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The Effects of Curriculum-Integrated Explicit Learning Strategy Instruction on Reading Comprehension for English as a Second Language (ESL) Learners at the Community College

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THE EFFECTS OF CURRICULUM-INTEGRATED EXPLICIT LEARNING STRATEGY INSTRUCTION ON READING COMPREHENSION FOR ENGLISH AS A SECOND LANGUAGE (ESL) LEARNERS AT THE COMMUNITY COLLEGE

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Dissertation Abstract

The Effects of Curriculum-Integrated Explicit Learning Strategy Instruction on Reading Comprehension for English as a Second Language (ESL) Learners at the Community College

Reading skills are critical for English as a Second Language (ESL) students in higher education to achieve academic success. However, effective ways to promote student success in ESL reading courses are under-researched. Identifying factors that may enhance the quality and outcomes of learning ESL reading is essential. One such factor identified by previous research is learning strategies. Explicit instruction on learning strategies may lessen the problems and difficulties that international students encounter. Explicit strategy instruction can bring a systematic scaffold into a language learning process, guide students toward proper learning strategies, and promote constructive cognitive processing during learning.

This study aimed to examine how cognitive learning strategy intervention that explicitly models the use of learning strategies could facilitate English as a Second Language (ESL) students' reading comprehension and change the perceptions of their reading skills. In this mixed-methods study, intact groups of 33 ESL community-college students enrolled in Reading and Writing II courses participated either in the learning strategy treatment group or the traditional instruction comparison group. Three cognitive learning strategies based on the theoretical framework of Mayer's (2005, 2014) select-organize-integrate (SOI) model of generative learning were explicitly modeled and taught: strategy# I (finding the main idea and supporting details), strategy # II (mind mapping), and strategy # III (self-explaining). Differences in scores of reading comprehension tests pre-intervention and post-intervention were examined.

Then an online survey and semi-structured individual interviews were conducted to explore how participants experienced the strategy intervention in terms of their awareness of the benefits of the learning strategy and the perceptions of their reading skills.

Results indicated that the treatment group's post-test scores compared to their pretest increased significantly with a large effect size. There was no statistically significant difference in the gain scores between the low and high proficiency students in the treatment group. Both low and high proficiency students increased their post-test scores, indicating strategy intervention was equally beneficial for low and high proficiency students. Furthermore, participants in the treatment group who underwent a six-session cognitive learning strategy intervention outperformed those who received no strategy intervention in the reading comprehension post-test. Qualitative data were coded and analyzed for emerging themes. Participants in the treatment group reported that learning strategy instruction helped them better comprehend, organize, summarize, and remember what they read; hence they could improve their reading comprehension skills. In addition, students' perceptions of their reading skills changed positively. More specifically, students described their reading confidence, ability to focus on reading, and completing reading journal assignments were enhanced. Furthermore, participants acknowledged that they would continue to use the cognitive learning strategies after the strategy intervention ended. The most helpful strategy the participants opted for was mind mapping. These findings suggest a great opportunity to integrate the learning strategy instruction into regular ESL language courses.

This dissertation, written under the direction of the candidate's dissertation committee and approved by the members of the committee, has been presented to and accepted by the Faculty of the School of Education in partial fulfillment of the requirements for the degree of Doctor of Education. The content and research methodologies presented in this work represent the work of the candidate alone.

Sylvia Chaiyeon Lee — May 12, 2022
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CHAPTER I

THE RESEARCH PROBLEM

Introduction

An analysis of student visa data indicates that 1,251,569 international and immigrant students from more than 220 countries study at American colleges and universities in 2020 (Student and Exchange Visitor Information System, https://www.ice.gov/). Most international and immigrant students take part in the higher education system and pursue associate, bachelor's, master's, or doctoral programs. Although there was a temporary decrease of 18 percent of international student enrollment in the United States due to the outbreak of COVID-19 in 2019, international and immigrant students still represent an important part of the student body. The minority population, mainly Asian and Hispanic, makes up 86 percent of the student body of 6,389 in the community college in Northern California where this present research took place (https://alameda.edu/our-college/our-students/). These students are from over 50 countries, and they seek two-year degrees, certificates, and university transfer programs.

International and minority students who enroll in English as a Second Language (ESL) programs in the U.S need to develop the necessary skills required for academic success in American colleges and universities (https://alameda.edu/). Especially, academic reading skills are critical for ESL students in higher education in order to achieve academic success (Suwanarak, 2019; Yapp, Graaff, & Bergh, 2021). The ESL courses in higher education require students to read English academic text rapidly, process complex academic information thoroughly, and respond to readings and academic topics skillfully (Aghaie & Zhang, 2012). Therefore, the ESL reading program needs to help students improve their reading ability to read university-level materials efficiently and write academic reports and essays. Yet, the challenges

and difficulties ESL students face and how to help them overcome the challenges and be successful academically have not been addressed sufficiently (Chumworratayee, 2017; Huang & Nisbet, 2014).

ESL students face challenges in the American higher education system often due to different learning styles, educational values, and pedagogical approaches (Singh, 2019; Jiang, 2011). In addition, since the English reading (L2) program in higher education is cognitively demanding in nature and requires hard work on the students' part, L2 reading can be intellectually challenging (Agee & Hodges, 2012). Consequently, problems in literary skills affect ESL students' learning in the curriculum of degree courses and undertaking their academic studies. Given the importance of reading competency for ESL students, identifying factors that may enhance the quality and outcomes of learning L2 reading is essential. One such factor identified by a large body of research is language learning strategies (LLSs). Explicit instruction on language learning strategies may lessen the problems and difficulties that international students encounter and help students tackle various language learning tasks more skillfully (Cohen, 2014; Griffiths, 2007; O'Malley & Chamot, 1985, 2005; Oxford, 2003, 2011).

Language learning requires a set of appropriate learning strategies related to cognitive, metacognitive, and motivational processes during learning (Cohen, 2014; Oxford, 1990, 2003). Learning strategies are domain-specific learning skills such as any specific thoughts and actions taken by language learners to improve the process of learning a language (Cohen, 2014; Griffiths, 2007; Oxford, 2003, 2011). Learning strategies provide students with tools for active and meaningful involvement in gaining language skills and reveal what students do in the process of learning a language, such as generating rules, organizing ideas and thoughts, and establishing mental schemata (Griffiths, 2014; Thompson, 2005). The use of learning strategies

helps students to learn a language better directly and indirectly and enables them to become more independent, autonomous, and lifelong learners by regulating and controlling their learning (Cohen, 2014; Oxford, 2011; Yüce, 2019).

Learning strategies are facilitative of learning a language by making the internalization, storage, and retrieval of the new language easier. Hence, the learning process is faster, more accessible, and more effective (Cohen, 2014; Griffiths, 2007; Nosratinia, Saveiy, & Zaker, 2014; Oxford, 1990, 2011). Students can actively engage in meaningful learning, take ownership of their learning, and manage their own learning by employing appropriate cognitive, metacognitive, and motivational learning strategies during learning. These strategies can be used not only to help students learn a language better but also to provide teachers with new ways of helping their students become more responsible and effective learners.

Each learner has a unique set of general learning strategies that can be useful for their specific learning conditions, and different types of language tasks require different types of strategies (Cohen, 1998; Oxford, 1990, 2011). What this means for teachers is that the successful strategy use depends on how and when learners use these strategies through the direct guidance of teachers rather than merely copying strategies of more proficient learners (Madhumathi & Ghosh, 2012; Sarafianou & Gavriilidou, 2015). Strategy instruction can bring a systematic scaffold into a language learning process, guide students toward appropriate learning strategies, and promote constructive cognitive processing during learning. Students can learn how they learn most effectively and discover the positive effects of language learning strategies through teacher's strategy instruction. For this reason, incorporating learning strategy instruction into the curriculum has been gaining increased recognition and is used with growing frequency as a desirable learning and teaching method (Agee & Hodges, 2012).

The goal of strategy instruction is to help learners consider factors affecting their English learning and identify relevant strategies for becoming more responsible and effective learners. Also, it aims to provide learners with hands-on practice with new strategies and reinforce the use of the strategy (Cohen, 2014). Language learning strategies could be learnable and teachable through strategy instruction (Griffiths, 2014; Gu, 2010; Oxford, 1990; 2003;2010), and the format of instruction should be direct and explicit (Cohen & Weaver, 1999; 2005, Grenfell & Harris, 1999; Griffiths, 2003; O'Malley & Chamot, 1985, 2005; Oxford, 1990). The supplemental system of useful learning strategies can help students take greater control over their language learning process through self-regulated learning strategies, which are viewed as a key contributing factor to the second language (L2) proficiency (Oxford, 2011). As strategy instruction contributes to improved language performance and ability, language learning strategy instruction can be an instructional paradigm.

Statement of the Problem

There is extensive literature that examines the importance of language-learning strategies (LLSs) influencing English language learning (Cohen & Macro, 2007; Cohen & Weaver, 2006; Oxford, 1990, 2011; Purpura, 2012). Also, a fair amount of research suggested that the direct instruction of LLSs could facilitate language learning to be more meaningful, productive, and long-lasting as it encourages students to consider the factors affecting their language learning (Cohen & Macaro, 2007). Moreover, a considerable number of researchers (Cohen & Weaver, 1999, 2005; Grenfell & Harris, 1999; Griffiths, 2003; O'Malley & Chamot, 1985, 2005; Oxford, 1990, 2011) asserted that language-learning strategies could be learnable and teachable through strategy instruction.

Even with the ample research that demonstrated a correlation between the frequency of students' reported use of learning strategies and their language proficiency, relatively little attention had been given to incorporating explicit strategy instruction into ESL classes (Ardasheva, Wang, Adesope, & Valentine, 2017; Grenfell & Harris, 1999; Griffiths, 2003). First and foremost, empirical evidence of the effects of explicit learning strategy instruction through strategy intervention in ESL contexts was insufficient due to the inherent difficulties in conducting classroom research (Chamot, 2005). The vast majority of the research conducted in the language-learning strategy field was theoretical and conceptual, primarily discussing the importance and the benefits of language learning strategies through self-report surveys or Strategy Inventory for Language Learning (SILL) without teaching strategies to students. Therefore, it did not adequately address how to teach students to use learning strategies and how students' perceptions of using learning strategies change after the strategy instruction (Ardasheva et al., 2017; Kenneth & Kiewra, 2002; Zare & Othman, 2013). In addition, recent empirical studies of the effects of strategy instruction through strategy intervention have been undertaken primarily and predominantly in EFL contexts such as Iran, Turkey, Thailand, South Korea, Netherlands, and so on (Chumworatayee, 2017; Ghavamnia, 2019; Lee, 2017; Medina, 2012; Mohammadi, Birjandi, & Maftoon, 2015; Yapp et al., 2021). As a result, there has not been much practical information about learning strategies that ESL instructors incorporate into their classrooms to promote language learning with learning strategies.

Second, many ESL textbooks used for the academic English program do not provide sufficient coverage of specific learning strategies. The ESL curriculum at the college level does not adequately include strategy instruction. Even if some strategy instructions are included in these textbooks or additional support materials, strategy instruction is considered extra and less

priority (Bueno-Alastuey & Agulló, 2015). Part of the reason is that the current curriculum places emphasis on teaching students content rather than strategies to regulate their learning (Dunlosky, Rawson, Marsh, Nathan, & Willingham, 2013). Teaching strategies during class time is often viewed as taking up the limited teaching time (Razi & Grenfell, 2021). In her reading intervention study at one Korean university, Lee, H.Y. (2017) also pointed out that although reading performance was one of the most important measurements of students' English achievement, instructors and students were relatively unfamiliar with the reading strategy use or strategy instruction.

Third, many ESL instructors have not been exposed to literature discussing the efficacy of various language learning strategies or how to teach them explicitly (Kenneth & Kiewra, 2002). In order to assist students in selecting appropriate strategies and using them correctly, teachers should be fully aware of the learning strategies and attempt to make strategy instruction to become part of the regular teaching and learning activities (Chumworatayee, 2017). However, it can be challenging for teachers to design strategy instruction due to insufficient information and consistent studies on strategy intervention. Thereby, students are not instructed about which learning strategies are effective and how to use those strategies appropriately. In the end, both teachers and students pay less attention to the advantages of learning strategies for teaching and learning a language.

Therefore, the present study aimed to address this research gap by investigating whether a specifically designed explicit strategy instruction could be effective and improve ESL students' L2 reading proficiency. The participants for this study were ESL students who enrolled in the English for Speakers of Other Languages (ESOL) program at Community College in Northern California. The ESOL program teaches the type of English required to learn course content

effectively in a higher education setting (https://alameda.edu/). Although different higher education institutions use different acronyms for a similar program, such as Intensive English Program (IEP), the researcher will use the ESOL program with the ESL program interchangeably (hereafter referred to as the ESL program).

Background and Need for the Study

English Language Teaching (ELT) has been through frequent changes of various language teaching approaches and methods over the centuries (Larsen-Freeman & Anderson, 2013; Karn, 2007). The rise and fall of a variety of language teaching methods demonstrate how the goal and focus of English language teaching have evolved throughout the history of English language teaching. First, the grammar-translation approach dominated foreign language teaching from the 1840s to the 1940s and until now in some parts of the world. This language teaching method focuses on grammatical parsing, that is, the forms and inflections of words. A typical exercise of the grammar-translation approach is to translate sentences from the target language into the native language. Despite being a popular method from the beginning of the nineteenth century until now, the result of the grammar-translation approach is usually an inability to use the target language for communication (Celce-Murcia, 2014, p.5).

Then, the direct method emerged at the end of the nineteenth century, which advocated exclusive use of the target language in the classroom, and grammar was taught inductively. This method is based on the assumption that a second language can be learned the same way the first language is learned (Celce-Murcia, 2014). The audiolingual approach was popular between the 1950s and 1960s, emphasizing oral production, pattern drills, mimicry, and memorization. This method is based on behavioral psychology that emphasizes getting learners to repeat behaviors until they become fully learned habits. In reaction to the grammar-translation and the

audiolingual approach, the communicative approach proliferated in the 1970s, emphasizing the learners' ability to communicate in the target language. This is a functional and practical approach to language teaching that provides learners with opportunities to practice the target language for communicative purposes; hence, the emphasis is on teaching language through meaningful interactive tasks to promote authentic communication in the target language (Larsen-Freeman & Anderson, 2013; Savignon, 2005). In the 1990s, content-based and task-based language teaching emerged under the umbrella of the communicative approach. These methods are holistic approaches to language teaching and focus on learning about something or achieving a specific outcome using language (Celce-Murcia, 2014).

As discussed earlier, English language teaching has evolved from using the traditional grammar-translation approach focusing on developing language skills by rote drills and mimicking native English speakers to the communicative approach, where the focus of language teaching is on meaningful language use in a variety of social contexts (Celce-Murcia, 2014; Sun, 2014). Now the 21st century is, as Kumaravadivelu (2006) suggests, the "Post-Method Era," in which the focus of English language teaching is on the eclectic approach rather than on a single method or approach. Teachers use the hybrid of more than one method of teaching, applicable to their contexts, needs, and availability of resources (Cates, 1997; Karn, 2007; Sun, 2014). The eclectic approach can facilitate interaction between learners, contextualize language input, and raise cross-cultural consciousness (Kumaravadivelu, 2006).

The explicit instruction of language learning strategies (LLSs) can be a new instructional paradigm. Teachers can provide effective learning strategies to less experienced students to become more successful in their language learning (Chamot, 2001). For instance, strategy instruction can promote students' use of learning strategies and self-directed learning, which are

considered important contributing factors to language learning to reach a desirable level of proficiency. As Rubin (1975) argued in the early research on good language learners, strategy instruction is an integral part of the language teacher's role to help the students help themselves in developing an awareness of learning strategies and using a diverse range of appropriate strategies. Teachers can use various instructional steps such as introducing strategies, modeling the use of strategy, scaffolding, combining strategies into clusters, and evaluating students' strategy use to make strategy instruction beneficial for students.

Now, the topic pivots to why this research focuses on ESL reading. Reading is an essential skill that ensures success in academic learning and is crucial for obtaining the latest information from scientific articles and publications (Huang & Nisbet, 2014; Madhumathi & Ghosh, 2012). Academic reading is considered the main gateway to access knowledge, whether for academic learning or pleasure. Especially, academic reading skill for ESL students in higher education is critical for their academic success (Chumworratayee, 2017; Yapp et al., 2021). Participants who enrolled in the English for Speakers of Other Languages (ESOL) program at the current research site were non-native English speakers who wished to develop English for completion of the degree, transfer to four-year colleges and universities, and vocational and career purposes.

In line with the ESL student's educational goals, the goal of the Reading and Writing 2 course is: "Reading actively to analyze and understand passages of academic and journalistic text and writing essays and narratives in a variety of rhetorical modes (Community College website, 2022)." As seen in the course description, it is essential for ESL students at this Community College to read English text actively, process information effectively, and respond to readings skillfully to fulfill their educational aspirations. Since reading is a complex cognitive activity that

requires an intense mental effort, such as an integration of memory, meaning construction, and the automatic processes of decoding, students need to employ a multitude of strategies to tease out information from various available sources (Chumworratayee, 2017; Zare & Othman, 2013).

Employing reading strategies means what learners do to construct meaning or when they fail to comprehend the texts. A few examples of strategies are identifying main ideas and topics, previewing and predicting, identifying supporting details, making inferences, and so on (Chumworratayee, 2017; Mokhtari & Sheorey, 2001). Many research studies on ESL reading confirmed the importance of learning strategies for reading and writing, and good readers are aware of diverse strategies and know how to utilize those strategies appropriately (Chumworratayee, 2017; Huang & Nisbet, 2014; Ghosh, 2012; Mokhtari & Sheorey, 2001; Zare & Othman, 2013).

In a similar situation to this study, Ghosh (2012) investigated the relationship between reading strategy use and the English reading proficiency of 52 first-year engineering students in India. There was a significant relationship between reading strategy use and reading proficiency levels. High proficiency students outperformed the middle and the low proficiency students in terms of strategy use. The students at a high proficiency level were good at choosing appropriate strategies, such as identifying text structure, using mental images, envisaging, asking questions, and monitoring comprehension. And they used reading strategies more frequently, whereas low proficiency students used inappropriate strategies. Zare and Othman's (2013) study sampling 95 ESL students also demonstrated that the use of learning strategies had a strong positive correlation with reading comprehension achievement among Malaysian ESL learners. The results indicated that those ESL learners who employed more strategies more frequently when approaching a specific reading task would show higher success in reading comprehension.

Furthermore, Chumworratayee's (2017) study in Thailand, sampling 113 postgraduate students taking an English reading course in university, revealed that the one-semester implementation of reading strategy instruction could raise Thai EFL students' awareness of reading strategies and develop students' higher reading strategy use.

All these studies confirmed that students benefited from receiving direct instruction on strategies. More specifically, the explicit instruction of learning strategy can promote students' use of learning strategies and self-directed learning, which are viewed as critical contributing factors to language learning if students want to reach a desirable level of proficiency. Furthermore, since learning strategy instruction aims to provide strategy instruction to less successful learners to become more successful in their language learning, explicitly teaching the learning strategies might be integral for ESL students' academic literacy (Chamot, 2001). All in all, explicit strategy instruction is an essential part of the language teacher's role to help their students develop an awareness of learning strategies and use a diverse range of appropriate strategies.

Purpose Statement

This mix-methods study investigated the effect of explicit learning-strategy instruction by integrating the strategy instruction into the regular language lessons in the English for Speakers of Other Languages (ESOL) program at one Community College in Northern California. The primary goal of strategy instruction is to raise awareness of the benefits of learning strategies, provide learners with a diverse range of appropriate strategies and the correct use of learning strategies, and promote strategy transfer to new learning situations. Ultimately, providing strategy instruction is to help less successful learners to become more successful in their language learning. Through the lens of cognitive information processing (Mayer, 2009, 2014),

which emphasizes the importance of organized patterns in mental activity and direct instruction of cognitive processes, this study aimed to examine whether explicit teaching of learning strategy had an impact on ESL learners to become more successful in their English reading proficiency. Also, this study attempted to explore how explicit learning-strategy instruction could contribute to the ESL students' awareness of the benefits of the learning strategy and the perceptions of their reading ability after the strategy intervention.

In consideration of humanizing research, the researcher sought to be reciprocal in the research process (Patel, 2015). In simple terms, the reciprocity of research means that the researcher not only conducts a study and collects data from participants but also seeks to create social change for the betterment of participants. In order to achieve reciprocity, the researcher contemplated a few questions: (a) How the research process could benefit both parties; (b) What my participants were interested in, and what they were gaining from this study; (c) What I could do to make this research more beneficial for my participants. The researcher strived to ensure the research purpose and questions center on improving participants' educational situations and supporting their academic aspirations through the present study. The researcher concluded that teaching how to learn through learning strategies might be a way to help students enhance their learning process and study habits for many years to come.

An explanatory sequential mixed-methods design was used, in which quantitative data were collected and analyzed first and then connected to qualitative data to understand a research problem (Creswell & Creswell, 2018). In this study, quantitative data from participants' pre-and posttests were used to validate the effect of the strategy intervention for ESL students at the community college. Another set of quantitative data was collected from an online survey to assess the helpfulness and usefulness of the strategy intervention. The qualitative data were

collected from one-on-one interviews with selected participants from the treatment group to understand better how the participants experienced the strategy intervention. The qualitative data provided valuable insights into how students' perceptions of strategy awareness and use changed through the strategy intervention. Analyzing the two data sources allowed the researcher to establish a thorough understanding of research problems by triangulating the two separate databases and reinforcing the links between strategy instruction and reading comprehension.

Research Questions

This study addressed the four research questions to examine the effects of strategy instruction on ESL students' reading proficiency at the community college. The final qualitative question was designed to help describe how participants experienced the strategy intervention regarding their perceptions of strategy awareness and reading skills.

1. What is the difference in scores for students in the learning strategy intervention classroom, especially between low and high proficiency students, as measured by the difference in pre-and posttest reading comprehension scores?
2. What is the difference in scores between students in the strategy intervention classroom and those in the traditional instruction classroom, as measured by the difference in pre- and posttest reading comprehension scores?
3. How do the community college ESL students in the strategy intervention classroom assess the helpfulness and usefulness of the learning strategies through an online survey?
    a. How helpful is each of the three learning strategies to improve students' reading skills?
    b. Which learning strategy do students find most helpful to improve their reading skills?

   c. Which learning strategy are students willing to continue using after the strategy intervention is completed?

4. How do the six sessions of strategy intervention contribute to the ESL students' perceptions of strategy awareness and their reading skills?
   a. How does ESL students' awareness of the benefits of the learning strategies change as a result of strategy instruction?
   b. How do ESL students' perceptions of their reading skills change as a result of strategy instruction?

Theoretical Framework

This study was grounded in two theoretical frameworks of learning theory: First, Mayer's (2005, 2014) cognitive theory of multimedia learning, particularly the select-organize-integrate (SOI) model of generative learning. Second, Oxford's (2011) Strategic Self-Regulation (S^2R) model of the second language (L2) learning. The basic tenet of the SOI model of generative learning is that learning occurs when learners apply appropriate cognitive processes to incoming information. This theory emphasizes the importance of organized patterns in mental activity and direct instruction of cognitive processes. The S^2R model of the second language (L2) learning emphasizes students' active control of learning through the effective use of learning strategies. Students can use strategies to regulate many aspects of their learning: their internal mental states, beliefs, observable behaviors, and their learning environment (Oxford, 2011).

The Select-Organize-Integrate (SOI) Model of Generative Learning

The SOI model of generative learning is based on the premise that meaningful learning is a generative activity (Mayer, 2005; 2014). Generative learning refers to "actively constructing meaning from to-be-learned information (Fiorella & Mayer, 2015, p. 717)" by organizing the

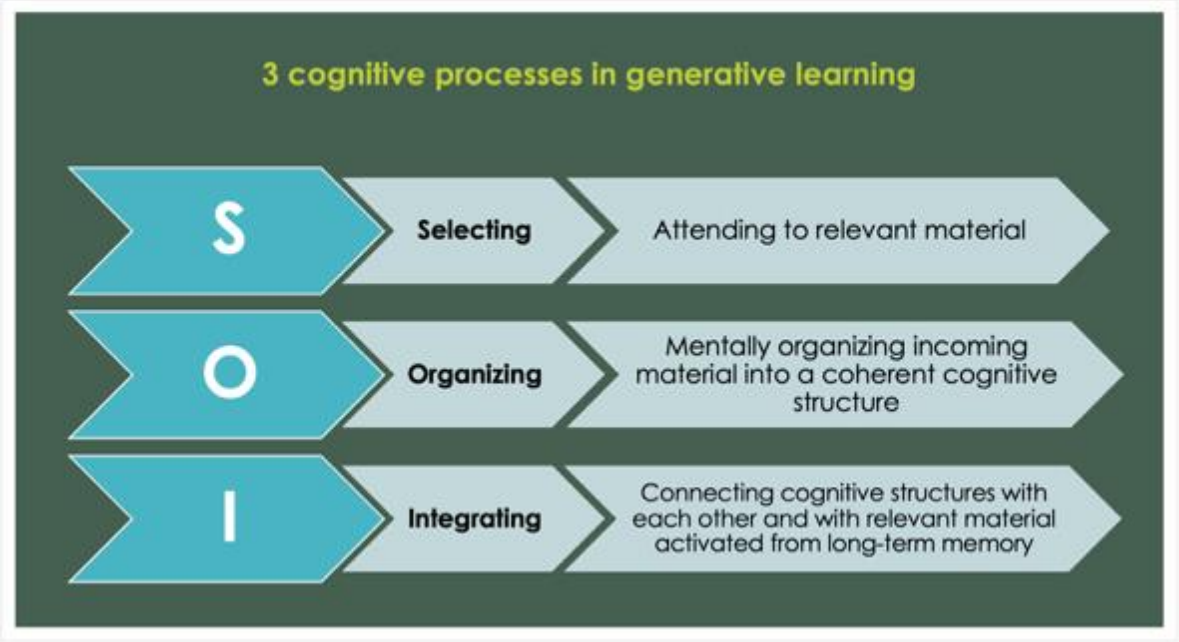
selected information and integrating it with the existing knowledge structure (Fiorella & Mayer, 2015; Wittrock, 1974). As Wittrock (1974) put it, the human mind is not a passive recipient of information, but it actively seeks to make sense of newly learned information by constructing its own interpretation and educated inferences on it. Therefore, learning is inherently constructive and involves actively building meaningful mental representations that can be transferred to new situations. Generative learning shifts the focus of learning from what the teachers can do to promote learning to what learners can do to learn better.

The SOI model of generative learning stems from active-processing assumption, one of three assumptions underlying the cognitive theory of multimedia learning: dual channels, limited capacity, and active processing (Mayer, 2005; 2014). The cognitive theory of multimedia learning is based on how people receive and process information, and how the human mind works. This theory involves effective methods to present materials in a way that promotes learning. ***The dual-channel assumption*** states that the human information-processing system contains separate channels that process visual and auditory information. More specifically, when information is presented visually, such as pictures, on-screen text, video, and animations, it is processed in the visual-pictorial channel. And when information is presented auditorily, such as spoken words or background sounds, it is processed in the auditory-verbal channel. What this means for teachers is that students learn better when instructed with both words and pictures. ***The limited-capacity assumption*** suggests that humans possess a limited capacity in the amount of information that they can process in each channel at any given time. When images or words are presented, people are able to hold only a few images or words in working memory at one time. According to Mayer (2005, 2014), most people have a relatively small memory span which can maintain approximately five to seven chunks of information at any one time. For this reason,

metacognitive strategies that can help manage these limited cognitive resources play a pivotal role in learning. ***The active-processing assumption*** is that humans engage in active cognitive processes to "construct a coherent mental representation" (Mayer, 2005, p.36). This assumption suggests two educational implications for teachers. First, instruction should have a coherent structure to facilitate students to build mental representation. Second, the instruction should provide guidance to students on how to build the knowledge structure. The SOI model of generative learning originates from the active-processing assumption. The SOI model focuses on three essential cognitive processes: selecting the most relevant incoming information, organizing the selected information into a mental representation, and integrating the new representation with relevant prior knowledge. These processes are summarized in Figure 1.

Figure 1

Three Cognitive Processes in Generative Learning

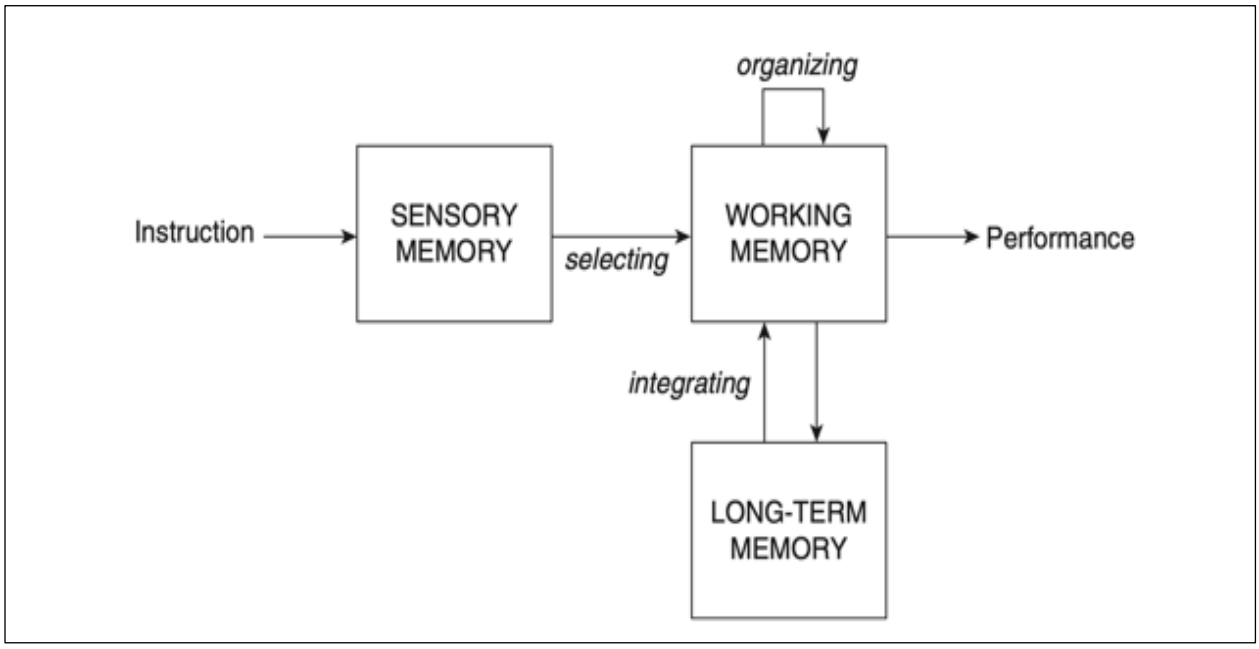


Note. The visual of three cognitive processes in generative learning was created by the researcher. Adapted from Mayer, R. E. (2005). Cognitive theory of multimedia learning. In R. E. Mayer (Ed.), *The Cambridge handbook of multimedia learning* (p. 31–48). Cambridge University Press.

The SOI model states that meaningful learning occurs when three cognitive processes (SOI) interact with the three memory stores of the cognitive system, namely sensory memory, working memory, and long-term memory. First, learners select the relevant information, such as words or pictures, and hold it in sensory memory. Then, learners organize the selected information into a coherent mental representation in working memory by using knowledge structures like comparison, enumeration, or classification. Finally, learners integrate the new mental representation with relevant prior knowledge stored in long-term memory, such as schemas or categories. The process of constructing a new mental representation employing relevant existing knowledge through the SOI model is referred to as the generative process of learning and is depicted in Figure 2.

Figure 2

The SOI Model of Generative Learning



Note. The SOI model of generative learning in the image. From Mayer, R. E. (2014). Cognitive theory of multimedia learning. In R. E. Mayer (Ed.), *The Cambridge handbook of multimedia learning* (Second Edition., pp. 43–71). New York: Cambridge University Press.

The SOI model of generative learning asserts that the learner's cognitive processing (i.e., selecting-organizing-integrating) during learning is a primary factor for what is learned by the learner (Fiorella & Mayer, 2016). For meaningful learning to take place, learners need to reorganize the incoming information and relate it to what they already know instead of passively absorbing what is presented and adding as much information as possible to their memory. This point of view cast doubt on the behaviorist theory of language learning which puts a strong emphasis on learning through repetition and habit formation. The SOI model of generative learning supports the view that language learning involves taking in information, processing it, and establishing mental schemata like any other kind of learning (Bialystock, 1981; MacLaughlin, Rossman, & McLeod, 1983).

The implication of the SOI model is that the important teacher's role is to acknowledge students as active processors and assist them in engaging in appropriate cognitive processing rather than simply presenting the information. Likewise, the student's role is to actively seek to make sense of what they are learning and synthesize the new information into meaningful knowledge structures stored in long-term memory rather than verbatim memorization of the presented information. The SOI model emphasizes learning through learning strategies that teach students how and when to engage in learning activities using appropriate cognitive processing. The SOI model of generative learning encompasses metacognitive and motivational strategies to manage cognitive processes more efficiently. Metacognitive strategies involve the awareness of one's own ability to select appropriate learning strategies that enhance the selecting-organizing-integrating (SOI) process. Motivational strategies are a driving force to initiate and maintain appropriate cognitive processing during learning. Therefore, students’ use of learning strategies

can play a pivotal role in generative learning (Mayer, 2014), with which students can mentally organize and integrate incoming information into their prior knowledge.

The Strategic Self-Regulation (S^2R) Model of Second Language (L2) Learning

The strategic self-regulation (S^2R) model of the second language (L2) learning refers to deliberate, goal-directed attempts to manage and control efforts to learn the L2 (Oxford, 2011). These strategies are teachable actions that students choose from among a wide range of alternatives and apply appropriately for language-learning purposes. Gu (2010) defined strategic self-regulation (S^2R) as "ways of tackling the learning task at hand and managing the self in overseeing the self the learning process… under the constraints of the learning situation and learning context for the purpose of learning success (p. 2)". In other words, strategic self-regulated (S^2R) L2 learning helps students not only effectively do the task and manage themselves but also deal with the learning environments. The S^2R strategies reflect the whole multidimensional learners, not just the learner's cognitive or meta-cognitive aspect. These strategies are used consciously in different contexts and for different purposes and can be transferred to other situations when relevant (Oxford, 2011).

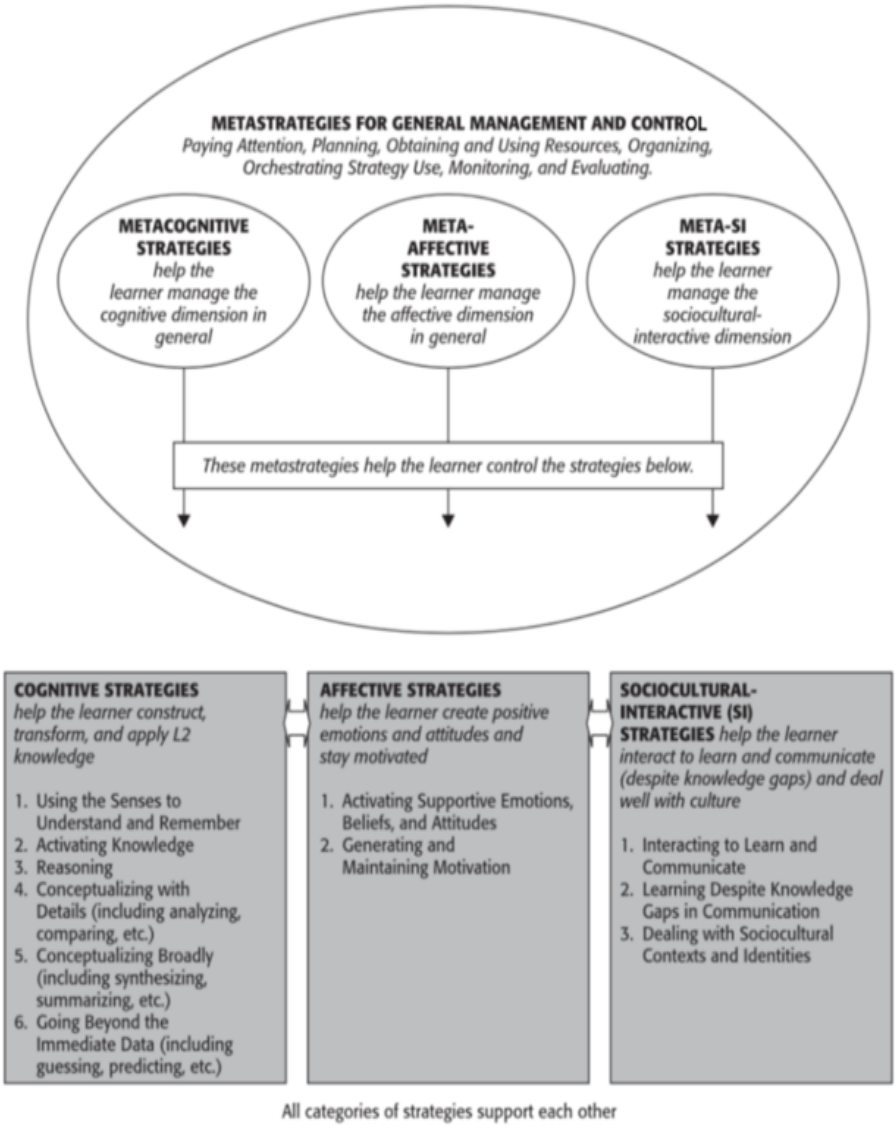
The S^2R model includes strategies for three major, mutually influential dimensions of L2 learning: cognitive, affective, and sociocultural-interactive strategies. Cognitive strategies help the student construct, transform, and apply L2 knowledge. Affective strategies help the student create positive emotions and attitudes and stay motivated. Sociocultural-interactive strategies help the student with communication, sociocultural contexts, and identity (Oxford, 2011). What differentiates the S^2R model from other strategy-related models of L2 learning is its inclusion of meta-strategies. Meta-strategies, which include metacognitive, meta-affective, and meta

sociocultural-interactive strategies, control and manage the use of strategies in each dimension.

The S^2R model of second language (L2) learning is illustrated in Figure 3.

Figure 3

The S^2R Model of Second Language (L2) Learning



Note. The S^2R model of the second language (L2) learning in the image. From Oxford, R. (2011). *Teaching and researching language learning strategies*. Harlow, UK: Pearson Longman.

There are eight meta-strategies: paying attention, planning, obtaining and using resources, organizing, implementing plans, orchestrating strategy use, monitoring, and evaluating. These eight meta-strategies can be applied to cognitive, affective, and sociocultural-interactive aspects of L2 learning. The concept of meta-strategies reflects multiple, interrelated aspects of L2 learning and emphasizes that meta-affective and meta-social strategies are equally important as metacognitive strategies (Alexander, Graham, & Harris, 1998). Simply put, the S^2R model recognizes that L2 learning is not just a cognitive or metacognitive process but is also influenced by a combination of factors such as beliefs, emotional associations, attitudes, motivations, sociocultural relationships, and personal interactions. Therefore, affective and meta-affective strategies and socio-interactive (SI) and meta-SI strategies should not be neglected and be treated to a similar extent as cognitive and metacognitive strategies that often receive the most attention. The S^2R model involves various types of consciousness that facilitate learning, involve the whole learner rather than just the cognitive side, and are used flexibly for the multidimensional reality of L2 learning.

Oxford's strategic self-regulation (S^2R) model of L2 Learning is selected for this study because it contains key characteristics of language-learning strategies and introduces the ways to elicit the learner's active involvement in learning. This model views language learning strategies through the lens of an assumption that "learners actively and constructively use strategies to manage their own learning" (Oxford, 2011, p.7). It also shows the way strategies influence learning ability, proficiency, and the learner's identity as a self-initiating, reflective, and responsible social agent.

Delimitations and Limitations

This study has a few limitations that need to be addressed. First, the participants were enrolled in the English for Speakers of Other Language (ESOL) program at a community college where the minority population, including Asian and Hispanic, accounted for 86 percent of the student body (https://www.communitycollegereview.com/). The program was highly diverse in terms of students' first language, cultural backgrounds, socio-economic status, and educational aspirations. Therefore, the results of the study cannot be generalized to other adult ESL students with a less diverse population or English as a Foreign Language (EFL) students that are not comparable to the population in this study. Including ESL students in other ESL programs with less diverse student populations may provide a better understanding of the effects of strategy instruction on students' L2 reading proficiency and their perceptions of reading skills after the strategy instruction.

The second limitation is related to the length of the study. The strategy intervention for this study was six sessions over three weeks which might not be sufficient to elicit desired effects on the second language (L2) learning and accurately measure the effectiveness of the strategy intervention. Strategy instruction should be implemented in the curriculum over a long period of time. It takes time for students to acquire new learning strategies and yield tangible changes in their study habits (Chamot, 2004; McDonough, 2001). It can be hard to determine whether the improvement of student learning is temporary, which only lasts while the instruction is available, or can last for a more extended period after the end of intervention due to the short period of research. Two instructors' teaching styles in treatment and comparison groups and lack of in-person engagement despite the hybrid instruction could also be contributing factors influencing the results of this study.

The third limitation concerns the selection of the strategies employed for the strategy instruction. Even though there could be a wide range of language learning strategies that facilitate the Select-Organize-Integrate (SOI) cognitive processing, only three learning strategies were selected and incorporated in the present study due to the limited intervention period: namely, (a) finding the main idea and supporting details; (b) mind mapping; (c) self-explaining. Given that the strategy instruction's effectiveness depends on which strategy is taught (Razi & Grenfell, 2021; Yapp et al, 2021), a limited selection of learning strategies might yield different results. The scope of the study made it impossible to include more diverse strategies in the strategy intervention, which is a delimitation of this study.

Significance of the Study

A wealth of research has shown that explicit strategy instruction can help students effectively use multiple strategies and promote successful learning (Cohen & Macro, 2007; Cohen & Weaver, 2006; Oxford, 1990, 2011; Purpura, 2012). In addition, scholars in this field strongly advocate that language-learning strategies can be taught, and strategy instruction can benefit all students. Therefore, teachers should play an important role in strategy instruction and train students to use appropriate strategies when they are dealing with a specific task in order to enhance their achievement (Cohen & Weaver, 1999, 2005; Grenfell & Harris, 1999; Griffiths, 2003; O'Malley & Chamot, 1985, 2005; Oxford, 1990, 2011).

