left brained learners in the VO group. Also, the range of the post-test scores in all groups was 18 (the minimum was 11 and the maximum was 29). The greatest amount of difference between pretest mean scores for the left and right brain learners was 1.88 in the GO group and the similar amount for post-test mean scores was 2.54 in the GO group. Moreover, all left and right brained learners in all groups showed, to some extent, an increase from the pretest to post-test. The greatest and the lowest amounts of improvement in scores from pretest to post-test for left brained learners were 1.68 in the TO group and 0.14 in the control group, respectively. The aforementioned amounts for right brained learners were 2.3 in the GO group and 0.53 in the control group, respectively.

The first research question intended to examine whether using advance organizer strategies affected Iranian EFL learners' reading comprehension significantly or not. To address this question of the study, covariate analyses were conducted to compare the reading comprehension posttest scores in two different groups of AO and control. To address the first research question of the study, a one-way covariate test was conducted. The posttest scores obtained from the reading comprehension test were considered as the dependent variable and the pretest scores as the covariate variable. Group (AO and control) was considered as the independent variable. The error was originally set at .05. The results of analysis of variance for the treatment effect are reported in Table 3.

Table 3
Analysis of Covariance for the Treatment Effect on Posttest Reading Comprehension Scores

Source	Type III Sum of Squares	*df*	Mean Square	*F*	*Sig.*	Partial Eta Squared
Corrected Model	1598.119[a]	2	799.060	463.586	.000	.890
Intercept	3.875	1	3.875	2.248	.137	.019
Pretest	1531.096	1	1531.096	888.287	.000	.885
Group	26.010	1	26.010	15.090	.000	.116
Error	198.220	115	1.724			
Total	44928.000	118				
Corrected Total	1796.339	117				

The results in Table 4 revealed that the treatment of the study (advance organizer strategies) had a significant effect on the students' posttest reading comprehension scores after controlling for potential differences in their pretest scores because the *p* value was greater than .05, $F = 15.090$, $p = .000$. In order to show the superiority of groups, an estimated margin means for advance organizer and control groups was run:

Table 4
Estimate Margin Means for Advance Organizer and Control Groups

Group	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
AO	19.412[a]	.143	19.130	19.694
Control	18.363[a]	.229	17.909	18.817

Obtaining estimating marginal means, which identifies the adjusted means on the dependent variable for each of the groups, indicated that the AO group ($M = 19.412$) performed better than the control group ($M = 18.363$) on the posttest (see Table 4). Accordingly, the results in Table 4 revealed that the posttest scores of the learners who benefited from advance organizer strategies increased significantly in comparison with those of the control group and the first null hypothesis of the study was rejected.

The focus of enquiry in the second research question was to seek whether there was any significant difference among the reading comprehension scores of those EFL learners who use textual, graphic, and verbal organizers. To find a clear answer for this research question a one-way ANCOVA was conducted considering the posttest scores as the dependent variable, pretest scores as the covariate, and different categories of advance organizer (group) as the independent variable of the study. A one-way ANCOVA was conducted to see whether there was any significant difference between different groups of AO in terms of reading comprehension posttest mean scores or not. It indicates that whether there is a significant main effect for the independent variable of the study (group). The error was originally set at .05 when comparing groups on the reading comprehension posttest scores. The main ANCOVA results are reported in Table 5.

Table 5
Analysis of Covariance for the Effects of Different Types of Treatment on Posttest Scores

Source	Type III Sum of Squares	*df*	Mean Square	*F*	Sig.	Partial Eta Squared
Corrected Model	1247.379a	3	415.793	314.145	.000	.921
Intercept	9.062	1	9.062	6.847	.011	.078
Pretest	1189.911	1	1189.911	899.015	.000	.917
AO type	29.311	2	14.655	11.073	.000	.215
Error	107.209	81	1.324			
Total	33969.000	85				
Corrected Total	1354.588	84				

After adjusting for differences in pretest scores, Table 5 shows that there was a significant effect of type of treatment on posttest scores: F = 11.073, p =.000. Second, the partial eta squared value in the above table, which represented the effect size value, was 0.21. This value shows that the independent variable (different types of treatment) accounted for 21% of the variance in the dependent variable (posttest reading comprehension scores). In other words, the differences in the adjusted means of the various groups were noteworthy in terms of the various AO strategies, and as a result, the second null hypothesis was rejected. Table 5 shows the adjusted means (i.e., the mean without the effect of covariate) on the posttest scores for each of the groups.

Table 6
Estimate Margin Means for Advance Organizer Groups

AO	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
TO (Textual Organizer)	19.562[a]	.218	19.127	19.996
VO (verbal Organizer)	18.845[a]	.221	18.405	19.286
GO (Graphical Organizer)	20.281[a]	.211	19.863	20.700

As the results in table 6 showed, the participants of the GO group (*M* = 20.28) performed better than those of TO (*M* = 19.56) and VO (*M*=18.84) on the reading comprehension posttest. Given the significant difference between three groups of study (i.e., TO, VO, and GO), the Table 7 shows the results of Bonferroni corrected post-hoc comparisons to determine the location of the difference based on the estimated marginal means.

Table 7
Pairwise Comparisons for Advance Organizer Groups

(I) AO	(J) AO	Mean Difference (I-J)	Std. Error	*Sig.*	95% Confidence Interval for Difference	
					Lower Bound	Upper Bound
TO	VO	.716	.312	.072	-.045	1.478
	GO	-.720	.304	.061	-1.464	.024
VO	TO	-.716	.312	.072	-1.478	.045
	GO	-1.436*	.305	.000	-2.182	-.690
GO	TO	.720	.304	.061	-.024	1.464
	VO	1.436*	.305	.000	.690	2.182

As Table 7displays, the only significant difference between groups was found between the GO and TO groups (*p* = .000). The differences between the GO and VO, and also VO and TO were not statistically significant.

The third research question was intended to see whether using AO strategies affect left-brained and right-brained EFL learners quite differently in terms of their reading comprehension or not. In other words, it wanted to examine whether there was any significant difference between the reading comprehension scores of left-brained and right-brained L2 learners in different groups of AO (i.e., TO,VO, and GO) or not. The reading comprehension posttest scores were considered as the dependent variable and the pretest scores were considered as the covariate variable. Group and brain dominance (BD) were considered as the independent variables. The error was originally set at .05 when comparing groups on the posttest reading comprehension variable. The main ANCOVA results are reported in Table 8.

Table 8

Analysis of Covariance for the Group and Brain Dominance Effects on Reading Comprehension Posttest Scores

Source	Type III Sum of Squares	*df*	Mean Square	*F*	*Sig.*	Partial Eta Squared
Corrected Model	1255.733[a]	6	209.289	165.136	.000	.927
Intercept	9.175	1	9.175	7.239	.009	.085
Pretest	1152.825	1	1152.825	909.620	.000	.921
Group	25.911	2	12.956	10.222	.000	.208
BD	3.080	1	3.080	2.430	.123	.030
Group * BD	5.300	2	2.650	2.091	.130	.051
Error	98.855	78	1.267			
Total	33969.000	85				
Corrected Total	1354.588	84				

a. R Squared = .927 (Adjusted R Squared = .921)

The results in Table 8 revealed that the interaction effect of independent variables (group and BD) was not significant, $F = 2.91$ $p = .130 > .05$; accordingly, the effect of one independent variable was not dependent on the levels of the other. Second, the effect size value, which was shown by partial eta squared value in the above table, was .05 which is considerably small. This value indicates that only 5% of the variance in the dependent variable (the posttest reading comprehension scores) was explained by the interaction between the independent variables. In other words, the brain-dominance effect was not statistically significant and consequently, the third null hypothesis of the study was confirmed.

Table 8 shows the estimated marginal means (adjusted means) of posttest scores for left and right-brained learners in three different groups of AOs.