Likewise, this research sought to add to the scholarly research in the field by conducting an empirical study on designing a cognitive learning strategy intervention and implementing it into the ESL program. This study extended previous strategy instruction research by (a) situating the quasi-experimental study in the naturalistic setting of a community college ESL classroom instead of the traditional controlled laboratory setting, (b) embedding the strategy instruction in

regular English language class, (c) focusing on the use of strategy in combination rather than in isolation, (d) applying the theoretical framework of the SOI cognitive processing for generative learning in selecting learning strategies employed in strategy intervention.

This study has educational significance for students, teachers, instructional designers, and teacher training programs. First, this study can help students be aware of the importance of a learning strategy and learn how to use, monitor, and evaluate their strategy use throughout their language-learning processes, specifically in English reading domains. As a result, students can adopt new strategies suggested by teachers to improve their English reading skills and learn a language more quickly and confidently.

Second, this study can help teachers improve their teaching practices by providing techniques to teach students to use appropriate strategies and looking for creative ways how strategy instruction might be implemented in a regular class. Kinoshita (2003) suggested that one way to direct learners toward the efficient use of learning strategies is the teacher's explicit presentation of language-learning strategies during regular language lessons. This explicit instruction allows students to employ strategies in a contextualized learning environment and select the appropriate strategies for different learning tasks. After all, teachers' exposure to the strategy-based instruction pedagogy will help them develop well-designed strategy instruction procedures to promote effective strategy use in language classrooms. Moreover, teachers can get insights into language-learning strategies or strategy instruction and make lessons according to the strategies of the more successful learners to help less competent students overcome challenges in the process of learning a language.

Third, instructional designers may benefit from reading and using this study. They can consider how students' effective strategy use can be scaffolded within language instruction.

Knowledge and skills to foster language-learning strategies during regular lessons should be an integral part of instructional design. The language-learning strategy handbook can be designed as supplemental teaching material that includes the benefits of learning strategies, provides models of strategy, offers practice with the new strategy, and evaluates the use of the strategy (Griffiths, 2018). Designing a language curriculum that takes language-learning strategy instruction into account is a highly learner-centered language teaching method, which may help students develop a positive attitude and strong self-efficacy about L2 learning (Aghaie & Zhang, 2012).

Finally, this study can help improve policy or decision-making in curriculum design in the teacher training programs, such as the workshop for professional development, TESOL certificate, and master's degree in TESOL. These programs can incorporate strategy-based curriculum design or lesson planning into their training courses and familiarize teachers with the benefits of the language learning strategy instruction. Raising prospective teachers' awareness of the role of language learning strategies through various teacher training programs will encourage more teachers to learn how to design strategy-based lesson plans that effectively teach students how to learn and study as well as the course content.

Definition of Terms

Academic English. The type of English required to learn effectively in higher education settings such as universities and academic programs (Education Glossary, 2017).

EFL. English as a Foreign language refers to a language studied inside a country that is not commonly spoken as an official language. For example, English classes in Japan or China (Ardasheva et al., 2017).

ESL. English as a second language is a term that refers to learning English in a country where English is spoken as a native language. For example, non-native English-speaking students who

come to the US, Canada, UK, Ireland, Australia, New Zealand, and South Africa would learn English as a Second Language (Brown 2014).

Explicit Language Learning Strategy (LLS) instruction. Explicit LLS instruction is an independent variable of this research and refers to any specific explanation of a learning strategy and how to use it (Bueno-Alastuey & Agulló, 2015; Habók & Magyar, 2018).

Humanizing research. This is a methodological stance that puts emphasis on building relationships between participants and researchers. The research process should benefit both parties (Creswell & Poth, 2018; Patel, 2015).

Integrated Strategy Instruction. Learning strategies are taught during the regular language lessons as opposed to being taught in isolated settings outside of the learning contexts (Cohen & Weaver, 1999, 2005).

Language-learning strategies (LLSs). LLSs are the conscious thoughts and actions that learners choose and use intentionally or unintentionally to deal with specific language learning tasks and facilitate their L2 learning processes (Cohen, 2014; Griffiths, 2007).

L2. It stands for a person's second language. A second language refers to any language that people speak or study other than their first language (Oxford, 1994).

Phenomenology. This is the study of an individual's lived experience of the world. Phenomenology seeks to describe the essence of a phenomenon from the perspective of those who have experienced it (Creswell & Poth, 2018; Neubauer et al., 2019).

Self-directed learning. Self-directed learning describes a process in which individuals take the initiative, with or without the help of others, in diagnosing their learning needs, formulating learning goals, identifying human and material resources for learning, choosing and

implementing appropriate learning strategies, and evaluating learning outcomes (Knowles, 1991).

SOI cognitive learning strategy instruction. This is the L2 learning strategy instruction the researcher created and implemented for ESL students, which was named and designed based on the theoretical framework of the SOI model of cognitive processing (Mayer,1996;2014). In this instruction, three learning strategies are taught sequentially and then in combination to facilitate each of the SOI cognitive learning processes: selecting relevant information from incoming input, organizing selected information into a mental representation, and integrating organized information with existing knowledge.

Strategic self-regulation in learning. Strategic self-regulation in learning includes establishing a productive work environment, using resources effectively, monitoring performance, managing time effectively, and seeking assistance when needed. (Schunk & Ertmer, 2000).

Thematic analysis. This is the process of identifying patterns or themes that are important or interesting within qualitative data. These themes and patterns are used to address the research questions (Braun & Clarke, 2006).

Summary

The importance of language learning strategy in English language learning is rigorously and extensively examined (Cohen & Macro, 2007; Cohen & Weaver, 2006; Oxford, 1990, 2011; Purpura, 2012). Language learning strategy (LLS) enables learners to become more independent and autonomous learners and pay attention to what they do in the process of learning a language. Learners can generate rules, identify the kinds of errors they make and the reasons, and establish mental schemata. LLSs can also help students involve in learning a language more actively and meaningfully, develop metacognitive skills, and increase motivation for learning. There is also

sufficient research evidence to support claims that incorporating explicit strategy instruction into language teaching and learning is effective (Cohen & Weaver, 1999, 2005; Grenfell & Harris, 1999; Griffiths, 2003; O'Malley & Chamot, 1985, 2005; Oxford, 1990, 2011). The integrated explicit LLS instruction can teach students what, when, why, and how to use multiple strategies appropriately and provide explicit guidance and a scaffold for students to construct a coherent mental model. Consequently, students can learn more strategically and productively.

However, empirical evidence of the effects of strategy instruction through strategy intervention in ESL contexts was not sufficient due to the inherent difficulties in conducting classroom research (Chamot, 2005). Much previous research on language learning strategy has focused primarily on identifying the correlation between language proficiency and strategy use through a self-report survey. Thus, there have been no sufficient empirical studies as to how to teach students the language learning strategies directly and provide them with appropriate modeling of language learning strategies. Lacking empirical studies of implementing strategy instruction, the previous research revealed theoretical and conceptual implications of language-learning strategies rather than practical and pedagogical implications.

Moreover, the current ESL curriculum places emphasis on teaching students content rather than strategies that can help students regulate their learning processes (Dunlosky et al., 2013). Hence, the ESL curriculum at the college level does not adequately include learning strategy instruction, and many ESL textbooks do not provide sufficient coverage of specific language-learning strategies. Therefore, the current study aimed to address this research gap by investigating the effects of explicit learning-strategy instruction on the ESL students' reading proficiency. In addition, this study explored how ESL students' awareness of the benefits of the

strategy and the perceptions of their reading skills changed after completing the strategy intervention.

Two theoretical frameworks this study was based on were Mayer's (2005, 2014) cognitive theory of multimedia learning, particularly the select-organize-integrate (SOI) model, and Oxford's (2011) Strategic Self-Regulation (S^2R) model of Language (L2) Learning. The theoretical frameworks emphasize the importance of organized patterns in cognitive activity and direct instruction of cognitive processes. Furthermore, these frameworks assert that students' use of learning strategies can play a pivotal role in learning, with which students can mentally organize and integrate incoming information into their prior knowledge. And teachers can turn passive learning situations into active learning ones by helping students engage in the active process of information. Drawing on these two frameworks, the present study aimed to examine how the six sessions of strategy intervention contributed to the ESL students' reading proficiency, awareness of the benefits of strategy use, and the perceptions of their reading skills.

CHAPTER II

REVIEW OF THE LITERATURE

Introduction

Language learning strategies (LLSs) provide students with tools for active and meaningful involvement in gaining language skills. LLSs also reveal what students do in the process of learning a language, such as generating rules, learning from errors, and establishing mental schemata (Griffiths, 2013; Thompson, 2005). The use of language learning strategies helps students learn a language better directly and indirectly and enables them to become more independent, autonomous, and lifelong language learners by regulating and controlling their learning (Cohen, 2014; Oxford, 2011; Yüce, 2019). Hence, the learning process is faster, more accessible, and more effective (Cohen, 2014; Oxford, 1990; 2011).

Despite the considerable research on the positive correlation between strategy use and language learning performance, empirical evidence of the effectiveness of strategy instruction through strategy intervention in ESL contexts has been insufficient (Dunlosky, Rawson, Marsh, Nathan, & Willingham, 2013). Especially, there have been few empirical studies on incorporating strategy instruction into a regular ESL class at community college in the context of English for Speakers of Other Languages (ESOL). Moreover, many ESL textbooks used for academic English programs do not provide sufficient coverage of specific language-learning strategies (Bueno-Alastuey & Agulló, 2015). Consequently, students are not instructed about which learning strategies are effective and how to use them appropriately and often pay little attention to the impact of their study habits on how they learn (Dunlosky et al., 2013; Svinicki, 2004).

The purpose of this mix-methods study was to investigate the effects of explicit learning-strategy instruction on ESL students' academic L2 reading by integrating the strategy instruction into the regular language lessons in the English for Speakers of Other Languages (ESOL) program. This research was based on the theoretical framework of Mayer's select-organize-integrate (SOI) model of generative learning (2014) and Oxford's (2011) Strategic Self-Regulation (S^2R) model of the second language (L2) learning. The SOI framework involves that learners select the most relevant incoming information, organize the selected information into a mental representation, and integrate the new representation with relevant prior knowledge. Through the SOI process, learners actively engage in meaningful learning and take ownership of their learning by employing appropriate cognitive and metacognitive processing during learning. Oxford's S^2R model of the second language (L2) learning emphasizes ESL students' active control of learning through the effective use of learning strategies. The S^2R model integrated sociocultural and information-processing concepts and included strategies and meta-strategies for three dimensions: cognitive, affective, and sociocultural-interactive.

Overview

This literature review has its roots in two lines of research, language learning strategy, and strategy instruction, and is divided into five sections. The first section begins by exploring the historical background of language learning strategy, including the brief history of language-learning strategy (LLS) literature and definitions and classifications of LLS. This section tracks language learning strategy literature from its beginning in the 1970s and early studies through to its more developed forms in the late 1990s. The second section discusses the benefits of the language-learning strategy use in learning a language. Specifically, this section discusses learner autonomy, metacognitive skills, learner motivation, and strategic awareness about conscious

learning. The third section concerns the empirical studies on the effectiveness of strategy intervention in L2 reading. The overview of the general findings of the twelve most recent research and critiques for individual studies are presented. The fourth section introduces the teachability of language learning strategies and the strategy instruction models: (a) Oxford Model (1990); (b) Grenfell and Harris Model (1999); (c) Anderson Model (2002); (d) Cohen Model (2005), and (e) Chamot's Model (2005). Lastly, the final section addresses how strategy instruction should be implemented into the language course curriculum: the contention of explicit versus embedded instruction and integrated versus separate instruction is discussed.

Historical Background

The Brief History of Language-Learning Strategy Literature

The notion of language learning strategy attracted researchers' attention in the early to mid-1970s when researchers sought to describe the characteristics of good language learners. When the cognitive approach to learning became prevalent in the 1970s, researchers viewed language learning as active information processing rather than a mere habit formation, and learners were actively engaged in the process of language learning. Researchers intended to identify what good language learners do in learning a language and pass on practices of good language learners to less successful learners (Grenfell & Macaro, 2007). For example, Rubin (1975) stated that if teachers knew what successful learners did while learning a language, they could teach these strategies to less proficient learners. She suggested strategies of good learners through her observation of students in classrooms and herself and by talking to good language learners and other second language teachers. Stern (1975) also suggested a list of ten strategies of the good language learners based on his own experience as a teacher combined with a review of relevant literature. Later, Naiman, Fröhlich, Stern, and Todesco (1978) proposed similar lists of strategies that good language learners use, along with techniques to complement the strategies.

Those early studies on good language learners acknowledged that good language learners seemed to learn successfully regardless of methods, teaching techniques, or classroom environment. Strategies of good learners from these early studies are synthesized in Table 1.

Table 1

Strategies of Good Language Learners

Rubin (1975)	**Stern (1975)**	**Naiman, Frohlich, Stern, & Todesco (1978)**
1. Being a willing and accurate guesser (p.45)	1. Having a personal learning style or positive learning strategies	1. Taking an active approach to the task of language learning
2. Having a strong drive to communicate, or to learn from a communication (p.46)	2. Demonstrating an active approach to the task	2. Recognizing and exploiting the systematic nature of language
3. Often not being inhibited (p.47)	3. Showing a tolerant and outgoing approach to the target language and empathy with its speakers	3. Using the language they were learning for communication and interaction
4. Being prepared to attend to form (constantly looking for patterns in the language)	4. Having technical know-how about how to tackle language	4. Managing their own affective difficulties with language learning
5. Practicing a language (p.47)	5. Experimenting and planning of developing the new language into an ordered system and revising this system progressively	5. Monitoring their language learning performance
6. Monitoring his own and the speech of others (p.47)	6. Constantly searching for meaning	**<u>Techniques</u>**
7. Attending to meaning (context of the speech act)	7. Willingness to practice	I. Processes which may contribute directly to learning: • Clarification and verification • Monitoring • Memorization • Guessing/Inductive inferencing • Deductive reasoning • Practice
	8. Willingness to use language in real communication	II. Processes which may contribute indirectly to learning: • Creating opportunities for practice • Production tasks related to communication
	9. Self-monitoring and having critical sensitivity to language use	
	10. Developing the target language more and more as a separate reference system and learning to think in it.	

In the 1980s, Reiss (1983) argued that strategy use varied with the cognitive character of learners. She stated that strategy use was influenced by such factors as cognitive style, level of competence, learning context, gender, motivation, and attitude of learners. Reiss (1985) found that although less successful learners often use as many strategies as good learners, the former applies strategies randomly or ineffectively. Then the focus shifted from good language learners to language learning strategies and generated robust research surrounding language learning strategy and strategy instruction in the 1990s.

In the early 1990s, Oxford (1990) classified learning strategies as cognitive, metacognitive, affective, social, and compensation strategies. She also provided strategy instruction steps and a strategy-assessment questionnaire, the Strategy Inventory for Language Learning (SILL), which became the most widely employed L2 learning strategy instrument. O'Malley & Chamot (1994) focused on applying cognitive information-processing theory to L2 learning strategies and on emphasizing the roles of cognitive and metacognitive strategies. Their empirical studies indicated that systematic strategy instruction was significantly more related to improved proficiency for certain language skill areas and ethnic groups than others. They also presented their Cognitive Academic Language Learning Approach (CALLA) handbook in 1994. This handbook provided a CALLA lesson plan model and explained how to integrate the teaching of language, strategies, and content. The CALLA model is now used for strategy instruction in many parts of the world. In his practical strategy handbook, Cohen (1998) distinguished between strategies for language learning and language use. He examined learning strategy instruction and assessment and claimed that teachers play significant roles in helping learners become more aware, autonomous, and proficient through learning strategy instruction.

In the late 1990s, there was considerable research regarding strategy instruction and the importance of curriculum-embedded and explicit instruction. Grenfell & Harris (1999) outlined a multi-stage strategy instruction model consisting of awareness-raising, modeling, general practice, action planning, focused practice, and evaluation. This model emphasizes the internalization of strategies to the point of automaticity and being transferred to solve new tasks. McDonough (1999) claimed that although the teaching of L2 learning strategies is not universally successful, strategy instruction can be successful when integrated into a regular language lesson and when teachers are fully prepared. Oxford (1999) also argued that overt strategy instruction is necessary and highlighted the significant relationships between L2 proficiency and strategy use.

Definitions and Classifications of Language Learning Strategy

Definition

Language learning strategies (LLSs) are what students do in the process of learning a language, which provides students with tools for active and meaningful involvement in acquiring language skills. Language-learning strategies (LLSs) have been defined in many ways: the techniques or devices which a learner may use to acquire knowledge (Rubin, 1972, p.43); goal-directed actions, steps, or techniques that students can use to deal with particular language tasks and improve language proficiency (Oxford, 2003; 2011); activities consciously chosen by learners to regulate their language learning (Griffiths, 2007); thoughts and actions deliberately chosen and operationalized by language learners (Cohen, 2014). Although definitions vary by different researchers, common ideas underlying these definitions are that LLSs are the conscious thoughts and actions that learners choose and use intentionally or unintentionally to deal with specific language learning tasks and facilitate their L2 learning processes.

When it comes to what makes a good and useful learning strategy, Oxford (2003) argued that any given strategy was neutral until the context of its usage was specified. Chamot (2005) also emphasized the importance of context and learner's individual differences in using a strategy and stated that LLS was sensitive to the learning context and the learner's internal processing preferences. Nonetheless, there was a consensus that a strategy could be useful if it demonstrated the following conditions: if the strategy related well to the L2 learning task, if the strategy was suitable for the particular student's learning style preferences, if the strategy enhanced learner autonomy, self-reliance, and independence, and if the student chose the strategy appropriately and used it in conjunction with other relevant strategies (Ardasheva et al., 2017; Barjesteh et al., 2014; Oxford, 2003).

Classification

Learning strategies can be used to regulate many aspects of students' learning: their mental states, observable behaviors, and their learning environment. Depending on the use of strategies by learners, the LLSs have generally been classified as metacognitive (awareness of the learning), cognitive (mental process of the learning), and socio-affective strategies (personality traits and interactions with others) (Hassan, Macaro, Mason, Nye, Smith, & Vanderplank, 2005; O'Malley & Chamot, 1990). Cohen (2014)'s classification was based on strategies for language learning versus language use. Language learning strategies are composed of cognitive strategies, metacognitive strategies, affective and social strategies used to improve the language learning process. Language use strategies include retrieval strategies, rehearsal strategies, cover strategies, and communication strategies, focusing primarily on helping students utilize the language as much as possible.

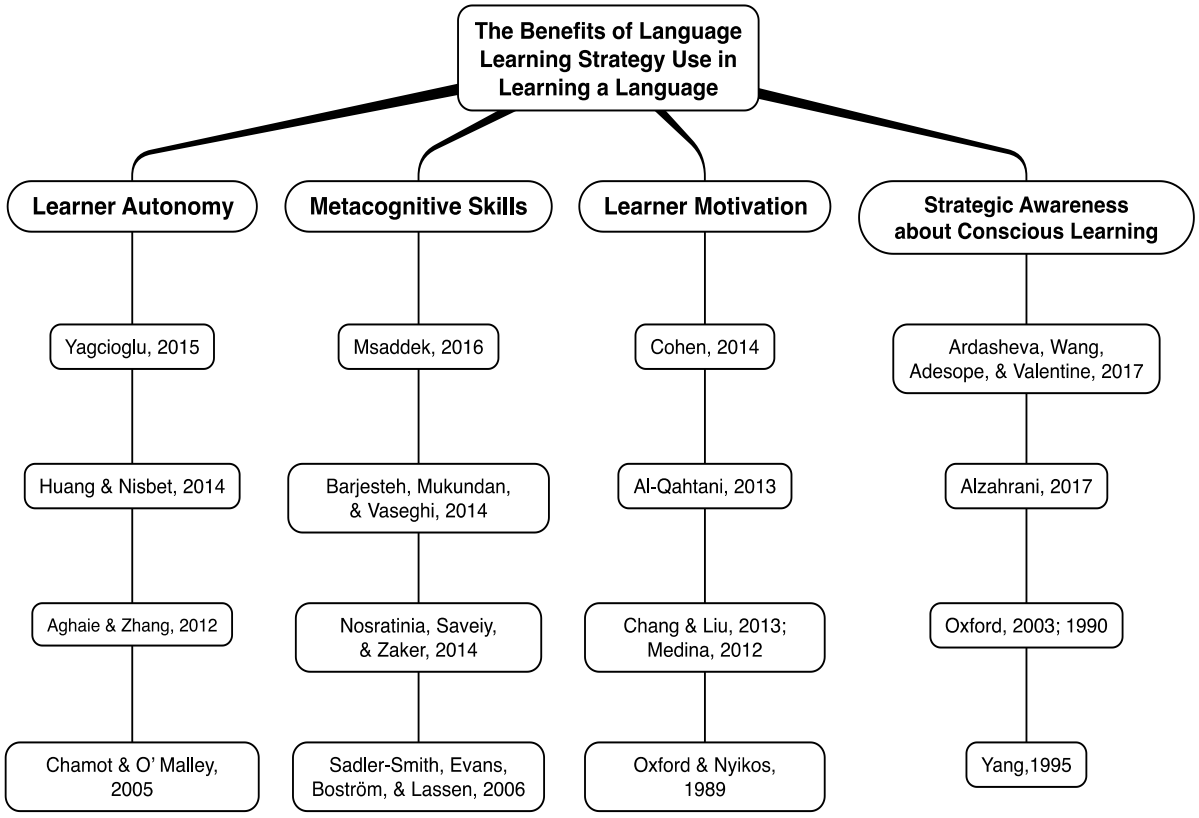
Oxford (1990) used a more comprehensive and detailed classification based on the criteria as to whether the strategies affected language learning directly or indirectly: direct strategies were memory, cognitive, and compensation strategies, and indirect strategies were metacognitive, affective, and social strategies. Later, Oxford (2011) modified this taxonomy to the Strategic Self-Regulated (S^2R) model that included strategies for three mutually influential dimensions of L2 learning: cognitive, affective, and sociocultural-interactive strategies. Cognitive strategies help the student construct, transform, and apply L2 knowledge. Affective strategies help the student create positive emotions and attitudes and stay motivated. Sociocultural-interactive strategies help the student with communication, sociocultural contexts, and identity.

The Benefits of the Learning Strategy Use in Learning a Language

It has been widely discussed in the literature how language learning strategy (LLS) use can benefit learning a language, and what aspects of language learning can be enhanced by strategy instruction (Chamot & O`Malley, 2005; Barjesteh et al., 2014; Huang & Nisbet, 2014). As Aghaie and Zhang (2012) stated, the benefits of learning strategy are inextricably linked to students' learning purposes, needs, learning styles, and openness to new strategies. Therefore, knowing what benefits the language learning strategies can offer is paramount for teachers to encourage students to use a range of different strategies. Figure 4 is a visual summary of the literature reviewed for this section, presented chronologically. In addition, each benefit of learning strategies, namely, learner autonomy, metacognitive skills, learner motivation, and strategic awareness about conscious learning, is reviewed and addressed in more detail.

Figure 4

The Literature Reviewed for the Benefits of Language Learning Strategy Use



Learner Autonomy

Learner autonomy has been an essential principle in language teaching and learning. Even though learner autonomy entails several dimensions of learning, learner autonomy has been closely related to language learning strategies (LLSs) because autonomous learners can have a range of learning skills and make the best use of learning strategies inside and outside the classroom (Yagcioglu, 2015). Explicit strategy instruction emphasizes students' active control of learning through the effective use of learning strategies and thus, it helps learners become autonomous (Chamot & O`Malley, 2005; Huang & Nisbet, 2014). Huang and Nisbet (2014) claimed that one way to help students become more autonomous in the process of language

learning can be by teaching LLSs and encouraging students to use LLSs. Success in reaching a desirable level of language proficiency largely depends on students' autonomous ability to take responsibility for their learning in and out of the classroom.

Autonomous learners can identify their learning goals and processes and have a range of learning skills and strategies that assist their learning (Chang & Liu, 2013; Yagcioglu, 2015). If students don't know the learning processes and strategies as well as their responsibilities as a learner, they cannot be autonomous. Quasi-experimental in design,
Aghaie and Zhang (2012) found that strategy instruction contributed to participants' autonomous reading behaviors. Participants became more autonomous learners who knew the "what, when, and how of strategies (p.1076)" and employed them independently in and out of the classroom. In this regard, Cohen (2014) pointed out that although the use of LLSs can lead to enhanced learner autonomy, being an autonomous learner does not necessarily mean that the learner is employing a repertoire of effective strategies. Therefore, teachers can help students become autonomous by using good lesson plans and diverse teaching approaches based on LLSs. For instance, Chamot and O`Malley's (2005) Cognitive Academic Language Learning Approach (CALLA) was designed to help students use strategies independently and thus, foster learner autonomy.

Metacognitive Skills

Metacognitive awareness is commonly known as knowing how you think and is regarded as the high order thinking skills that control and adjust one's own learning process through planning, monitoring, and evaluating (Barjesteh et al., 2014; Nosratinia et al., 2014). Metacognitive strategies help students keep themselves on track. In language learning, metacognitive skills are considered as being aware of the way you study and learn the language,

which are essential abilities that enable learners to plan their learning activities, monitor their progress, and evaluate their learning outcomes (Huang & Nisbet, 2014). If students are conscious of how they study and learn, they can identify the most effective ways of learning and continuously build on them throughout their education. Being able to use language-learning strategies means that language learners can reflect on their learning processes and recognize their preferred learning strategies that match their learning styles (Sadler-Smith, Evans, Boström, & Lassen, 2006). Thus, the proactive use of LLSs makes language learners more reflective and critical thinkers. In L2 reading contexts, metacognitive skills mean that learners can set the goals of the reading task, monitor their understanding, and evaluate their mastery of the content in L2 reading.

Nosratinia et al. (2014) revealed a significant relationship between language learning strategies and metacognitive awareness. This study used the data from 143 university students in Iran to investigate the relationship between EFL learners' self-efficacy, metacognitive awareness, and language learning strategy use. They concluded that students with high levels of metacognitive skills used more LLSs, which resulted in more success in second language learning in terms of their grades. Msaddek's (2016) quasi-experimental study with 113 Moroccan EFL university students also found that strategy instruction intervention played a pivotal role in enabling students to engage in reading cognitively and metacognitively. The findings of the study indicated that explicit strategy instruction helped participants recognize the process of identifying what strategies to use in reading and knowing how to put them into action. Thus, learners became more efficient and critical readers and gained better learning gains from the reading comprehension test after the strategy instruction.

Learner Motivation

One of the goals of using LLS in a second language or foreign language is to produce self-motivated students who can self-direct the language learning process. These students know the "what, when, and how" of language learning and are less dependent on the classroom teacher (Cohen 2014). There have been some empirical studies exploring the association between motivation and the use of LLSs (Al-Qahtani, 2013; Chang & Liu, 2013; Medina, 2012; Oxford & Nyikos, 1989). A study conducted by Oxford and Nyikos (1989) using 1200 participants of foreign language students at a university in the U.S. revealed that strategy use and motivation were closely related. They found that higher levels of motivation led to significant use of LLS, but also high strategy use could lead to increased motivation. The use of LLS can be both an effect and a cause of motivation.

Similarly, Chang and Liu (2013) found that strategy use was positively correlated with motivation, conducting a study exploring the use of language learning strategies and its relationship with English learning motivation by sampling 163 university students in Taiwan. The findings showed that students with high motivation used learning strategies significantly more frequently than those with medium motivation. Also, students with medium motivation used more strategies than those with low motivation. As a possible explanation for this difference in strategy use, Chang and Liu (2013) stated that students who feel more highly motivated would be more likely to make an effort to engage in strategy use.

Al-Qahtani (2013) also confirmed the significant and positive association between English language learning strategies and motivation. In a study conducted in Saudi Arabia using 110 applied medical science undergraduates, Al-Qahtani (2013) found that students with higher levels of motivation tended to use a broader range of English learning strategies more frequently

than students with lower scores on the motivation subscale. Furthermore, Medina's (2012) case study with 26 undergraduate students at a Colombian university revealed that students' attitudes and motivation toward reading in L2 changed positively after the strategy instruction. The participants expressed that they gained self-confidence as they could interact with different kinds of readings. Thus, Medina (2012) asserted that when teachers teach strategy instruction steadfastly and consistently, students are engaged, which may increase their motivation. Based on the research mentioned above, there is an association between the use of language learning strategies and motivation.

Strategic Awareness about Conscious Learning

As mentioned in the definition section, LLSs are conscious actions; thus, implying consciousness and intentionality in learning (Oxford, 1990). LLS can make students more aware of language features they need to learn and pay attention to the knowledge gap in their comprehension of the target language. LLS can enhance language learning by raising learners' awareness and consciousness of the way they learn and mindfully drawing on explicit LLSs (Cohen, 2014; Oxford, 2003). Language learning strategies become useful tools for active and purposeful learning when students consciously choose the LLS suitable for their learning contexts and the language-learning task at hand (Ardasheva et al., 2017).

Cohen (2014) emphasized that LLS enables language learners to develop more knowledge of themselves and language learning, and this self-awareness aspect makes learning more satisfying and enriching. Oxford (1990), however, cautioned that some LLSs were employed unconsciously after repeated use or uncritically without awareness. Yang (1995) also pointed out that students might not be aware of the strategies and their effects on their learning even though almost all learners use LLSs in the learning process. In a mixed-methods study

conducted in Thailand sampling 219 undergraduates, Suwanarak (2019) found that the strategy instruction had a positive effect on raising the students' awareness of the benefits of using the strategies. The findings implicated that helping students be aware of their learning strategies used regularly and letting them recognize possible benefits that the strategies can bring to their learning are paramount. By doing so, students can discover and develop new learning strategies, rearrange their strategy repertoire, and eventually enhance their language learning achievement. For this reason, strategy instruction would be beneficial for language learners so as to become more aware of the LLS they use and assess what strategies would be effective and appropriate for them to learn a language.

Empirical Research on Strategy Instruction on L2 Reading Comprehension

In order to gain further knowledge about effective strategy instruction and its impact on reading comprehension, the researcher reviewed 12 empirical studies on strategy instruction published within the past ten years (2021-2012). These studies reflected the most recent trends and evidence on explicit strategy instruction. The selection of keywords for this literature search was explicit learning strategy, strategy instruction intervention, and ESL/EFL reading comprehension, which were specifically concerned with empirical studies for strategy instruction in ESL/EFL reading. Selected studies were peer-reviewed and included quantitative, mixed-methods, and meta-analysis research designs. Any theoretical articles or studies without strategy intervention were excluded from the selection process. An overview of the purpose(s), the method, the number of participants, and the major findings of each of the 12 studies were chronologically presented in Table 2. Then a more detailed literature review is elaborated.

Table 2

Overview of Studies with a Focus on Empirical Strategy Intervention

No	Author (s)	Purpose	Number of Participants	Major Findings
1	Yapp, Graff & Bergh, 2021 (Quantitative research)	To investigate whether an L2 reading strategy intervention for higher education students improve first-year students' English L2 reading comprehension performance.	801 ESL first-year Undergraduate student in Netherlands	The reading strategy intervention improved first-year students' English L2 reading comprehension performance. The result of the intervention was highly effective when comparing test scores of the pre-and post-test. Also, previous education played an essential role in improving L2 reading comprehension, indicating that students from general secondary education improved more than students from vocational education.
2	Razi & Grenfell, 2021 (Mixed-Methods)	To evaluate the impact of strategy instruction in L2 reading and provide insights into the effective combination of strategies (strategy-cluster) use.	119 Turkey EFL secondary school students	The improvement in the reading comprehension scores of the intervention group was five times higher than the comparison group. Strategy use is effective when they are used in combination and strategy must be part of a curriculum to ensure a continuous improvement in the use of strategy clusters. The researchers suggested that strategy instructions aim at introducing individual strategies in the first phase and encourage students to use them in clusters in the second phase.
3	Ghayamnia, 2019 (Mixed-Methods	To examine the effect of explicit instruction of cognitive strategies on the reading performance of Iranian graduate students and identify the cognitive strategies the participants used while reading a scientific article in English (L2).	10 Iranian EFL graduate students majoring in miniature	The mean scores of the participants' pre-and posttest indicated the participants had a significant improvement in their reading comprehension after 16 weeks of strategy intervention (once a week). Teachers can help students use different cognitive strategies to facilitate their reading comprehension. The researcher suggested that textbook writers include sufficient information on language learning strategies as it's apparent that there is a need for an emphasis on reading strategies.

Continued

Table 2 (continued)

4	Suwanarak, 2019 (Mixed-Methods Research)	To explore to what degree the strategies are beneficial for their English learning achievement.	219 Thai EFL undergraduates enrolling in the foundation English course	Strategy instruction did not show any significantly higher scores on the achievement test or the increase in the frequency of strategy use. The instruction had a positive effect on raising the students' awareness of the benefits of using the strategies, but the awareness triggered students to use their own strategies rather than the strategies instructed.
5	Ramezani, 2018 (Quantitative Research)	To examine the effects of cognitive strategy instruction, namely notetaking and highlighting strategies on reading comprehension of Iranian EFL learners.	54 Iranian EFL undergraduates	Both notetaking and highlighting positively affected the reading comprehension of undergraduate Iranian EFL learners after 10 sessions of strategy intervention. A paired samples t-test indicated that scores statistically significantly increased on the posttest compared to those of the pretest in both notetaking and highlighting groups. This study confirms that cognitive strategy instruction is useful for reading comprehension.
6	Lee, H.Y., 2017 (Qualitative Research)	To investigate the effects of reading strategy instruction for Korean EFL university students from different proficiency levels. After a three-week explicit reading strategy instruction, students expressed their reading comprehension process with a think-aloud protocol and a retelling task.	Nine Korean EFL undergraduates	The explicit reading strategy instruction influenced all participants' reading performance positively. The higher-level students utilized strategies actively and properly. The intermediate level students need more practice to use strategies skillfully. The lower-level students had a positive attitude toward English reading although their abilities to use strategies were still poor.

Continued

Table 2 (continued)

7	Chumworatayee, 2017 (Mixed-Methods Research)	To determine the type of reading strategies Thai EFL adult learners were aware of before and after the implementation of reading strategy instruction and compare the differences between them.	113 Thai EFL postgraduate students	The one-semester implementation of reading strategy instruction could raise Thai EFL adult learners' awareness of the benefits of reading strategies. There was an increase in the overall mean scores of the post-the Survey of Reading Strategies (SOR). Thai EFL learners benefited from receiving a direct explanation of strategies.
8	Ardasheva, Adesope, Wang, Valentine, 2017. (Meta Analysis)	To examine the effectiveness of strategy instruction and its moderators for EFL/ESL learning and self-regulated learning. This study synthesized recent studies that provide recommendations for research and practice	37 studies for language learning, 16 studies for self-regulated learning.	The effect size was large (0.78) for language learning, indicating that strategy instruction was effective in improving both ESL and EFL learning. The study provided guidelines for more effective strategy instruction design: an awareness-raising approach (rather than behavior-modeling), short-term (2 weeks) and long-term interventions were equally beneficial, the number of strategies (8 strategies or less) is more beneficial than more than 8 strategies.
9	Msaddek, 2016 (Quantitative Research)	To investigate the impact of explicit metacognitive reading strategy instruction on learners' strategy use and reading achievement. A quasi-experimental study examined the correlation among the variables of strategy training, strategy use, and reading achievement for 14 weeks.	113 Moroccan EFL undergraduates (Experimental group, n=63; control group, n=50)	The independent samples *t*-test for the post-tests showed that the experimental group demonstrated more significant improvement than the counterpart in strategy use and reading achievement gains. Strategy instruction played a pivotal role for EFL learners to be strategic cognitively and metacognitively in their reading.

Continued
Table 2 (continued)

10	Mohammadi, Birjandi, Maftoon, 2015 (Quantitative Research)	To examine the impact of teaching learning strategies on learners' beliefs about language learning and reading comprehension ability.	78 Iranian freshmen studying English language teaching translation and literature	An independent *t*-test showed that there was a significant difference in reading comprehension scores between the control group and the experimental group. The effect size ($\eta 2 = 0.1$) was large. The treatment lasted for 15 weeks. The researcher suggested that teachers incorporate strategy instruction into the course content for better language learning. In addition, curriculum designers include learning strategies in the syllabus and the course books.
11	Aghaie & Zhang, 2012 (Quantitative Reserach)	To test the effects of explicit teaching of cognitive and metacognitive reading strategies on reading performance and strategy transfer.	80 Iranian EFL intermediate-level high school students	Reading comprehension and reading strategy use improved with strategy instruction. The two-tailed significance test indicated that there were statistically significant differences between the pre-and posttest reading scores. Participants in the treatment group performed better than those in the control group in reading comprehension and strategy transfer. Strategy instruction also facilitated autonomous reading behaviors.
12	Medina, 2012 (Mixed-Methods Case Study)	To explore the effects of strategy instruction on reading comprehension for 20 weeks. Three instruments were used: reading comprehension tests (pre-and posttests), field notes, and learning perception questionnaires.	26 Colombian EFL undergraduates	The mean of the post-test is higher than that of the pretest (pretest: 9.69 vs. post-test:12.12), which indicated that the strategy instruction had a positive impact on students' reading comprehension. The researcher's field notes and reflection indicated that students were faster on the second test and felt more confident when answering the questions. Lastly, the perception questionnaire revealed that the students felt more skilled after the strategy intervention as it was useful and facilitated the understanding of the readings.

Yapp et al. (2021) conducted a quasi-experimental study with 801 first-year undergraduates in the Netherlands using the 7-week reading strategy intervention in English as a Second Language (ESL). The participants came from different previous educational backgrounds: the general secondary education group (61.5 %), the senior vocational education group (31.1 %), and the university preparatory group (3.6%). In this study, three tests of equal difficulty were implemented: the first reading test was administered ten weeks prior to the intervention, the second test at the start of the intervention, and the third test after the intervention. The effect of the intervention was highly effective when comparing the test scores of the second test and the third test that reflected the effect of the reading strategies intervention.

This study concluded that the reading strategy intervention improved first-year students' academic ESL reading comprehension performance. Also, the findings revealed that previous education, such as five-year general education or four-year vocational education played an essential role in improving L2 reading comprehension. Students from general secondary education or a university preparatory education seemed to improve more in their average academic ESL reading comprehension than students from vocational education. This result can be explained by the fact that most students from vocational backgrounds have had less experience in academic ESL reading comprehension, less exposure to complex academic texts in English, and less general background knowledge in academic ESL reading. According to the yearly report of the university where the research had been conducted, this large-scale quantitative study yielded a substantial increase in L2 reading comprehension performance, which indicated that students who passed English academic reading had increased from 45% to 75%. The limitation of the study is the lack of qualitative data that can reveal participants'

thoughts about strategy instruction, how they make sense of their strategy intervention experience, and an in-depth understanding of how intervention strategy actually worked.

Ghavamnia (2019) carried out a mixed-methods study in which 10 Iranian EFL graduate students were instructed to use cognitive strategies while reading scientific articles related to the participants' major in L2. The treatment was provided once a week for 16 weeks, during which the researcher explicitly taught the students cognitive strategies, including predicting, guessing, skipping, skimming, taking notes, highlighting, and summarizing. These cognitive strategies were adopted from Oxford's (1990) taxonomy of language learning strategies. In the first session, participants were given the reading section of an IELTS test as a pretest. And after the completion of the course, the students were given a think-aloud session to identify the reading strategies they used while reading as a part of qualitative data collection. The participants also completed another reading section of an IELTS test as a posttest. The results of the paired-sample *t*-test of pre-and posttest indicated that the mean of participants' post-test was significantly higher than the pretest. The qualitative data (think-aloud protocols) revealed that the participants used more cognitive strategies while reading in L2 after receiving explicit instruction. The findings of this study support the view that explicit instruction on different cognitive reading strategies can facilitate students' reading comprehension in L2. Ghavamnia (2019) also shared the same concern with the present study that textbooks in L2 do not cover language learning strategies adequately even though there is a real need for inclusion and emphasis on reading strategies.

Chumworatayee (2017) undertook a quantitative study with 113 postgraduate students at a public university in Thailand. The participants were explicitly taught reading comprehension strategies using "Ready to Read More: A Skill-based Reader" coursebook by Karen Blanchard

and Christine Root (2006) for 14 three-hour sessions. Survey of Reading Strategies (SORS) (Mokhtari & Sheorey, 2002) modified by Zhang and Wu (2009) for an EFL context was used to determine the effect of the reading strategy instruction on Thai EFL learners' reading strategy awareness. In addition, a pre-and post-SORS were implemented before and after the reading strategy instruction to collect information on the participants' reading strategy awareness. The results from comparing the mean of the pre-and-post SORS indicated that the participants had higher reading strategy awareness after receiving the explicit strategy instruction.

This result showed a positive effect of reading strategy instruction on Thai EFL learners' awareness of the overall reading strategies of the three categories: global, problem-solving, and support reading strategies. Chumworatayee (2017) claimed that explicitly teaching students reading strategies is key to helping students become independent readers. Although this study revealed that reading strategy instruction could raise students' reading strategy awareness, the study implemented only the pre-and-post SORS and only looked at the reading strategy awareness aspect of strategy instruction. Therefore, the relationship between reading strategy instruction and students' reading abilities was not thoroughly examined. Other research instruments such as think-aloud protocols or an in-depth interview with selected participants might have produced different or more reliable results.

Drawing on an entirely different research method from Chumworatayee (2017), H.Y Lee (2017) conducted a qualitative intervention study with nine university students in South Korea. This study used a think-aloud protocol, a retelling task, and personal interviews with the individual participant as data collection methods after a three-week explicit reading strategy instruction for two and a half hours every day. Lee, H.Y. (2017) is concerned that although "reading performance is one of the most significant measurements to assess students' academic

achievement in South Korea (p.278)", there has been relatively little attention to reading strategy use or reading strategy instruction. Therefore, this study aimed to investigate how explicit reading strategy instruction influenced Korean L2 readers' reading processes and reading attitudes from the higher proficiency level to the lower proficiency level.

The results showed that the explicit reading strategy instruction positively influenced all participants' reading performance. The higher proficiency level students used strategies learned more actively and appropriately than students from other levels. Students at intermediate and lower levels needed more practice to use strategies skillfully, but personal interviews revealed that they demonstrated positive attitudes toward English reading after the strategy instruction. Given a qualitative study with a small sample size, this study cannot be generalized to different contexts with different populations. Therefore, quantitative research with a large pool of participants should be conducted to verify more substantial effects of reading strategy instruction on students' reading proficiency.

Mohammadi, Birjandi, and Maftoon (2015) conducted an experimental study with 78 university freshmen studying English language and translation in Iran. The intervention was carried out for 15 weeks, four hours a week. The first research instrument employed was Language Learners' Beliefs Scale (LLBS), designed by Mohammadi (2014). LLBS contained 32 items consisting of seven items of Mediatory beliefs, eight items of Self-beliefs, six items of Attributive beliefs, six items of Traditional beliefs, and five items of Epistemological beliefs. The second instrument, the reading comprehension section of the Cambridge Preliminary English Test (PET), was also used to measure participants' reading comprehension ability. The LLBS and reading comprehension tests were administered before and after the strategy

instruction to identify the possible changes in learners' beliefs about language learning and reading comprehension abilities.

Mohammadi et al. (2015) argued that "the explicit teaching of learning strategies is not a common practice of the teachers in the classes (p.4)" based on their years of teaching experience. Thus, the researchers provided the experimental group with explicit instruction on a set of strategies, including concept mapping, vocabulary notebook, passage restatement, dictionary use, summary writing, and guessing for 15 weeks. The independent-samples *t*-test indicated that the instruction of learning strategies changed the university students' beliefs about language learning. Also, the results of independent-samples *t*-test showed that there was a significant difference in reading comprehension scores between control group (M = 14.3, SD = 2.34) and experimental group (M = 15.8, SD = 1.93), and the effect size ($\eta 2 = 0.1$) was large. Based on the results, Mohammadi et al. (2015) suggested that teachers provide a direct explanation of strategies along with the course content to students, and learning strategies be included in the syllabus for better learning. Despite a relatively large sample and adequate intervention period, this study only provided the quantitative data and thus, lacked the qualitative data that involved students' real experiences and the contexts in which they were situated.

Medina (2012) also carried out a case study with 26 undergraduate Nursing students at a Colombian university, examining the effects of strategy instruction in an EFL reading comprehension for 20 weeks. This study implemented an exploratory case study and used the teacher's field notes and self-reflection as a primary research instrument during the strategy instruction phase. After the intervention, a learning perception questionnaire was also used to elicit students' experiences regarding the reading strategy learning process. To support the

qualitative data, the researcher administered reading comprehension tests before and after the strategy intervention.

The effects of the reading strategy instruction were quite helpful because the mean on the posttest was higher than the mean on the pretest in reading comprehension. The researcher's field notes showed that students were faster on the second test and seemed to feel more confident when answering the questions, which enhanced their motivation. Also, the researcher noticed that when the students applied the reading strategies as they read, the use of a dictionary was considerably reduced. The open-ended learning perception questionnaire revealed that the strategy instruction was quite helpful. Strategy instruction facilitated understanding the readings, and students felt they were more skilled after the strategy instruction. It is worth noting that the strategy instruction in this study was taught in students' first language, Spanish because students did not feel comfortable asking for clarifications and giving explanations in English. In ESL contexts, giving strategy instruction in students' first language can be challenging as students are heterogeneous culturally and linguistically.

Of twelve empirical studies reviewed for this section, Suwanarak's (2019) quasi-experimental study revealed a different result and showed that strategy instruction did not significantly increase strategy use. In 15-week mixed-methods research conducted with 219 first-year undergraduate students in Thailand, Suwanarak (2019) investigated the role of strategy instruction in the participants' use of English learning strategies and the extent to which participants' learning achievement relates to the use of English learning strategies. The post-reading comprehension test results revealed no significant difference in the test scores between the control and experimental groups. The learning strategy questionnaire administered to observe changes in types and frequency of strategy use before and after the strategy instruction also

showed that the strategy instruction was unlikely to have any effects on the increase of the frequency of strategy use.

The possible explanation for the no effect is that since students at the university level had already developed a set of strategies across various learning contexts, they might not find the learning strategies instructed new, appealing, or useful. Therefore, the study emphasized that the careful choice of strategies for strategy instruction is essential to teach "a more accurate set of strategies (p.118)" that are new and specific to students' learning needs. Suwanarak's (2019) research concluded that the learning strategy instruction should match students' goals, needs, and stages of English learning because the students' strategy use is different at various levels. This view is congruent with Aghaie and Zhang's (2012) view that learners need to use strategies contextually based on their knowledge about what, when, why, and how to use multiple strategies appropriately. Although this study used a large sample size with four various instruments: pre-and post-English reading comprehension tests, the general learning strategy questionnaire, semi-structured interviews with 32 selected participants, and the English learning strategy questionnaire, only three sessions of intervention might not be adequate to cover the eight strategies instructed. A more thorough and deeper level of strategy instruction would have elicited more substantial effects of strategy instruction on participants' strategy use and reading comprehension achievement.

These reviewed empirical studies incorporated strategy instruction into a regular language course and investigated the effects of strategy intervention on developing the reading ability and enhancing the reading comprehension process among L2 learners. However, the studies were all carried out in EFL contexts, so the interpretation of the findings and conclusions cannot be generalized to all L2 learners. Furthermore, the participants of the present study were

learners in an ESL context, and they might be different in terms of L2 learning purposes, environments, and experiences. Based on the research design and strategy instruction procedures adopted from the studies reviewed above, this present study aimed to implement six sessions of strategy instruction in a reading & writing class for ESL students over three weeks.

The Teachability of L2 Learning Strategies

Many researchers (Griffiths, 2014; Gu, 2010; Oxford, 1990; 2003;2010) asserted that language learning strategies could be learnable and teachable through strategy instruction. Since LLS is a conscious cognitive process, it can be developed by the teacher's instruction. This suggests that strategy instruction is an integral part of the language teacher's role (Griffiths & Oxford, 2014; Seong, 2009) and essential for language education (Oxford, 1990). LLS instruction can help language learning be more meaningful, productive, and long-lasting by encouraging students to consider the factors affecting their language learning (Cohen & Macaro, 2007). Therefore, teachers need to provide students with a wide range of practical strategies, model the correct use of strategies, and practice the new strategies with students. Teachers' explicit strategy instruction can facilitate the process for students to use LLSs more effectively and be able to engage in the process of learning proactively (Cohen & Weaver, 1999; 2005, Grenfell & Harris, 1999; Griffiths, 2003).

Language learning strategies can show a lot about the learners' mental processes involved in language learning and can provide some explanations for the individual differences in language learning outcomes. O'Malley and Chamot (1994) stated that the learning strategies of good language learners could have considerable potential for promoting the learning of a second language if they were successfully taught to students. Therefore, language teachers could play an active and valuable role by teaching students how to apply learning strategies to a diverse range

of language activities and how to extend the strategies to new tasks. Griffith and Oxford (2014) strongly advocated that strategy instruction helped students learn better by actively engaging in the process of learning and provided teachers with new ways of assisting less competent students by employing appropriate strategies. Given that language learning and its use involve considerable memory work and repeated meaningful practice, a systematic and purposeful approach to learning can help to reduce mental effort. In light of this, researchers have offered various suggestions on how to design a strategy instruction program and developed multiple models for strategy training (Anderson, 2002; Cohen & Weaver, 1999; 2005, Grenfell & Harris, 1999; Griffiths, 2003; O'Malley & Chamot, 1994; 2005, Oxford, 1990).

Learning Strategy Instructional Models

The generalizability of the findings of effective strategy instruction largely depends on the structural features of the strategy instruction model designed and implemented (Ardahseva, Adesope, Wang, & Valentine, 2017). It is crucial that the strategy instruction should follow standardized instruction frameworks that emerged from strategy instruction research. Below are the five research-driven strategy instructional models frequently adopted and adapted by recent studies.

Oxford's Model

Oxford (1990) asserted that strategy instruction should be an integral part of language education as it could help students become more confident and self-aware in learning a language. She designed two types of strategy training: one-time strategy training and long-term strategy training. One-time strategy training is similar to curriculum-embedded learning strategy instruction in which students can learn particular and targeted strategies with actual language tasks. Long-term strategy training was designed to teach LLS as a separate subject rather than

integrating it into regular class time. Still, it can be adapted for one-time training by selecting specific units. Long-term strategy training has eight steps to follow: (a) Determine the learners' needs and the time available; (b) Select strategies well; (c) Consider integration of strategy training; (d) Consider motivational issues; (e) Prepare materials and activities; (f) Conduct completely informed training; (g) Evaluate the strategy training; (h) Revise the strategy training. The steps can be modified or rearranged in different orders for different learner needs, intentions, and learning contexts (Oxford,1990).

Grenfell and Harris's Model

Grenfell and Harris's (1999) model of strategy instruction was designed to encourage students to activate their prior knowledge and to reflect at the end of lessons on what has been learned about explicit and conscious procedures of learning. This model put a strong emphasis on the value of collaborative activities in developing students' understanding of how to learn. A sequence of steps for strategy instruction is as follows: (a) Awareness-raising: the students identify the strategies they used; (b) Modeling; (c) General practice; (d) Action planning; (e) Focused practice: the students use selected strategies, and the teacher fades prompt as students use strategies automatically; (f) Evaluation.

Anderson's Model

Anderson (2002) emphasized the role of metacognition in language teaching and learning and developed the model of metacognition. Metacognitive strategies help students plan, monitor, and evaluate their learning and play a significant role in choosing and evaluating one's own strategies. Anderson believed that the use of metacognition strategies led to deeper learning and improved performance. Therefore, the Anderson's model aimed to help students learn to think about what happens during the language learning process rather than solely focus on

learning a language. This model is divided into five components, which combines various thinking and reflective processes: (a) Preparing and planning for learning; (b) Selecting and using learning strategies; (c) Monitoring strategy use; (d) Orchestrating various strategies; (e) Evaluating strategy use and learning. In the evaluation stage, teachers ask the following questions to help students evaluate their strategy use: 1) What are they trying to accomplish?; 2) What strategies are they employing? ; 3) How well are they employing the strategies?; and 4) What other strategies can they employ? These questions address all the aspects of the metacognition stages stated earlier and enable students to reflect through the cycle of learning.

Cohen's Model

Cohen and Weaver (2005) developed the Styles and Strategies-Based Instruction Model (SSBI). This model was designed to raise awareness about strategies, train students in strategy use, and give them opportunities to practice strategy. Ultimately, students can choose their own strategies and personalize these strategies for themselves without prompting from the teacher. SSBI integrates strategies into everyday class materials and emphasizes strategy training activities during regular classroom instruction. Thus, strategies can be explicitly and implicitly embedded into the language tasks to provide for contextualized strategy practice. This model helps learners become more aware of what kinds of strategies are available to them, understand how to use strategies systematically and effectively given their learning-style preferences, and learn when and how to use LLSs and operating contexts. SSBI is based on the following series of components: (a) Strategy preparation; (b) Strategy awareness-raising; (c) Strategy training; (d) Strategy practice; (e) Personalization of strategies.

Chamot's Model

Chamot's (2005) model is called the Cognitive Academic Language Learning Approach (CALLA) that is developed for students learning English as a second language in American schools. This model has been continuously enriched and refined since its first proposal in 1994 by Chamot and O'Malley. CALLA integrated academic language development with content area instruction, and explicit strategy instruction was integrated for both content and language acquisition. The CALLA model is learner-centered, reflective, supportive strategy instruction that is useful for language learners of different levels. The essential goals of CALLA are for students to become independent and self-regulated learners through a variety of strategies for learning academic content and language, which eventually results in students' autonomous strategy use. The CALLA (Chamot, 2005) model was composed of six steps: preparation, presentation, modeling, practice, self-evaluation, and expansion.

In a study investigating the effects of explicit strategy instruction on students' reading performance, Aghaie and Zhang (2012) implemented strategy instruction based on six sequences of instruction of the CALLA model. The explicit strategy instruction program lasted four months, amounting to a total of 48 hours. Multiple practice activities were provided to encourage participants to develop autonomous use of the strategies through gradual withdrawal of the scaffolding. The study revealed that the participants in the treatment group that received the strategy intervention performed better in reading comprehension and strategy transfer. Aghaie and Zhang (2012) asserted that the CALLA model is practical and effective for teaching learning strategies. The researcher also adopted and adapted the CALLA model and created a four-stage strategy instruction model, which is discussed in more detail in Chapter 3.

Despite different model names by various researchers, these models suggested a sequence or steps to follow. And they shared common features of five fundamental elements proposed by Winograd and Hare (1988): what the strategy is, why a strategy should be learned, how to use the strategy, when and where the strategy should be used, and how to evaluate the use of the strategy (Chumworatayee, 2017). Strategy instruction models were designed to help language learners be actively involved in the learning process, emphasizing that LLSs were an effective language learning method that could be learnable and transferable to new learning tasks. The models underscored the importance of developing students' learning strategies and that learning strategy could be taught and learned through teachers' explicit scaffolding and modeling (Harris, Anderson, Chamot, & Rubin, 2007). Therefore, initial instruction was heavily scaffolded by teachers, but it was gradually removed when learners could develop self-management of strategies and use them independently. These stages do not have to be used in sequence, and teachers can revise the prior instructional stage according to student needs. Like many cognitive skills, learning strategies can be internalized, automatized, and transferred to new tasks through repeated practices and continual evaluation. Teachers may use these models flexibly in numerous ways. For example, teachers can start with their regular lessons and insert strategy instruction based on their course materials or start with strategy instruction that they want to focus on and design language learning activities around them.

Integration of Explicit Strategy Instruction in the Language Course Curriculum

Many researchers suggested that the explicit LLS instruction be integrated into a regular class to teach why and how to use new strategies as well as when to transfer a given strategy to new situations (Barjesteh, Mukundan, & Vaseghi, 2014; Graham, Santos, & Vanderplank, 2011; Ghosh, 2012; Rao, 2016; Sarafianou & Gavriilidou, 2015). LLS instruction can develop

students' awareness of the learning processes and help students learn more strategically and productively by drawing on their conscious mental processing (Ellis, 2015). It also provides explicit guidance and a scaffold for learners to become more aware of the strategy and construct a coherent mental model (Oxford, 1990; Yang, 1995).

Explicit Learning Strategy Instruction

Explicit LLS instruction refers to any specific explanation of a learning strategy and how to use it (Bueno-Alastuey & Agulló, 2015, Habók & Magyar, 2018). Language learning strategies are mental processes that are not clearly observable, and thus teachers need to find ways to make LLS as concrete as possible (Chamot, Barnhardt, El-Dinary, & Robbins, 1999). Although there are some contentions as to whether strategy instruction should be presented explicitly and implicitly, a considerable number of researchers stated that explicit instruction contributed to the effectiveness of the intervention (Cohen & Weaver, 1999; 2005, Grenfell & Harris, 1999; Griffiths, 2003; O'Malley & Chamot, 1985; 2005, Oxford, 1990).

A direct and clear presentation of strategy use can inform students about the benefits of strategy use, when and how to use it, and evaluate its effectiveness (Sarafianou & Gavriilidou, 2015). As Madhumathi and Ghosh (2012) pointed out, although students may know and use LLSs actively, it is uncertain how effectively students understand each strategy and use them. Msaddek (2016) also asserted that students might have some basic language learning skills and capabilities, but they lacked awareness and sufficient use of the efficient LLS strategies. For this reason and others, the students need to know why they use those strategies, what benefits will be given to them, and the value and purpose of strategy instruction (Suwanarak, 2019). Teachers' explicit strategy instruction encourages students to understand how strategies can be applied to specific tasks and use a greater range of appropriate strategies more frequently.

A meta-analysis of 34 sample studies showed that explicit LLS instruction facilitated L2 learning in adults (Goo, Granena, Yilmaz, & Novella, 2015). The study found that explicit instruction showed beneficial effects on second language learning more than implicit instruction (an effect size $d = 1.29$ and $d = 0.77$, respectively). This result confirmed that although students were surrounded by the language, not all of it went into students' working memory; thus, conscious and explicit learning was required (Ellis, 2015). The study further found that written LLS instruction was relatively more advantageous than oral LLS instruction. The combined oral and written instruction mode yielded even better outcomes when incorporated into explicit LLS instruction. The lack of LLS instruction leads to a lack of strategy development in students (Graham, Santos & Vanderplank, 2011). An explicit LLS instruction with a range of strategies to select from needs to be provided for students to adapt to various challenging language learning tasks. Also, teachers should explicitly teach strategies and link them to specific language learning tasks. Furthermore, reflection, feedback, and comments on strategy use and its effectiveness are essential parts of explicit strategy instruction so as to foster students' strategy use and awareness.

Integration of Learning Strategy Instruction into the Language Course Curriculum

Another point of contention is whether strategy instruction should be integrated into the language course curriculum or presented separately. Many researchers advocated that integrating strategy instruction into the language course curriculum could be more beneficial (Cohen & Weaver, 1999, 2005; Grenfell & Harris, 1999; Griffiths, 2003; Harris, Anderson, Chamot, & Rubin, 2007; O'Malley & Chamot, 2005; Oxford, 1990). Their position is that although students may learn to use LLSs, they can have difficulties applying strategies to new situations. Also, learners cannot identify the most appropriate strategies unless they try using specific strategies

for their learning tasks and goals. Therefore, teaching strategy as part of the regular class better assists students in recognizing the relevance between the strategy use and the language task at hand and practicing strategies on authentic language tasks. Besides, this would facilitate strategy comprehension, retention, transfer, and sustained learner motivation (Sarafianou & Gavriilidou, 2015). Learning in context could be more effective than learning separate skills because students could better understand how strategies could be applied in various situations in a spontaneous and unplanned manner (Msaddek, 2016). This immediate applicability may not be apparent to students at times.

In a meta-analysis study, using 47 independent samples from 37 primary studies, Ardasheva et al. (2017) investigated the effectiveness of strategy instruction in improving L2 learning. This study revealed that the overall effects of strategy instruction were large, which indicated that strategy instruction worked for improving L2 learning. Yapp, Graff, and Bergh's (2021) meta-analysis of 46 studies on the effectiveness of L2 reading strategies on reading comprehension also indicated the large effect size. These results provided empirical justification for strategy instruction to be integrated into the language course curriculum as a valuable instructional tool for language learning. These findings confirmed the Oxford's (2003) view that strategy instruction was most beneficial when integrated into the regular language teaching class. However, other ways of doing strategy instruction could be possible.

Furthermore, Sarafianou and Gavriilidou (2015) conducted a study to investigate the effects of the strategy intervention program based on the application of explicit and integrated strategy instruction with a sample of 192 EFL students in Greece. The results showed a statistically significant difference between the experimental group and the control group; the experimental group demonstrated the more significant gains in terms of both quantity and

frequency of strategy use, although the effect sizes were small. Based on the finding of the study, Sarafianou and Gavriilidou (2015) argued that the integration of explicit LLS instruction would be an effective teaching approach with which teachers could employ learner-centeredness as a methodological principle and ultimately promote students' life-long language learning. Aghaie and Zhang (2012) also claimed that learners need to learn strategies in a contextualized manner in order for strategy instruction to be successful in their quasi-experimental study with 80 Iranian EFL students. Furthermore, learning strategies should be explicitly taught in a progressive fashion and integrated into the curriculum.

Although most literature supported the view of the applicability of strategy instruction in the language classroom, several researchers expressed concerns regarding the lack of empirical evidence as to how teachable, transferable, and successful strategy instruction is (Dörnyei, 2005; Griffiths & Oxford, 2014; Yang, 1995). It was pointed out that strategy instruction could impose more cognitive load on learners at the initial stages of strategy learning and make them feel the learning process is more time-consuming and complex. In addition, the improvement of student learning can be temporary, and it can only last while the strategy instruction is available. Thus, more empirical studies using strategy intervention need to be conducted in the area of learning strategy instruction to identify the effectiveness of the strategy instruction and how long strategy instruction should last in order to elicit desired effects on learning a language.

Summary

The overarching goal of this literature review was to identify the empirical evidence of the effects of language learning strategy (LLS) and the effectiveness of strategy instruction through strategy intervention on L2 reading. The review focused on previous research findings related to the following five areas: (a) definitions and classifications of the LLS, (b) the benefits

of LLS use in learning a language, (c) empirical studies on the effectiveness of strategy instruction in L2 reading, (d) different strategy instruction models, and (e) integration of explicit strategy instruction in the language course curriculum.

I have presented a brief history of language learning strategy literature from the 1970s to the late 1990s, followed by the definitions and classifications of the LLS. Language learning strategies (LLSs) can be defined in varying ways. The operational definition of LLS in the present study is the conscious thoughts and actions that learners choose and use intentionally or unintentionally to deal with specific language learning tasks and facilitate their L2 learning processes. LLSs have generally been classified as metacognitive (awareness of the learning), cognitive (mental process of the learning), and socio-affective strategies (personality traits and interactions with others).

I have identified the benefits of the LLS use in learning a language in terms of learner autonomy, metacognitive skills, learner motivation, and strategic awareness about conscious learning. Then I have reviewed the twelve most recent (2021-2012) empirical studies on the effectiveness of strategy instruction in L2 reading. The empirical studies reviewed above incorporated strategy instruction into a regular language course and investigated the effects of strategy intervention on developing the reading ability and enhancing the reading comprehension process among L2 learners. The finding from the majority of studies indicated that the explicit reading strategy instruction influenced participants' L2 reading performance and participants had a positive attitude toward English reading after strategy instruction.

Furthermore, I have introduced five strategy instruction models to emphasize the teachability of language learning strategies: (1) Oxford Model (1990), (2) Grenfell and Harris Model (1999), (3) Anderson Model (2002), (4) Cohen Model (2005), and (5) Chamot's Model

(2005). These models suggest a sequence of steps to follow. Despite the different names, they share common features of five fundamental elements: what the strategy is, why a strategy should be learned, how to use the strategy, when and where the strategy should be used, and how to evaluate the use of the strategy. The current study adopts and adapts Chamot's Cognitive Academic Language Learning Approach (CALLA) model, which is composed of six steps: preparation (awareness-raising), presentation, modeling, practice, self-evaluation, and expansion.

Lastly, I have established the need for the integration of explicit strategy instruction in the language curriculum. The findings of the research indicated that explicit instruction contributed to the effectiveness of the intervention because A direct and clear presentation of strategy use can inform students about the benefits of strategy use, when and how to use it, and evaluate its effectiveness (Cohen & Weaver, 1999; 2005, Grenfell & Harris, 1999; Griffiths, 2003; O'Malley & Chamot, 1985; 2005, Oxford, 1990). Also, many researchers advocated that integrating strategy instruction into the language course curriculum could be more beneficial because this better assists students in recognizing the relevance between the strategy use and the language task at hand and practice strategies on authentic language tasks (Cohen & Weaver, 1999, 2005; Grenfell & Harris, 1999; Griffiths, 2003; Harris, Anderson, Chamot, & Rubin, 2007; O'Malley & Chamot, 2005; Oxford, 1990).

The literature clearly indicated that the effects of language learning strategy and explicit strategy instruction embedded in language courses have interested a lot of researchers in the language teaching field and have been affecting education in many different parts of the world. However, most empirical studies incorporating strategy instruction into a language course were carried out in EFL contexts; thus, the interpretation of the findings and conclusions cannot be generalized to L2 learners in the ESL contexts. In addition, much of the research on reading

strategy instruction has primarily been quantitative, so there is a need for a qualitative aspect of research, which can help analyze the research questions from different angles and triangulate the data from diverse methods. Although previous research has worked on language learning strategies and strategy instruction, not much research has utilized the same research context and research method this present study employed. And there were still many issues that remain unresolved. This study aimed to build on the existing literature in the field by examining the effects of learning strategy instruction on L2 reading comprehension in the ESL program and expand it to identify ESL students' awareness of the benefits of learning strategies and the perceptions of their reading skills after strategy intervention.

CHAPTER III

METHODOLOGY

Introduction

This study aimed to investigate the effects of explicit learning-strategy instruction by integrating the strategy instruction into regular language lessons. An explanatory sequential mixed-methods design was used, in which quantitative data were collected and analyzed first and then connected to qualitative data to understand a research problem (Creswell & Creswell, 2018). In this study, quantitative data from participants' pre-and posttest were used to validate the effect of the strategy intervention for English for Speakers of Other Languages (ESOL) at a community college. After a six-session reading intervention over three weeks, the researcher collected data from an online survey completed by the participants in the treatment group to reflect upon the strategy intervention sessions. Finally, the qualitative data were collected from the interviews with selected participants to triangulate the data and better understand how the participants were experiencing the strategy intervention. This chapter expands on the research design regarding selected data collection and analysis approaches, the instruments used for collecting qualitative and quantitative data, and the steps used to conduct the study, including a pretest, intervention, posttest, online survey, and individual interviews.

Restatement of Purpose

The purpose of this mix-methods study was to investigate whether explicit teaching of reading strategies had an impact on ESL learners to become more successful in their academic English reading proficiency. Furthermore, this study explored the ESL students' awareness of the benefits of the learning strategy and perception of their reading skills after the reading strategy instruction. This research was based on the theoretical framework of Mayer's (1996, 2014)

cognitive information processing, the select-organize-integrate (SOI) model of generative learning. Four methodically selected reading strategies were used for instruction during the strategy intervention to facilitate the selecting, organizing, and integrating steps of cognitive processing for meaningful learning.

This study addressed the four research questions to investigate the effects of strategy instruction on ESL students' reading proficiency at the community college level. The first two research questions were quantitative and examined by a change in scores of pre-and posttests. The third question was addressed by an online survey regarding the helpfulness and usefulness of the learning strategies. The final qualitative inquiry was designed to help describe how participants were experiencing the strategy intervention in terms of their awareness of the benefits of the strategy and their perceptions of reading skills.

1. What is the difference in scores for students in the learning strategy intervention classroom, especially between low and high proficiency students, as measured by the difference in pre-and posttest reading comprehension scores?
2. What is the difference in scores between students in the strategy intervention classroom and those in the traditional instruction classroom, as measured by the difference in pre-and posttest reading comprehension scores?
3. How do the community college ESL students in the strategy intervention classroom assess the helpfulness and usefulness of the learning strategies through an online survey?
    a. How helpful is each of the three learning strategies to improve students' reading skills?
    b. Which learning strategy do students find most helpful to improve their reading skills?

   c. Which learning strategy are students willing to continue using after the strategy intervention is completed?

4. How do the six sessions of strategy intervention contribute to the ESL students' perceptions of strategy awareness and their reading skills?
   a. How does ESL students' awareness of the benefits of the learning strategies change as a result of strategy instruction?
   b. How do ESL students' perceptions of their reading skills change as a result of strategy instruction?

Research Design

The integration of quantitative and qualitative data provided an opportunity to develop a deeper understanding of research questions and gain more insight into the research problem (Neubauer, Witkop, & Varpio, 2019). Given that each type of data collection had both limitations and strengths, combining the two forms of data provided a better understanding of research problems and helped the researcher overcome the weaknesses of each method. By employing a mixed-methods research design, this research sought to provide a holistic picture of the Community College ESL students' experiences of strategy instruction. This research design also helped address the issue that relying solely on quantitative data often ignored context and created an artificial research environment.

As for a qualitative methodology, this study drew on phenomenology, the study of an individual's lived experience of the world (Creswell & Poth, 2018). Phenomenology seeks to describe the essence of a phenomenon from the perspective of those who have experienced it (Neubauer et al., 2019). Thus, the question focuses on how individuals and groups of people experience the phenomena. Also, phenomenology helps a researcher set aside her assumptions,

beliefs, and judgment and develop new meanings from the experience of participants (Creswell & Poth, 2018). By knowing participants' experiences through sharing stories, the researcher can obtain information that the quantitative research method alone cannot reveal.

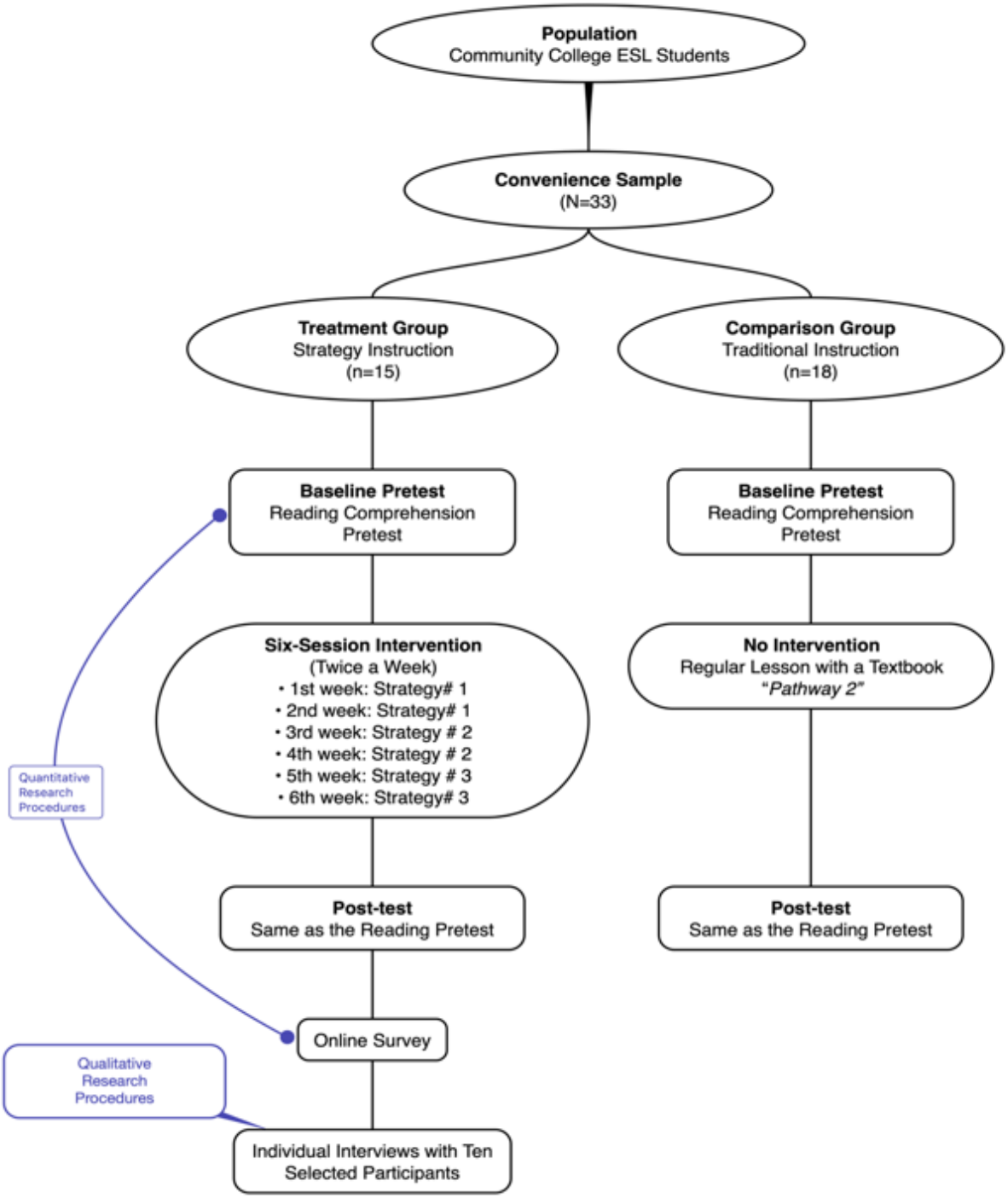
The phenomenological study provided inspiration for the qualitative phase of this study as the researcher aimed to explore how participants reflected on their lived experiences and interpreted the meaning of their experiences with strategy instruction. As a result, the qualitative data provided a deep understanding of strategy instruction as experienced by ESL students at the community college. Despite many advantages of phenomenological study, it came with limitations, too. It was difficult to find participants fully open about their personal experiences and thus lowering the level of validity and reliability (Creswell & Creswell, 2018; Neubauer et al., 2019). In order to address these limitations, this study integrated the quantitative data collection method with a qualitative phenomenological study to triangulate the data from two different research methods. In addition, an expert review panel assessed the content validity of a survey questionnaire and semi-structured interview questions.

In summary, this study examined the research questions first through the quantitative lens, based on data collected from the scores of students' pre-and posttests, and then complemented the findings with an online survey and qualitative interviews. The quantitative component of the design was a treatment-comparison study that implemented a reading-strategy instruction and measured the scores of the pre-and posttests. Then all participants in the treatment group completed the online survey. The qualitative strand of the design was individual interviews with the selected participants in a semi-structured format. The interviews were designed to elicit participants' feedback and reflection on the effects of the strategy instruction in

terms of strategy awareness and reading skills. A schematic overview of the research design is illustrated in greater detail in Figure 5.

Figure 5

Schematic Drawing of Research Design



The interview questions were a series of open-ended questions in a flexible order in response to participants' answers. The independent variable for this study was the instructional intervention, that is, explicit curriculum-integrated strategy instruction. The three dependent variables were scores on reading comprehension tests, students' awareness of the benefits of the strategy, and students' perception of reading skills after six sessions of strategy instruction.

Research Setting

This study took place in a Community College in Northern California. This Community College began in 1968 and now serves over 6300 students every semester from the San Francisco Bay Area. This institution strives to serve the educational needs of its diverse community by providing a variety of programs and resources. Students identifying as Asian made up 30% of the total student population, followed by the Latinx/Hispanic identified student population at 24%, African American/Black identified student population at 17%, and White identified student population at 14%. In 2021, minority enrollment was 86% of the student body, more than the California state average of 75%. Seventy percent of the student population was between the ages of 16 to 29, and 19 % of students were full-time. The most prevalent educational goal for students in this institution was to pursue transfer and completion of a degree, at 53%. In line with students' educational goals, this institution offers courses and programs that satisfy the transfer requirements of four-year colleges and universities. A range of vocational and technical programs are also provided to prepare students for employment.

The English for Speakers of Other Languages (ESOL) program is one of the programs offered in this Community College, dedicated to helping non-native students reach their goals in English. This program is designed to help non-native English speakers develop English for academic purposes, transfer programs (college and university), and vocational and career

purposes. The program offers ESOL courses on five levels, namely, Beginner beginners (non-credit), Beginners (level 1), Intermediate learners (level 2), High-intermediate learners (level 3), Advanced learners (level 4). The classes offered in the ESOL program are Grammar, Listening and Speaking, Reading and Writing, Conversation, and Pronunciation.

To enroll in the ESOL courses, applicants are required to complete the online onboarding process, which is designed to help students choose classes based on their self-placement. Students can identify their ESOL level and choose the appropriate classes in the ESOL program through the online self-placement tool. There are four steps to follow to select the right ESOL courses and register for the classes: (a) Step1: Look at the ESOL course; (b) Step 2: Complete the ESOL self- placement tool; (c) Step 3: Make an appointment with a counselor to plan your academic year; (d) Step 4: Register for your classes. Each step is clearly explained using video and text and linked to the relevant webpage for students to navigate easily.

Participants

The participants for this study were 33 ESL students from two intermediate-level reading and writing classes at a Community College in Northern California. A convenience sample of two ESL Reading and Writing II classes was drawn from all 28 class sections offered at this Community College. The treatment group consisted of 15 students whose ages ranged from 19 to 55 and who spoke diverse first languages. Initially, there were 17 participants in the treatment group, but the data for two students needed to be dropped from the study, as they changed the course after two sessions of strategy intervention. There were 18 students in the comparison group whose age and first languages were equally as diverse as the treatment group. In addition, participants varied in their nationality, age, level of education, and length of time in the U.S. The students in both treatment and comparison groups were enrolled in the two Reading and Writing

II classes which focused on reading actively to analyze and understand reading texts and write clear and well-organized paragraphs. Students had reading and writing assignments, quizzes, a midterm, and a final exam in these courses. Due to the surge of the new COVID-19 variant, most community college ESL courses were offered online. However, the treatment group was a hybrid course that combined in-person instruction with online learning. The class met Mondays from 10:00 am to 11:15 am online and Wednesdays from 10:00 am to 11:30 am in person. The comparison group was a fully online course, and the class met once a week, Wednesdays, 2:00 pm- 4:50 pm.

Protection of Human Subjects

After the dissertation committee approved the dissertation proposal, the researcher applied for approval to conduct this research to the University of San Francisco (USF)'s Institutional Review Board for the Protection of Human Subjects (IRBPHS). This research adhered to ethical guidelines for the protection of human subjects of USF's IRBPHS. Before collecting the data, a signed permission letter, following the Community College's ethical policies, from the community college's ESOL department chair was obtained. A permission letter to the research site is included in Appendix C. Although the reading strategy intervention was an integral part of the coursework, participation in the study was voluntary. The students received an informed consent form that included a description of the study, length of time to conduct the research, explanation of how data would be used, and how identity privacy and confidentiality would be maintained.

The consent form also included the statement that participation in the study was voluntary, that participants could withdraw from the study at any time and that their grades were not affected by whether or not they chose to participate in the study. In order to address the

potential anxiety or stress associated with participating in this study, the researcher discussed any pressing concerns or questions with participants at any time during the study. To maintain confidentiality and protect the identity of participants, the researcher used pseudonyms in conducting the research, and the recorded interviews were destroyed after transcription. The researcher conformed to the code of professional confidentiality and did not provide the data to any outside observers. The researcher utilized a web-based database to keep students' data private and in a secured location.

Instrumentation

This study employed four instruments to collect both quantitative and qualitative data. Reading comprehension pre-and posttests were used to measure the impact of explicit curriculum-integrated strategy instruction on reading comprehension; an online survey was administered to identify participants' perceptions of the helpfulness and usefulness of the strategy instruction after the intervention; semi-structured individual interviews were utilized to describe how participants experienced the strategy intervention in terms of their awareness of the benefits of the learning strategy and the perceptions of their reading skills. The appendices display all instruments (Appendix D through F). A summary of the qualitative instrument's purpose, the item format, and the alignment with the research questions are presented in Tables 3 and 4. Each step of the data collection instrument and how each instrument was used are described under the Data Collection Procedures section in greater detail.

Reading Comprehension Pre-and Posttest

Quantitative data were collected through reading comprehension pre-and posttests for all participants in both experimental and comparison groups. The tests assessed the participants' reading comprehension ability before and after the six-session strategy intervention over three

weeks. The pre-and posttest difference was regarded as the determining factor of whether the strategy instruction had any notable effects on the Community College ESL students' reading proficiency and ability. The participants were instructed that the test results would help the researcher identify their current knowledge of English, and the scores would not affect their grades. To ensure the equal difficulty of the tests, the researcher administered the same reading comprehension test for the pre-and posttest.

The pre-and posttest consisted of three reading passages and 20 multiple-choice question items, which were taken from the reading comprehension section of two past midterm tests of the Reading and Writing II course. The first part of the test was a reading passage of 256 words with seven reading comprehension questions, the second part was a reading passage of 359 words with eight questions, and the last part was a reading passage of 254 words with five questions. The reading comprehension midterm tests were developed by subject matter experts, who are the faculty members of the ESL department at this Community College. In addition, the ESL department checked content validity and reliability through regular item analysis. Therefore, the reliability and validity of the pre-and posttest were secured. The reading comprehension test administered for pre-and posttest was presented in Appendix D.

In terms of test administration, while the treatment group had a paper-and-pencil test for both pre-and posttest as the course was hybrid, the comparison group was administered the pre-and posttests online during the regular class hour. A timed online test (35 minutes) was posted on the Canvas site for students in the comparison group and students were able to go back and forth between the reading passages and the questions. In addition, they were able to change their answers to previously answered questions. Although the class instructor asked the students to keep their cameras on during the test, one-third of the students had to turn off their cameras due

to poor internet connectivity. This different mode of test administration might have influenced students' reading comprehension scores; however, it was uncertain for which group it was more favorable.

Online Survey

Second quantitative data were collected through an online survey from the intervention group. The survey served as an efficient tool to obtain adequate knowledge about how the strategy instruction was experienced by the participants. The online survey was administered during the Zoom class session to increase the response rate. Only the students in the intervention group completed this self-report questionnaire since this would be feedback and reflection on how helpful they found each of the learning strategies taught during the strategy intervention. This questionnaire was designed to answer the third research question as to how the community college ESL students in the intervention group indicated the helpfulness and usefulness of each of the three strategies.

The survey questionnaire was constructed in the form of declarative statements and consisted of eleven questions. Items 1 through 7 were written on a 5-point Likert scale with the scales ranging from very helpful to very unhelpful agree (1= very helpful; 2= helpful; 3= no difference; 4= unhelpful; 5= very unhelpful). Items 8 through 11 were open-ended questions regarding students' awareness of the benefits of the strategy and the perception of their reading skills after the strategy instruction. The survey questionnaire is provided in Appendix E. To maintain confidentiality and protect the identity of participants, Qualtrics, an online survey platform, generated an identification number for each respondent in reporting and analyzing data. A summary of the purpose of the survey, the item format, and the alignment with the research questions is presented in Table 3.

Table 3

Alignment of Survey Questionnaire Items with Research Questions

Item #	Purpose	Item Format	Research Question
1	Measuring the helpfulness of learning strategy #1	5-point Likert-scale	# 3-a
2	Measuring the helpfulness of learning strategy #2	5-point Likert-scale	# 3-a
3	Measuring the helpfulness of learning strategy #3	5-point Likert-scale	# 3-a
4	Measuring the usefulness of the three learning strategies	5-point Likert-scale	# 3-c
5	Measuring the helpfulness learning strategies	5-point Likert-scale	# 3-b
6	Measuring the usefulness of the learning strategy	5-point Likert-scale	# 3-c
7	Measuring participants' awareness of the benefits of the learning strategy	5-point Likert-scale	N/A
8	Measuring the helpfulness of learning strategies	Open-ended	#3-a
9	Measuring the challenges of the use of learning strategy	Open-ended	N/A
10	Measuring participants' perception of reading skills	Open-ended	# 3-a, 3-c
11	Comments section.	Open-ended	all

Semi-Structured Individual Interviews

Qualitative data were collected through semi-structured interviews from the intervention group. Individual interviews with selected participants (n=10) were conducted to elicit participants' deeper thoughts and perceptions of the reading strategy instruction. As Creswell (2012) mentioned, interviews can provide a more complete understanding of how the strategy intervention was experienced by participants. Furthermore, an individual interview can help obtain information as to how participants' perception of strategy awareness and use change through the strategy instruction. This study followed Creswell's (2012) interviewing procedures

and checklist adapted from Gay, Mills, and Airasian (2005). The checklist for the interview was considered in the order of before, during, and after the interview.