Table 9

Estimate Margin Means for Left and Right-Brained Learners in Different Groups of Advance Organizer

AO	BD	Mean	Std. Error	95% Confidence Interval		Bootstrap for Mean[sp]			
				Lower Bound	Upper Bound	Bias	Std. Error	95% Confidence Interval	
								Lower	Upper
TO	Left	19.748[a]	.326	19.099	20.397	-.007	.472	18.845	20.707
	Right	19.418[a]	.282	18.857	19.979	.002	.501	18.393	20.368
VO	Left	19.173[a]	.291	18.594	19.752	.007	.443	18.291	20.015
	Right	18.438[a]	.326	17.789	19.087	.017	.512	17.466	19.431
GO	Left	19.802[a]	.340	19.124	20.479	.004	.518	18.810	20.848
	Right	20.562[a]	.261	20.043	21.081	.011	.565	19.401	21.699

As the results in Table 9 showed, both left and right-brained learners performed somehow similar in the TO group ($M = 19.75$ and $M = 19.42$, respectively). In the GO group, right-brained learners performed better than the left-brained ones ($M = 20.56$ and $M = 19.80$ respectively), but in the VO group left-brained learners resulted better than the right-brained ones ($M = 19.17$ and $M = 18.44$, respectively). It's worth restating that the differences between groups were not statistically significant and the third null hypothesis was confirmed.

The fourth research question tries to compare the significant difference of various types of advanced organizers between male and female students. More specifically, this research question investigated to find out whether there is a significant differences between male and female students in using different types of advanced organizers. To this end and to answer this research question a one-sample T-test was run to compare the mean scores of reading comprehension of male and female students. The following tables show the results:

Table 10
Descriptive Statistics of Male and Female Students' Performance on Reading Comprehension Skill

	Sex	N	Mean	Std. Deviation	Std. Error Mean
AAO	Female	63	17.29	2.419	.305
	Male	55	16.11	1.696	.229

Based on the above table, mean score of female students outperformed male ones in terms of reading comprehension scores. But to cast more light on this matter and to check whether this outperformance is significant or not, one Sample T-test was run:

Table 11
Independent Sample T-test of Male and Female Students over Reading Comprehension

		F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
AO	Equal variances assumed	.129	.720	3.017	116	.063	1.177	.390	.404	1.949
	Equal variances not assumed			3.088	111.051	.003	1.177	.381	.422	1.932

Based on the findings, an independent-sample t-test was conducted to compare the advanced organizers scores for male and female students. There was not significant difference in scores for females (M=17.29, SD= 2.41) and males (M= 16.11, SD=1.69; t (116) =3.017, p=.63). As mentioned, there is not any significant difference between male and female students in terms of applying advanced organizers for boosting reading comprehension skill (N=118, p>.05).

DISCUSSION

The current study sought to ascertain the impact of sophisticated organization strategies on left- and right-brained EFL learners' reading comprehension. The study's objective was to ascertain the degree to which gender-neutral sophisticated organizers helped students increase their reading comprehension. To find out if using the advanced organizers would help students enhance their reading comprehension, an experiment was designed. The study's findings demonstrate that both Left-Brain and Right-Brain EFL learners' reading comprehension significantly improved when using advance organizers. An expanded explanation of the study's findings is provided below. The first research question was going to examine the relationship between reading comprehension and sophisticated organizing strategies in Iranian EFL students. The posttest mean scores of the students in the advance organizer group who benefited from advance organizer strategies and those in the control group who did not receive any effective treatment in this regard differed significantly, as indicated by the results of various statistical tests. As a result, the initial null hypothesis was disproved.

After adjusting for potential intergroup differences (learner pretest scores), the study's results revealed that EFL students who benefited from each type of advance organizer strategy had significantly higher reading comprehension achievement (posttest scores) than those in the control group, who received no such treatment. The use of any type of advance organizer seems to have activated the subjects' preexisting ideas about the passage or led to the development of new schemata for the anchoring of newly acquired knowledge. It makes sense because readers can reasonably infer the topic development, if not the conclusion, from the advance organizer, which can be used as a

pre-reading activity and provides enough background information.

Results from the study's first research question generally provide more evidence in favor of the idea that using any introductory strategies would improve students' reading comprehension, which is frequently expressed in the literature. The results of this study supported those of (Mede, 2010), who showed that students who used graphic organizers outperformed those who received traditional English instruction. Additionally, Lee's (2020) research on the application of cognitive and graphic strategies to enhance reading comprehension is consistent with the findings of the current study. According to statistical analyses, students in the experimental class outperformed their peers on the comparison reading test at the end of the semester. The findings of Sunasuan and Songserm's study from 2021, which looked at how the advance organizer model affected English Second Language (ESL) students' learning of new concepts in collaborative classrooms, are consistent with the findings of the present study. The study's findings demonstrated that the model can support ESL students' academic success and meaningful learning of new concepts in cooperative classroom settings. The results of the current study were supported by other studies. For instance, (Muiruri et al., 2016) conducted a study of a similar nature to look into how advance organizers affect poetry performance. A quasi-experimental methodology was employed by the researchers to achieve the study's objective.