1. Before the interview: (a) Who will participate in the interviews?; (b) Is the setting for the interview comfortable and quiet?; and (c) Is the consent from the participants to use the data taken from the interview obtained?
2. During the interview: (a) Do I listen more and talk less during the interview? (b) Do I probe during the interview? (asking to clarify and elaborate); (c) Do I avoid leading questions and ask open-ended questions?; (d) Do I keep participants focused and ask for concrete details?; and (e) Do I withhold judgment and refrain from debating with participants about their views?
3. After the interview: Was I courteous, and did I thank the participants after concluding the interview?

After the six sessions of explicit strategy instruction, ten students were selected for an individual Zoom interview. The selection was through the purposeful sampling process. The researcher identified and selected interviewees based on quantitative findings from the pre-test and the survey. After preliminary analysis, quantitative data indicated that the treatment group outperformed the comparison group in the reading comprehension post-test. In addition, the survey data showed that students found all three strategies helpful. Specifically, the survey results indicated that mind mapping was the most helpful, and self-explaining was a challenging strategy. It was unclear what might have led to these results within the quantitative data. Hence, the qualitative interview was planned and implemented. The researcher sought to explore an in-depth and detailed understanding of why participants indicated the learning strategies helpful and how their perceptions of reading skills had changed after strategy instruction. Ten participants

were selected for one-on-one interviews. The participants were at three different proficiency levels based on their pre-test scores and the researcher's observation, and they all actively participated in the learning strategy instruction. In addition to their active participation, their willingness to participate and the ability to communicate experiences and opinions in an expressive manner were taken into account. A summary of the purpose of the interview question, the item format, and the alignment with the research questions is presented in Table 4.

Table 4

Alignment of Interview Question Items with Research Questions

Item #	Purpose	Item Format	Research Question
1	Measuring participants' awareness of the learning strategy	Open-ended	# 4-a
2	Measuring participants' awareness of the learning strategy	Open-ended	# 4-a
3	Measuring participants' awareness of the learning strategy and perceptions of reading skills	Open-ended	# 4-a, #4 -b
4	Measuring participants' awareness of the learning strategy	Open-ended	# 4-a
5	Measuring participants' awareness of the learning strategy	Open-ended	# 4-a
6	Measuring participants' perceptions of reading skills	Open-ended	# 4-b
7	Measuring participants' perceptions of reading skills.	Open-ended	#4-b
8	Measuring participants' perceptions of reading skills	Open-ended	# 4-b
9	Measuring participants' awareness of the learning strategy	Open-ended	# 4-a

Expert Panel Review

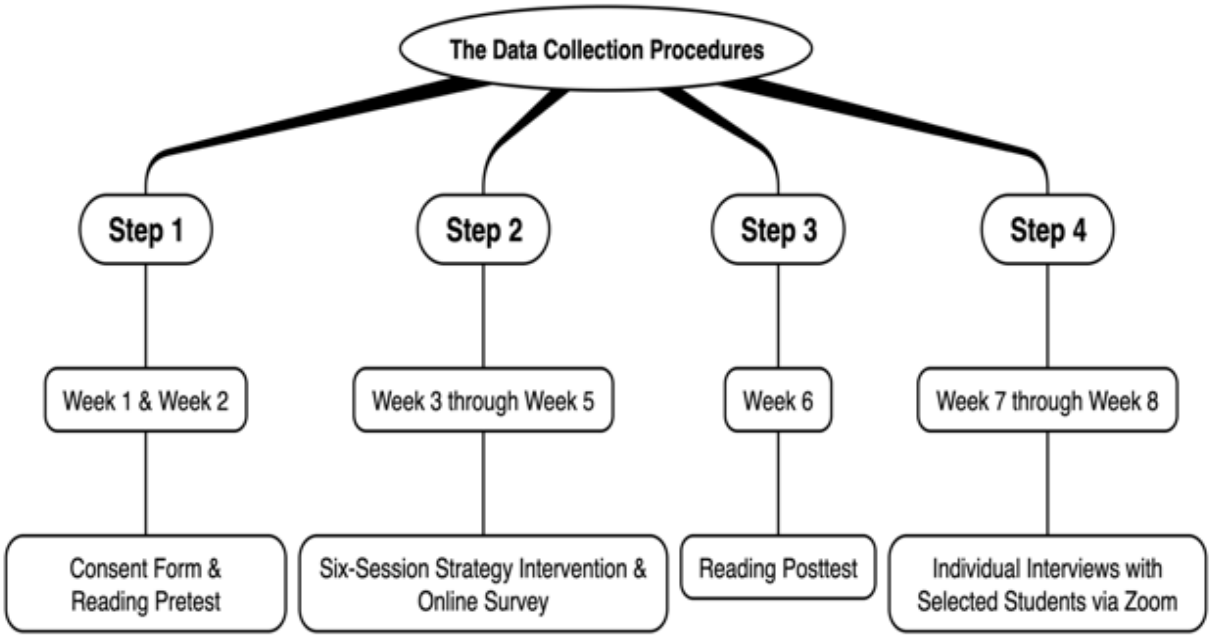
In order to assess the content validity and reliability of the survey questions and individual interview questions, an expert panel review was used. Two experts who reviewed the question items have extensive expertise in the ESL field. Dr. Sue Bae is a faculty member of the Academic English for Multilingual (AEM) program at the University of San Francisco and has 15 years of teaching experience in the ESL field. Dr. Didem Ekici is a Chair and professor of the ESL department at the College of Alameda. The researcher sent a letter providing the study's purpose and procedures and sought their specialized input and opinions regarding the question item validity, linguistic clarity, and sensitivity. The experts reviewed the survey questions and the interview questions and offered their expert knowledge. Two new items were added, and the wording of the questions was modified based on their feedback and comments.

Data Collection Procedures

The data collection period lasted six weeks, including three weeks of the intervention period. The six weeks are further broken down into four steps. Collecting consent forms and administering pre-test for all participants in the experimental and comparison groups took place in Step 1. Implementing three weeks of intervention was in Step 2. Post-test for all participants and the online survey for the participants in the treatment group was conducted in Step 3. Finally, semi-structured interviews with selected participants from the treatment group was conducted in Step 4. The timeline and each step of the data collection are provided in Figure 6.

Figure 6

Timeline and Steps of the Data Collection Procedures



Consent Form and Pretest

One week before the strategy intervention, a pretest was administered to participants in both the experimental and the comparison groups. Given that the reading comprehension test could be an effective diagnostic test to measure the students' reading comprehension abilities, it was required to be taken by both groups. A maximum time of 35 minutes was given to complete the pre-test, and students were allowed to use dictionaries while taking the test. An informed consent form including demographic information was completed in order for students to agree to participate in the study voluntarily and permit the researcher to use the data collected during the research process. The purpose of the study was also informed to participants to assure that their contributions to the research would be taken seriously. A copy of the informed consent form is provided in Appendix B.

The Strategy Intervention

The treatment group received explicit curriculum-integrated strategy instruction in reading comprehension based on the select-organize-integrate (SOI) model of cognitive information processing. The strategy instruction was provided in addition to coursebook instruction from the textbook, Pathways 2: Reading, Writing, and Critical Thinking (National Geographic Learning, 2017, 2nd ed.). The strategy intervention was six-session strategy instruction taught by the researcher two sessions per week over three weeks. The strategy instruction was provided for approximately 30 minutes at the end of the regular class in six sessions. Each week, two sessions were dedicated to learning a single strategy. Strategy lessons were designed to teach participants to use the new strategy in combination with the previously learned strategies. During each strategy instruction session, participants were instructed on the purpose of learning the strategies, how to use them, practicing in pairs or groups, and evaluating their strategy use.

The comparison group remained intact since it did not receive any strategy intervention and only was exposed to the traditional reading comprehension using the course textbook. Pathway2: Reading, Writing, and Critical Thinking was a coursebook that focused on building reading and writing skills through content, images, and video from National Geographic. The instructor for the comparison group has been teaching ESL courses for more than twenty years and has helped college-bound students develop the skills they will need to succeed at college. She placed the lesson focus on building reading and writing skills by connecting readings with guided writing practice. Therefore, students in the comparison group developed their reading skills by learning vocabulary and reading comprehension exercises based on what was intended

in the textbook. This same coursebook instruction was provided for the students in the treatment group on top of strategy intervention.

One week after a reading comprehension pretest for both experimental and comparison groups, the treatment group received strategy instruction for six weeks in addition to their regular language lessons. The researcher selected three learning strategies for the treatment group: finding the main idea and supporting details, mind-mapping, and self-explaining. These three strategies were intertwined, and students were taught to use them in combination. The researcher co-taught the treatment group (n=15) with an ESL instructor who has been teaching this course for more than fifteen years and is in the doctoral program in education. Of 75 minutes of class time, the researcher conducted strategy instruction for 30-40 minutes. Then the instructor carried out a regular lesson based on the coursebook for the remaining 45 minutes.

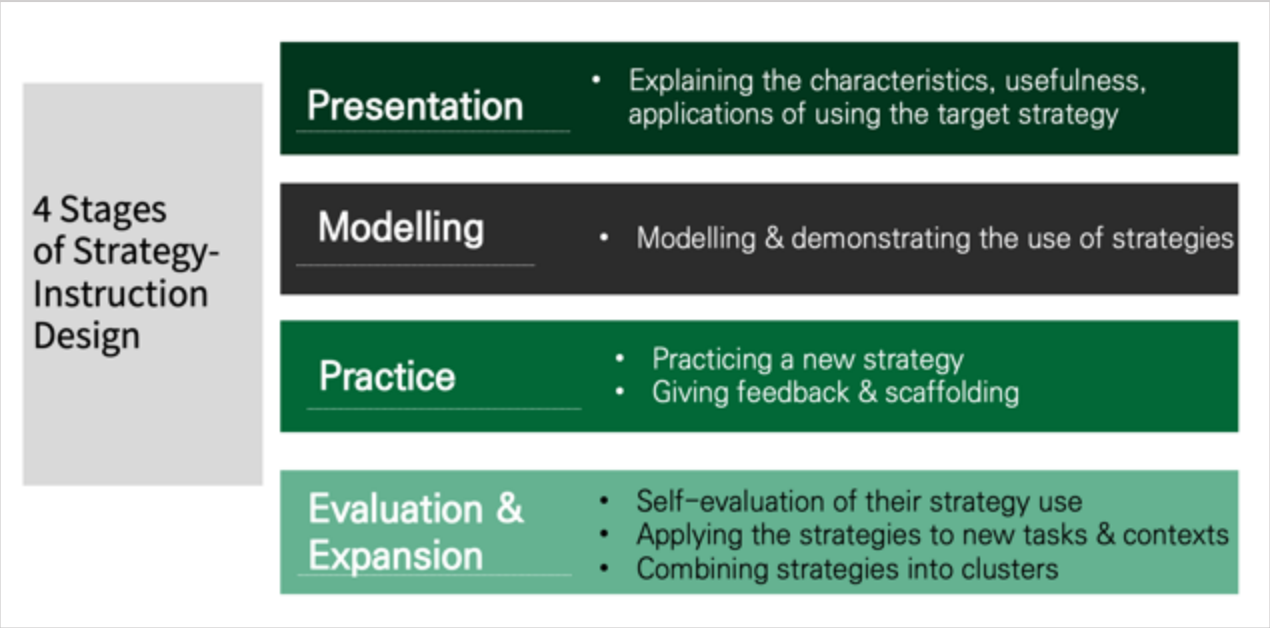
The Strategy Intervention Design

The strategy instruction given to the students in the treatment group consisted of four stages of instruction: presentation, model, practice, and evaluation and expansion. The strategy instruction aimed to raise the students' awareness of strategy use and instruct them about the benefits of using the strategies that enhance the reading comprehension ability. The four distinct stages of strategy instruction are illustrated in Figure 7. The strategy instructional design was based on the Cognitive Academic Language Learning Approach (CALLA) model (Chamot, 2005; Chamot & O'Malley, 1994). The essential goals of CALLA were for students to become more independent and self-regulated learners through a variety of strategies for learning academic content and language, which eventually would result in students' autonomous strategy use. The CALLA (Chamot, 2005) model was initially composed of six steps: preparation, presentation, modeling, practice, self-evaluation, and expansion. In this study, the preparation

stage was integrated into the presentation stage, and the evaluation and expansion stages were combined as one stage.

Figure 7

The Strategy Intervention Instructional Model



Note. This strategy instruction model is created based on the Cognitive Academic Language Learning Approach (CALLA) model (Chamot, 2005; Chamot & O'Malley, 1994).

Stage 1-Presentation Stage. Explicit instruction was given for each strategy as to what the strategy was, how a new strategy was used, and why the strategy was important to learn (Aghaie & Zhang, 2012; Chamot, 2005; Yapp et al., 2021). The purpose of this direct presentation of learning strategies was to help students become aware of the benefits of learning strategies and begin thinking about their own learning strategies by explaining the importance of reading strategies.

Stage 2-Modelling Stage. The teacher-researcher modeled the correct use of reading strategies and gave specific examples. Students could observe how a new strategy was used in

specific situations. The researcher showed step by step how to use a new strategy and then the students began following the teacher's thought process. What to do, what not to do, and questions were addressed. Thus, students became gradually aware of their own thinking and learning strategies.

Stage 3-Practice Stage. Multiple practice opportunities were provided to help students apply the reading strategies while attending to reading tasks. The class was divided into small groups and encouraged to work collaboratively on what situations would be appropriate for using such strategies. The researcher gave feedback to the group or individual students if students were having a hard time learning the strategy. The ultimate goal was to help students move toward autonomous use of the strategies by gradually removing the scaffolding.

Stage 4- Evaluation and Expansion Stage. Students were provided with opportunities to evaluate the success and effectiveness of the strategies. Group discussion and self-questioning on strategy practice were used to evaluate and reflect on the strategy learning process. Thus, students had an opportunity to express their opinions about the usefulness of the strategies and discuss the strategies that worked best for them. The researcher asked the following questions to help students evaluate their strategy use: 1) What did they learn about the strategy?; 2) Did the strategy help them understand the reading better? Why and why not?; and 3) Could they employ the strategy while reading new reading passages or journals? In addition, students were encouraged to use strategies autonomously and apply strategies to new texts and contexts.

A Set of Teaching Activities for the Strategy Instruction

Two instruction sessions were held for each strategy. The first session covered the presentation and modeling stages of the instruction in a lecture format. The participants were provided with an explanation and demonstration of the target strategy.

- The researcher presented the objectives of the lesson.
- The researcher introduced the target strategy by explaining what the strategy was, the benefits of using it, and how to use it with step-by-step procedures.
- The researcher modeled how to apply the target reading strategy to the text. A wide variety of supplementary reading passages about social and cultural topics, technology, and education were presented to demonstrate the reading strategies.
- The researcher demonstrated how to use the strategy using different types of texts step by step.

The second session was devoted to the practice and evaluation/expansion stages of the instruction. During this time, participants worked in pairs or groups to practice the strategy, and a group discussion was facilitated to evaluate the participants' strategy use.

- After the modeling of the strategy, the researcher gave students activity time. Students were provided with a handout with reading passages to practice the strategy.
- The students worked in pairs or groups to apply a new strategy learned and shared as a whole class.
- The researcher observed students' reading activities during the practice time and answered questions as they arose.
- The researcher led a group discussion on reflection questions to help students evaluate their strategy use.
- Students were encouraged to use strategies autonomously and apply strategies to new contexts such as reading journals or writing assignments for the course.

Each intervention session started with briefly recalling the strategy previously taught. Reviewing the strategies being taught promoted long-term retention by giving students a second learning opportunity (Dunlosky et al., 2013). Every Friday for three weeks, additional strategy sessions were provided for those absent from the class to ensure all participants received the strategy intervention. A variety of texts, including current social and cultural issues, were used to increase student motivation to read. Given that the participants came from diverse educational, cultural, and ethnic backgrounds, reading texts and tasks should be appealing to students to capture their attention.

A specific lesson plan for each strategy instruction is provided in Appendix G.

The S-O-I Cognitive Learning Strategies

The reading intervention, "S-O-I cognitive learning strategy instruction," was a six-session L2 learning strategy instruction implemented for ESL students over three weeks. The intervention is named based on the theoretical framework of the SOI model of cognitive processing (Mayer,1996:2014). The SOI includes three cognitive processes involved in meaningful learning: selecting relevant information from incoming input, organizing selected information into a mental representation, and integrating organized information with existing knowledge. Three learning strategies were taught during six sessions of strategy intervention, one strategy for two sessions per week. The three reading strategies that could facilitate the SOI model of cognitive processing were selected from the recent empirical studies on strategy intervention published within the past ten years (2021-2012). Sixty-six strategies were identified from ten studies, which are presented in Table 3. Excluding 14 overlapping strategies, 52 reading strategies were categorized based on the Select-Organize-Integrate (SOI) model of cognitive

information processing. Finally, three strategies were methodically selected on the basis of theoretical justification of the SOI model of cognitive processing.

The learning strategy for enhancing the selecting phase of the cognitive process was strategy# I, *finding the main idea and supporting details*. Next, in order to strengthen the organizing stage of the cognitive process, strategy# II, *mind mapping,* was selected. Lastly, the third strategy chosen for improving the integrating phase of the cognitive process was *self-explaining.* The SOI cognitive strategy instruction was designed to teach those three strategies in sequential order. More specifically, strategy# I (finding the main idea and supporting details) is the foundational strategy for strategy# II (mind mapping). Likewise, strategy# II must be learned prior to learning strategy# III (self-explaining). Those three selected learning strategies were among fifty-two learning strategies that appeared in ten empirical reading comprehension studies reviewed in this study. The list of fifty-two learning strategies in the recent empirical reading studies is provided in Table 5. The three learning strategies selected for this study are typed in boldface. In addition, a short description of three learning strategies is provided under each week of the intervention plan in the following pages.

Table 5

Strategies Used for Reding Comprehension in Recent Empirical Studies

Study	Reading Strategy
Yapp, Graff, & Bergh, 2021	• **Connecting new knowledge to what you already know** • Asking oneself questions while reading • Making predictions while reading • Visualization • **Paying attention to structure and signal words** • Skimming • Scanning
Ghavamnia, 2019	• Predicting • Guessing • Skipping • Skimming

	• Taking notes • Highlighting • Summarizing
Suwanarak, 2019	• **Highlighting the most important concepts and ideas** • Putting knowledge into different practices • **Restating the important point that still express the original idea and understanding** • Reflecting on learning experiences and activities • Discerning and summarizing the most important points and ideas • **Visually mapping out thoughts and ideas around the topic** • Asking questions and getting answers for the best evidence of understanding • Having peer interactions to enhance learning capacity
Ramezani, 2018	• Notetaking, • Highlighting
Chumworatayee, 2017	• Previewing and predicting • **Identifying main ideas and topics** • Using context to guess meaning • **Identifying supporting details** • Recognizing patterns of organization • Making inferences • Distinguishing facts from opinions • Identifying purpose and tone
H.Y. Lee, 2017	• Previewing • **Finding topics and main ideas** • Identifying patterns of organization (cause and effect, problem and solution, definitions and examples) • **Summarizing** • **Paraphrasing** • Monitoring • Making inferences • Guessing vocabulary • Referencing pronoun • Skimming and scanning • **Using visual information and semantic maps**

Msaddek, 2016	• Cognitive/ metacognitive text-processing strategies
	  ○ planning
	  ○ inferring
	  ○ **paraphrasing**
	  ○ monitoring and evaluating

Mohammadi, Birjandi, & Maftoon, 2015	• **Concept-mapping** • Vocabulary notebook • Passage restatement • Dictionary use • **Summary writing** • Guessing
Medina, 2012	• **Having a purpose** • Previewing • Skimming • Scanning • Predicting • Inferring • Using cohesive devices • Guessing word meaning • Activating background knowledge
Aghaie & Zhang, 2012	• Guessing unfamiliar words from contextual clues • **Summarizing main ideas from a text** • Looking for logical relationship between paragraphs • Trying to find out the organizational aspects of text

Sessions One and Two: Finding the Main Idea and Supporting Details

The first phase in the Select-Organize-Integrate (SOI) model of cognitive information processing is selecting information. This phase involves focusing attention on relevant incoming information (Mayer, 1996). In simple terms, selecting information refers to identifying what is important and what is not. In order to enhance this step of the cognitive process, the reading strategy, "finding the main idea and supporting details," was instructed. This strategy can teach students to recognize which points are main ideas and which are supporting details. Finding the main idea is key to understanding what students read as the main idea ties all the sentences in the paragraph together and tells the most important points being made in the passage (Flemming, 2014). The supporting details clarify the main idea and back up the main idea by providing examples, reasons, statistics, and solutions to the problem.

Learning to identify these features of a passage enables students to distinguish the main point of a text from the details that support the main idea and keep track of important ideas in the text (Kress & Fry, 2015). Overall, learning to identify the main idea and supporting detail is an important part of understanding the structure of a text which guides students to recognize the main topic, identify the main idea, and monitor their comprehension. By actively searching for the main ideas of the learning materials, students are more likely to go deeper into the learning process and develop a better understanding of the material they learn. Ultimately, this strategy can help students process the reading material at a deeper level and improve the speed and quality of their reading comprehension.

In the practice phase, students were provided with a handout with three reading passages. Four ways of finding the main ideas were presented on the classroom screen for students' reference: a) the first sentence b) the last sentence, c) reversal transitions, and d) the implied main idea. Then the students worked in groups of three to practice the strategy. Students were asked to identify the topic, the main idea, and three supporting details for each reading passage. The researcher observed students' reading activities during the practice time and answered questions as they arose. In the end, the researcher went over each passage as a whole class, and each group presented their answers for each reading passage. The researcher led a group discussion on reflection questions to help students evaluate their strategy use. The handout and lesson presentation for sessions one and two are in Appendix G.

Sessions Three and Four: Mind Mapping

The second phase in the SOI model of cognitive information processing is organizing information. This phase involves organizing the selected information and building internal connections among them (Mayer, 1996). To strengthen the cognitive process of organizing, the

reading strategy, “mind mapping”, was taught. Mind mapping is a tool for organizing and representing knowledge visually, which helps organize and synthesize complex information effectively. The rationale for using mind maps to reinforce the organizational cognitive process is that our brain works to organize knowledge in hierarchical frameworks. And mind mapping facilitates this process, which in essence significantly enhances the learning capability of all learners (Tsien, 2007). This strategy helps students organize their thoughts clearly and connect information around a central concept. Creating meaningful mind maps can promote the retention of knowledge for long periods because learning takes place by organizing and integrating new concepts into the existing concept (Novak & Wandersee, 1991).

When students learn large amounts of information, a mind map can help students exclude unimportant details and identify what is important and how different ideas connect (Anderson & Theide, 2008). In other words, students can think about how concepts and ideas relate to one another and decide what is most important in reading by creating a mind map. Mind mapping is more than just locating the main points of the text, but it boosts organizational processing by connecting separate pieces of the text (Dunlosky et al., 2013). Students can benefit from mind mapping because it is a way of synthesizing and creating the text in their own way, which requires active processing of the to-be-learned materials (Einstein, Morris, & Smith, 1985). Students will be required to identify important concepts in the reading passages, relate them to each other, and visually map out thoughts and ideas around the topic. Students may experience difficulty building mind maps and using these at an early stage in their learning. Therefore, multiple opportunities for practice will be provided to help students to engage in the creative process of making a mind map.

In the practice phase, students were provided with a handout with two reading passages with ample space to draw a mind map. The three steps of the mind mapping procedure were presented on the classroom screen for students to follow: a) Find the main topic (a word or phrase), b) Start with the main topic in the center, c) Add other important ideas/details to the main topic. Then the students worked in pairs to practice the mind mapping strategy. Students were asked to make a mind map that summarized the main idea and supporting details from the reading passages. The researcher observed students' reading activities during the practice time and answered questions as they arose. In the end, each student had a chance to show and explain their mind maps in front of the class. The researcher led a group discussion on reflection questions to help students evaluate their strategy use. The handout and lesson presentation for sessions three and four are presented in Appendix G.

Sessions Five and Six: Self-Explaining

The final phase in the SOI model of cognitive information processing is integrating information. This phase involves "building external connections between the organized new knowledge and existing knowledge (Mayer, 1996, p.366)". In other words, the integrating process is about relating what is learned to what is already known. The reading strategy, "self-explaining," will be taught to bolster this process. Self-explaining strategy refers to generating an explanation for some aspect of their cognitive processing during learning. In simple terms, self-explanation is the process of explaining materials to oneself. It is a self-generated and self-directed constructive activity that requires analysis and reflection of the underlying principles of concepts (Roy & Chi, 2005). The self-explanation effect states that learning is improved when students generate self-explanations about how and why events or phenomena happen (Chi, Bassok, Lewis, Reimann & Glaser,1989; Siegler, 2002).

There have been exciting discoveries regarding why students learn better when they explain to themselves the material they are learning. Self-explanation requires students to elaborate on the to-be-learned information by relating it to prior knowledge and constructing new knowledge beyond the learning materials (Fonseca & Chi, 2011). Learning is about integrating new information into existing knowledge, and generating self-explanations facilitates that integration process. Moreover, generating self-explanation encourages students to attend to the learning material more meaningfully (Roy & Chi, 2005; VanLehn, Jones & Chi, 1992). By actively searching for explanations of the learning materials, students are more likely to go deeper into the learning process and better understand the material they study. According to the US Next Generation Science Standards (as cited in Villalta-Cerdas & Sandi-Urena, 2014), the generation of explanations is one of eight practices of science essential for all students to learn subjects, analyze data and engage in argument. This suggests a clear reason for ESL teachers to integrate self-explanation into their instructions.

In the present study, in order to elicit students' self-explanation during the strategy instruction session, a specific prompt is given to students: "explain what new information the paragraph provides for you." Answering this prompt enables students to summarize the main ideas in their own words quickly and to gauge what they understand and don't about a reading. Also, students can focus their attention on their incomprehension, discover the gaps in their knowledge and do something about it. Furthermore, self-explaining can enhance learning by supporting the integration of new information with existing prior knowledge. Ultimately, students can process the reading material at a deeper level by mindfully transforming the information into their own words and verbalizing what they learn from the reading.

Students were provided with a handout with three reading passages to choose from in the practice phase. The three steps of the self-explaining procedure were presented on the whiteboard screen for students to follow: a) Read and find the main idea and supporting details, b) Make a mind map to organize the ideas, c) Tell what new information you learn from the reading in your own words. Then the students worked in pairs to practice the self-explaining strategy and took turns self-explaining the paragraph of their choice to their partners. The researcher observed students' reading activities during the practice time and answered questions as they arose. In the end, each pair of students had a chance to demonstrate their self-explaining in front of the class. The researcher led a group discussion on reflection questions to help students evaluate their strategy use. The handout and lesson presentation for sessions five and six are in Appendix G.

Online Survey

The experimental group was administered an online survey upon finishing the six-session intervention. Students were informed in advance by the researcher. The survey was conducted in the online Zoom class session to promote a higher response rate while the researcher and the instructor were in session answering any questions that arose. The students in the experimental group were asked to fill out a self-report questionnaire in order to explore how the strategy instruction was experienced and perceived by the participants. The survey was conducted using Qualtrics, an online survey platform, and the researcher distributed the Qualtrics link to students via the Zoom chat function. In designing a questionnaire, it was critical to use simple words that were short and widely understood in light of the various participants with a wide range of cultural backgrounds, first languages, and English proficiency levels. In addition, to ensure a good response rate, special care was devoted to the questions' wording and format. Students

completed the self-administered questionnaire using their cell phones, laptops, or other electronic devices during the class. The analysis of the survey data was completed before the follow-up individual interviews began so that the researcher could utilize the data from the survey to select interview participants purposefully.

Post-Test

The post-test was administered to students in both the experimental and the comparison groups one week after completing the six-week intervention. Students were permitted to use dictionaries and were given 35 minutes to complete the test. The pre-and posttests were of equal level difficulty to rule out the plausible explanation that the observed differences are due to the differences in test difficulty. The difference in scores between the pre-and posttests for the treatment group reflected natural growth plus the effect of the strategy intervention while the difference in scores for the comparison group was indicative of natural growth in reading comprehension.

Individual Interviews

Finally, individual interviews with selected participants were conducted via Zoom after the post-test and the online survey. Participants were selected from the treatment group for one-on-one interviews. The selection was based on the participants' proficiency levels utilizing the pretest scores and the researcher's observation. The beginner level was reading pre-test scores of less than 12 out of 20, the intermediate was less than 17, and the high level was higher than 18. Four participants were selected from the high proficiency level, three from the intermediate level, and three from the beginner level. The researcher ensured that those selected interview participants had completed all the research phases from the consent form and pre-test through the online survey and post-test. The data from interviews were used to obtain information as to how

participants' awareness of the benefits of strategies and perception of their reading skills change through the strategy instruction. The interview helped the researcher gain more insights into the students' use of learning strategies after the strategy intervention. In addition, the researcher could have a deeper understanding of a topic that participants might want to talk about privately, such as their academic struggles or career aspirations.

A semi-structured interview was drawn on because this type of interview offers an opportunity to follow up on interesting ideas and allows to get a more profound explanation from the interviewee. The semi-structured interview was guided by interview questions, which provided a framework for the interview about what should be talked about (Creswell & Poth, 2018). The interview for the present research consisted of nine open-ended questions. In some instances, other questions arose as a follow-up to student comments as with any other semi-structured interviews. The researcher followed the interview protocol consisting of five components: basic information about the interview, an introduction, an opening question, the interview content questions with probes, and closing instructions (Creswell & Creswell, 2018).

Basic information about the interview includes the time and date of the interview, where the interview took place, the length of the interview, and the names of both the interviewer and interviewee. In the introduction section, the purpose of the study, the general structure of the interview, the number of questions, and the duration of the interview are introduced. In the opening question section, the interview begins with an ice-breaker type of question to set the interviewee at ease. Content questions are the research questions phrased in a way that is comprehensible to the interviewee. The content questions include probes to ask for more formation or to ask for an explanation of ideas. Finally, in the closing instructions section, the researcher thanks to the interviewee for responding to interview questions and assures the

confidentiality of the interview. The interview protocol used for this study is provided in Appendix F.

After the interviewees were selected, they were informed via email and given a Zoom link to the meeting. Each interview lasted 25-35 minutes, depending on the interviewee's speaking ability and personality. All the interview processes were recorded and transcribed via Zoom for later review. All identifying information for participants was removed, and a pseudonym was assigned to each interviewee to maintain confidentiality.

Data Analysis

Quantitative Data Analysis

Quantitative data from pre-and posttests from treatment and comparison groups were collected and analyzed utilizing two statistical procedures, between and within-group comparisons. The significance level was set at 0.05 for each two-tailed test. Cohen's *d* was reported for each statistical analysis to measure practical importance which describes the standard deviation difference between group means. A paired-samples t-test was conducted for the treatment group using the SPSS software to address the first research question. This test was to identify any statistically significant difference between the participants' reading proficiency prior to and after receiving explicit instruction on reading strategies. The data were further analyzed to determine the difference in reading comprehension scores between the low and high proficiency students. In order to determine the proficiency level, the treatment group's scores were divided into two groups based on the average pre-test score (14.6 of 20). Students who scored equal to or more than 14.6 were considered a high proficiency, and those less than 14.6 were deemed low. Then, an independent-samples *t*-test was conducted.

Next, to address the second research question, initially, Levene's test of equality of variances was conducted to verify the assumption of homogeneity of variance. If the significance value was not significant ($p > .05$), the treatment and comparison group variances were assumed equal. The *t*-test value was reported using the Welch-Aspin test when Levene's test of equality of variances was statistically significant ($p < .05$). Then an independent-samples t-test on post-test scores was carried out to compare the means of two groups to determine whether there was a statistically significant difference between the participants who received and did not receive the strategy instruction.

The quantitative aspect of survey data was collected and analyzed by Qualtrics, an online survey platform, which produced statistical results in numerical, tabular, and chart forms. To maintain confidentiality and protect the identity of participants, Qualtrics generated an identification number for each respondent in reporting and analyzing data.

Qualitative Data Analysis

The qualitative data obtained from the semi-structured interviews with selected participants were analyzed and examined. This interview data helped address the final research question regarding how the experience of the six-session strategy intervention contributed to participants' awareness of the benefits of strategy use and perceptions of their reading skills. Qualitative data analysis should be conducted in a precise and consistent manner through recording and systematizing to generate meaningful and valuable results (Nowell, Norris, White, & Moules, 2017). Therefore, all individual interviews were conducted via Zoom, a video conference platform, and audio recordings were transcribed using a Zoom recording function.

And then the interview data were coded by the researcher to create general themes for the report. The researcher engaged in a preliminary reading of the transcripts to make initial notes

about the participants' remarks and organize raw data. She then focused more on transcripts to generate initial codes by categorizing the terms. Finally, the researcher identified the recursive themes by underlining and highlighting keywords and phrases. The themes were connected to the qualitative research question with two sub-questions.

In order to make the interview data analysis process credible, the present research drew on thematic analysis as this was a proper method for examining the different perspectives of participants, highlighting similarities and differences, and yielding meaningful results. In addition, thematic analysis was a relatively more approachable type of data analysis as this did not require the researcher to have profound theoretical and technological knowledge of qualitative data analysis (Braun & Clarke, 2006). Qualitative data were processed, coded, and analyzed by the researcher in accordance with six sequential phases of thematic analysis (Nowell et al., 2017): (a) familiarize yourself with the data by documenting thoughts about potential codes or themes, (b) generate initial codes by categorizing and labeling categories with a term, (c) search for recursive themes by diagramming to make sense of theme connections, (d) review themes by returning to raw data, (e) define and name themes by documenting themes and theme-naming, (f) produce the report by describing the coding and analysis process in greater details.

Background of the Researcher

The researcher taught English as a Foreign/Second Language (EFL/ESL) for eight years inside and outside the U.S. She earned her TESOL (Teaching English to Speakers of Other Languages) master's degree from the University of San Francisco. Her master's degree field project was Teaching EFL/ESL College-Level Learners Through Current Global Topics. This project was intended to address the issue of test score-driven English language teaching and learning and how this teaching method impedes English learners' communicative ability in

various academic and social contexts. As part of the field project, the researcher designed a curriculum incorporating a range of global topics related to current cultural, social, business, and political news and events into English language teaching. The ultimate goal of this language curriculum was to help EFL/ ESL students perform successfully in higher education, the workplace, and in navigating through the complex and dynamic global contexts where they are situated.

In addition, the researcher worked with immigrant students as an English language instructor at Kaplan International San Francisco and at the College of Alameda. Those international students were marginalized due to cultural differences, knowledge gaps, and socioeconomic status. As an instructor, she strived to get to know the students' concerns and backgrounds to tailor the instruction to their needs. She believes providing students with strategies is at the core of social justice to help students to learn better, get through the program successfully, and smoothly transition to a new learning environment. And marginalization can be overcome if the school community, teachers, and students work together. As a result, she has been awarded a Social Justice Scholarship for three consecutive years from the University of San Francisco.

The researcher is currently working as a teaching assistant in the TESOL master’s degree program within the School of Education. She has also been working as an academic skills coach and supplemental instruction coordinator for four years in the Learning Center at the University of San Francisco. As an academic skills coach, she assists undergraduates with general study skills development. She provides academic support regarding time management, organizational skills, and productive study habits so that the students can achieve academic success in university. She believes that students need just-in-time support when they are stumbling through

new learning environments and the heavy course load, and when they need emotional support. In addition, she oversees the Supplemental Instruction (SI) program in the Learning Center, which targets historically difficult courses and provides regularly scheduled, peer-facilitated sessions to assist students in understanding course content and developing academic skills. The SI program aims to assist students in understanding what to learn and how to learn and eventually, become more actively involved in the course by developing more effective study skills.

Furthermore, the researcher has presented at different conferences on the ESL topics such as “Developing Integrated Lessons for ESL College-Level Students Through Current News Articles” at CATESOL Bay Area Conference, Alameda, CA (March 2018) and “Strategy-Based Instruction: The Effect of Curriculum-Integrated Explicit Strategy Instruction” at Symposium on Language Research at UC Davis (May 2021). Her research interests are instructional design, language teaching and educational technology, and strategy-based language curriculum development.

All the work that she has been doing as an ESL/EFL instructor, academic skills coach, and educational program coordinator is related to providing effective strategies for students to become autonomous, self-directed, and self-motivated life-long learners. Educational inequity and marginalization can be understood in the context of learner-centeredness in education. One way to advance equity and inclusion is by designing the course relevant to students' needs and respecting individual differences in learning and cognitive development. Students do not want to waste time learning things they do not need or not learning things they do need. Therefore, the researcher’s personal goal is to create a well-designed, well-motivated, and strategic language course, aiming to engage students in playing an active role in their own learning progress. Integrating learning strategy instruction into regular English language courses is one way to

achieve this goal. Her professional goal is to help students achieve their personal, academic, and career goals in university and beyond through the knowledge they gain in their English classes. She believes that providing consistent and systematic guidance through academic strategies can make a huge difference in students' academic and personal lives.

CHAPTER IV

RESULTS

Introduction

The study aimed to investigate the effect of explicit learning-strategy instruction by integrating the strategy instruction into regular language lessons. The purpose of this mix-methods study was to investigate whether explicit teaching of learning strategies had an impact on ESL learners to become more successful in their English reading proficiency. Furthermore, this study explored the ESL students' awareness of the benefits of the learning strategy and perception of their reading skills after the learning strategy instruction.

The quantitative data were collected through reading comprehension pre-and posttests, which assessed both treatment (n=15) and comparison groups'(n=18) reading comprehension ability before and after strategy intervention. Only the treatment group received the six sessions of strategy intervention twice a week over three weeks. Then an online survey was conducted to obtain quantitative data on how the intervention group experienced the strategy instruction in terms of helpfulness and usefulness of the learning strategies. Lastly, qualitative data were collected through semi-structured individual interviews from the intervention group. One-on-one interviews with selected participants (n=10) were conducted to elicit participants' more profound thoughts on their awareness of the benefits of learning strategies and perceptions of their reading skills through strategy instruction.

This chapter presents the findings of the quantitative data, providing descriptive statistics, t-test results, and effect sizes for research questions one and two. Quantitative data from the online survey for research question three are presented using Qualtrics data analysis, reporting the results in a pie chart. Then it discusses the qualitative data collected for research question

four, describing the five central themes that emerged from the one-on-one interviews with ten participants from the treatment group.

Quantitative Analysis

Quantitative data were analyzed by a series of *t*-tests utilizing SPSS to determine whether there was a statistically significant mean difference in the scores of pre-and posttests between treatment and comparison groups; Levene's test, paired-samples *t*-test, and an independent-samples *t*-test were used. Effect size, Cohen's *d*, was computed and reported as a measure of practical importance for each of the *t*-tests conducted. Cohen's *d* was designed to interpret the magnitude of the effect size and to provide a clear sense of whether the result is valid or not (Cohen, 1988). Based on Cohen, d < .20 is deemed as having no effect even if it is statistically significant; d = .20 is considered a small effect size; .50 represents a medium effect size; .80 represents a large effect size. Subsequently, a section dedicated to Qualtrics survey results follows for the third research question.

Research Question 1: Difference in Reading Comprehension Scores for the Strategy Intervention Group, Especially Between Low and High Proficiency Students

What is the difference in scores for students in the learning strategy intervention classroom, especially between low and high proficiency students, as measured by the difference in pre-and posttest reading comprehension scores?

The first research question aimed to investigate the difference in mean scores for the treatment group on an assessment of reading comprehension before and after strategy intervention was completed. Then, the data were further analyzed to determine the difference in reading comprehension scores between the low and high proficiency students. First, a paired-samples *t*-test was conducted for the treatment group to measure the statistical difference in

scores between pre-and posttest. The reading comprehension pre-and posttest had twenty total possible scores. Scores ranged from nine to nineteen. Table 6 presents descriptive statistics, paired-samples *t*-test results, and effect size for the treatment group on reading comprehension pre-and posttest.

Table 6

Descriptive Statistics, Paired-Samples t-Test Results, and Effect Size for the Treatment Group

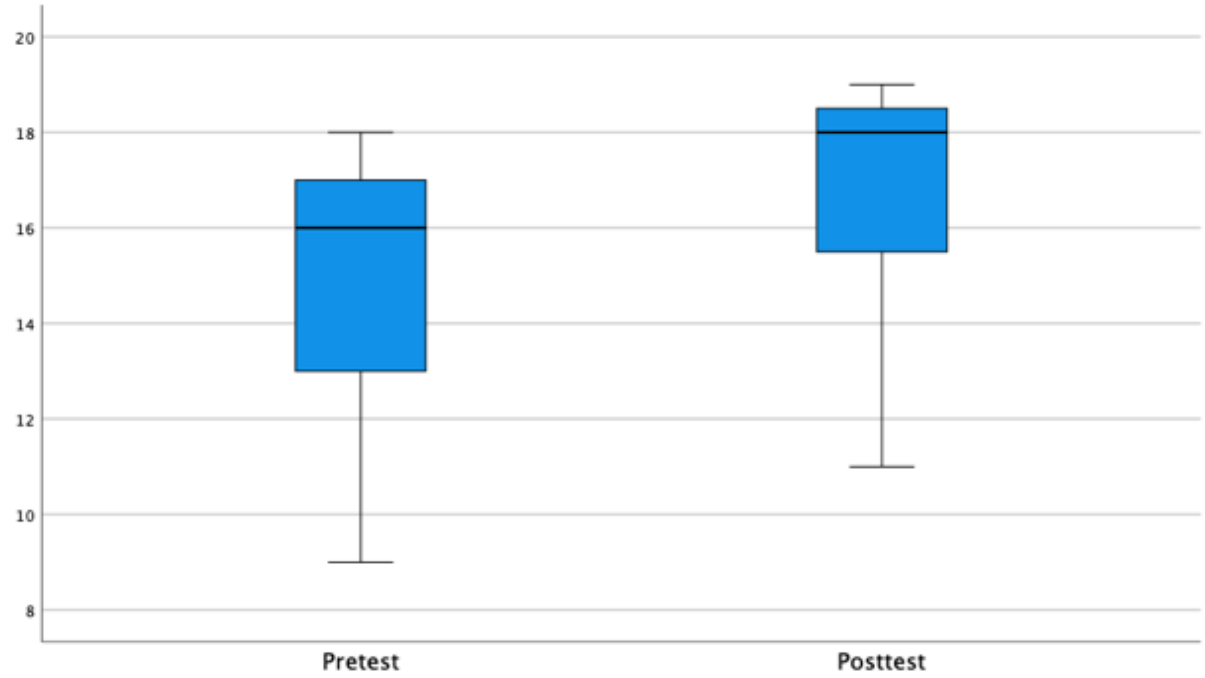
	N	M	SD	*t*	Effect Size (*d*)
Pre-test	15	14.60	3.18	5.21*	1.35
Post-test	15	16.53	2.80		

* Statistically significant at the .05 level.

The students exhibited a statistically significant higher mean in the post-test (M= 16.53, SD=2.80) than in the pre-test (M=14.60, SD=3.18); t (14) = 5.21, $p < .05$. The effect size (d=1.35) was large, indicating the change in scores from pre-test to post-test had a large effect. Figure 8 illustrates pre-and posttest means as a boxplot for students in the treatment group. The boxplot shows that the center of the post-test scores is higher than the center of the pre-test scores and that there is slightly more spread in the pre-test scores than in the post-test scores. The distribution of post-test scores was more clustered around the mean compared to the pretest. Both variables appear to be symmetrically distributed, which is consistent with the significant results of the paired-samples *t*-test.

Figure 8

Boxplot of Pre-and Posttest Results for Students in the Treatment Group



Furthermore, in order to investigate the difference between low proficiency students and high proficiency students in the change of scores from pre-test to post-test, an independent-samples *t*-test was conducted. The participant's scores were divided into two groups based on the average pre-test score (14.6 of 20). Students who scored equal to or more than 14.6 were considered a high proficiency, and those less than 14.6 were deemed low. Levene's test of equality of variances was conducted to check the assumption of homogeneity of variance. The result (Levene's $F = 7.85$, $p = .02 < .05$) was significant, indicating the equal variances assumption did not meet. Thus, the *t* values were reported using the Welch-Aspin test. Cohen's *d* was calculated to determine whether the *t* values had practical significance. Table 7 provides descriptive statistics, independent samples *t*-test, and effect size for change in scores from a pre-test to a post-test between low and high proficiency students.

Table 7

Descriptive Statistics, Independent-Samples t-Test, and Eta Squared for the Score Change from Pre-test to Post-test Between Low and High Proficiency Students.

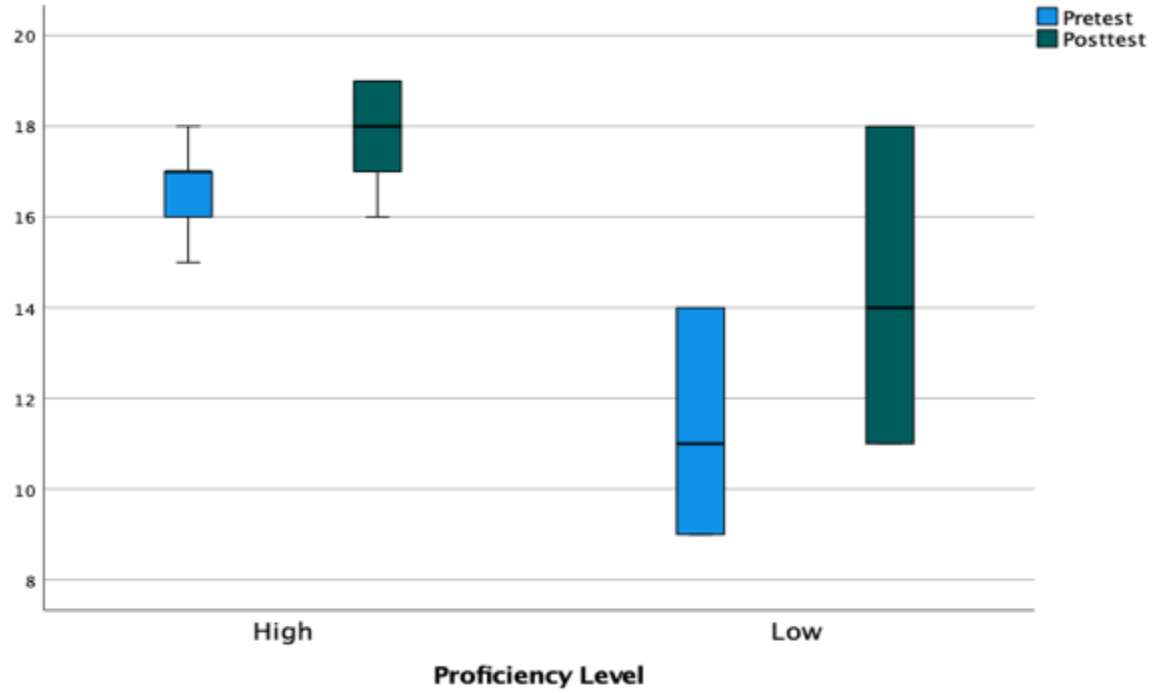
	Low Proficiency (*n*=6)		High Proficiency (*n*=9)			
Variable	Mean	SD	Mean	SD	*t*-test (df)	Effect Size (*d*)
Pre-test	11.33	2.34	16.78	0.98	5.40 [a] (6.17 [a])	3.04
Post-test	14.33	3.20	18.00	1.19	2.70 [a] (5.82 [a])	1.52
Gain score	3.0	1.79	1.22	0.44	2.39* [a] (5.41 [a])	1.37

* Statistically significant at the .05 level.
[a] Welch-Aspin test used.

The gain score of the low proficiency students (M = 3.0, SD = 1.79) from pre-test to post-test was higher than the high proficiency students (M = 1.22, SD = 0.44). Although descriptive statistics showed that the low-proficiency students' mean scores improved more than high proficiency students' with a large effect size (d=1.37), it was not statistically significant, t (5.41) = 2.39, p=.06>.05. This suggests that the learning strategies intervention was equally beneficial for low and high-proficiency students. Also, this non-significant result with a large effect size could mean that there was not enough sample size to verify the t-test results were significant. Figure 9 illustrates pre-and posttest means as a boxplot for the low and high proficiency students. The boxplot shows that the center of the post-test scores of the high-proficient is higher than the center of the low-proficient. However, there is more spread in the post-test scores of the low-proficient than the high-proficient, indicating that the low-proficiency students' post-test scores increased more than the high-proficiency students, which is consistent with the large effect size of the independent-samples t-test.

Figure 9

Boxplot of Pre-and Posttest Results for Low and High Proficiency Students



Research Question 2: Difference in Reading Comprehension Scores Between Intervention and Comparison Groups

What is the difference in scores between students in the strategy intervention classroom and those in the traditional instruction classroom, as measured by the difference in pre-and posttest reading comprehension scores?

The second research question investigated the difference in mean scores between the intervention and comparison groups on an assessment of reading comprehension before and after the intervention. An independent-samples t-test was conducted on a convenient sample of 33 participants to determine whether there was a mean difference in scores between participants who underwent the six-session strategy intervention and conventional instruction. There were 15 participants in the strategy intervention group and 18 in the traditional classroom group. Again, Levene's test of equality of variances was conducted to verify the assumption of homogeneity of

variance. The significance value (Levene's $F = .25$, $p = .62 > .05$) was not significant which confirmed that the treatment and comparison group variances could be equal. Table 8 shows the mean scores, standard deviations, independent *t*-test results, and effect sizes for comparing pre- and posttest between treatment and comparison groups. The difference in mean scores between the treatment and comparison groups was calculated as a gain score by subtracting each student's pre-test score from their post-test scores.

Table 8

Descriptive Statistics, Independent-Samples t-test Results, Effect Sizes for Comparing Pre-and Posttest Scores for Treatment and Comparison Groups

	Treatment (n=15)		Comparison (n=18)			
Variable	Mean	SD	Mean	SD	*t*-test (df=31)	Effect size (*d*)
Pre-test	14.60	3.18	15.78	2.65	1.16	.41
Post-test	16.53	2.80	16.72	2.40	.21	.07
Gain score	1.93	1.43	0.94	1.16	2.19*	.76

*Statistically significant at the .05 level.

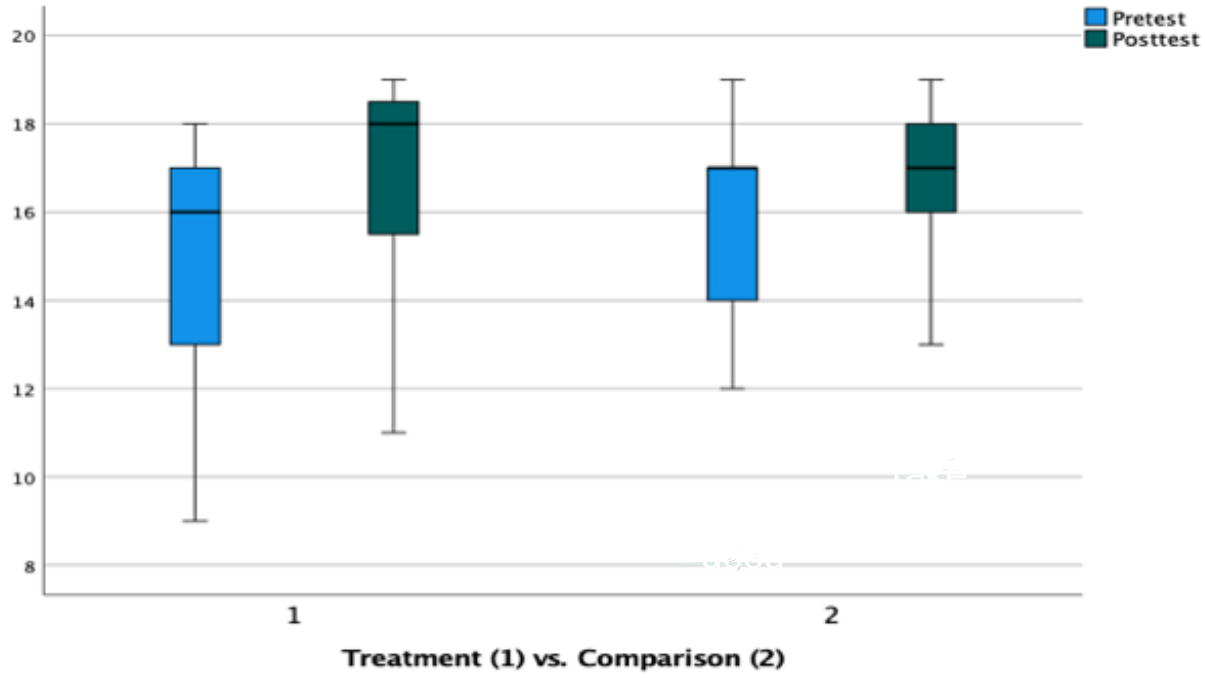
The comparison group (M =15.78, SD = 2.65) began the study with relatively higher means than the treatment group (M =14.60, SD =3.18). The difference in the pretest means for the two groups had a medium effect size (d= .41) although not statistically significant. After the learning strategy intervention, the comparison group exhibited slightly higher scores (M=16.72, SD=2.40) than the treatment group (M=16.53, SD=2.80), $t(31)=.21$, $p=.84 >.05$; the effect size was small (d=.07), indicating no difference in post-test means between two groups. In terms of the gain scores between the pre-test and the post-test, the treatment group (M = 1.93, SD = 1.43) increased their post-test scores higher than the comparison group (M = .94, SD = 1.16),

t(31)=2.19, *p*=.04< .05. This difference was statistically significant, and the effect size (*d*=.76) was large. Overall, at the end of the six-session strategy intervention, the results showed that the treatment group's gain scores from pre-test to post-test were higher than the comparison group. These results suggest that strategy intervention has an effect on ESL students' reading comprehension skills.

Figure 10 illustrates a boxplot of pre-and posttest scores for students in the treatment and the comparison condition before and after the strategy intervention. The boxplot shows that the comparison group's pretest scores are higher and there is less variation in the pre-test scores amongst participants in the comparison group than in the treatment group. On the other hand, for the post-test, the center of the treatment group is higher than the center of the comparison group, indicating that the treatment group's post-test scores increased more than the comparison group. This is consistent with the significant results of the independent samples *t*-test.

Figure 10

Boxplot of Pre-and Posttest Results for Comparison and Treatment Groups



Research Question 3: Helpfulness and Usefulness of Strategy Instruction Survey Results

How do the community college ESL students in the strategy intervention classroom assess the helpfulness and usefulness of the learning strategies through an online survey?

Fifteen participants from the intervention group participated in the online survey. This survey was designed to answer seven Likert-scale questions and four open-ended questions as to how the community college ESL students in the intervention group assessed the helpfulness and usefulness of each of the three strategies. The survey data were collected and analyzed by Qualtrics, an online survey platform, which produced statistical results in numerical and tabular forms.

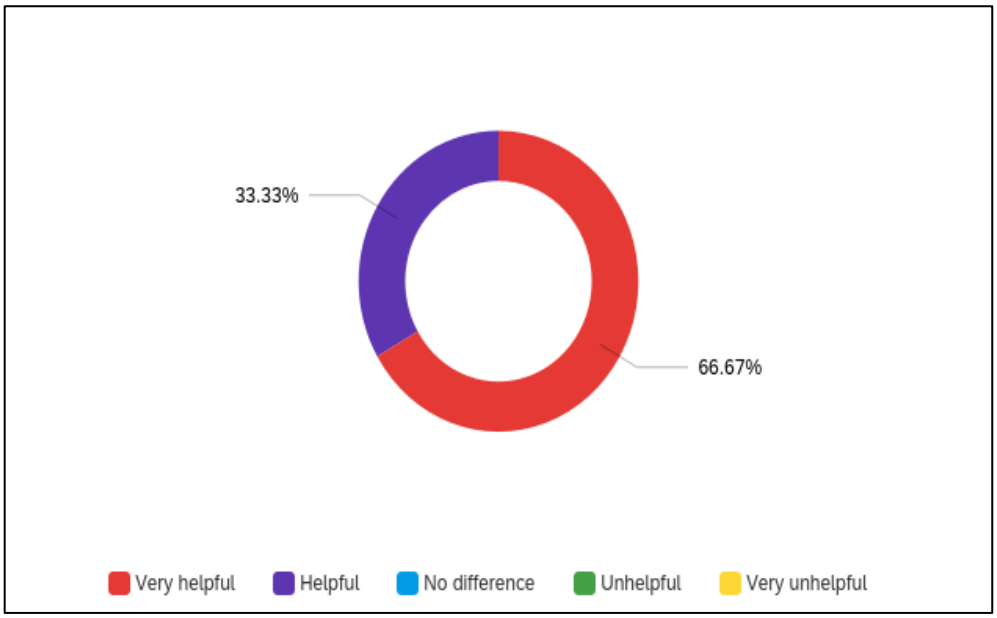
a. How helpful is each of the three learning strategies to improve students' reading skills?

The descriptive statistics findings indicated that 100% of the participants found strategy# I: finding the main idea and supporting details, very helpful or helpful to improve their reading skills. 66.7% of the participants, 10 out of 15, responded that strategy I was very helpful. Likewise, 100 % of the participants found strategy# II: mind mapping, very helpful or helpful. Among them, 73% of the participants (*n*=11) answered that strategy# II was very helpful. Lastly, 93 % of the participants showed that strategy# III: self-explaining, was very helpful or helpful. Only 7% of the participants (n=1) responded that strategy# III was neither helpful nor unhelpful. The results are presented in Figure 11.

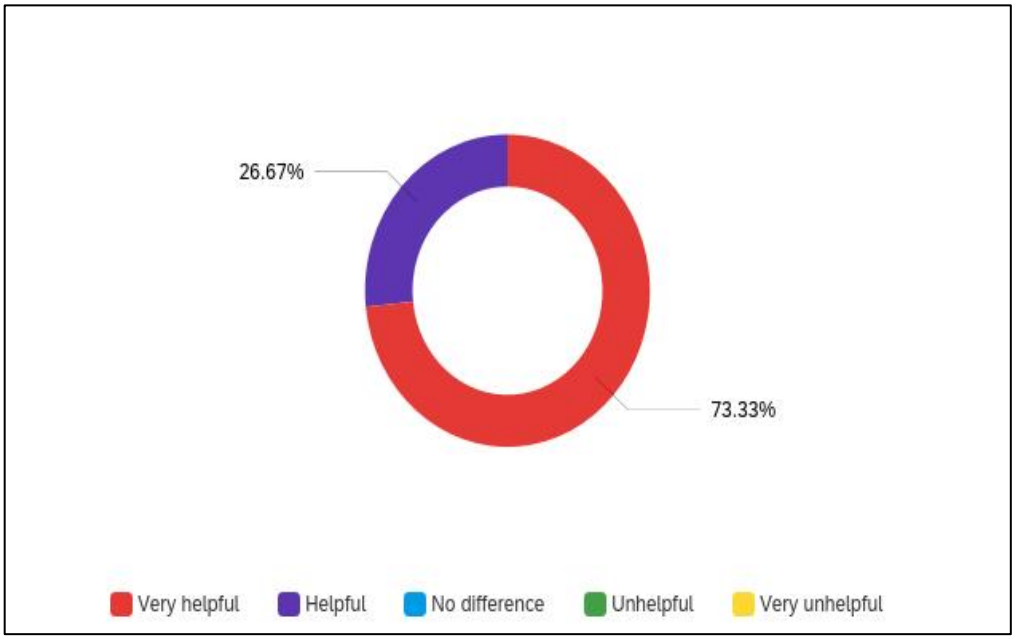
Figure 11

Helpfulness of Each of Three Learning Strategies

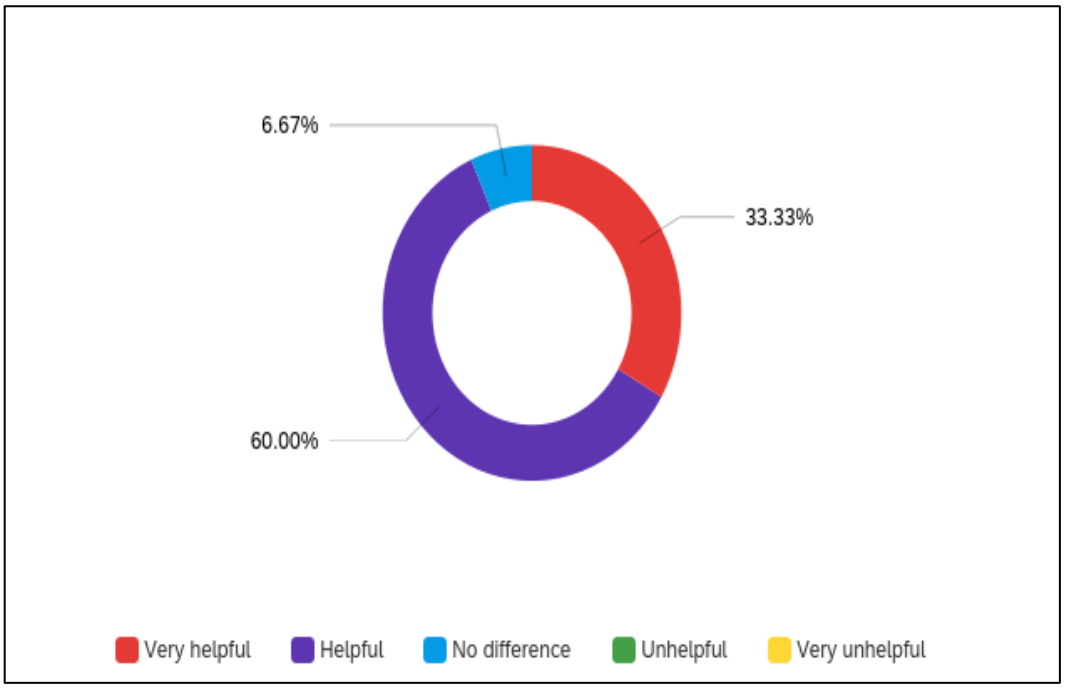
Strategy# I: Finding the Main Idea and Supporting Details



Strategy II: Mind Mapping



Strategy III: Self-Explaining

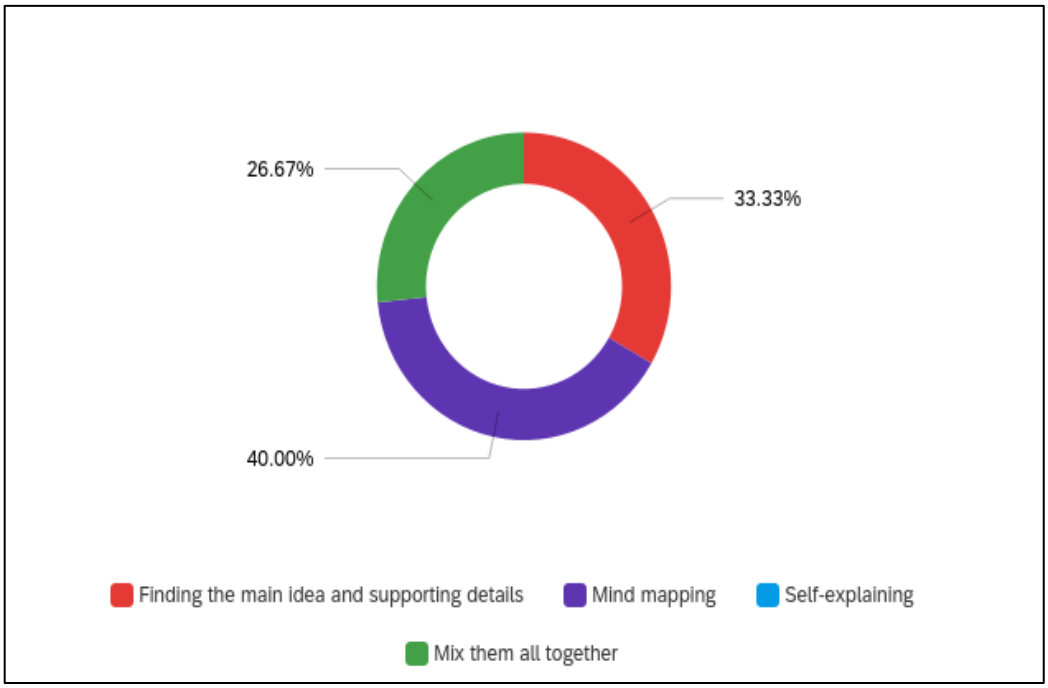


b. Which learning strategy do students find most helpful to improve their reading skills?

Mind mapping was the most helpful strategy to which 40% of participants (*n*=6) responded. Approximately 33 % of participants (*n*=5) found strategy# I: finding the main idea and supporting details, most helpful. Interestingly, 27 % of the participants (*n*=4) indicated that combining all three strategies was most helpful. No participants selected self-explaining as the most helpful strategy. The researcher designed the strategy instruction in a way that the three strategies would be used sequentially and in combination. Simply put, strategy# I (finding the main idea and supporting details) and strategy# II (mind mapping) must be learned prior to learning strategy# III (self-explaining). Therefore, it was recommended by the researcher that the participants use three strategies as a cluster. Figure 12 illustrates the results of the most helpful strategy students selected.

Figure 12

Most Helpful Learning Strategy

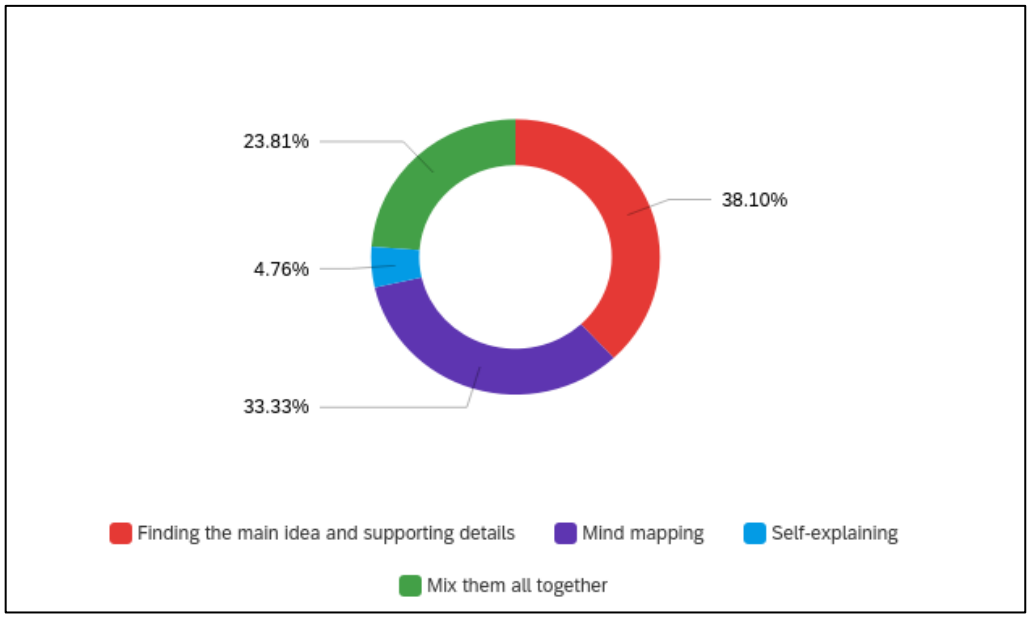


c. Which learning strategy are students willing to continue using after the strategy intervention is completed?

As for the usefulness of the learning strategies, a hundred percent of students indicated that they would continue to use the SOI cognitive learning strategies after the strategy instruction ended. To further break down the results, strategy# I (finding the main idea and supporting details) accounted for 38%, and strategy# II (mind mapping) accounted for 33% of the total responses. Using three strategies in combination comprised approximately 24 %, and strategy# III (self-explaining) made up 5% of the responses. This finding is consistent with the responses to the previous research question 3b, where students did not report self-explaining was one of the most helpful SOI cognitive learning strategies. The results are presented in Figure 13.

Figure 13

Strategy That Students Willing to Use After the Intervention



Qualitative Analysis

The qualitative data aimed to investigate the participants' awareness of the benefits of learning strategies and perceptions of their reading skills after the strategy intervention. The one-on-one interviews with the selected participants offered more insights into the student experience around learning strategy instruction while augmenting the quantitative results presented for the previous three research questions. In the quantitative strand of data, research question three, the results revealed that a hundred percent of students indicated the learning strategies were very helpful or helpful and that mind mapping was the most helpful learning strategy. The researcher sought to have an opportunity to get more profound explanations of the rationale for why the participants found all learning strategies very helpful, and specifically, mind mapping was the most helpful. Ten participants at three proficiency levels were selected for the individual interviews. The selection was based on their full participation in the research process,

willingness to participate, and ability to communicate experiences and opinions in an expressive manner. The demographic information for the interviewees is provided in Table 9.

Table 9

Demographic Characteristics of Individual Interviewees

Name (Pseudonym)	Age	Gender	Pre-and posttest Scores (20)	Years of learning English	Native Language
Lara	40-49	Female	17/19	3-4 years	Spanish
Ingrid	30-39	Female	14/18	1-2 years	Mongolian
Young	20-29	Female	14/15	1-2 years	Arabic
Norah	20-29	Female	16/17	1-2 years	Arabic
Kelly	18-20	Female	17/18	3-4 years	Mongolian
Monica	30-39	Female	17/19	2-3 years	Tigrinya
Kate	18-20	Female	18/19	3-4 years	Spanish
Twain	30-39	Male	16/17	2-3 years	Mongolian
Kimberly	50-55	Female	18/19	3-4 years	Korean
Vince	18-20	Male	12/18	5 or more years	Vietnamese

Research Question 4: Student Experience Qualitative Results

How do the six sessions of strategy intervention contribute to the ESL students' awareness of the benefits of the learning strategies and perceptions of their reading skills?

All individual interviews with participants were conducted via Zoom and audio recordings were transcribed using a Zoom recording function. The researcher engaged in a preliminary reading of the transcripts to make initial notes about the participants' remarks and organize raw data. She then focused more on transcripts to generate initial codes by categorizing the terms. Finally, the researcher identified the recursive themes by underlining and highlighting keywords and phrases. The themes were connected to the qualitative research question with two

sub-questions. To generate the codes and themes for the qualitative data, six sequential phases of thematic analysis were carried out (Nowell et al., 2017).

From the interview data, five central themes emerged: (a) students' awareness of the benefits of learning strategies, (b) students' descriptions of the effects of reading with learning strategies, (c) students' descriptions of interests in learning strategies, (d) students' perceptions of their reading skills after strategy instruction, (e) students' descriptions of challenges in learning and using strategies. These themes are presented in Table 10.

Table 10

Individual Interview Themes and Codes

Theme	Code	Example
Students' awareness of the benefits of learning strategies	Beneficial	"Strategies are helpful because it's easy to find the main idea and supporting details."
		"Learning strategies are helpful because when I read something, I understand what the reading is talking about."
		"Strategies are helpful to find the topic, main idea, and supporting details, so I know where I am going. I have a clear goal when reading."
		"Strategies are helpful, and I can read better. I can find the main idea and put it on a map. Then reading is easy to understand and remember."
	Applicability	"I can use these strategies for different courses I take in a different college. I take a vocabulary class at Laney college, and I apply these strategies to learning vocabulary."
		"I used the learning strategies in other classes. In my Listening and Speaking class, we listened to a TED talk. I took notes using a mind map and tried to find key details of the listening. Later, it was much easier for me to answer the discussion questions."
		"In my grammar class, we do a lot of reading. I used the strategies that I learned, and they worked very well."
		"I can use strategies when I read news journals for a class assignment. I can easily find the main idea and supporting details. I can save my time writing "reading journal" for homework."

	Impactful	"I thought reading is boring (I get bored by reading), but reading can be more interesting if I know how to read, why I have to read, and why I need to learn. Strategies helped me how to read."
		"I feel more comfortable with reading now and not too scared of reading. Before, I was nervous and felt tired when reading in English."
		"Before, reading felt like work. I felt tired because two languages are in my head, and I needed to translate when I read. After I learn the strategies, it's easier to understand the readings because I can find the important point easily."
	Simple training	"Learning strategies are not difficult to learn. They are simple tricks. But reading becomes easier and I can understand the readings better after I learn strategies. I feel happy about that."
		"Learning the strategies is not hard because examples are given. And teacher taught the steps to follow, so I know what to do."
Effects of reading with learning strategies	Quick Comprehension	"The strategies helped me understand the reading paragraph better. I can have a picture in my head (mind mapping)"
		"I can find an important message or main idea from the reading. So, I can understand the reading better and more easily"
		"I can catch the important message quickly."
	Organization	"Yes, I can organize my ideas better. Mind mapping makes the reading into small ideas (not big), so I can focus more and remember better."
		"Mind mapping helps me organize the ideas. When I make a mind map, I can understand the reading better and remember more what I read."
		"Creating an image (mind mapping) was helpful. I can see my ideas are organized and this way I can understand the reading better."
	Summarization	"Mind mapping was helpful because it creates simple information and visualize ideas. I can summarize ideas and make sentences short."
		"I could find the main ideas easily. No need to use long sentences, but details were still there. A mind map stuck in my mind, and it was easy to explain what I read."
		"I could summarize what I read. It's like a cheat sheet for the test. I could summarize complex ideas in a simple format."
	Retention	"Using mind mapping is visual and I am a visual learner. It helped me remember things better. I can remember small parts of the reading."
		"I like to share what I read with my friends. Mind mapping and self-explaining were very helpful. I can remember what I learned from the reading and can explain what's most important."
		"Making a mind map is like having a picture in my head. Understanding the ideas from reading was easier this way."

Interest in learning strategy instruction	Improving English	"I want to improve my English and become fluent in English. And strategies can help me to do this."
		"Learning strategies will be helpful for my future because I want to transfer to university and study nursing. Reading and writing are easier with strategies."
		"I want to learn more strategies because I know they are helpful for reading and writing. Speaking can be improved by self-explaining."
		"I want to read more children's books and tell the story to my children."
	Learning something new through reading	"It's always good to learn new things every day. Even if I don't realize I am learning at that moment, it works. Those strategies will be forever in my mind."
		"I tell myself don't be lazy about learning new things. I didn't know about learning strategies before. But when I learn them, they were very helpful, and I push myself to learn what I don't know"
		"I like to learn more strategies because I know they are helpful to understand the articles. I can learn something from reading every day. I actually teach learning strategies to my friends in other class and recommend them to use strategies."
Perception of reading skills after strategy instruction	Confidence	"When I started college, I took an English class, but I dropped it because I needed to write too many essays. I felt I needed more practice writing essays. Now, I feel more confident that I can take that class again after I finish this class."
		"I feel more confident especially when I read longer and difficult texts. I can find the main idea and supporting details with strategies. I want to read more."
		"I feel excited and want to learn about the story and tell the story to my friends and family because I know how to summarize the story and know what happen in the story."
		"Before learning the strategies, I had to read for homework or assignment. Now, I can read to gain information and learn something from the reading."
	Staying focused	"Strategies are helpful to find the topic, main idea, and supporting details. I know what my goals are when I read now."
		"I was confused when I read before strategy instruction. Now, I feel I have a clear direction when I read because I know how to find the main idea and supporting details."
		"I can focus more on the reading passage and try to find out the most important message from the reading. Now I do not miss out important things." "Now, I can catch important things. I can focus more and catch the main point."

	Journal Assignment	"Before learning the strategies, I did not do my homework or assignment. I feel lazy because when I read the article, I can't remember anything. I feel more confident doing my homework now (reading journal)"
		"Doing homework (reading journal) is easier because I can catch the story point when I read new articles. It's less stressful"
		"Learning the strategies was helpful for reading and writing. So, it's easy way to do the homework. I can use the strategies every day when I do my homework."
Challenges in learning and using strategies	Practice	"I understood 90% how to use strategies. I need to practice using them 100 %."
		"Learning strategies are not difficult to learn. But I think it takes some time to use them well."
		"It was too short time to learn the strategies, so I need enough time to practice myself"
		"Learning strategies are helpful. But it does not mean I can use them all the time. I need more practice."
	Limited speaking	"Self-explaining is still difficult because I cannot speak out loud."
		"Self-explaining was a bit challenging because speaking out loud is difficult for me."
		"Explaining in my own words was hard because I don't know much vocabulary."

These five themes are discussed in the following pages with direct quotations from the students. The first three themes are discussed under research question 4a, and the last two themes are addressed under research question 4b. Pseudonyms are used for all participants mentioned in the study to protect the participants' identity and comply with IRB privacy expectations. Students' reading comprehension test scores are presented in parentheses next to students' names to inform their general English skills.

4a. How does ESL students' awareness of the benefits of the learning strategies change as a result of the strategy instruction?

Theme 1. Students' Awareness of the Benefits of the Learning Strategies

Each of the ten students interviewed had never learned or used any learning strategies before. All the interviewees reported that this intervention was the first time they were exposed to learning strategy instruction and that they became aware of the benefits of the learning strategies after strategy instruction. Their realization of the benefits of learning strategies was in four areas: "beneficial", "applicable", "impactful", and "simple training".

All interviewees described that learning strategies were very helpful, which they were unaware of before the strategy instruction. Twain (16/17) explained his awareness of learning strategies: "Strategies are helpful because it's easy to find the main idea and supporting details." Young (14/15) also reflected on how her awareness changed after strategy instruction:

> Before you taught me the strategies, I did not know about learning strategies, and I did not understand reading well. Now, I know learning strategies are helpful because when I read something, [with the learning strategy I learned] I can understand what the reading is talking about. Finding the main idea strategy helped me a lot. (Young, Individual interview, March 28, 2022)

Norah (16/17) enthusiastically discussed what she realized from strategy instruction: "I found out that if I get the important point, I can easily understand the whole story. I can connect the details to the main point. The learning strategy helped me to do just that." Vince (12/18) also highlighted learning strategies were helpful to "improve reading speed" and helped him "pronounce the word more clearly." Vince (12/18) was a relatively advanced speaker despite his low pre-test score, and he was confident in self-explaining the reading when practicing this strategy in class. He mentioned that practicing strategies in pairs or groups every class made him "actively involved in the learning process."

Many students described how the learning strategies could be applicable to many different English learning domains, not only English reading. They admitted that the learning

strategies helped them do better in their vocabulary, listening & speaking, grammar, and writing classes. The applicability of learning strategies in different learning domains was not surprising as it was intended by the researcher. Nonetheless, it is encouraging that the students are aware of the versatility of the learning strategies. Lara (17/19), a journalist from Colombia explained how she could use the strategies for a vocabulary class in a different college course:

> I can use these strategies for different courses I take in a different college. I take a vocabulary class at Laney college, and I apply these strategies to learning vocabulary. I used mind mapping to understand the new words and then explained to myself to check if I understand the words and remember them. (Lara, Individual interview, March 24, 2022)

Kate (18/19), pursuing to transfer to a four-year university to major in nursing, reiterated Lara's point, and noted how she could use learning strategies for her Listening and Speaking class and Grammar class:

> I used the learning strategies in other classes. In my Listening and Speaking class, we listened to a TED talk. I took notes using a mind map and tried to find key details of the listening. Later, it was much easier for me to answer the discussion questions. Also, in my grammar class, we do a lot of reading. I used the strategies I learned from you, and they worked very well. (Kate, Individual interview, March 25, 2022)

Norah (16/17) from Yemen explained how the learning strategies functioned for her by elaborating on her experience:

> I can use strategies when I read news journals for a class assignment. I can easily find the main idea and supporting details. I can use a mind map to connect supporting details to the main idea. I can save my time writing a 'reading journal' for class homework. (Norah, Individual interview, March 29, 2022)

Interestingly, many students mentioned that learning strategies were impactful and made a difference in their learning. Multiple students offered explanations that before strategy instruction, they did not know what exactly the topic, main idea, and supporting details were in the reading let alone how to identify them; thus, this was the root cause of their struggle while reading. The first strategy taught to students was finding the main idea and supporting details and

this strategy was foundational for the second strategy (mind mapping) and the third strategy (self-explaining). As finding the main idea and supporting details is the prerequisite for learning mind mapping and self-explaining, this strategy was repeated and reviewed throughout the six-session strategy instruction. By the end of six sessions of regular strategy instruction plus three additional review sessions, almost all students expressed confidence in identifying the main idea and supporting details in the reading. For this reason, the majority of students described their experiences with learning strategy instruction as transforming.

Kelly (17/18), a very vocal and active participant, acknowledged that: "I feel more comfortable with reading now and not too scared of reading because I know what to do [while] I am reading. Before learning the strategies, I was nervous and felt tired when reading in English." Grace was not the only one to describe how learning the strategies changed their attitude towards reading. Monica (17/19), an aspiring math teacher from Eritrea, shared her explanation:

> I thought reading is boring (I get bored by reading in English), but I realized reading can be more interesting if I know how to read, why I have to read, and why I need to learn. Strategies helped me how to read. (Monica, Individual interview, March 25, 2022)

Lara (17/19), a journalist from Colombia, also illustrated her change of attitude towards reading in the following way:

> Before, reading felt like work. I felt tired because two languages are in my head, and I needed to translate when I read. After I learn the strategies, it's easier to understand the readings because I can find the important point easily. (Lara, Individual interview, March 24, 2022)

Furthermore, students thought the SOI cognitive learning strategy instruction was simple training and did not require lengthy training hours. They also commented that learning the strategies was "pretty easy" (Monica, 17/19) and not as difficult as they anticipated. The reason was that the researcher provided them with ample examples, sufficient modeling, and adequate individual and group practice time. This was possible because the researcher designed the

strategy instruction in which each strategy was taught for two sessions: the first session was designed for presentation and modeling of strategies, and the second session was for practice and discussion of the strategies. This instructional design enabled students to learn and practice each strategy in a more focused and systematic way. Monica described how her awareness of learning strategies had changed after the intervention ended: "Learning strategies are not difficult to learn. They are simple tricks. But reading becomes easy[ier], and I can understand the readings better after I learned strategies. I feel happy about that." Similarly, Kimberly (18/19) also noted that "Learning the strategies was not hard because examples were given. And teacher taught the steps to follow, so I know what to do."

Theme 2. The Effects of Reading with the Support of Learning Strategies

Students at all levels of reading skills explained that reading with the support of the learning strategies increased their ability to comprehend, organize, summarize, and remember what they read. Young (14/15) acknowledged that learning strategies helped her comprehend the reading passages better: "The strategies helped me understand the reading paragraph better. Now, I know how to find the main idea and how small details support the main idea. Before, reading was difficult because I did not know how to read." Ingrid (14/18) lent support to her remarks and noted, "I can find an important message or main idea from the reading. So, I can understand the reading better and more easily. I can catch the important message quickly."