The study's sample consisted of 156 pupils from primary schools in Kenya's Nakuru North Sub-County. The researchers developed and used an achievement test (pre and posttest) in order to analyze the data and achieve the study's objectives. Also employed was ANOVA. According to the study's findings, students who received poetry instruction using advance organizers significantly improved. The researchers suggest using advance organizers when instructing English poetry. The second research question sought to identify the kind of advance organizer that would be most beneficial for reading comprehension. The results of various statistical tests, which showed that there were significant differences in adjusted means between the groups for different categories of advance organizers, led to the rejection of the second null hypothesis as well. After adjusting for potential group differences (pretest scores), participants in the graphic advance organizer group performed better on the reading comprehension posttest than those in the textual advance organizer and verbal advance organizer groups. However, the only significant difference between groups was between the graphic advance organizer and textual advance organizer groups, and the post-hoc test results showed that the differences between the graphic advance organizer and verbal organizer, as well as the verbal organizer and textual organizer, were not statistically significant. It makes sense that using visual aids would enable students to access the necessary background information to make educated guesses about the subject without having to rely on their vocabulary knowledge (needed to understand textual organizers) or their listening skills (needed to use verbal organizers).

Some researchers have, however, examined the impact of using different advance organizer versions on reading comprehension. Studies comparing the efficacy of various advance organizers (graphic, verbal, and textual) are few and far between. The study's conclusions regarding the second research question support those of (Aslrasuli & Bakhshian, 2014), who examined the effect of teaching graphic organizers on students' attitudes toward reading in English, even though there isn't any empirical data to back them up. The results of this study showed that teaching graphic patterns as the main type of advance organizers had a positive effect on the reading skills of the students. The findings of the current study are in agreement with Menachem's (2015) attempt to ascertain the effect of visual advance organizers on written passage in the FLES classroom. To accomplish this, they used visual organizers that included both picture and video groups. The results showed that students in the video group outperformed those in the picture group in terms of performance. The third research question examined the differences in how left- and right-brained students used various advance organizers. According to the results, in the group using the

textual advance organizer, both left and right-brained EFL learners performed reasonably similarly. Right-brained students outperformed left-brained students in the graphic advice organizer group, but left-brained students outperformed right-brained students in the verbal advice organizer group; however, the differences between groups were not statistically significant, and the third null hypothesis was confirmed.

There is no empirical study that compares the relationship between various types of advance organizer and various brain dominances in ESL/EFL contexts, but the results of the current study are consistent with what Torrance (1980) asserts about the characteristics of the left and right-brained dominant learners. He asserts (1980) that right-brained people are superior at using their imagination, feelings, paralinguistic features, and symbolic or illustrated instructions. With images and emotions, they appear to work more effectively. Individuals with a left-brain predominance, on the other hand, process information linearly. They are less interested in using images to learn and are more receptive to verbal instructions. They also conduct their own research. These findings, which indicated a notable difference between learners who are left- or right-brained, were refuted by a number of studies.For instance, (Bavand Savadkouhi et al., 2013) investigated how hemispheric dominance affected vocabulary learning techniques. Their findings showed that when it came to vocabulary learning and using different strategies, left-brain students outperformed right-brain students. In a different study, (Lee , 2017) investigated how hemisphericity affected writers' abilities and discovered that left-brain students outperformed right-brain students in terms of writing research papers. The fourth research question attempted to examine how various advance organizers affected both male and female students. Based on the results, the fourth research question was accepted because there was no statistically significant difference between the scores of male and female students on various types of advance organizers. By approaching information, connecting it to prior knowledge, and actively managing and directing one's own learning process, learning is defined as a useful process. Studies like that conducted by (Toledano, 2018) revealed that boys and girls have different learning styles. Boys learn more generally and visually than girls do, and girls learn more verbally and sequentially than boys. According to the study, when it comes to using advance organizers, female students favor verbal organizers significantly more than male students. The process of learning a foreign language is heavily influenced by social factors.According to (Loureiro, 2019), gender is always influenced by various techniques and strategies, such as advance organizers, even though the factor of gender is primarily biological because men and women do not have the same social roles in society. As a result, different social roles lead to different behaviors. It should be noted that girls have better and more favorable attitudes toward learning a foreign language.