Students reported organizing their ideas better and condensing information in a simpler way as a result of using strategy # II (mind mapping). Norah (16/17) highlighted the connection between these two behaviors: "I can organize my ideas better. Mind mapping makes the reading into small ideas (not big), so I can focus more and remember better." Kelly (17/18) shared a similar view as Norah: "Creating an image (mind mapping) was helpful. I can see my ideas are

organized and this way I can understand the reading better." Kate (18/19) and Lara (17/19), relatively advanced readers with many reading experiences both in English and their first language, described how learning strategies led them to organize and condense the information from the reading in the following way:

> I could find the main ideas easily. No need to use long sentences, but the details were still there. Mind mapping is helpful because it creates simple information, and I can visualize ideas. A mind map stuck in my mind, and it was easy to explain what I read. (Kate, Individual interview, March 25, 2022)

> Making a mind map is visual and I am a visual learner. I can summarize what I read and make sentences short. It's like a cheat sheet for the test. I can summarize complex reading in a simple format. So, it becomes easy to understand. (Lara, Individual interview, March 24, 2022)

Moreover, students reported that the learning strategies helped them retain information longer as they were able to identify the main ideas along with supporting details and organize them in a way that is easier for them to remember what they read. Some students made claims about having "a picture in my head" by making a mind map (Kelly, 17/18) and paying attention to "small parts [details] of the reading" (Twain, 16/17). As a fairly fluent English speaker who attended high school in the U.S. for three years, Kate (18/19) observed changes in her reading behavior after the intervention ended:

> I like to share what I read with my friends. Mind mapping and self-explaining were very helpful. I can remember what I learned from the reading using a mind map. And then I tell the main idea or what's most important to myself to practice. (Kate, Individual interview, March 25, 2022)

Theme 3. Interests in Learning More Strategies

Individual interviews revealed that students were deeply interested in learning and using more strategies in the future. In fact, all interviewees commented that they would learn more learning strategies if the opportunity permitted. Two reasons prevail for their interest in learning more new strategies: the strategies were helpful for improving English and learning something

new from reading. Norah (16/17) indicated that the learning strategies "made it easier to read in English" and she appreciated the "step-by-step" procedure of the learning strategy instruction. She further explained: "I want to improve my English and become fluent in English. And strategies can help me to do this." Similarly, Ingrid (14/18) noted how the learning strategies helped her be able to explain what she read to herself and others: "I want to learn more strategies because I know they are helpful for reading and writing. My speaking can [be] improved by self-explaining. I want to read more children's books and tell the story to my children." Kate (18/19) attributed her interest in learning strategies to her future goal, transferring to the nursing program at a four-year university:

> "Learning strategies will be helpful for my future because I want to transfer to a university and study nursing. I know studying nursing is difficult, and I need to improve my reading and writing. Reading and writing are much easier with strategies." (Kate, Individual interview, March 25, 2022)

In addition, students described they were drawn to learning strategies because strategies were "new things" to learn, and "learning new things is always great" (Kelly, 17/18). Those students were typically 30 years or older and had a propensity to be lifelong learners. Learning strategies made their educational goals more accessible and achievable. Kimberly (18/19), aspiring to study education in her 50s, was an active participant during the intervention class and attended all three additional review sessions explained the reasons for her interest in learning the strategies: "I tell myself don't be lazy about learning new things. I didn't know about learning strategies before I learned from you. But when I learn them, they were very helpful, and I push myself to learn what I don't know." Monica (17/19), aspiring to be a math teacher in her late 30s, explained her strong interest in learning strategies in a joking tone: "I like to learn more strategies because they are helpful to understanding the articles. I can learn something from reading every day. I actually taught learning strategies to my friends in other classes and

recommended them to use strategies." Likewise, Lara (17/19), a journalist from Colombia in her late 40s, shared similar views as Kimberly and Monica: "It's always good to learn new things every day. Even if I don't realize I am learning at that moment, it works. Those strategies will be forever in my mind."

4b. How do ESL students' perceptions of their reading skills change as a result of the strategy instruction?

Theme 4. Students' Perceptions of Reading Skills after Strategy Instruction

Of particular interest to the researcher was the students' description of how their perceptions of reading skills changed after the strategy instruction ended. The students' perceptions of reading skills emerged in three areas: confidence in reading, ability to focus on reading, and accomplishing reading journal assignments. Students at all levels of reading skills described that their confidence in reading increased after strategy instruction. When asked to describe how her confidence or attitude towards reading changed after learning strategy instruction, Lara (17/19) explained: "Reading becomes easier because I can find the main idea and supporting details with strategies. I feel more confident especially when I read long and difficult texts. I can find the main idea and put it on a mind map." Ingrid (14/18) expressed her excitement about her increased confidence in reading: "I feel excited to read more news articles and want to learn about the story in the article. I can tell the story to other people because now, I know how to summarize the story and know what happens in the story." Young (14/15) agreed, adding, "Before learning the strategies, I had to read for homework or assignment. Now, I can read to gain information and learn something from the reading." Kate (18/19) appreciated how she regained confidence in reading and writing after the strategy intervention:

> When I started college last semester, I took a first-year college English class, but I dropped it because reading was too difficult, and I needed to write too many essays. I felt

> I needed more practice writing essays. Now, I read news articles and write a reading journal regularly for this class. Learning strategies made it super easy to understand the main point of the article. Then I make a mind map to connect the small ideas to the main idea. This way writing a reading journal is less stressful. Now, I feel more confident in reading and writing. I think I can go back to that English class I dropped last semester. (Kate, Individual interview, March 25, 2022)

Furthermore, the data from the interviews suggested that many students experienced more focus on reading after they learned the strategies. Kimberly (18/19) realized that learning strategies pushed her to think about the most important ideas from the reading, making her more focused on the reading: "I was confused when I read before strategy instruction. Now, I have a clear direction when I read because I know what to do and how to find the main idea and supporting details." Monica (17/19) shared the same view with Kimberly regarding having a clear goal while reading: "Strategies are helpful to find the topic, main idea, and supporting details, so I know where I am going. I have a clear goal when reading." Twain (16/17) also noted that the learning strategies helped him keep on track instead of getting distracted: "Now, I can focus more and catch the main point more quickly" Ingrid (14/18) confirmed and expanded on Twain's experience: "I can focus more on the reading passage and try to find out the most important message from the reading. Now, I do not miss out [on] important things."

Many students emphasized how using the learning strategies helped them stay tuned to their reading journal assignment. The instructor required all students in the intervention group to submit a journal entry every week. Students were instructed to choose an English news story of their interest from a news website, write a short summary of the story, and submit it via Canvas. These reading journals comprise 30 % of the course's total grade. The submission of the reading journal was separate from this study, but it was an excellent opportunity for students to practice the strategy they learned each week. Both the researcher and the instructor strongly recommended that students use learning strategies when they read the news stories and write

reading journals. Norah (16/17) explained how the learning strategies helped her get back on track with reading journal assignments: “Before learning the strategies, I did not do my homework or assignment. I felt lazy because when I read the news article, I could not remember anything. I feel more confident doing my homework now [reading journal].” Young (14/15) also noted that writing a reading journal was “much easier and less stressful” because she was able to “catch the main story point” when she read new articles. Ingrid (14/18) attributed her ability to “write longer sentences more clearly” to learning strategies, specifically, the mind mapping and self-explaining strategies. In reflecting on her experience of writing a reading journal, Kate (18/19) explained, “Learning the strategies [mind mapping and self-explaining] was helpful for reading and writing. So, it’s an easy way to do the reading journal assignment. I can use the strategies every day when I do my assignment.”

Theme 5. Challenges in Learning and Using Strategies

Lastly, student interviews revealed there were some challenges emerging in learning and using the strategies. Although many students commented on the relative ease of learning the strategies during class thanks to the “step-by-step” process, some students encountered challenges when they needed to use the strategies independently. Two major challenges mentioned were the need for more practice and limited speaking ability for self-explaining. One of these students, Monica (17/19) explained: “It was too short time to learn the strategies, so I need enough time to practice myself.” Other students also indicated that they needed more time to practice because learning strategies were “something very new” (Monica, 17/19), and “it takes time to use learning strategies 100 percent although they were not difficult to learn” (Ingrid, 14/18). Kelly (18/19) commented on a critical point as to why the consistent and continuous

practice of learning strategies needs to be provided: “I understand learning strategies are helpful. But it does not mean I can use them all the time. I need more practice.”

In addition, the limited speaking ability was another challenge in learning and using learning strategies, which students expressed concerns about. Given that all of these students happened to be at a lower-level proficiency, it was not surprising that they found self-explaining demanding. Both Twain (16/17) and Young (14/15) explained that self-explaining was challenging because “it was difficult for them to speak out loud.” Specifically, Ingrid (14/18) mentioned how vocabulary got in her way when she tried self-explaining the reading passage: “Self-explaining what I read in my own words was hard because I don’t know much vocabulary.”

Summary of Results

This study investigated the effects of cognitive learning strategy instruction on ESL students’ reading comprehension. The study also explored the student experience of strategy instruction in terms of the awareness of the benefits of the learning strategy and the perceptions of their reading skills after the intervention. The quantitative data of pre-and posttests were analyzed by a series of *t*-tests, addressing the first two research questions. Then, the survey data were analyzed by Qualtrics to address the third research question. Lastly, the qualitative data collected through individual interviews were coded and interpreted, addressing the final research question.

The results of the first research question showed a statistically significant difference between pretest and post-test scores for the treatment group. There was no statistically significant mean difference in the change of pre-and post-test scores between low and high proficiency students. Although descriptive statistics showed that the low-proficiency student’s mean scores

improved more than high proficiency students with a large effect size (*d*=1.37), it was not statistically significant. This suggests that the learning strategies intervention was equally beneficial for low and high-proficiency students. In addition, this non-significant result with a large effect size could mean that there was not enough sample size to say it was significant. As for the second research question, the gain scores of the treatment group were higher than the comparison group in the reading comprehension test; it was statistically significant with the effect size (*d*=.76), indicating closer to a large effect. The findings from the survey results, research question three, showed that a hundred percent of the participants stated that they found the learning strategies helpful and useful. The most helpful strategy the students surveyed was strategy# II, mind mapping.

The findings of the qualitative data revealed five central themes: (a) students' awareness of the benefits of learning strategies increased, and students realized that learning strategies were beneficial, applicable, impactful, and required only simple training; (b) students described the effects of learning strategies on their reading comprehension were quick comprehension, organization, summarization, and retention of what they read; (c) students described they were deeply interested in learning more strategies because strategies could help them improve their English proficiency and learn something new from reading; (d) students' perceptions of their reading skills changed positively in terms of confidence in reading, more focus on reading, reading journal assignments; and (e) students reported some challenges in learning and using strategies because they had limited vocabulary and speaking ability, and needed more practice.

CHAPTER V

DISCUSSION, CONCLUSION, IMPLICATIONS, AND RECOMMENDATIONS

Overview

The purpose of this study was to examine how cognitive learning strategy intervention that explicitly models the use of learning strategies could facilitate ESL students' reading comprehension and change the perceptions of their reading skills. This mixed-methods study was administered to two groups of students enrolled in ESL courses, reading and writing II, at a community college in Northern California. Differences in scores of reading comprehension test preintervention and postintervention were examined as well as participants' experiences with the learning strategy intervention.

This study extended previous strategy instruction research by (a) situating the quasi-experimental study of learning strategy instruction in the naturalistic setting of a community college ESL classroom instead of the EFL setting where strategy instruction predominantly has been studied and reported, (b) embedding the strategy instruction in regular English language class, (c) focusing on the use of strategy in combination rather than in isolation, (d) applying the theoretical framework of the SOI model of generative learning for selection of learning strategies employed in this strategy intervention. This closing chapter begins with a summary of the study and discusses key findings organized by the research questions. Then limitations associated with the study are reported, and conclusions are made. Finally, the implications of this study and recommendations for research and practice are discussed before providing closing remarks.

Summary of the Study

International and minority students who enroll in ESL programs in the U.S need to develop the necessary skills required for academic success in American colleges and universities (https://alameda.edu/). Especially, academic reading skills are critical for ESL students in higher education in order to achieve academic success (Suwanarak, 2019; Yapp, Graaff, & Bergh, 2021). The ESL courses in higher education require students to read English academic text rapidly, process complex academic information thoroughly, and respond to readings and academic topics skillfully (Aghaie & Zhang, 2012).

Despite its critical importance, how to help ESL students overcome the challenges and be successful academically has not been addressed sufficiently (Chumworratayee, 2017; Huang & Nisbet, 2014). Many ESL textbooks used for the academic English program do not provide sufficient coverage of specific learning strategies that can help students read and learn better. The ESL curriculum at the community college level does not adequately include strategy instruction, as the current curriculum places emphasis on teaching content rather than strategies that can help students regulate their learning (Dunlosky, Rawson, Marsh, Nathan, & Willingham, 2013). Moreover, there has not been much practical information about learning strategy instruction that ESL instructors incorporate into their classrooms to promote language learning with learning strategies.

Given the importance of reading competency for ESL students, identifying factors that may enhance the quality and outcomes of learning L2 reading is essential. One such factor identified by a large body of research is learning strategies. Learning strategies are facilitative of learning a language by making the internalization, retention, and retrieval of the new language easier (Cohen, 2014; Griffiths, 2007; Nosratinia, Saveiy, & Zaker, 2014; Oxford, 1990, 2011). Students can actively engage in meaningful learning, take ownership of their learning, and

manage their own learning by employing appropriate learning strategies during learning. Explicit strategy instruction can bring a systematic scaffold into a language learning process, guide students toward proper learning strategies, and promote constructive cognitive processing during learning. Students can learn how they learn most effectively and discover the positive effects of learning strategies through teacher's strategy instruction. For this reason, incorporating learning strategy instruction into the curriculum has gained increasing recognition as a desirable learning and teaching method (Agee & Hodges, 2012).

The theoretical framework for this study had two pillars of learning theory. The first was Mayer's (2005, 2014) select-organize-integrate (SOI) model of generative learning, nested within his cognitive theory of multimedia learning. The SOI model of generative learning asserts that the learner's cognitive processing (i.e., selecting-organizing-integrating) during learning is a primary factor for what is learned by the learner (Fiorella & Mayer, 2016). The learning strategy intervention for this study was designed based on three cognitive processes (SOI) involved in meaningful learning: selecting relevant information from incoming input, organizing selected information into a mental representation, and integrating organized information with existing knowledge. The second theory was the S^2R model of the second language (L2) learning which emphasizes students' active control of learning through the effective use of learning strategies. Learners can use strategies to regulate many aspects of their learning: their internal mental states, beliefs, observable behaviors, and their learning environment (Oxford, 2011).

In this quasi-experimental study, explanatory sequential mixed methods, intact groups of 33 ESL community-college students enrolled in Reading and Writing II courses participated either in the learning strategy treatment group or the traditional instruction comparison group. Both quantitative and qualitative data were gathered through three instruments. A reading

comprehension pre-and posttests were used to measure the effects of curriculum-integrated explicit strategy instruction on reading comprehension. An online survey and semi-structured individual interviews were employed to explore how participants experienced the strategy intervention in terms of their awareness of the benefits of the learning strategy and the perceptions of their reading skills. The independent variable for this study was the instructional intervention, that is, curriculum-integrated explicit strategy instruction. The three dependent variables were scores on reading comprehension tests, students' awareness of the benefits of the learning strategy, and students' perception of reading skills after six sessions of strategy intervention.

The study began with students in both intervention and comparison groups taking a reading comprehension pre-test prior to the intervention. Students in the treatment condition learned three strategies during the six-session learning strategy intervention: one strategy over two sessions for about 30 minutes each session. In contrast, students in the comparison condition received regular reading comprehension instruction from their regular course instructor with the textbook, Pathway 2: Reading, Writing, and Critical Thinking. After the six-session intervention was ended, a reading comprehension post-test was administered. Students in the treatment group completed an online survey reflecting on how helpful and useful they found each of the learning strategies that had been taught. Later, in the qualitative phase of the study, the participant experience was described through individual interviews with the selected students in the treatment group on Zoom to augment the quantitative data collected.

To investigate the effects of cognitive learning strategy intervention on ESL students' reading comprehension and how the perceptions of their reading skills changed after the intervention, this study examined the following four research questions:

1. What is the difference in scores for students in the learning strategy intervention classroom, especially between low and high proficiency students, as measured by the difference in pre-and posttest reading comprehension scores?
2. What is the difference in scores between students in the strategy intervention classroom and those in the traditional instruction classroom, as measured by the difference in pre- and posttest reading comprehension scores?
3. How do the community college ESL students in the strategy intervention classroom assess the helpfulness and usefulness of the learning strategies through an online survey?
    a. How helpful is each of the three learning strategies to improve students' reading skills?
    b. Which learning strategy do students find most helpful to improve their reading skills?
    c. Which learning strategy are students willing to continue using after the strategy intervention is completed?
4. How do the six sessions of strategy intervention contribute to the ESL students' perceptions of strategy awareness and their reading skills?
    a. How does ESL students' awareness of the benefits of learning strategies change as a result of strategy instruction?
    b. How do ESL students' perceptions of their reading skills change as a result of strategy instruction?

Summary of Findings

The first research question examined the difference in mean scores for the treatment group before and after strategy intervention and then further investigated the mean difference of

the gain scores between the low and high proficiency students. A statistically significant difference was found for the treatment group in mean scores between pre-and posttest after the intervention with a very large effect size (d=1.35). As for the mean difference in the gain scores between low and high proficiency students after the strategy intervention, no statistical significance was found even though low proficiency students increased their mean scores with a mean difference (M=1.78, SD= .75) and a large effect size (d=1.37). This suggests that the learning strategies intervention was equally beneficial for low and high-proficiency students. Another plausible explanation for this non-significant result with a large effect size can be that the sample size was inadequate (low, n=6; high, n=9) to determine whether or not the mean difference was significant.

The second research question investigated the difference in mean scores between the treatment and comparison groups on reading comprehension pre-and posttest after the strategy intervention. Two independent-samples t-tests were conducted, and a statistically significant mean difference was found with a relatively large effect size (d=.76). This result showed that students who received the strategy instruction outperformed those who received no strategy instruction in the reading comprehension post-test.

The third research question examined how the community college ESL students in the intervention group assessed the helpfulness and usefulness of each of the three strategies through an online survey. The survey results showed that all of the participants found the learning strategies helpful and useful. The most helpful strategy indicated by the students surveyed was mind mapping. The rationale for why the participants found all learning strategies very helpful, specifically, mind mapping, is explained in the last qualitative research question.

The qualitative data aimed to investigate the participants' awareness of the benefits of learning strategies and perceptions of their reading skills after the strategy intervention. The one-on-one interviews with the purposefully selected participants offered insights into the student experience around learning strategy instruction while augmenting the quantitative results presented for the previous three research questions. The findings of the qualitative data revealed five central themes: (a) students' awareness of the benefits of learning strategies increased. Specifically, students realized that learning strategies were beneficial, applicable, impactful, and not difficult to learn with simple training; (b) students described the effects of learning strategies on their reading comprehension were quick comprehension, organization, summarization, and retention of what they read; (c) students explained they were deeply interested in learning more strategies because strategies could help them improve their English proficiency and learn something new from reading; (d) students' perceptions of their reading skills changed positively in terms of confidence in reading, more focus on reading, and an ability to write reading journal assignments; and (e) students reported some challenges in learning and using strategies because they had limited vocabulary and speaking ability, and needed more practice.

Limitations

There were several limitations acknowledged in chapter I before the actual implementation of the study, including a convenient sample of a diverse ESL student population, the length of study, and the selection of the learning strategies. This section examines the four limitations of the present study after the implementation of the study and analysis of the results: the sample size, administration of pre-and posttest, survey instrument, and hybrid instruction modality for the treatment group.

First, one of the limitations was the small sample size (n = 33) used for this study. The participants were enrolled in two intermediate ESL reading and writing classes offered at two community colleges within the same community college district. Due to the COVID-19 pandemic, the ESL course enrollment decreased exponentially. In addition, some participants dropped the course for various unexplained reasons. Consequently, the treatment group (n = 15) and the comparison group (n = 18) were below the minimum group size of 30, not large enough for the central limit theorem to apply. This suggests the normal distribution assumption was not met, which could result in the *t*-tests conducted not being robust and limiting the generalizability of the study. In fact, the result of the independent-samples *t*-test of the mean difference between the low and high proficiency students was not statistically significant despite a large effect size, which might attribute to the small sample size. Therefore, a mix-methods research design was employed to complement the quantitative findings with the qualitative interview data.

The second limitation was the administration of the reading comprehension pre-and posttest. Due to the surge of the new COVID-19 variant, most community college ESL courses were offered online. While the comparison group was a fully online course where all instruction occurred online, the treatment group was a hybrid course that combined in-person instruction with online learning. Thus, the pre-and posttests were administered online for the comparison group and in-person for the treatment group. Two participants from the treatment group took the pre-and posttest online because they were absent on test days. This different mode of test administration might have influenced students' reading comprehension scores; however, it was uncertain for which group it was more favorable. Also, it seemed like there were ceiling effects for the test, considering that participants all scored fairly high in both pre-and posttests.

The third limitation was using the self-report measure of the online survey, which was conducted to gain students' feedback and opinions about strategy instruction. Researchers argue that self-report data do not give researchers insightful data (Raza & Grenfell, 2021). Students may have responded to survey questions in a way that would please the researcher or have difficulty accurately reporting their feelings or behaviors. In particular, ESL students culturally tend to be more respectful to their instructors, which may have led to more favorable answers to the survey questions.

The fourth limitation was the hybrid modality of instruction for the treatment group. This class met twice a week: Mondays online and Wednesdays in person at a community college classroom. The hybrid instruction caused massive confusion for students that some students were absent on either of the class days due to misinformation, vaccination issues, fear of being in person, technology issues, or a combination of factors. In order to participate in this study, the students should complete the entire procedures of the research, including the submission of the consent form, the pre-and posttest, six sessions of strategy instruction, and an online survey. It was very challenging to get all students to complete each phase of the research in a timely manner because of their unpredictable attendance. More often than not, the researcher had no control over the situation. For this reason, the researcher held additional make-up sessions for those who were absent from class once a week during the entire intervention period of three weeks.

Discussion of Findings

This section focuses on the discussion of the findings of the study in relation to the research literature and each of the study's research questions investigating the effects of the learning strategy instruction on reading comprehension. First, the results of quantitative

questions from reading comprehension pre-and posttest are discussed in the first two sections. Then the results of another quantitative question from the online survey are discussed. Last, the qualitative question and its two sub-questions are discussed in the last section, connecting the five emerging themes to the qualitative research questions and identifying how the findings of the analysis complement the quantitative perspective of the study.

Research Question 1: Difference in Reading Comprehension Scores for the Strategy Intervention Group, Especially Between Low and High Proficiency Students

The first research question addressed how learning strategy instruction impacted participants who underwent a six-session strategy intervention. This question provided empirical support for implementing cognitive learning strategy instruction into a regular ESL classroom at the community college and how it impacted students' reading comprehension scores, especially for low and high proficiency students.

The majority of learning strategy instruction has been conducted in the context of EFL, predominantly focusing on the use of individual strategy in isolation. And few studies have integrated learning strategy instruction into a regular language course. In this study, to investigate the statistical significance of the difference in mean scores before and after the intervention, a paired-samples *t*-test was conducted using the pre-and posttest scores of the treatment group. Descriptive statistics indicated a significant improvement in participants' reading comprehension after the strategy intervention. This finding is congruent with other studies investigating changes in mean scores after strategy intervention. Ghavamnia (2019)'s mixed-methods study with ten Iranian EFL graduate students found a statistically significant mean difference between pre-and posttest after cognitive strategy intervention. In his quantitative research with 54 Iranian EFL undergraduates, Ramezani (2018) also confirmed that the mean

score of post-test significantly increased compared to those of the pretest after the strategy intervention. The length of the intervention varied from 16 sessions (Ghavamnia, 2019) to 10 sessions (Ramezani, 2018), and the current study provided a six-session intervention. Despite the different lengths of intervention periods, the effectiveness of the intervention was similar, which was confirmed by Ardasheva et al. (2017) 's meta-analysis, revealing that short-term (2 weeks) and long-term interventions were equally beneficial.

In terms of the mean difference between low and high proficiency students, there was no statistical significance in mean gain scores, even with a large effect size (d=1.37). Although descriptive statistics showed that the low-proficiency student's mean scores improved more than high proficiency students (M=1.78, SD= .75), it was not statistically significant, t (5.41) = 2.39, p=.06>.05. This result shows that the learning strategies intervention was equally beneficial for low and high-proficiency students. Similarly, Lee, H.Y. (2017) found that strategy instruction positively influenced all participants' reading performance regardless of their proficiency. According to her findings, the higher proficiency students tended to use strategies learned more actively and appropriately than students from other levels; lower proficiency students also demonstrated positive attitudes toward English reading after the strategy instruction even though they needed more practice to use strategies skillfully. Lee, H.Y. (2017)'s view supported the findings from the present study that students at all levels of reading proficiency described the learning strategies were effective and helped them improve their reading comprehension, albeit needing more practice.

Research Question 2: Difference in Reading Comprehension Scores Between Intervention and Comparison Groups

The second research question was intended to examine the statistical significance of differences in mean scores on reading comprehension between the treatment and comparison groups after the strategy intervention. An independent-samples t-test was conducted on a convenient sample of 32 participants to determine whether there was a mean difference between the two groups. There were 15 participants in the strategy intervention group and 18 in the traditional classroom group. At the end of the six-session intervention, the results showed that the gain scores of the treatment group were higher than compared to the ones in the comparison group, with a mean difference (M = .99, SD = .45) and a large effect size (d=.76), $t(31)$=2.19, p< .05. This indicated that the learning strategy intervention had a meaningful impact on students' reading comprehension.

Consistent with the findings in the present study, Mohammadi et al. (2015) found a significant difference in reading comprehension scores between the treatment and comparison groups. The quantitative research conducted in Iran with 78 EFL first-year university students for 15 weeks revealed that learning strategy instruction boosted their reading comprehension with a large effect size (Eta squared = 0.1). Yapp et al. (2021)'s findings also confirmed that the strategy intervention was highly effective for first-year undergraduate students' academic ESL reading comprehension in their quasi-experimental study with 801 participants in the Netherlands. Yapp et al. (2021) stated that students' previous education, such as general education or vocational education, played an essential role in improving L2 reading comprehension. According to Yapp et al. (2021), students from vocational backgrounds had less experience in L2 reading comprehension, less exposure to complex texts in English, and less

general background knowledge in ESL reading, which made L2 reading more challenging for them. This view is in line with the findings from this study that there were notable differences regarding reading comprehension scores and attitudes toward reading between students pursuing higher education further and students who did not.

Interestingly, the qualitative interview data from the present study revealed that students at all proficiency levels and educational backgrounds reported that the strategy intervention was helpful. Moreover, they were interested in learning more strategies and would continue using the learning strategies in the future. This suggests that the strategy instruction can be of great help for those who have insufficient reading experience and background knowledge in ESL reading.

Research Question 3: Helpfulness and Usefulness of the Learning Strategies

The third research question was intended to examine the helpfulness and usefulness of the learning strategies measured by post-intervention survey responses. Students assessed the helpfulness and usefulness of strategy instruction after participation in the learning strategy intervention through an online survey. The survey findings indicated that participants found all three learning strategies helpful for improving their reading skills. A hundred percent of students found strategy# I (finding the main idea and supporting details) and strategy# II (mind-mapping) helpful. Ninety-three percent of students also agreed that strategy# III (self-explaining) was helpful.

When students were prompted to choose only one learning strategy that was most helpful, strategy# II (mind mapping, 40%) was in the first place, followed by strategy# I (finding the main idea and supporting details, 33%). Notably, 27 % of the participants indicated that combining all three strategies was most helpful. Since the SOI cognitive strategy instruction was designed in a way that the three strategies would be used sequentially and in combination, it was

an encouraging finding that the participants used multiple strategies simultaneously as well as separately.

In terms of the most helpful strategy, the students' survey indicated that mind mapping was the most beneficial strategy. Interview data provided explanations for why the participants found mind mapping most helpful. Eight out of ten interviewees reported that mind mapping was most helpful because they felt that mind mapping helped them visualize ideas, connect the main idea with supporting details, better remember details, and summarize complex ideas in a simple format. These comments are congruent with many mind-mapping researchers stating that a mind map can help students identify what is important and how different ideas connect (Anderson & Theide, 2008). Mind mapping is more than just locating the main points of the texts, as it boosts organizational processing by connecting separate pieces of the texts (Dunlosky et al., 2013).

Although students indicated that all three strategies were helpful, no participants selected self-explaining as the most helpful strategy. It was unclear what might have led to these results within the quantitative survey data. Qualitative data, however, collected by individual interviews indicated that students faced several obstacles when they used self-explaining. Some students reported that it was challenging to use self-explaining, due to their limited speaking ability and a lack of vocabulary. Another plausible explanation is that it is progressively more challenging for students to use self-explaining because each of the three strategies was intended to be learned sequentially and in combination. In other words, to use strategy# III (self-explaining), students must master strategy# I (finding the main idea and supporting details) and strategy# II (mind mapping). Moreover, they need to combine all three strategies simultaneously to utilize the self-explaining strategy.

With regard to the usefulness of the learning strategies, all students indicated that they would continue to use the learning strategies after the strategy instruction ended. The strategy# I (finding the main idea and supporting details) accounted for 38%, and strategy# II (mind mapping) accounted for 33% of the total responses. Using three strategies in combination comprised 24 %, and strategy# III (self-explaining) made up 5% of the responses. This finding is consistent with the previous research question, where students reported self-explaining was most challenging. Qualitative data from the current study also support these results. During individual interviews, many students expressed the need for extended practice of the self-explaining strategy due to its intellectual challenge.

Razi and Grenfell's (2021) study shares a similar view as the present study that the strategy is effective when used in combination. They found that learners naturally used multiple strategies simultaneously, and this natural inclination improved when strategy instruction was offered. Less proficient participants needed more instruction in strategy use due to their insufficient linguistic knowledge. The justification is that language learners need to deal with processing learning strategies when learning a new language (Oxford, 2017; Razi & Grenfell, 2021). Overall, students might not have the cognitive capacity to focus on more complex learning strategies like self-explaining. And their limited speaking ability could hold them back from using the self-explaining strategy. A longer intervention time could have helped the participants use learning strategies more frequently and accurately.

Research Question 4: Awareness of the Benefits of the Learning Strategies and Perceptions of Reading Skills

The fourth research question was intended to provide insight into how students' awareness of the benefits of the learning strategies and perceptions of their reading skills

changed after the six sessions of strategy intervention. The qualitative data shed light on the two sub-questions and supplement the findings from the quantitative data. The one-on-one interviews revealed that the learning strategy intervention helped students become aware of the benefits of the learning strategies they would never know otherwise. More specifically, the students realized that learning strategies were “beneficial”, “applicable”, “impactful”, and “easy to learn” with simple training. In addition, students at all levels of reading skills explained that reading with the support of the learning strategies increased their ability to comprehend, organize, summarize, and remember what they read.

As for students’ perceptions of reading skills, the interview data suggested that students at all levels of reading skills felt their reading skills were enhanced judging from three areas: confidence in reading, ability to focus on reading, and accomplishing more reading journal assignments. Learning strategies pushed them to think about the most important ideas in the reading and organize thoughts during the reading process. Students were able to understand better what they read and stay more focused on reading, and thus, their reading confidence exponentially increased after strategy instruction.

The five central themes that occurred most frequently in student reflections provided additional explanations for why the strategy instruction was effective and how the students’ perceived benefits of learning strategies differed from the previous research literature.

The first theme that emerged is students’ awareness of the benefits of the learning strategies. Raising awareness is one of the primary goals of strategy instructions. Cohen (2014) stated that strategy instruction enabled language learners to develop more knowledge of language learning, and this self-awareness aspect made learning more satisfying and enriching. Similarly, Suwanarak (2019) found that the strategy instruction had a positive effect on raising the students’

awareness of the benefits of using the strategies. The findings reiterate the importance of helping students be aware of the learning strategies they regularly use and letting them recognize possible benefits that the strategy can bring to their learning.

In this study, all participants in the individual interviews reported that they had never learned any learning strategies prior to this intervention. They, however, became aware of the benefits of the learning strategies after the learning strategy instruction. The participants realized that the learning strategy instruction was beneficial, applicable, and impactful for reading comprehension and easy to learn with simple training. This finding is consistent with the conclusions of the previous literature that learning strategies can enhance language learning by raising learners' awareness and consciousness of the way they learn and mindfully drawing on explicit learning strategies (Cohen, 2014; Oxford, 2003). Learning strategies are useful tools for active learning when students consciously choose suitable learning strategies for their learning contexts and the language-learning task at hand (Ardasheva et al., 2017). In terms of the "simple training" aspect of strategy instruction, McNamara (2017) also claimed that strategy training required only "a couple of hours" but was adequate if the students could have sufficient practice of the strategies.

The second theme concerns students' descriptions of the effects of reading with learning strategies. Students at all levels of reading skills, the level based on their pretest scores, described that the learning strategies helped them better comprehend, organize, summarize, and remember what they read. Given that the primary focus of the learning strategy instruction was to help students better understand and remember what they read, the strategy instruction served its purpose well. Strategy# I (finding the main idea and supporting details) was intended to help students identify what is important and what is not, strategy# II (mind mapping) was to help to

organize and summarize information in a simpler way, and the third strategy (self-explaining) was to facilitate the process of integrating ideas to remember better what they read. In particular, generating self-explanation can encourage students to attend to the learning material in a more meaningful way (Roy & Chi, 2005; VanLehn, Jones & Chi, 1992) and help students to process and understand what they read more effectively.

Similarly, Medina (2012) found that strategy instruction facilitated students' understanding of the readings, and students felt they were more skilled after the strategy instruction. In her field notes, Medina (2012) noticed that students were faster on the second reading comprehension test and seemed to feel more confident when answering the questions, which enhanced their motivation. Ghavamnia's (2019) study also supports the view that explicit instruction on different cognitive reading strategies can facilitate students' reading comprehension in L2.

The third theme involves students' descriptions of interests in learning strategies. The individual interviews revealed that students were deeply interested in learning more new strategies and would continue to use strategy in the future. The findings align with the literature emphasizing the association between learner motivation and the use of learning strategy (Al-Qahtani, 2013; Chang & Liu, 2013; Medina, 2012; Oxford & Nyikos, 1989). In this study, one reason for the students' deep interest in learning strategy was that they knew the learning strategy would be helpful to improve their English proficiency, and they wanted to be better at English for academic, personal, and professional purposes. They believed that learning strategy made their personal, educational, and professional goals more accessible and achievable.

Another reason students were captivated by learning strategy is that strategy could help them learn something new from what they read. Often, ESL learners view reading as a tool to

learn vocabulary or take a reading comprehension test rather than as an opportunity to learn new knowledge. Students' comments suggested that learning strategies could give students a ticket to a new opportunity to realize the intrinsic value of reading to learn. This finding is congruent with Razi and Grenfell's (2021) view that learning strategy instruction can help ESL students understand the importance of reading to discover new knowledge in English.

The fourth theme addresses students' perceptions of their reading skills after strategy instruction. The qualitative data indicated that students from all levels of reading skills reported that their perceptions of reading skills changed positively after participating in strategy instruction. Likewise, Mohammadi et al. (2015) reported that learning strategy instruction changed the university students' beliefs about language learning, such as self-confidence and self-efficacy. The findings in this study also showed that students' perceptions of reading skills changed in terms of an increase in students' reading confidence, ability to focus on reading, and accomplishing more reading journal assignments after strategy intervention. Students felt more confident because they could identify the main idea and supporting details with the support of learning strategies when they had to process lengthy and complex texts, in particular. Students also mentioned that they could stay in focus on reading as they had a clear goal and direction when they read.

What's interesting in the results is that many students mentioned learning strategies helped them complete their reading journal assignments. In other words, there was increased learner autonomy after strategy instruction. Researchers posit that learner autonomy has been closely related to learning strategies because autonomous learners can have a range of learning skills and make the best use of learning strategies inside and outside the classroom (Chamot & O`Malley, 2005; Huang & Nisbet, 2014, Yagcioglu, 2015). Huang and Nisbet (2014)

persuasively argue that one way to help students become more autonomous in language learning can be by teaching strategies and encouraging them to use learned strategies. Considering that success in language learning depends on students' autonomous ability to take responsibility for their learning in and out of the classroom, increased ability to read articles and write reading journals on their own suggests the favorable effects of strategy instruction.

The last theme concerns students' descriptions of challenges in learning and using strategies. Two major challenges were mentioned, the need for more practice and limited speaking ability for self-explaining. Students reflected that it took time for them to use the learning strategies on their own despite the relative ease of learning the strategy during class. Another challenge was the limited speaking ability in learning and using the self-explaining strategy. In particular, lower proficiency students found self-explaining cognitively demanding because of limited vocabulary and not knowing how to explain what they read in their own words.

This revelation is consistent with some researchers' concerns regarding strategy instruction that strategy instruction could impose more cognitive load on learners at the initial stages of strategy learning and make them feel the learning process is more time-consuming and complex (Dörnyei, 2005; Griffiths & Oxford, 2014; Yang, 1995). As with any other skills, in order to use the learning strategies skillfully, one needs to practice them consistently and continuously. If the strategy instruction is embedded in the regular language class throughout the semester after the initial six-session strategy training, a considerable amount of practice time will be provided for students. Thus, students can build up their skills to use those strategies. The current study concluded that the positive outcomes of strategy instruction greatly outweigh the challenges of using strategies. These findings suggest that participation in learning strategy

intervention was effective in assisting students with improving reading comprehension and developing enhanced perceptions of their reading skills.

Conclusions

This study sought to investigate the effects of explicit learning-strategy instruction by integrating the cognitive learning strategy instruction into regular language classes. Differences in scores of reading comprehension tests pre-intervention and post-intervention were examined as well as participants' experiences with the learning strategy intervention. The findings show that the treatment group's post-test scores increased significantly with a large effect size. There was no statistically significant difference in the gain scores between the low and high proficiency students in the treatment group. More specifically, both low and high proficiency students increased their post-test scores, indicating strategy intervention was equally beneficial for low and high proficiency students. Furthermore, participants in the treatment group who underwent a six-session cognitive learning strategy intervention outperformed those who received no strategy intervention in reading comprehension post-test.

Participants reported that learning strategy instruction was helpful in improving their reading comprehension skills, and the perceptions of their reading skills changed positively. Moreover, participants acknowledged that they would continue to use the cognitive learning strategies after the strategy intervention ended. The most helpful strategy the participants opted for was mind mapping. The results suggest a great opportunity to integrate the learning strategy instruction into regular ESL language courses. This study also revealed that combining a series of strategies and teaching them sequentially can promote the use of strategy in combination rather than in isolation. This study further indicated that a short-term intervention, six sessions over three weeks, can be beneficial as confirmed by Ardasheva et al. (2017) and McNamara

(2017). Finally, the qualitative findings suggest that the learning strategy use requires steadfast practice on the part of students. Therefore, strategy instruction needs to be embedded in the regular language class throughout the semester after the initial six-session strategy training.

Implications

Previous research has shown that explicit strategy instruction can help students effectively use multiple strategies and promote successful learning (Cohen & Macro, 2007; Cohen & Weaver, 2006; Oxford, 1990, 2011; Purpura, 2012). In addition, scholars in this field posited that learning strategies could be taught, and strategy instruction can benefit all students. Therefore, teachers should play an important role in strategy instruction and train students to use appropriate strategies when they are dealing with a specific learning task in order to enhance their achievement (Cohen & Weaver, 1999, 2005; Grenfell & Harris, 1999; Griffiths, 2003; O'Malley & Chamot, 1985, 2005; Oxford, 1990, 2011).

The present study found similar results when providing learning strategy instruction embedded into the ESL reading and writing course curriculum. Specifically, the increase in mean scores on the reading comprehension between preintervention and postintervention suggests that learning strategy intervention effectively improved ESL students' reading comprehension. The results of the study also demonstrated that students became more aware of the benefits of the learning strategies, and the perceptions of their reading comprehension skills changed positively after the strategy intervention. The implication of this study is that the learning strategy instruction is beneficial to enhancing students' reading comprehension and can be a promising practice for fostering active and generative learning.

This study has educational implications for students, teachers, instructional designers, and ESL teacher training programs. First, this study helps students be aware of the importance of

a learning strategy and learn how to use, monitor, and evaluate their strategy use throughout their language-learning processes, specifically in the English reading domain. As a result, students can adopt new strategies suggested by teachers to improve their English reading skills and learn a language more quickly and confidently.

Second, this study helps teachers improve their teaching practices by providing techniques to teach students to use appropriate learning strategies. Strategy instruction lesson plans offered in this study, Appendix G, can provide teachers with creative ways to implement strategy instruction in a regular ESL course. Kinoshita (2003) suggested that one way to direct learners toward the efficient use of learning strategies is the teacher's explicit presentation of language-learning strategies during regular language lessons. This explicit instruction allows students to employ strategies in a contextualized learning environment and select the appropriate strategies for different learning tasks. After all, teachers' exposure to the strategy-based instruction pedagogy will offer them an opportunity to develop well-designed strategy instruction procedures to promote effective strategy use in language classrooms. Moreover, teachers can get insights into learning strategies or strategy instruction and make lessons according to the strategies of the more successful learners to help less competent students overcome challenges in the process of learning a language.

Third, instructional designers may benefit from reading and using this study. They can consider how students' effective strategy use can be scaffolded within language instruction. Knowledge and skills to foster learning strategies during regular lessons should be an integral part of instructional design. The learning strategy handbook can be designed as supplemental teaching material that includes the benefits of learning strategies, provides models of strategy, offers practice with the new strategy, and evaluates the use of the strategy (Griffiths, 2018).

Designing a language curriculum that takes learning strategy instruction into account is a highly learner-centered language teaching method, which may help students develop a positive attitude and strong self-efficacy about L2 learning (Aghaie & Zhang, 2012).

Finally, this study helps improve policy or decision-making in curriculum design in the teacher training programs, such as the workshop for professional development, TESOL certificate, and master's degree in TESOL. These programs can incorporate strategy-based curriculum design or lesson planning into their training courses and familiarize teachers with the benefits of the language learning strategy instruction. Raising prospective teachers' awareness of the role of language learning strategies through various teacher training programs will encourage more teachers to learn how to design strategy-based lesson plans that effectively teach students how to learn and study as well as the course content.

Recommendations

Recommendations for Future Research

Despite the considerable research on the positive correlation between strategy use and language learning performance, empirical evidence of the effectiveness of strategy instruction through strategy intervention in ESL contexts has not been sufficient (Bueno-Alastuey & Agulló, 2015; Dunlosky et al., 2013; Svinicki, 2004). The current study aimed to fill this gap in the literature by conducting experimental research and confirming that integrating the learning strategy instruction into a regular language course could help ESL students improve reading comprehension. This study further provided qualitative evidence that the strategy instruction could promote students' awareness of the benefits of the learning strategies and positively change the perceptions of their reading skills. Future studies can confirm and challenge the

results presented in this dissertation. In this section, four recommendations for future research are discussed.

First, this study is limited as it draws from a convenience sample of 33 intermediate-level ESL students for six sessions over three weeks. Future studies could be conducted with a larger sample to increase the generalizability of the results to a broader population. A larger sample of students will allow determining whether the findings from this study were unique to this population or generalizable to other samples of a population. In addition, strategy intervention with a diverse sample will provide an opportunity to analyze how previous educational backgrounds, educational goals, age, and gender influence the effectiveness of the strategy intervention.

Second, the present study focused on implementing cognitive strategy instruction into an ESL reading and writing course. Future studies could modify this study by testing the cognitive strategy instruction in an ESL Listening and Speaking course. The cognitive learning strategy intervention was crafted based on the theoretical framework of the SOI model of generative learning, which facilitates cognitive information processing. Therefore, they should be helpful to other domains of language learning other than reading and speaking. In fact, individual interviews with the participants indicated that the cognitive learning strategies were applicable to other areas of language learning, such as listening and speaking. In particular, self-explaining verbalizes what they learn and transforms the information into their own words, essential in improving speaking skills. Replicating the cognitive learning strategy plan with students enrolled in different subjects of ESL courses will further determine the effectiveness of the cognitive strategy intervention.

Third, future studies could provide authentic opportunities to practice strategies after initial strategy instruction. In the current study, the class instructor required all students in the intervention group to submit a journal entry every week. The submission of the reading journal was not a part of the current study, but it was an excellent opportunity for students to practice the strategy they learned each week. Both the researcher and the instructor strongly recommended that students use learning strategies when they read the news stories and write reading journals. Future studies could incorporate this kind of assignment into the research procedure to strengthen the students' strategy use and provide the participants with more real-time practice. This modification will result in more practical implementations of the learning strategy intervention.

Fourth, future research might consider a longer intervention time. The intervention for this study was six sessions over three weeks. Although researchers stated that a short-term intervention could be equally as beneficial as a long-term intervention (Ardasheva et al., 2017; McNamara, 2017), longitudinal research, preferably one semester, will provide participants with more time to practice learning strategies. Given the cognitive challenges the ESL students might experience when learning a language and learning to use strategies simultaneously, a longer intervention time could help the participants learn and use learning strategies more accurately and fully enjoy the benefits of the learning strategies. For the same reason, future research could replicate this study with higher proficiency students. As noted earlier, language learners need to deal with bringing strategies together when processing a new language. Lower proficiency students might not have the cognitive capacity to focus on more complex learning strategies like self-explaining. Their limited speaking ability could hold them back from using the self-explaining strategy. Experimenting with the cognitive strategy intervention with higher

proficiency students would reveal whether the self-explaining strategy will have different results for higher proficiency students.

Recommendations for Future Practice

Learning strategies facilitate learning a language by making the internalizing, storing, and recalling of the new language easier (Cohen, 2014; Griffiths, 2007; Nosratinia, Saveiy, & Zaker, 2014; Oxford, 1990, 2011). Students can actively engage in meaningful learning, take ownership of their learning, and manage their own learning by employing appropriate learning strategies during learning. The quantitative and qualitative findings from this empirical study indicate that integrating the learning strategy instruction into a regular community-college language course could help ESL students improve reading comprehension. Given this finding, the researcher suggests three recommendations for ESL practitioners to implement learning strategy instruction successfully.

First, strategy intervention aims to provide learners with hands-on practice with learning strategies and reinforce the use of the strategy (Cohen, 2014). One way to achieve this goal is to include reading assignments in the course syllabus so the students can use learning strategies systematically for doing their assignments. Creating a conscious course design that encourages learner engagement in the learning strategies is recommended. For instance, the assignments can be identifying the main idea and supporting details after reading an assigned article, making a mind map with the information they learned, and writing a summary of what they read. If the syllabus reinforces these assignments, students can have ample time to practice the strategies in and out of the classroom and have a stronger belief that learning strategies are effective.

Second, this research suggests that strategy instruction can bring a systematic scaffold into a language learning process and promote constructive cognitive processing during learning.

In this study, the researcher created a PowerPoint presentation and handouts for each session, sent to students via email. For future practice, a strategy guidebook can be created and offered to students for future reference. This short guidebook will help students review the strategies, practice them regularly, and get used to using them. Indeed, the participants in this study wanted to review the strategies they learned, so the researcher held an additional review session every week during the three weeks of intervention.

Third, the qualitative interview data indicate that incorporating strategy instruction into an ESL reading course can help students develop a positive attitude and strong self-confidence about L2 reading. Students can benefit from strategy instruction if it becomes part of everyday teaching and learning activities. In this study, the intervention lasted for six sessions over three weeks, and participants reported that they needed more practice. For future practice, it can be more beneficial if the three learning strategies were embedded into everyday reading activities throughout the semester after the initial six-session strategy training.

Closing Remarks

The findings from this study support the assumption that using a learning strategy is a constructive cognitive activity that helps students engage in active learning and knowledge-building. The cognitive learning theory emphasizes the importance of organized patterns in cognitive activity and direct instruction of the cognitive process. Specifically, Mayer's SOI model of generative learning asserts that the learner's cognitive processing (i.e., selecting-organizing-integrating) during learning is a primary factor for what is learned by the learner (Fiorella & Mayer, 2016). Hence, this study designed, developed, and implemented explicit learning strategy instruction based on three cognitive processes (SOI) involved in meaningful

learning: selecting relevant information from incoming input, organizing selected information into a mental representation, and integrating organized information with existing knowledge.

The exciting discoveries from this study suggest that implementing strategy instruction that explicitly models the use of learning strategies can generate many learning outcomes, including positive strategy awareness, learner autonomy, and facilitation of the comprehension process. Strategies are learnable and may become habitual upon practice through effective implementation. Students should take an active role in learning and do more sense-making by using learning strategies used in this research, such as finding the main idea and supporting details, mind mapping, and self-explaining. ESL instructors also should take advantage of the benefits of the learning strategy instruction and integrate this evidence-based teaching method into their instructional design.

This study promotes strategy awareness and implementation as an effective instructional method, which can help ESL instructors rethink strategy instruction and how it might be applied to classroom activities. Likewise, students can be informed about the importance of using learning strategies and how to use, monitor, and evaluate their strategy use throughout their learning English reading process. As mentioned in the introduction section, strategy instruction has not gained sufficient recognition by many ESL educators due to the lack of awareness of its potential to promote learning. Moreover, though strategy instruction is an empirically tested effective instructional method, there is a disconnect between what researchers have figured out and the practice of everyday instruction. The researcher hopes that this study can bridge the gap between the research and the real-world ESL classrooms so that ESL instructors are informed by theories of learning instead of personal opinions, beliefs, or informal observations. The researcher also hopes that ESL educators can access more research-based teaching

methodologies including this study, compare and contrast them, and derive instructional implications of their own from them.

References

Adigüzel, A., & Orhan, A. (2017). The relation between English learning students' levels of self-regulation and metacognitive skills and their English academic achievements. *Journal of Education and Practice*, *8*(9), 115-125.

Agee, K. S., Hodges, R., & College Reading and Learning Association. (2012). *Handbook for training peer tutors and mentors*.

Aghaie, R., & Zhang, L.J. (2012). Effects of explicit instruction in cognitive and metacognitive reading strategies on Iranian EFL students' reading performance and strategy transfer. *Instructional Science, 40,* 1063-1081.

Alexander, P. A., Graham, S., & Harris, K. R. (1998). A perspective on strategy research: Progress and prospects. *Educational Psychology Review*, *10*(2), 129–154. http://www.jstor.org/stable/23359422

Al-Qahtani, M. F. (2013). Relationship between English language, learning strategies, attitudes, motivation, and students' academic achievement. *Education in Medicine Journal, 5*(3), e19–e29. https://doi.org/10.5959/eimj.v5i3.124

Alzahrani, I. (2017). *Exploring the effects of language learning strategy instruction on Saudi EFL college students' strategy awareness and proficiency* (Doctoral dissertation). University of Southampton, 281pp.

Anderson, N. J. (2002). The role of metacognition in second/foreign language teaching and learning. *ERIC Digest*. Washington DC: ERIC Clearing house on Languages and Linguistics.

Anderson, C. M., & Thiede, K. W. (2008). Why do delayed summaries improve miscomprehension accuracy? *Acta Psychology*, 128(1), 110-118.

Ardasheva, Y., Wang, Z., Adesope, O. O., & Valentine, J. C. (2017). Exploring effectiveness and moderators of language learning strategy instruction on second language and self-regulated learning outcomes. *Review of Educational Research*, 87(3), 544–582.

Azevedo, R., Behnagh, R., Duffy, M., Harley, J., & Trevors, G. (2012). Metacognition and self-regulated learning in student-centered learning environments. *Theoretical Foundations of Student-Centered Learning Environments*, 171-197. New York, NY: Routledge.

Barjesteh, H., Mukundan, J., & Vaseghi, R. (2014). Synthesis of language learning strategies: Current issues, problems and claims made in learner strategy research. *Advances in Language and Literary Studies, 5*(6), 68–74.

Bialystok, E. (1981). The role of conscious strategies in second language proficiency. *The Modern Language Journal,*65(1), 24-35.

Bueno-Alastuey, M. C., & Agulló, G. L. (2015). Explicit instruction and implicit use of L2 learning strategies in higher secondary EFL course books. *International Journal of English Studies*, *15*(2), 17–39.

Cates, K. A. (1997). New trends in global issues and English teaching. *The Language Teacher, 21*(5). Retrieved from http://jalt-publications.org/old_tlt/files/97/may/cates.html

Celce-Murcia, M., In Brinton, D., & In Snow, M. A. (2014). *Teaching English as a Second or Foreign Language*. Boston: National Geographic Learning.

Chamot, A. U. (2005). The cognitive academic language learning approach (CALLA): An update. In Richard-Amato, P.A., & Snow, M. A., (Eds.). *Academic Success for English Language Learners: Strategies for K-12 Mainstream Teachers*, p. 87-102. White Plains NY: Longman.

Chamot, A.U. (2005). Language learning strategy instruction: Current issues and research. *Annual Reviews of Applied Linguistics*, 25, 112-130.

Chamot, A. U., Barnhardt, S., El-Dinary, P. B., & Robbins, J. (1999). *The learning strategies handbook*. White Plains, NY: Addison Wesley Longman.

Chamot, A.U., & O'malley, J.M. (1986). A Cognitive Academic Language Learning Approach: *An ESL Content-Based Curriculum.*

Chang, C.H., & Liu, H. J. (2013). Language learning strategy use and language learning motivation of Taiwanese EFL university students. *Electronic Journal of Foreign Language Teaching*, *10*(2), 196–209.

Chi, M. T., Bassok, M., Lewis, M., Reimann, P., & Glaser, R. (1989). Self-explanations: How students study and use examples in learning to solve problems. *Cognitive Science*, 13, 145-182.

Chumworatayee, T. (2017). The effect of reading strategy instruction on Thai EFT adult learners' reading strategy awareness. *LEARN Journal. 10*(1), 135-148.

Cleary, T. J., & Platten, P. (2013). Examining the correspondence between self-regulated learning and academic achievement: A case study analysis. *Education Research International.*

Cohen, A. D. (2014). *Strategies in learning and using a second language: Vol. 2nd ed*. Routledge.

Cohen, A. D., & Macaro, E. (2007). *Language learner strategies: Thirty years of research and practice.*

Cohen, A. D., Oxford, R. L., & Chi, J. C. (2002). *Language strategy use survey*. Minneapolis, MN: Center for Advanced Research on Language Acquisition, University of Minnesota.

Cohen, A. D., & Wang, I. K. (2018). Fluctuation in the functions of language learner strategies. *System*, 74, 169e182.

Cohen, A. D., & Weaver, S. J. (2006). *Styles-and strategies-based instruction: A teachers' guide* (pp. 68-74). Minneapolis, MN: Center for Advanced Research on Language Acquisition.

Cohen, J (1988). Statistical power analysis for the behavioral sciences (2nd ed.). Hillsdale, NJ: Erlbaum

Creswell, J. W. (2012). *Educational research: planning, Conducting, and evaluating quantitative and qualitative research* (4th ed.). United State of America: Pearson Education Inc.

Creswell, J. W., & Creswell, J. D. (2018). *Research design: Qualitative, quantitative, and mixed methods approaches* (*5th ed.)*. Los Angeles, CA: SAGE publications.

Creswell, J.W. & Poth, C.N. (2018). *Qualitative inquiry and research design: Choosing among five approaches.* Sage Publications.

Dörnyei, Z. (2005). *The psychology of the language learner: Individual differences in second language acquisition.* Lawrence Erlbaum Associates Publishers.

Dunlosky, J., Rawson, K. A., Marsh, E. J., Nathan, M. J., & Willingham, D. T. (2013). Improving students' learning with effective learning techniques: Promising directions from cognitive and educational psychology. *Psychological Science in the Public Interest, 14*(1), 4-58.

Einstein, G.O., Morris, J., & Smith, S. (1985). Note-taking, individual differences, and memory for lecture information. *Journal of Educational Psychology*, 77, 522-532.

Ellis, N. C. (2015). Implicit and explicit language learning: Their dynamic interface and complexity. In *Implicit and explicit learning of languages* (pp. 1-24). John Benjamins.

Fiorella, L., & Mayer, R. E. (2016). Eight ways to promote generative learning. *Educational Psychology Review, 28*(4), 717–741.

Flemming, L. (2014). Reading for Results, 12th ed. Boston: Wadsworth.

Fonseca, B., & Chi, M. T. (2011). Instruction based on self-explanation. In R. E. Mayer, & P. A. Alexander (Eds.), *Educational psychology handbook: Handbook of research on learning and instruction,* 296-321. London, UK: Routledge Press.

Goo, J., Granena, G., Yilmaz, Y., & Novella, M. (2015). Implicit and explicit instruction in L2 learning. In *Implicit and explicit learning of languages*, *48*, 443-482. John Benjamins Publishing Company.

Ghavamnia, M. (2019). Improving Iranian graduate students' performance in reading scientific articles in English through explicit strategy instruction, *Reading Psychology*, 40(7), 612-637, DOI: 10.1080/02702711.2019.1658667

Graham, S., Santos, D., & Vanderplank, R. (2011). Exploring the relationship between listening development and strategy use. *Language Teaching Research*, *15*(4), 435–456.

Grenfell, M., & Harris, V. (1999). *Modern languages and learning strategies*: *In theory and practice.* London: Routledge.

Grenfell, M., & Macaro, E. (2007). Language learner strategies: Claims and critiques. In, Macaro, E. & Cohen, A. (eds.) *Language learner strategies: 30 years of research and practice.* (Oxford Applied Linguistics) Oxford, UK. Oxford University Press, pp. 9-28.

Griffiths, C. (2007). Language learning strategies: students' and teachers' perceptions. *ELT Journal: English Language Teachers Journal*, *61*(1), 91–99. https://doi.org/10.1093/elt/ccm001

Griffiths, C. (2013). *The strategy factor in successful language learning*. Bristol: Multilingual Matters.

Gu, Y. (2010). Learning strategies for vocabulary development. *Reflections on English Language Teaching*, *9*(2), 105-118.

Habók, A., & Magyar, A. (2018). The effect of language learning strategies on proficiency, attitudes and school achievement. *Frontiers in Psychology*, *8*, 2358. https://doi.org/10.3389/fpsyg.2017.02358

Hamman, D., Berthelot, J., Saia, J., & Crowley, E. (2000). Teachers' coaching of learning and its relation to students' strategic learning. *Journal of Educational Psychology*, 92, 342–348.

Hassan, X., Macaro, E., Mason, D., Nye, G., Smith, P. & Vanderplank, R. (2005). Strategy instruction in language learning: a systematic review of available research. In *Research evidence in education library*. London: EPPI-Centre, Social Science Research Unit, Institute of Education, University of London.

Huang, J., & Nisbet, D. (2014). The relationship between reading proficiency and reading strategy use: A study of adult ESL learners. *Journal of Adult Education*, *43*(2), 1-11.

Jiang, C. (2011) *A mixed-method investigation of the second language motivation and self-identities of English majors in mainland China* (Doctoral dissertation). Chinese University of Hong Kong.

Karn, S. (2007). Current trends in ELT around the globe. *Journal of NELTA*, 12 (1 & 2), 60–66.

Kenneth A., & Kiewra. (2002). How classroom teachers can help students learn and teach them how to learn. *Theory into Practice*, 41(2), 71-80. DOI: 10.1207/s15430421tip4102_3

Kern, R.G. (2006). Perspectives on Technology in Learning and Teaching Languages. *TESOL Quarterly, 40*, 183-210.

Kistner, S., Rakoczy, K., Otto, B., Dignath-van Ewijk, C., Büttner, G., & Klieme, E. (2010). Promotion of self-regulated learning in classrooms: Investigating frequency, quality, and consequences for student performance. *Metacognition and Learning*, *5*(2), 157-171.

Kress, J. E., & Fry, E. B. (2015). *The reading teacher's book of lists* (6th Ed.*)*. San Francisco, CA: Jossey-Bass.

Kumaravadivelu, B. (2006). TESOL Methods: Changing Tracks, Challenging Trends. *TESOL Quarterly*, 40, 59-81. http://dx.doi.org/10.2307/40264511

Larsen-Freeman, D., & Anderson, M. (2011). *Techniques and Principles in Language Teaching* (3rd ed.). Oxford University Press.

Lee, H.Y. (2017). Investigating effects of reading strategy instruction for Korean adult EFL students from different proficiency levels. *Journal of Language Sciences*, 24(1), 277-300.

Madhumathi, A., & Ghosh, A. (2012). Awareness of reading strategy use of Indian ESL students and the relationship with reading comprehension achievement. *English Language Teaching*, 5(12). doi: 10.5539/elt.v5n12p131

Mayer, R. E. (1996). Learning strategies for making sense out of expository text: The SOI model for guiding three cognitive processes in knowledge construction. *Educational Psychoogyl Review Vol. 8,* 357–371. https://doi.org/10.1007/BF01463939

Mayer, R. E. (2009). *Multimedia learning* (2nd ed.). New York: Cambridge University Press.

Mayer, R. E. (2005). *Cognitive theory of multimedia learning.* In R. E. Mayer (Ed.), *The Cambridge handbook of multimedia learning* (p. 31–48). Cambridge University Press. https://doi.org/10.1017/CBO9780511816819.004

Mayer, R. E. (2014). Cognitive theory of multimedia learning. In R. E. Mayer (Ed.), *The Cambridge handbook of multimedia learning* (Second Edition., pp. 43–71). New York: Cambridge University Press.

Mayer, R. (2014). Cognitive revolution and information processing perspectives. In D. Phillips (Ed.), *Encyclopedia of educational theory and philosophy* (Vol. 1, pp. 143-149). SAGE Publications, Inc.

McDonough, S. (1999). Learner strategies. *Language Teaching, 32*(1), 1-18. doi:10.1017/S0261444800013574

McLaughlin, B., Rossman, T., & McLeod, B. (1983). Second language learning: An information-processing perspective. *Language Learning, 33*(2), 135–158. https://doi.org/10.1111/j.1467-1770.1983.tb00532.x

Medina, S.A. (2012). Effects of strategy instruction in an EFL reading comprehension course: A case study. *Profile Issues in Teachers' Professional Development, 14*, 79-89.

Mohammadi, M., Birjandi, P., & Maftoon, P. (2015). Learning strategy training and the shift in learners' beliefs about language learning: A reading comprehension context. *SAGE Open*. doi:10.1177/2158244015579726

Mokhtari, K., & Sheorey, R. (2002). Measuring ESL students' awareness of reading strategies. *Journal of Developmental Education*, 25, 2-11.

Msaddek, M. (2016). The effect of metacognitive strategy instruction on Moroccan EFL learners' strategy use and reading achievement. *Arab World English Journal*, 7(3), 287-301.

Naiman, N., Frohlich, M., Stern, H. H., & Todesco, A., (1978). *The good language learner*. Toronto: Ontario Institute for Studies in Education.

Neubauer, B. E., Witkop, C. T., & Varpio, L. (2019). How phenomenology can help us learn from the experiences of others. *Perspectives on Medical Education*, *8*(2), 90–97. https://doi.org/10.1007/s40037-019-0509-2

Nosratinia, M., Saveiy, M., & Zaker, A. (2014). EFL learners' self-efficacy, metacognitive awareness, and use of language learning strategies: How are they associated. *Theory and Practice in Language Studies*, *4*(5), 1080-1092.

Novak, J. D. (2002). Meaningful learning: The essential factor for conceptual change in limited or appropriate propositional hierarchies leading to empowerment of learners. *Science Education*, 88(4), 548-571.

Novak, J.D., & Wandersee, J. (1991). Concept mapping (special issue). *Journal of Research in Science Teaching*, 28 (10).

Nowell, L. S., Norris, J. M., White, D. E., & Moules, N. J. (2017). Thematic analysis: Striving to meet the trustworthiness criteria. *International Journal of Qualitative Methods.* https://doi.org/10.1177/1609406917733847

O'Malley, M., & Chamot, A.U. (1994). *The CALLA handbook: Implementing the cognitive academic language learning approach*. N.J: Addison-Wesley, Reading MA. Harlow, England: Longman.

Oxford, R. (1990). *Language learning strategies: What every teacher should know*. Boston, MA: Heinle & Heinle.

Oxford, R. (Ed.). (2003). *Language learning styles and strategies*. Mouton de Gruyter.

Oxford, R. (2011). *Teaching and researching language learning strategies*. Harlow, UK: Pearson Longman.

Oxford, R. (2014). What can we learn about strategies, language learning, and life from two extreme cases: The role of well-being theory. *Studies in Second Language Learning and Teaching, 4,* 593-615.

Oxford, R., & Nyikos, M. (1989). Variables affecting choice of language learning strategies by university students. *The Modern Language Journal, 73*(3), 291-300.

Patel, L. (2015). *Decolonizing educational research: From ownership to answerability* (1st ed.). Routledge. https://doi.org/10.4324/9781315658551

Purpura, J.E. (2012). *What is the role of strategic competence in a processing account of L2 learning and use?* Paper presented at the American Association for Applied Linguistics Conference, Boston, MA.

Ramezani, M. (2018). The effects of cognitive strategy instruction on the reading comprehension of I ranian EFL learners. *Journal of Asia TEFL,* 15(4), 1131-1138.

Razı, Ö., & Grenfell, M. (2021). Strategy-Instruction and strategy clustering in the development of young learners' reading skills. *System, 97,* 102430.

Reiss, M. (1983). Helping the unsuccessful language learner. *Canadian Modern Language Review,* 39(2), 257-266.

Reiss, M. (1985). The good language learner: Another look. *Canadian Modern Language Review,* 41(3), 511-523.

Roelle, J., Müller, C., Roelle, D., & Berthold, K. (2015). Learning from instructional explanations: effects of prompts based on the active-constructive-interactive framework. *PloS one, 10*(4), e0124115. https://doi.org/10.1371/journal.pone.0124115

Roy, M., & Chi, M. T. H. (2005). The Self-Explanation Principle in Multimedia Learning. In R. E. Mayer (Ed.), *Cambridge handbook of multimedia learning*, 271-286. New York: Cambridge University Press. https://doi.org/10.1017/CBO9780511816819.018

Rubin, J. (1975). What the "good language learner" can teach us. *TESOL Quarterly*, *9*(1), 41–51. https://doi.org/10.2307/3586011

Rubin, J., Chamot, A. U., Harris, V., & Anderson, N. J. (2007). Intervening in the use of strategies. In Cohen, A., & Macaro, E. (Eds.), *Language learner strategies: Thirty years of research and practice* (pp. 141-160). Oxford: Oxford University Press.

Sadler-Smith, E., Evans, C., Boström, L., & Lassen, L. M. (2006). Unraveling learning, learning styles, learning strategies and meta-cognition. *Education+ Training*.

Sarafianou, A., & Gavriilidou, Z. (2015). The effect of strategy-based instruction on strategy use by upper-secondary Greek students of EFL. *Electronic Journal of Foreign Language Teaching*, *12*(1), 21–34.

Savignon, S. J. (2005). Communicative language teaching: Strategies and goals. In Hinkel, E. (Eds.), *Handbook of research in second language teaching and learning* (1st ed.). Routledge. https://doi.org/10.4324/9781410612700

Seong, M. H. (2009). Strategies making language features noticeable in English language teaching. *Journal of Pan-Pacific Association of Applied Linguistics*, *13*(1), 113-126.

Sheorey, R., & Mokhtari, K. (2001). Differences in the metacognitive awareness of reading strategies among native and non-native readers. *System*, *29*(4), 431-449.

Siegler, R. S. (2002). Micro-genetic studies of self-explanation. In N. Granott & J. Parziale (Eds.), *Micro-development: Transition processes in development and learning* (31–58). Cambridge University Press. https://doi.org/10.1017/CBO9780511489709.002

Singh, M. K. M. (2019). International graduate students' academic writing practices in Malaysia: Challenges and solutions. *Journal of International Students*, *5*(1), 12-22.

Stern. H. H. (1975). What can we learn from the good language learner? *The Canadian Modern Language Review*, 31(4), 304-319.

Sun, Y. (2014). Major trends in the global ELT field: A non-native English-speaking professional's perspective. *Language Education in Asia*, 5 (1).

Suwanarak, K. (2019). Use of learning strategies and their effects on English language learning of Thai adult learners. *3L: Southeast Asian Journal of English Language Studies*, *25*(4), 99–120. https://doi.org/10.17576/3l-2019-2504-07

Svinicki, M. D. (2004). *Learning and motivation in the postsecondary classroom*. Bolton, MA: Anker Publishing Co.

Thompson, S. (2005). The Good Language Learners (TEFL/TESL teaching module). University of Birmingham, United Kingdom.

VanLehn, K., Jones, R. M., & Chi, M. T. (1992). A model of the self-explanation effect. *Journal of the Learning Sciences*, *2*(1), 1–59. https://doi.org/10.1207/s15327809jls0201_1

VanLehn, K., Jones, R. M., & Chi, M. T. (1992). A model of the self-explanation effect. *Journal of the Learning Sciences*, *2*(1), 1–59. https://doi.org/10.1207/s15327809jls0201_1

Winne, P. (2005). Key issues on modeling and applying research on self-regulated learning. *Applied Psychology: An International Review*, 54, 232–238.

Winograd, P., & Hare, V. C. (1988). Direct instruction of reading comprehension strategies: The nature of teacher explanation. In C. E. Weinstein, E. T. Goetz, & P. A. Alexander (Eds.), *Educational psychology. Learning and study strategies: Issues in assessment, instruction, and evaluation* (p. 121–139). Academic Press.

Wirth, J. (2009). Promoting self-regulated learning through prompts. *Zeitschrift Für Pädagogische Psychologie / German Journal of Educational Psychology, 23*(2), 91-94.

Wittrock, M. C. (1974). Learning as a generative process. *Educational Psychologist*, 11(2), 87–95.

Yagcioglu, O. (2015). New approaches on learner autonomy in language learning. *Procedia-Social and Behavioral Sciences*, *199*, 428-435.

Yang, N. D. (1995). Effective awareness-raising in language learning strategy training. *Language Learning Strategies Around the World: Cross-Cultural Perspectives*, 205-210

Yapp, D., Graaff, R., & Bergh, H. (2021). Effects of reading strategy instruction in English as a second language on students' academic reading comprehension. *Language Teaching Research*. https://doi.org/10.1177/1362168820985236

Yüce, E. (2019). Self-regulated learning perceptions of foreign language learners: A cross-sectional study. *Novitas-Royal (Research on Youth and Language*, *13*(1), 36-46.

Zare, P., & Othman, M. (2013). The relationship between reading comprehension and reading strategy use among Malaysian ESL learners. *International Journal of Humanities and Social Science*, *3*(13), 187-193.

Appendix A

IRB Approval Letter

Attachments:
• Expedited Review Approved by Chair - IRB ID: 1679.pdf

UNIVERSITY OF SAN FRANCISCO

IRBPHS - Approval Notification

To: Sylvia Lee
From: Richard Greggory Johnson III, IRB Chair
Subject: Protocol #1679
Date: 01/11/2022

The Institutional Review Board for the Protection of Human Subjects (IRBPHS) at the University of San Francisco (USF) has reviewed your request for human subjects approval regarding your study.

Your research (IRB Protocol **#1679**) with the project title **THE EFFECT OF CURRICULUM-INTEGRATED EXPLICIT STRATEGY INSTRUCTION ON READING COMPREHENSION FOR ENGLISH AS A SECOND LANGUAGE (ESL) LEARNERS AT THE COMMUNITY COLLEGE** has been approved by the IRB Chair under the rules for expedited review on **01/11/2022**.

Any modifications, adverse reactions or complications must be reported using a modification application to the IRBPHS within ten (10) working days.

If you have any questions, please contact the IRBPHS via email at IRBPHS@usfca.edu. Please include the Protocol number assigned to your application in your correspondence.

On behalf of the IRBPHS committee, I wish you much success in your research.

Sincerely,

Dr. Richard Greggory Johnson III
Professor & Chair, Institutional Review Board for the Protection of Human Subjects
University of San Francisco
irbphs@usfca.edu
IRBPHS Website

Appendix B

Informed Consent Form

CONSENT TO BE A RESEARCH PARTICIPANT

CONSENT TO PARTICIPATE IN A RESEARCH STUDY

Below is a description of the research procedures and an explanation of your rights as a research participant. You should read this information carefully. If you agree to participate, you will sign in the space provided to indicate that you have read and understood the information on this consent form. Your grades would not be affected by whether or not you choose to participate in the study.

You have been asked to participate in a research study conducted by Sylvia Chaiyeon Lee, a doctoral student in the Department of Learning and Instruction at the University of San Francisco.

WHAT THE STUDY IS ABOUT:

The purpose of this study is to investigate whether explicit teaching of reading strategies has an impact on ESL learners to become more successful in their academic English reading proficiency. This study also explores the ESL students' awareness of the benefits of the learning strategy and perception of their reading skills after the reading strategy instruction. During the research, the researcher will teach four carefully selected reading strategies to facilitate the selecting, organizing, and integrating steps of cognitive processing for meaningful learning.

WHAT WE WILL ASK YOU TO DO:

During this study, the following will happen:

1. If you are among the experimental group, you will complete a short questionnaire and provide basic information about yourself, including your name, age, gender, first language, and nationality. Then you will be asked to take a reading pretest that lasts approximately 35 minutes. Next, learning strategy instruction will take place over six sessions for three weeks. One learning strategy will be taught over two sessions at the beginning of the regular Reading and Writing 2 class for about 30 minutes.

   After six-session strategy instruction, you will complete an online questionnaire reflecting reading strategy instruction. One week later, you will take a reading post-test the same as the pretest. Finally, you will be asked to volunteer to participate in a 30-minute individual interview with the researcher. The interview will take place on Zoom. The purpose of this interview is to share your opinions on how you experience the strategy instruction and how confident you

become in reading after the reading strategy. Only the audio recordings will be saved from the Zoom interviews for the data analysis.

2. If you are among the comparison group, you will complete a short questionnaire and provide basic information about yourself, including your name, age, gender, first language, and nationality. Then you will be asked to take a reading pretest that lasts approximately 35 minutes. Four weeks later, you will take a post-test the same as the pretest.

   You will not receive any strategy instruction during and after the study and only be exposed to your instructor's regular reading comprehension class with the textbook, "*Pathway 2*".

DURATION AND LOCATION OF THE STUDY:

If you are in the experimental group, your participation in this study will involve five weeks, including six 30-minutes intervention sessions twice a week for three weeks. The study will take place at the College of Alameda.

POTENTIAL RISKS AND DISCOMFORTS:

The research procedures described above may involve the following risks and/or discomforts: It is possible that some of the questions on the pretest and post-test may be challenging, and you may feel uncomfortable if you cannot answer the questions confidently.

If you wish, you may choose to withdraw your consent and discontinue your participation at any time during the study without penalty. Your grade would not be affected by your participation in the study.

BENEFITS:

If you are in the experimental group and receiving the strategy intervention, the anticipated benefit of participation in this study is learning three reading strategies that you can use to possibly enhance your reading comprehension: (a) finding the main idea and supporting details; (b) mind mapping; (c) self-explaining.

If you are in the comparison group, you will receive no direct benefit from your participation in this study.

PRIVACY/CONFIDENTIALITY:

Your responses to this questionnaire and electronic mail will be kept strictly confidential. The information you provide will have names removed, and an identification number will be used during analysis and in any reported results. If you participate in the interview with the researcher, only audio recordings will be saved from the Zoom interviews. At no time will your responses be released to anyone other than the researcher without your written consent.

COMPENSATIONS/PAYMENT FOR PARTICIPATION:

There is no payment or other form of compensation for your participation in this study.

VOLUNTARY NATURE OF THE STUDY

Your participation is voluntary, and you may refuse to participate without penalty or loss of benefits. Furthermore, you may skip any questions or tasks that make you uncomfortable and may discontinue your participation at any time without penalty. In addition, the researcher has the right to withdraw you from participation in the study at any time. Should you decide to withdraw, you will not lose course points or be penalized in any way.

OFFER TO ANSWER QUESTIONS

Please ask any questions you have now. If you have questions later, you should contact the principal researcher: Sylvia Chaiyeon Lee, at (925) [redacted], or email her at clee66@usfca.edu.

If you have questions or concerns about your rights as a participant in this study, you may contact the University of San Francisco Institutional Review Board (IRBPHS) at IRBPHS@usfca.edu.

STATEMENT OF CONSENT

I HAVE READ THE ABOVE INFORMATION. ANY QUESTIONS I HAVE ASKED HAVE BEEN ANSWERED. I AGREE TO PARTICIPATE IN THIS RESEARCH PROJECT, AND I WILL RECEIVE A COPY OF THIS CONSENT FORM.

_____ _____

Participant's Signature Date of Signature

Appendix C

Research Site Permission Letter

Site Permission Letter

College of Alameda- ESOL Department

555 Ralph Appezzato Memorial Pkwy, Alameda, CA 94501
Phone: (510) 522-7221

Date: 12/2/2021

Dear IRB,

Based on my review of the proposed research by Sylvia Chaiyeon Lee , and faculty supervisor Dr. Sedique Popal, I give permission for her to conduct the study entitled THE EFFECT OF CURRICULUM-INTEGRATED EXPLICIT STRATEGY INSTRUCTION ON READING COMPREHENSION FOR ENGLISH AS A SECOND LANGUAGE (ESL) LEARNERS AT THE COMMUNITY COLLEGE within the College of Alameda ESOL Department. As part of this study, I authorize the researcher(s) to conduct a reading strategy intervention study in a Reading and Writing 2 class. Collect data using pretest, online survey, posttest, and individual interview via Zoom to examine explicit teaching of reading strategies has an impact on ESL learners to become more successful in their academic English reading proficiency. Individuals' participation will be voluntary and at their own discretion.

We understand that our organization's responsibilities include providing resources and supervision that the partner will provide. We reserve the right to withdraw from the study at any time if our circumstances change.

We understand that the research will include pretest, strategy instruction, online survey, posttest, individual interview.

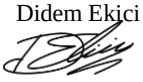
This authorization covers the time period of Feb 01 to Mar 25.

I confirm that I am authorized to approve research in this setting.

I understand that the data collected will remain entirely confidential and may not be provided to anyone outside of the research team without permission from the University of San Francisco IRB.

Sincerely,

Didem Ekici



dekici@peralta.edu

Appendix D

Reading Comprehension Pre-and Posttest

Direction:

1. Read the reading passage on the following page.
2. Answer multiple-choice questions about the passage. For each question, there are four answers (a, b, c, d). Choose the best answer.

Note:

1. You can mark/highlight the reading passage if you want.
2. You can use your dictionaries.
3. You are not allowed to use or look at your previous work.
4. You are not allowed to go online or browse the internet.

For the Love of Chocolate

The Aztecs of Mexico knew about chocolate a long time ago. They made it into a drink. Sometimes they put **hot** chili peppers with the chocolate. They called the drink *xocoati*, which means "**bitter** juice." This is where the word *chocolate* comes from.

The Spanish went to Mexico and took the drink from the land of the Aztecs back to Spain. The Spanish didn't like peppers, so they **added** sugar. They also liked to drink chocolate hot, and hot chocolate was born. This drink became very popular in Europe. People added different things like eggs to the chocolate drink. But everybody's favorite was chocolate in milk **instead** of water.

There was still no hard chocolate until around 1850. Then the British made the first **chocolate bar**. Twenty-five years later, two men in Switzerland mixed milk with hard chocolate. Milk chocolate soon became a favorite all over the world.

Is chocolate good for you? For hundreds of years, people thought chocolate was good for health. Doctors told people to have a chocolate drink for headaches and many other problems. Today, there is good news for chocolate lovers. Scientists think that a little bit of chocolate is good for you! It gives you **energy** and has vitamins to keep your body healthy.

The Aztecs believed that chocolate made you intelligent. Today, we do not believe this. But chocolate has a special chemical called phenylethylamine. This is the same chemical the body makes when a person is in love. Which do you prefer – eating chocolate or being in love?

Direction: For each question, there are four answers (A, B, C, D). Choose/Mark the best answer (1-7).

1. Why did the Aztecs call chocolate drinks "bitter juice"?
   a. Chocolate drinks made the Aztecs unhappy.
   b. The chocolate they were using was bitter.
   c. The drinks were too hot to drink.
   d. The drinks were too cold to drink.

2. What did the Spanish do?
   a. They gave chocolate to the Aztecs.
   b. They made the first chocolate drink.
   c. They brought chocolate to Spain.
   d. They put chocolate into coffee drinks.

3. Why did the Spanish add sugar to their chocolate drinks?
   a. It takes away the bitter flavor.
   b. The Spanish like everything to have sugar in it.
   c. It made the drink taste like cake.
   d. It made the drink popular with children.

4. When was the first chocolate bar made?
   a. About 2001
   b. About 1977
   c. Around 1892
   d. Around 1850

5. Is chocolate good for your health?
   a. No, it takes away intelligence.
   b. Yes, it gives you energy and vitamins.
   c. Yes, it makes headaches go away.
   d. No, it contains dangerous chemicals.

6. Who believed that chocolate makes people intelligent?
   a. The Aztecs
   b. People in Switzerland
   c. Americans
   d. The British

7. Why do some people eat a little bit of chocolate every day?
   a. It makes them feel they are in love.
   b. It has a lot of sugar in it.
   c. It can help make people fat.
   d. It helps people sleep.

Why Are Cows Special in India?

About one billion people live in India. Many people live on small **farms**. They live a quiet and **simple** life. The family takes care of the farm and the animals. The most important animal on the farm is the cow. The cow helps on the farm in two ways. It gives milk to the family, and it works on the farm.

The farmers do not make a lot of money. They can't buy machines to help them do their work. Also, the weather is a **problem** in India. In June, July, August, and September, there's a lot of rain. The **ground** gets very wet. Then the ground gets **soft.** A machine cannot work on soft ground, but a cow can work. Cows also do not **cost** a lot of money. They don't need gasoline or **repairs** like machines.

Farmers care about their cows very much. They want their cows to be happy. The farms aren't busy at certain times of the year. At these times, people wash and **decorate** their cows. Americans like to wash their cars and Indians like to wash their cows! Two times a year, there are special celebrations for the cows. These celebrations are like Thanksgiving in the United States.

Old cows cannot work on farms. In India, it is **against the law** to kill a cow. So, farmers send their old cows away from the farm. The cows walk around free in the streets. Sometimes men sell grass in the street. People buy the grass and give it to the cows. People also give their own food to the cows, and cars are careful not to **hit** the cows. There are special animal hospitals for old or sick cows. The government and some rich people pay for these hospitals.

People in other countries do not understand why the Indian government **spends money on** cows. There are many poor people in India who need money. Indians say that Americans spend more money on cats and dogs. People in India care for over 200 million cows every year. They have cared for cows **for a long time**. It is tradition that is thousands of years old.

Direction: For each question, there are four answers (A, B, C, D). Choose/Mark the best answer (8-15).

8. Cows help farmers because cows _____.

a. walk around the streets
b. work on farms
c. eat grass
d. wash themselves

9. In India, people do not _____.

a. kill cows
b. take care of cows
c. have hospitals for cows
d. decorate the cows

10. In India, the government spends money on _____.

a. poor people
b. farms
c. cows
d. machines

11. Farmers use cows and not machines to work on their farms because _____.

a. cows are like friends.
b. cows eat food.
c. cows walk in the streets.
d. cows don't need repairs.

12. According to the article, Indians have cared for cows for _____.

a. thousands of years
b. two hundred years
c. a long time
d. a short time

13. How many cows do Indians care for every year?

a. 10 million
b. 20 million
c. 200 million
d. 2 million

14. What is NOT TRUE about the reading?

a. Indians wash and decorate their cows.
b. Indians spend money on cats and dogs.
c. Farmers want their cows to be happy.
d. An old cow walks around free in the streets.

15. What is the main idea of the reading?

a. Indians want their cows to be happy.
b. It is against the law to kill a cow.
c. The most important animal on the farm is the cow.
d. The government pays for special animal hospitals.

Sugar

Why do we love sugar so much? Many scientists believe our love of sugar may actually be an **addiction.** When we eat or drink sugary foods, the sugar enters our blood and affects parts of our brain that make us feel good. Then the good feeling goes away, leaving us wanting more. All tasty foods do this, but sugar has a particularly strong effect. In this way, it is in fact an addictive **drug**, one that doctors **recommend** we all **cut down on.**

Our bodies are designed to survive on very little sugar. Early humans often had very little food, so our bodies learned to be very **efficient** in **storing** sugar as fat. In this way, we had energy stored for when there was no food. But today, most people have more than enough. So, the very thing that once saved us may now be killing us. So, what is the solution? It's **obvious** that we need to eat less sugar. The trouble is, in today's world, it's extremely difficult to avoid. From breakfast cereals to after-dinner desserts, our foods are increasingly filled with it. Some manufacturers even use sugar to replace taste in foods that are **advertised** as low in fat.

But there are those who are fighting back against sugar. Many schools are replacing sugary desserts with healthier options like fruit. Other schools are growing their own food in gardens or building **facilities** like walking tracks so students and others in the community can exercise. The **battle** has not yet been lost.

Direction: For each question, there are four answers (A, B, C, D). Choose/Mark the best answer (16-20).

16. What is this passage mainly about?

a. Our addiction to sugar
b. Illness caused by sugar
c. Good sugar vs. bad sugar
d. Ways to avoid sugar

17. What would be a good title for the last paragraph?

a. Too Much Sugar
b. How to Avoid Sugar
c. A Solution: Low in Fat
d. No Easy Answers

18. According to the passage, why is it so hard to avoid sugar?

a. We like candy too much.
b. It gives us needed energy.
c. It's in so many foods and drinks.
d. We get used to eating it at school.

19.Which of the following statements about sugar is NOT true?

a. Sugar makes us feel good.
b. Our bodies store sugar as fat.
c. We need very little sugar to survive.
d. Only adults need to stop eating sugar.

20. How are people fighting back against sugar?

a. Replacing sugary desserts with healthier options
b. Growing their own food in gardens
c. Encouraging people to exercise
d. All of the above

Reading Comprehension Test Answer Keys

Paragraph 1

1. c 2. c 3. a 4. d
5. b 6. a 7. a

Paragraph 2

8. b 9. a 10. c 11. d
12. a 13. c 14. b 15. c

Paragraph 3

16. a 17. b 18. c 19. d 20. d

Appendix E

Online Survey

Direction) Thank you for participating in this student satisfaction survey. This survey is asking your experience and opinion about learning strategies that you have learned during six-session strategy lessons. Please check the most suitable response.