The research on the connection between learning a second or foreign language and gender has undergone a significant change over the past three decades as gender conceptualizations in language studies have changed. Early research compared the linguistic capabilities of men and women according to their sexes, treating sex as a fixed, bipolar category that might be connected to language and language learning. Women may be better language learners than men, according to second/foreign language researchers, because of their greater openness to novel structures in the target language and their propensity to correct incorrect forms in their interlanguage (Ellis, 2012). These hypotheses were verified in a longitudinal study carried out by (Burstall, 1975) who looked at the overall performance of 6,000 British 8-year-old French students. The study's findings unmistakably demonstrated that girls performed better than boys.In a similar vein, females performed significantly better than males on general English as a foreign language proficiency test in (Gu, 2002) study of Chinese students in Hong Kong.

CONCLUSION

Advance organizer is a concept, material, or topic that is used in a lesson to help students mentally arrange the various components and materials that make up a particular field of

knowledge in a particular order. This type of system creation in the mind begins with a general matter that we refer to as an advance organizer. In other words, the advance organizer is a topic or general concept that is introduced at the beginning of teaching to relate the topic presented to the students with the previous topics of the same lesson, and at the same time it serves as a basis for connecting the next concepts with the previous concepts so that the student can keep all the topics of the lesson in an orderly fashion.

The advance organizer pattern typically examines the contents from the overall picture to the specifics. Every teaching strategy has unique traits that are founded on a particular way of thinking. These characteristics set one model apart from other models. Theories are not always true and tested, and their application is not always certain. In theory, no viewpoint can be accepted in education without consideration. Values in education are always assessed in light of the circumstances. Such traits are also present in the advance organizer model's theoretical underpinnings. The structure of various courses serves as the theoretical foundation for the advance organizer model (Sahib, 2021). The broad ideas and material that are introduced at the start of each lesson are contained in the advance organizer. In actuality, it serves as a conduit for accessing and comprehending educational materials and content. Ausubel (1990) and his colleagues' research and experiments demonstrate that students who learn content and subjects using advance organizers are more successful in teaching and learning lessons than students who learn content without using advance organizers. This is because using advance organizers makes it simpler for students to understand and comprehend the subject matter.

Current research on advance organizers and its effects on learning, memory, and recall of new material was greatly influenced by Ausubel's 1960 work. Advanced organizer strategies have gained popularity recently in the field of teaching L2 languages in order to increase the size of learning. This study examined the effects of various advanced organizing strategies on the reading comprehension of left- and right-brained EFL learners using graphic organizers, verbal organizers, and textual organizers. Here are some of the conclusions that were reached after the data analysis and discussion that were covered above.

Using advance organizer strategies affected learners' reading comprehension scores significantly.

Using different types of advance organizer strategies made a significant difference in reading comprehension scores.

The only significant difference was found between the reading comprehension mean scores of the learners who used graphic organizer strategies and textual organizer strategies and the differences were not significantly different in the case of graphic organizer strategies and verbal organizer strategies as well as verbal organizer strategies and textual advance organizers.

Both left and right-brained learners performed somehow similarly in the TO group. In the graphic organizer group, right-brained learners performed better than the left-brained ones, but in the verbal organizer group the left-brained learners resulted better, however, the differences between groups were not significantly different.

There was no significant difference between the reading comprehension scores of left-brained and right-brained Iranian EFL learners after receiving three types of advance organizer strategies.

The type of advance organizer strategies (textual, graphic, and verbal) makes no difference across male and female students in terms of reading comprehension skills.

Following the findings, the concluding remarks are:

Using advance organizer strategies activated the relevant concepts existing in the subjects' minds about the passages they were supposed to read and consequently boosted their ability of reading comprehension and led to their significant performance on the post-test.