1. How helpful or unhelpful was it to learn the reading strategy number 1: Finding the main idea and supporting details?

- Very helpful (1)
- Helpful (2)
- No difference (3)
- Unhelpful (4)
- Very unhelpful (5)

2. How helpful or unhelpful was it to learn the reading strategy number 2: Mind mapping?

- Very helpful (1)
- Helpful (2)
- No difference (3)
- Unhelpful (4)
- Very unhelpful (5)

3. How helpful or unhelpful was it to learn the reading strategy number 3: Self-explaining?

- Very helpful (1)
- Helpful (2)
- No difference (3)
- Unhelpful (4)
- Very unhelpful (5)

4. How useful were three reading strategies to improve your English reading skills?

- Very useful (1)
- Useful (2)
- No difference (3)
- Useless (4)
- Not useful at all (5)

5. Which learning strategy was most helpful to improve your reading skills?

- Finding the main idea and supporting details (1)
- Mind mapping (2)
- Self-explaining (3)
- Mix them all together (4)

6. Which learning strategy do you want to always use? Choose all strategies you want.

- Finding the main idea and supporting details (1)
- Mind mapping (2)
- Self-explaining (3)
- Mix them all together (4)

7. Do you want to learn more learning strategies if you have a chance to learn them in the future?

- Strongly yes (1)
- Yes (2)
- Maybe (3)
- No (4)
- Strongly no (5)

8. Overall, did strategy instruction help you improve your reading skills?

If yes, why? _____

If not, why? _____

9. Which strategy was most difficult to learn and practice? Why?

Write the name of the strategy _____

Why? _____

10. Do you feel more confident in reading after the learning strategy instruction?

If yes, why? _____

If not, why? _____

11. Do you have any other comments that you would like to share with me about the learning strategy instruction?

_____

Appendix F

Semi-Structured Interview Protocols with Questions

Section 1: Basic information about the interview

- **Date and time**
- **Place**
- **Interviewer**
- **Interviewee**
- **Position of interviewee**

Section 2: Introduction

- **The purpose of the interview**
- **The general structure of the interview**
- **The duration of the interview**

Section 3: Opening Question

- **Ice-breaker questions**

Section 4: Content Questions with Probes

1. Tell me about what you knew about learning strategy before you attended the strategy instruction.
2. What was your general impression or thought about the six-session strategy instruction?
3. After you learned the learning strategies, do you think the strategies helped you improve your reading skills? If yes, in what ways are they helpful?
4. Did your understanding of learning strategies change after the strategy instruction? If yes, how did your understanding change?
5. Which learning strategy was most helpful to improve your reading skills? Why?
6. Do you feel more confident in reading after learning the strategies? If yes, why? If not, why?
7. Did your attitude toward reading change after learning the strategies? (i.e., become more willing to read, enjoy reading, or feel easier when reading.)
8. Can you use the learning strategies you learned while reading moving forward?
9. Do you want to learn more learning strategies if you have a chance in the future? If yes, why?

Section 5: Closing Instructions

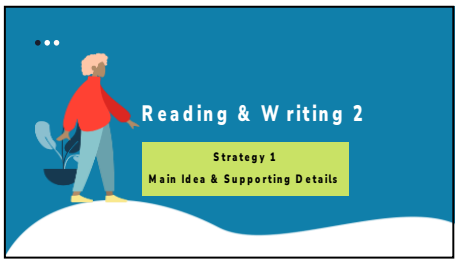
- **Expressing gratitude**
- **The confidentiality of the interview**

Appendix G

Strategy Lesson Plans

Lesson Plan 1

Strategy# I: Finding the main idea and supporting details



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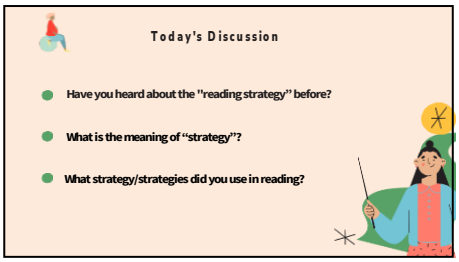

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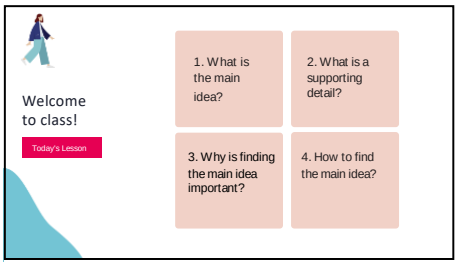

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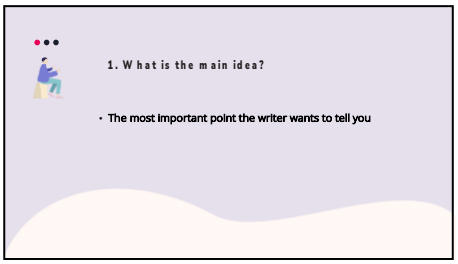

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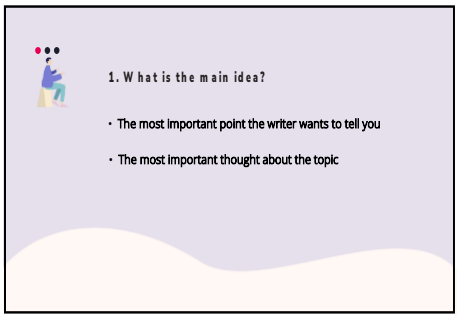

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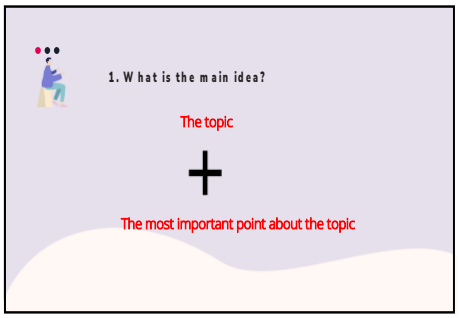

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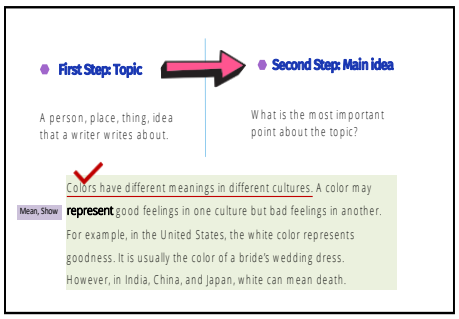

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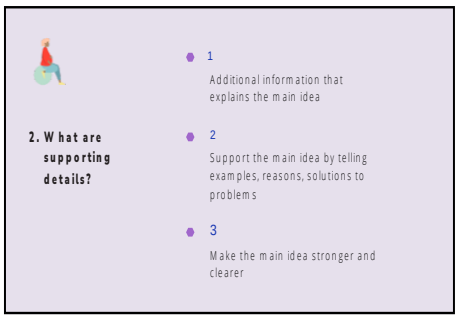

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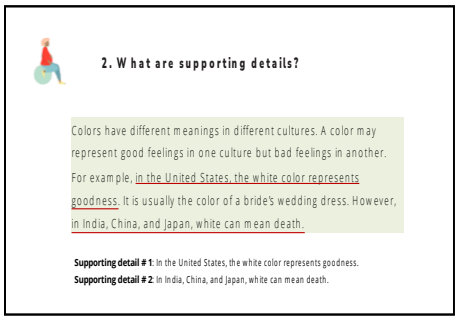

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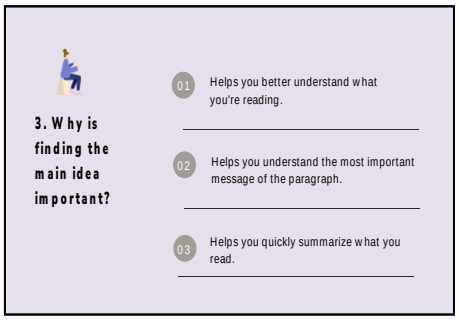

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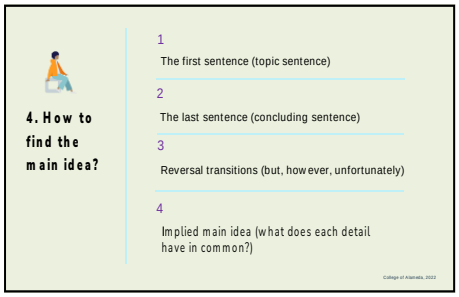

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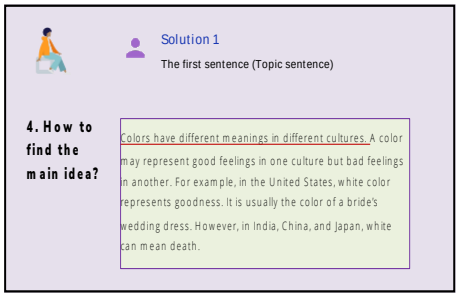

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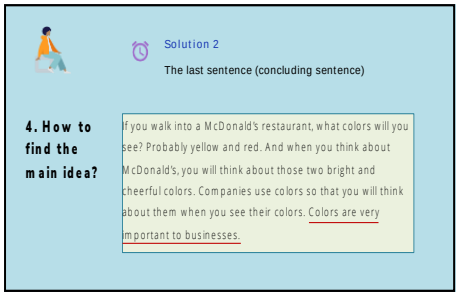

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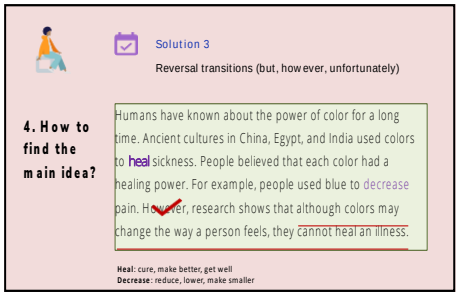

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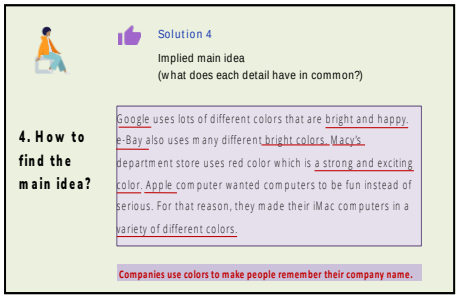

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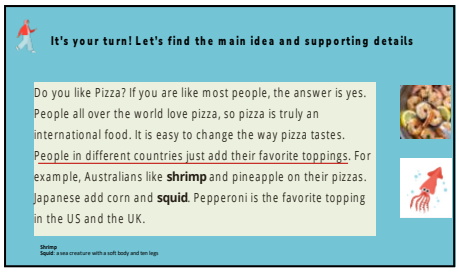

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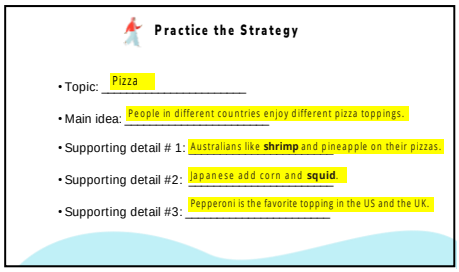

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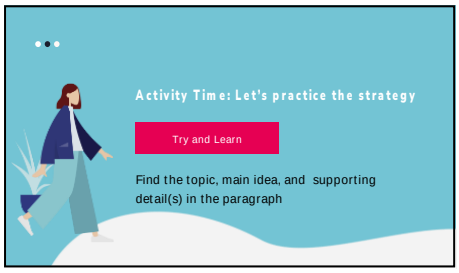

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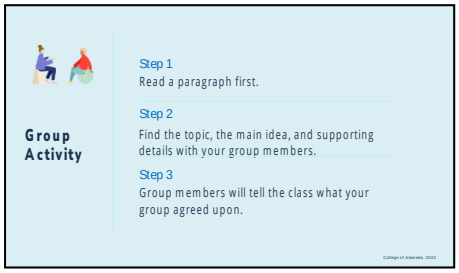

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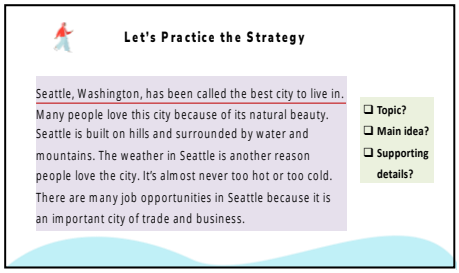

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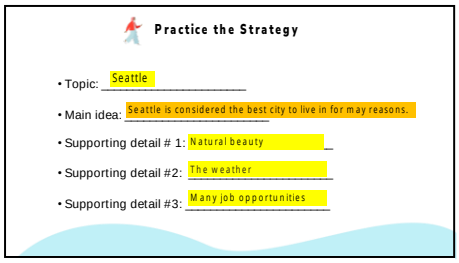

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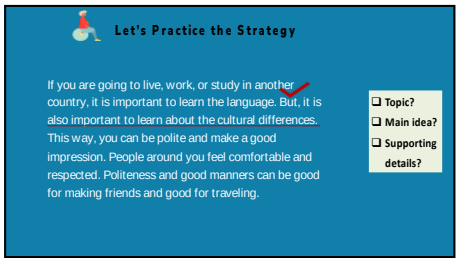

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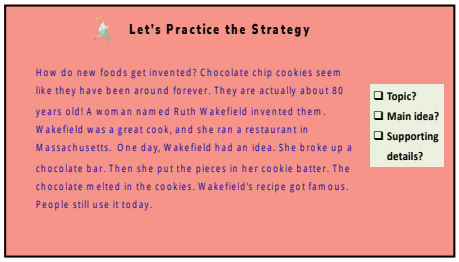

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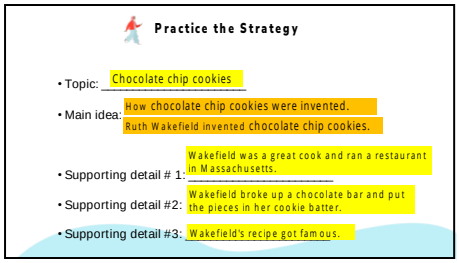

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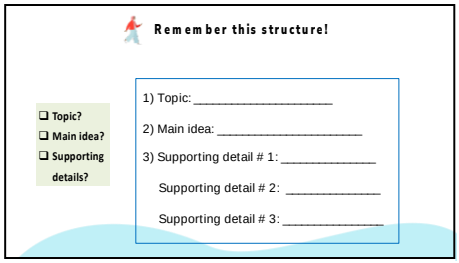

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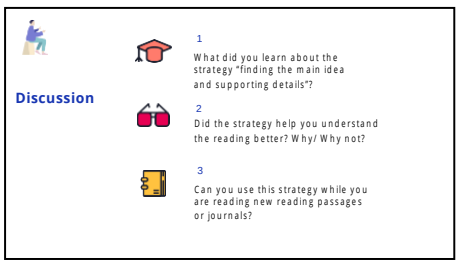

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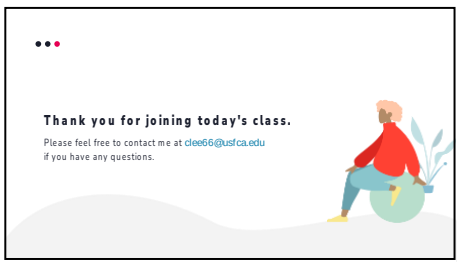

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Lesson Plan 1 Handout

Let's practice the strategy (Find the main idea and supporting details).

1. Seattle, Washington, has been called the best city to live in. Many people love this city because of its natural beauty. Seattle is built on hills and surrounded by water and mountains. The weather in Seattle is another reason people love the city. It's almost never too hot or too cold. There are many job opportunities in Seattle because it is an important city of trade and business.

- Topic: _____
- Main idea: _____
- Supporting detail # 1: _____
- Supporting detail #2: _____
- Supporting detail #3: _____

2. If you are going to live, work, or study in another country, it is important to learn the language. But it is also important to learn about the cultural differences. This way, you can be polite and make a good impression. People around you feel comfortable and respected. Politeness and good manners can be good for making friends and good for traveling.

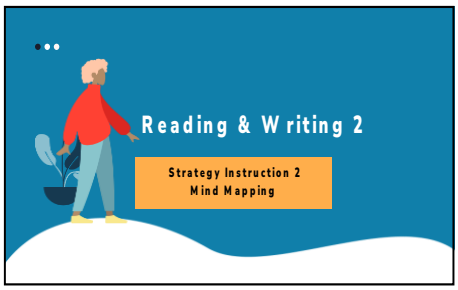
- Topic: _____
- Main idea: _____
- Supporting detail # 1: _____
- Supporting detail #2: _____
- Supporting detail #3: _____

3. How do new foods get invented? Chocolate chip cookies seem like they have been around forever. They are actually about 80 years old! A woman named Ruth Wakefield invented them. Wakefield was a great cook, and she ran a restaurant in Massachusetts. One day, Wakefield had an idea. She broke up a chocolate bar. Then she put the pieces in her cookie batter. The chocolate melted in the cookies. Wakefield's recipe got famous. People still use it today.

- Topic: _____
- Main idea: _____
- Supporting detail # 1: _____
- Supporting detail #2: _____
- Supporting detail #3: _____

Lesson Plan 2

Strategy# II: Mind mapping



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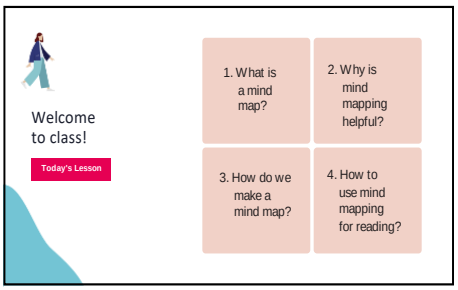

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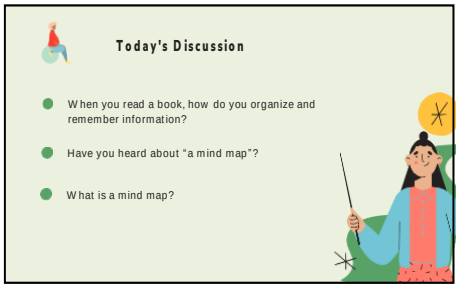

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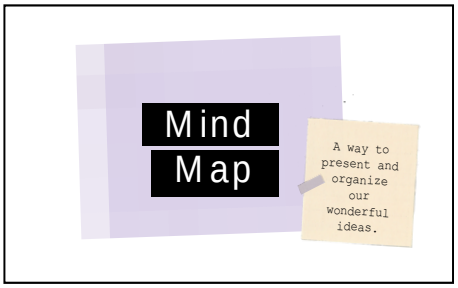

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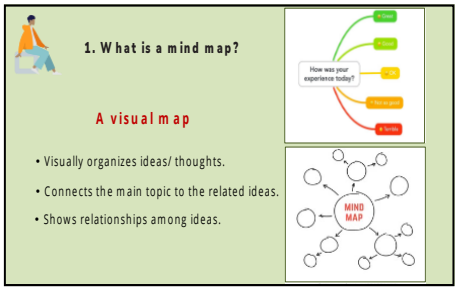

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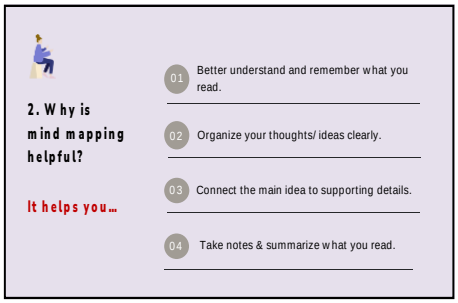

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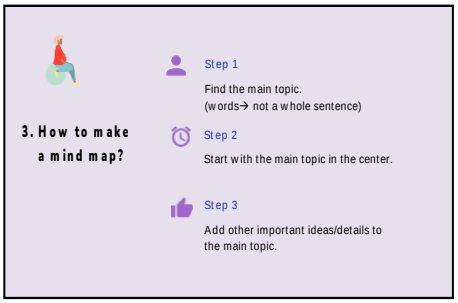

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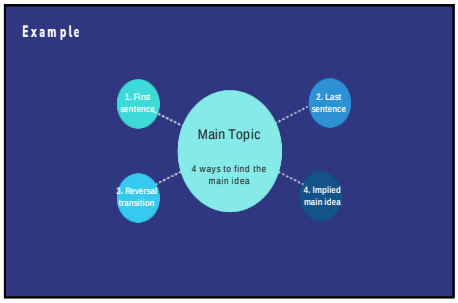

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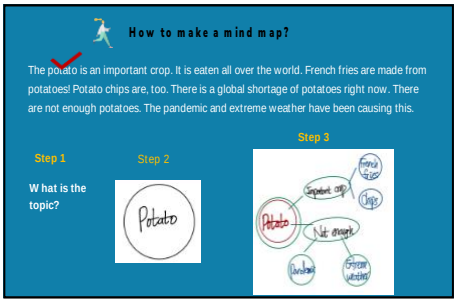

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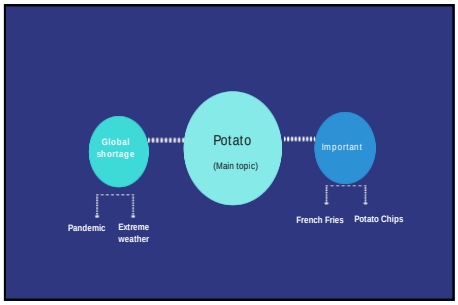

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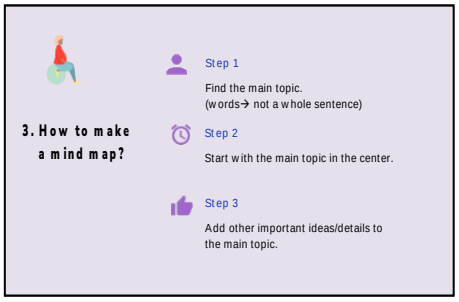

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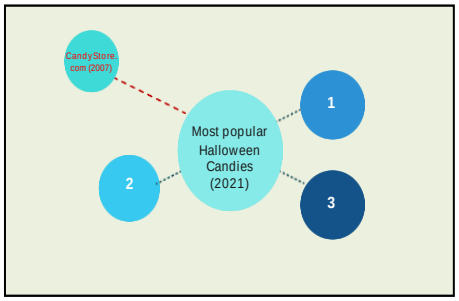

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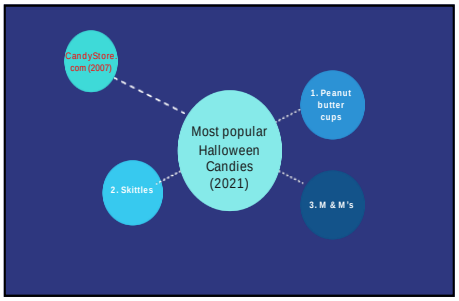

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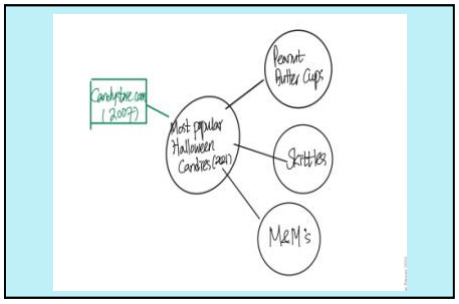

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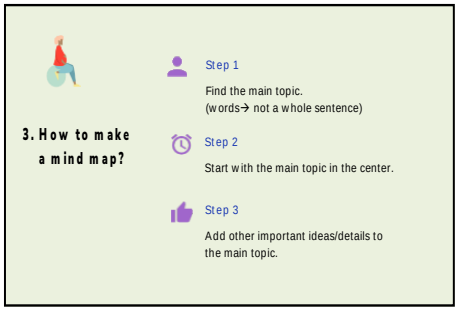

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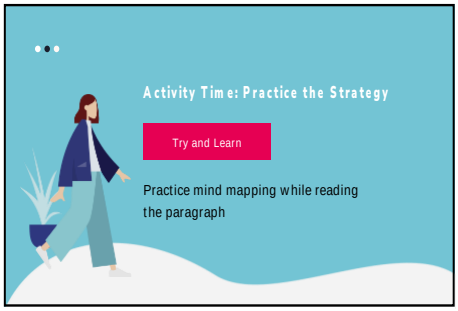

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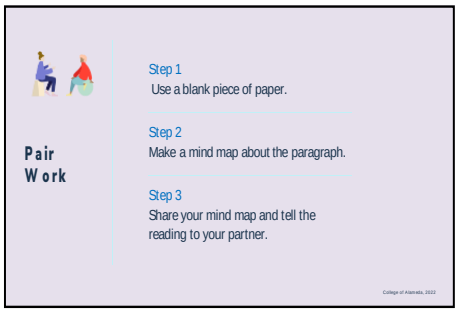

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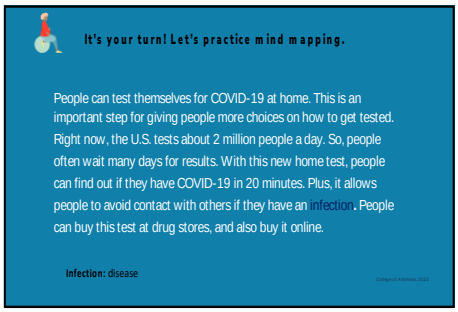

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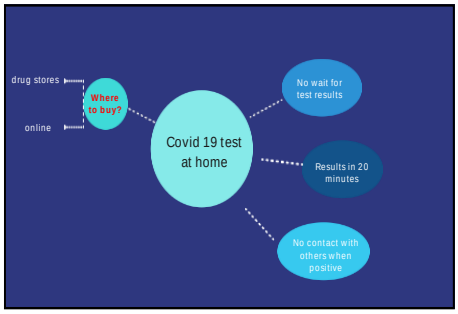

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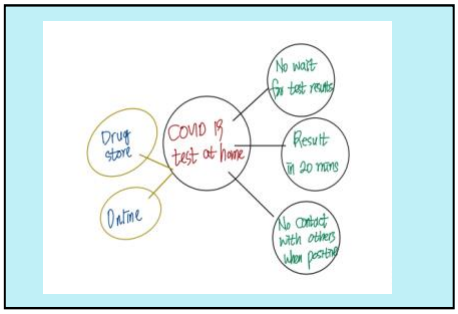

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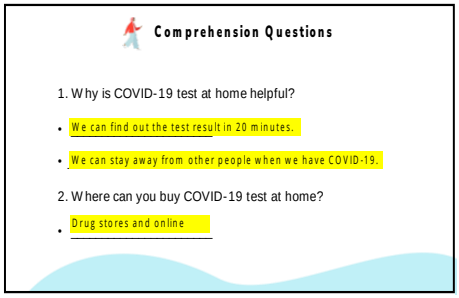

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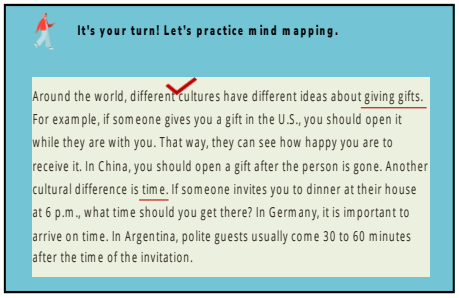

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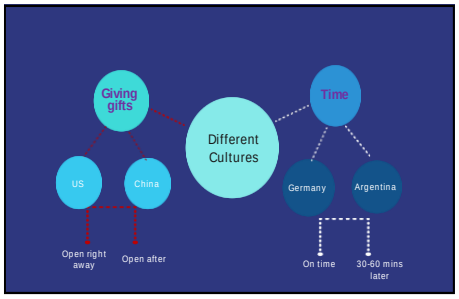

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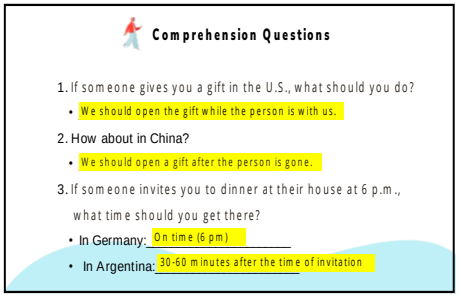

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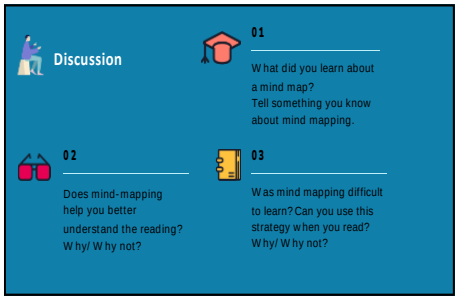

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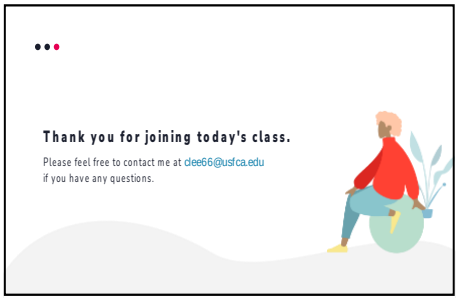

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Lesson Plan 2 Handout

Mind mapping activity

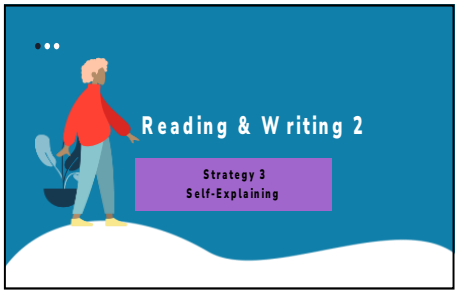
1. Please read a paragraph and make a mind map in the space below.
2. Share your mind map and tell the reading to your partner.

1. People can test themselves for COVID 19 at home. This is an important step for giving people more choices on how to get tested. Right now, the U.S. tests about 2 million people a day. So, people often wait many days for results. With this new home test, people can find out if they have COVID-19 in 20 minutes. Plus, it allows people to avoid contact with others if they have an infection. People can buy this test at drug stores and also buy it online.

2. Around the world, different cultures have different ideas about giving gifts. For example, if someone gives you a gift in the U.S., you should open it while they are with you. That way, they can see how happy you are to receive it. In China, you should open a gift after the person is gone. Another cultural difference is time. If someone invites you to dinner at their house at 6 p.m., what time should you get there? In Germany, it is important to arrive on time. In Argentina, polite guests usually come 30 to 60 minutes after the time of the invitation.

Lesson Plan 3

Strategy# 3: Self-explaining



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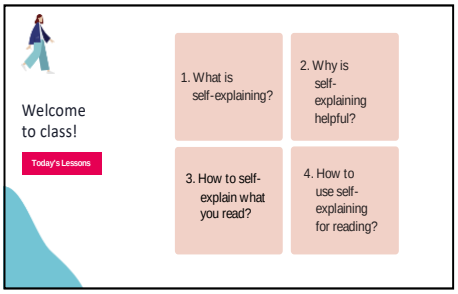

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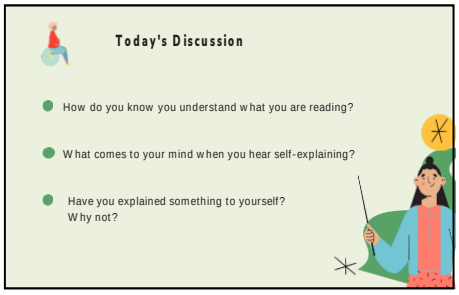

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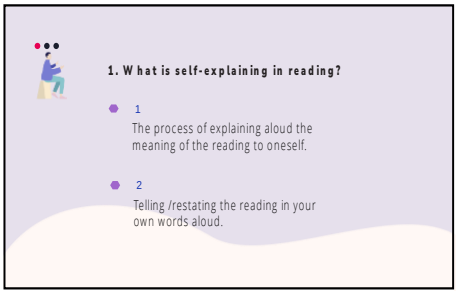

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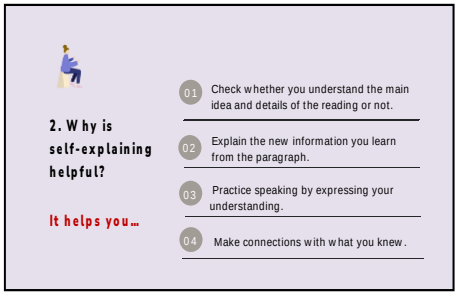

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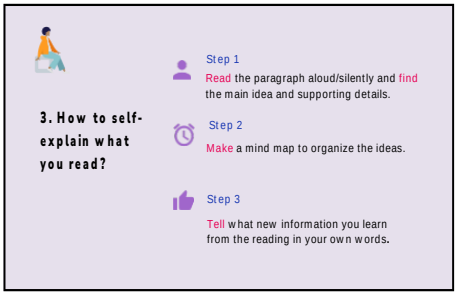

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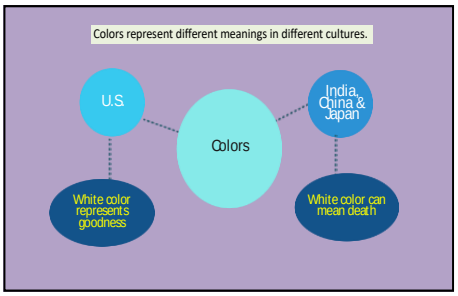

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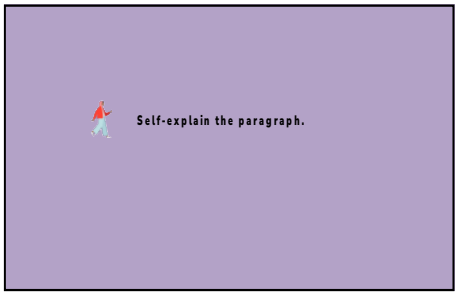

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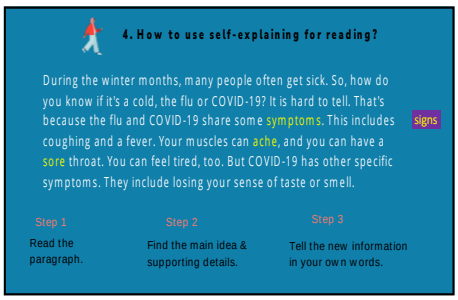

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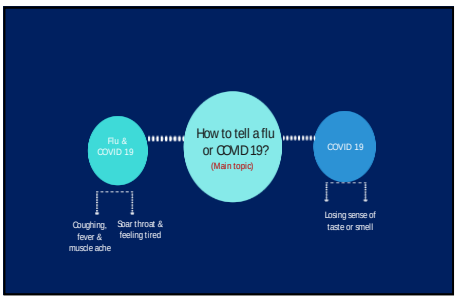

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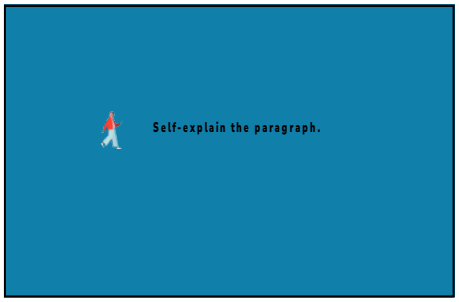

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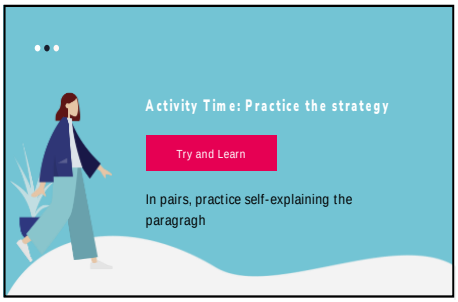

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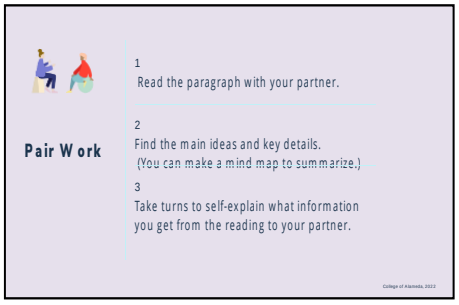

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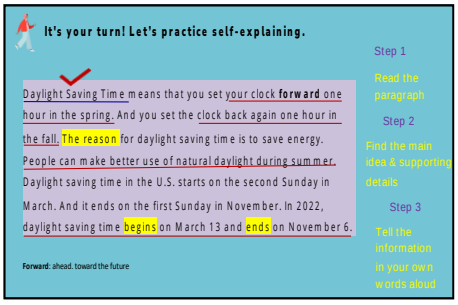

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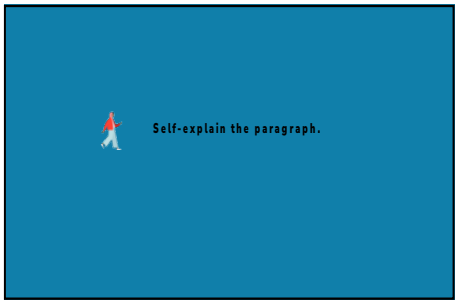

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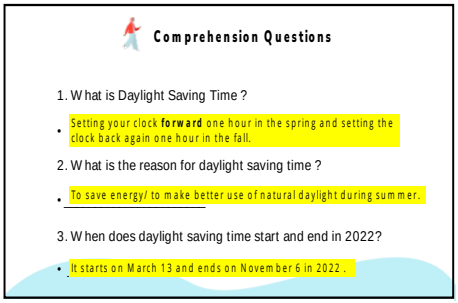

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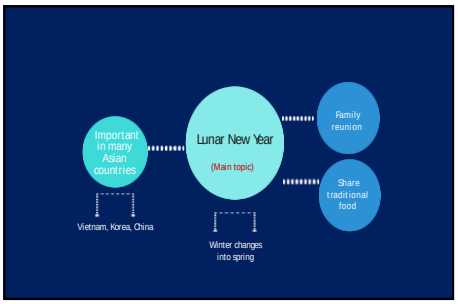

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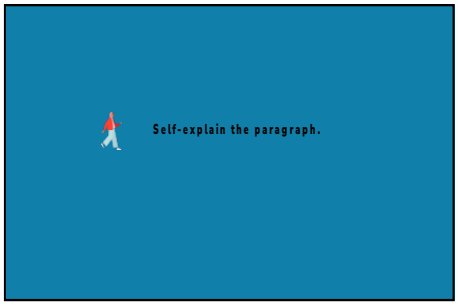

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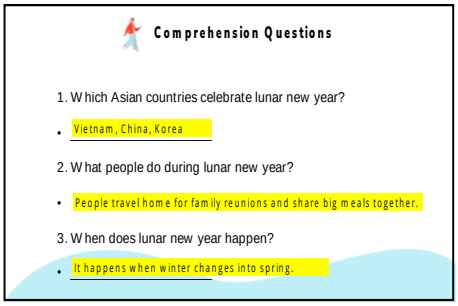

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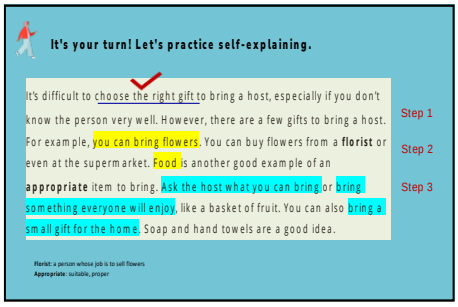

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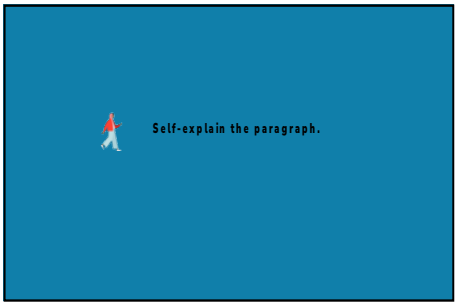

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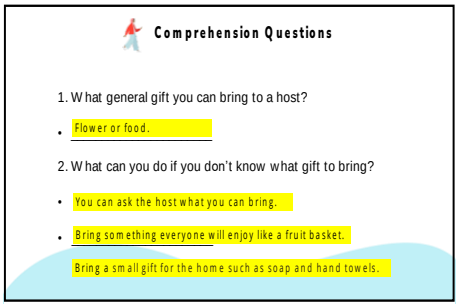

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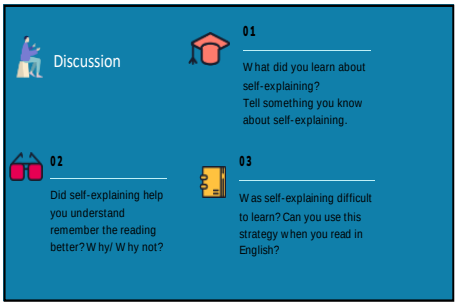

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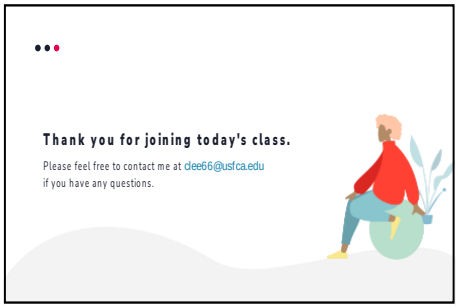

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Lesson Plan 3 Handout

Self-explaining activity in pairs

1. Choose one paragraph below. (Choose a **different** paragraph from your partner.)
2. Find the main ideas and key details. (You can make a mind map to summarize.)
3. Take turns to self-explain what information you get from the paragraph to your partner.

Paragraph 1

Daylight Saving Time means that you set your clock **forward** one hour in the spring. And you set the clock back again one hour in the fall. The reason for daylight saving time is to save energy. People can make better use of natural daylight during summer. Daylight saving time in the U.S. starts on the second Sunday in March. And it ends on the first Sunday in November. In 2022, daylight saving time begins on March 13 and ends on November 6.

Paragraph 2

Many people all over the world celebrate Lunar New Year. This festival is important in many Asian countries such as Vietnam, Korea, and China. It's hugely popular. People travel home for family reunions and share big meals together. The festival is a time of hopeful transition. It happens when winter changes into spring. Of course, food plays a significant role, and people enjoy traditional food together.

Paragraph 3

It’s difficult to choose the right gift to bring a host, especially if you don’t know the person very well. However, there are a few gifts to bring a host. For example, you can bring flowers. You can buy flowers from a **florist** or even at the supermarket. Food is another good example of an **appropriate** item to bring. Ask the host what you can bring or bring something everyone will enjoy, like a basket of fruit. You can also bring a small gift for the home. Soap and hand towels are a good idea.