Among all three types of advance organizer strategies, graphic organizers were the most effective strategies to improve the reading comprehension achievement of EFL learners.

Using a graphic advance organizer improved the reading comprehension ability of the right-brained learners more, however using verbal advance organizer was more effective in the case of left-brained learners. Employing a textual advance organizer improved both left and right-brained learners somehow similar.

The differences between left and right-brained learners were not statistically different after using different types of advance organizer strategies.

To summarize, Ausubel (1960) proposed the advance organizer as a teaching strategy to enhance student learning and facilitate instruction. According to him, this approach enhances the coherence and significance of concepts and course materials. The advance organizer should give the student a mental framework so that the information that comes after it is established in it. The foundational components of the lesson or other materials that help the student understand how the new lesson relates to earlier lessons may be included in the advance organizer. The Ausubel (1960) teaching method requires the teacher to first give the students comprehensive and abstract information and points before teaching the details. This differs from the traditional teaching methods used in schools, which base their instruction on the advance organizer presentation at the start of the lesson. While in traditional teaching methods, teachers ask students to learn the specifics of the lesson first before teaching them the principles and broad concepts (Daniel, 2003). The advance organizer generally aids students in two ways: first, by connecting new information and concepts to cognitive construction; and second, by improving memory, preventing forgetfulness, and enabling students to comprehend the complexity of the material they have already learned.

References

Abdulloh, A., & Usman, R. (2021). The Effectiveness of Advance Organizer Learning Approach in Teaching Reading Narrative Text for First Year High School Students. International Seminar on Language, Education, and Culture (ISoLEC 2021), Atlantis press.

Anderson, R. C., & Pearson, P. D. (1984). A schema-theoretic view of basic processes in reading comprehension. *Handbook of reading research*, *1*, 255-291.

Aslrasuli, M., & Bakhshian, M. (2014). The Effect of Teaching English Textual Patterns (Problem-solution, Hypothetical-real, General-specific) on Iranian EFL Learners' Reading Ability. *Procedia-Social and Behavioral Sciences*, *98*, 297-303.

Ausubel, D. P. (1960). The use of advance organizers in the learning and retention of meaningful verbal material. *Journal of Educational Psychology*, *51*(5), 267.

Ausubel, D. P. (1978). In defense of advance organizers: A reply to the critics. *Review of Educational research*, *48*(2), 251-257.

Ausubel, D. P. (2012). *The acquisition and retention of knowledge: A cognitive view*. Springer Science & Business Media.

Ausubel, D. P., & Robinson, F. G. (1969). *School learning: An introduction to educational psychology*. Holt, Rinehart Winston.

Bavand Savadkouhi, Z., Taghi Hassani, M., & Rahmani, R. (2013). The effect of hemispheric dominance on learning vocabulary strategies among Iranian EFL Learners. *European Online Journal of Natural and Social Sciences: Proceedings*, *2*(2s), pp. 347-361.

Burstall, C. (1975). Factors affecting foreign-language learning: A consideration of some recent research findings. *Language teaching*, *8*(1), 5-25.

Cho, Y., Kim, D., & Jeong, S. (2021). Evidence-based reading interventions for English language learners: A multilevel meta-analysis. *Heliyon*, *7*(9).

Chun, D. M., & Plass, J. L. (1996). Effects of multimedia annotations on vocabulary

acquisition. *The Modern Language Journal*, *80*(2), 183-198.

Cl, C. (2005). The effects of graphic organizers on Taiwnese tertiary students' EFL reading comprehension and attitudes towards reading in English. *Australia: Australian Catholic Univeristy*.

Crane, L. D. (1989). The Alert scale of cognitive style. *Kalamazoo: Western Michigan University*.

Division, C. o. E. C. f. C. C.-o. E. C. M. L. (2001). *Common European framework of reference for languages: Learning, teaching, assessment*. Cambridge University Press.

Evans, S. (2003). Graphic organizers for Japanese readers of expository texts in English. *ICU language research bulletin= 語学研究*, *18*, 1-17.

Feldman, L. B. (1989). Reading Research: Advances in Theory and Practice. Vol. 6. *Language and Speech*, *32*(4), 381-385.

Gazzaniga, M. S. (1983). Right hemisphere language following brain bisection: A 20-year perspective. *American Psychologist*, *38*(5), 525.

Gu, Y. (2002). Gender, academic major, and vocabulary learning strategies of Chinese EFL learners. *RELC journal*, *33*(1), 35-54.

Hegarty, M. (2004). Dynamic visualizations and learning: Getting to the difficult questions. *Learning and Instruction*, *14*(3), 343-351.

Herron, C. (1994). An investigation of the effectiveness of using an advance organizer to introduce video in the foreign language classroom. *The Modern Language Journal*, *78*(2), 190-198.

Khanal, G. K. (2013). *Improving Reading Comprehension of the Secondary School EFL Learners: An Action Research*

Kim, A.-H., Vaughn, S., Wanzek, J., & Wei, S. (2004). Graphic organizers and their effects on the reading comprehension of students with LD: A synthesis of research. *Journal of learning disabilities*, *37*(2), 105-118.

Kitterle, F. L., Christman, S., & Hellige, J. B. (1990). Hemispheric differences are found in the identification, but not the detection, of low versus high spatial frequencies. *Perception & Psychophysics*, *48*(4), 297-306.

Lin, C. Y. Y., & Chen, M. Y. C. (2007). Does innovation lead to performance? An empirical study of SMEs in Taiwan. *Management research news*, *30*(2), 115-132.

Lin, H., & Chen, T. (2007). Reading authentic EFL text using visualization and advance organizers in a multimedia learning environment.

Mede, E. (2010). The effects of instruction of graphic organizers in terms of students' attitudes towards reading in English. *Procedia-Social and Behavioral Sciences*, *2*(2), 322-325.

Mohammadi, M., Moenikia, M., & Zahed-Babelan, A. (2010). The role of advance organizer on English language learning as a second language. *Procedia-Social and Behavioral Sciences*, *2*(2), 4667-4671.

Muiruri, M., Wambugu, P., & Wamukuru, K. (2016). Using Advance Organizers to Enhance Pupils' Achievement in Learning Poetry in English Language. *Journal of Education and Practice*, *7*(31), 113-117.

Pant, R., Kanjlia, S., & Bedny, M. (2020). A sensitive period in the neural phenotype of language in blind individuals. *Developmental cognitive neuroscience*, *41*, 100744.

Papageorgiou, S., & Bailey, K. M. (2019). *Global perspectives on language assessment: research, theory, and practice*. Routledge.

Rieber, L. P. (1996). Seriously considering play: Designing interactive learning environments based on the blending of microworlds, simulations, and games. *Educational technology research and development*, *44*(2), 43-58.

Rieber, R. W., & Carton, A. S. (1987). *The collected works of LS Vygotsky: Problems of general psychology, including the volume thinking and speech*. Springer.

Shoari, E., & Farrokhi, F. (2014). The effects of graphic organizer strategy on improving iranian efl learners' vocabulary learning. *Research in English language pedagogy*, *2*(1), 71-82.

Swanson, H. L., & Alexander, J. E. (1997). Cognitive processes as predictors of word recognition and reading comprehension in learning-disabled and skilled readers: Revisiting the specificity hypothesis. *Journal of Educational Psychology*, *89*(1), 128.

Togo, D. F. (2002). Topical sequencing of questions and advance organizers impacting on students' examination performance. *Accounting Education*, *11*(3), 203-216.

Ward, G., & Morris, R. (2005). Introduction to the psychology of planning. *The cognitive psychology of planning*, 1-34.

Williams, M., & Burden, R. L. (1997). *Psychology for language teachers: A social constructivist approach* (Vol. 5). Cambridge university press Cambridge.

Xie, Q., & Yeung, S. S.-s. (2022). Do vocabulary, syntactic awareness, and reading comprehension in second language facilitate the development of each other in young children? *Learning and Instruction*, *82*, 101682.

Yussof, Y. M., Jamian, A. R., Roslan, S., Hamzah, Z. A. Z., & Kabilan, M. K. (2012). Enhancing reading comprehension through cognitive and graphic strategies: A constructivism approach. *Procedia-Social and Behavioral Sciences*, *64*, 151-160.

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