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Making Thinking Visible: Reading Metacognitive Strategies in Intensive English Programs

Adil Bentahar
University of Delaware, badil@udel.edu

Introduction

Intensive English Programs (IEPs) are responsible for training international students and scholars to reach English proficiency levels commensurate with native speaking peers. Depending on their language proficiency, these English learners (ELs) spend a prescribed amount of time (from a few months to two years) in these programs until they can succeed academically in their coursework. As a result, IEP instructors have a short period of time to ensure their students meet numerous language learning outcomes in the skills of listening, speaking, reading, and writing, as well as sub-skills of grammar, spelling, and vocabulary acquisition. The reality, as evidenced by graduation rates and academic achievement, is that "many students who participate in IEPs exit these programs struggling with reading comprehension, which hinders their success in American universities" (Benlyazid, 2019, p. 1).

To ameliorate international students' difficulties comprehending university-level academic texts, one method of instruction is to explicitly teach reading strategies that ELs can independently use when reading. In this model, students learn to approach reading from a metacognitive perspective by consciously applying the reading strategies in the classroom. Researchers have noted the benefits of metacognition, or thinking about thinking (Chick, 2013; de Bruin et al., 2011; Dunlosky & Metcalfe, 2009); implementing specific metacognitive strategies has been shown to increase motivation for reading as well as reading fluency and accuracy (Durham & Raymond, 2016). To measure the effectiveness of teaching specific metacognitive strategies to adult ELs, this study measured the impact of teaching IEP students metacognitive reading strategies on their metacognitive knowledge as well as their reading comprehension.

Literature Review

Most definitions of metacognition highlight its key role in ensuring enhanced, active, and independent learning. Described as awareness and monitoring processes, metacognition designates "the knowledge of readers' cognition about reading and self-control mechanisms" (Mokhtari & Reichard, 2002, p. 249); thinking about thinking, knowing what we know and what we do not know (Ascend Learning Center, 2021; Chick, 2013); as well as thinking that regulates and focuses on different parts of cognitive activities (Flavell, 1979).

Reading comprehension is a complex process that not only depends on decoding skills but also requires a set of specialized cognitive skills (Takala, 2006) that enable readers to understand, analyze, and synthesize information obtained from texts (Smith, 2014). English learners (ELs) are different from their native-speaking peers in that they bring linguistic and cultural diversity to the classroom and face additional difficulties when learning English (Center for Adult English Language Acquisition, 2000). As ELs, and from a linguistic standpoint, IEP international students learn English at the same time they are learning academic and cultural content in their coursework (Bentahar, 2022). Short and Fitzsimmons (2007) contended that ELs at universities and in public schools must do "double the work" of their native-speaking classmates (p. 11). Cultural obstacles faced by these students are outside the scope of this inquiry but are important and merit mention as an additional obstacle.

Researching the impact of metacognition on student learning began decades ago. Carrell et al. (1989), for instance, used two groups (i.e., experimental and control) to compare the difference in the students' use of metacognitive strategies in ESL reading texts. The results suggested an increase in the students' comprehension, whereas the control group showed no gains at the level of comprehension tests. To be successful in their college coursework, students in IEPs must reach

a level of reading proficiency that allows them to access assigned reading and textbooks. Meyer and Ray (2011) posited that for students to be able to comprehend a reading passage, they need to possess an array of strategies such as accessing word meanings, integrating words embedded in phrases, and integrating phrases within paragraphs when comprehension breakdowns arise. The challenges in these students' low reading performance have prompted researchers and practitioners to think about ways to help students learn effective reading strategies. Explicit instruction in metacognitive reading strategies has been shown to have potential for improving student reading skills and promoting autonomy over their own learning (Ascend Learning Center, 2021; Camahalan, 2006).

In a study of the relationship between the use of metacognitive strategies and reading comprehension, Tregaskes and Daines (2010) investigated the effectiveness of enhancing the reading comprehension of sixth-grade social studies students via metacognitive strategies. The control and experimental groups comprised 152 White and Hispanic lower-middle-class students from an elementary school in a rural southeastern state in the United States. The participants in the experimental group managed to (a) identify the main ideas of passages, and (b) make predictions about the end of the text. The researchers recommended both instruction in metacognition to school-aged students and the need for training teachers in teaching metacognition (Tregaskes & Daines, 2010).

Likewise, Benlyazid (2019) used a multi-component approach called Collaborative Strategic Reading (CSR), the purpose of which was to train struggling readers to employ selected cognitive and metacognitive strategies to improve their reading comprehension and content area reading. Using a nonequivalent control group pretest-posttest study, the researcher used Metacognitive Awareness of Reading Strategies Inventory (MARSI) as one of the measurement

tools to capture 32 intermediate-level ESL international students' perceptions, which yielded a statistically significant increase (<.05) reflecting the benefit of the reading intervention of CSR and the MARSI. Metacognition has also been found to help learners estimate the likelihood that they will be able to remember the learned material for use later. When used successfully, metacognitive strategies or skills can become reinforced as "learners experience success and feel they are agents of their own learning" (Camahalan, 2006, p. 80). In the current study, an instructor taught students in an IEP to employ metacognitive strategies in three distinct phases—planning, monitoring, and evaluating. What follows is a description of the three strategies used in this study.

Planning, Monitoring, and Evaluating

As a metacognitive strategy, planning takes place while an individual is pre-reading. In the course of planning, learners would consider thinking about the reading topic and other features that can help them formulate a preliminary idea about the content of the text. Helpful features include identifying the author, title, table of contents, and front and back cover blurbs (Benchmark Education, 2022). Pictures, graphics, headings, and subheadings can also play an important role in helping readers make guesses about the content of the text and are therefore part of the planning strategy (Benchmark Education, 2022).

The second metacognitive strategy, monitoring, occurs while students are in the process of reading the text. Overall, reading comprehension is thought to be influenced by how accurately one can monitor comprehension during reading knowing that self-regulation in reading occurs in response to comprehension monitoring (Thiede et al., 2003). According to many models of self-regulated learning, readers begin to study by establishing "a desired state of learning for the to-be-learned material" (Thiede et al., 2003, p. 66). In the process, they monitor how well they are learning the material, which is a step toward determining the current level or state of learning. If

done properly, accurate monitoring of comprehension can provide readers guiding information on their self-regulated learning (de Bruin et al., 2017).

To take charge of their reading, proficient readers monitor their own comprehension. Monitoring in reading also designates using intra-textual features such as rhetorical structures, complex sentence structure, and markers, to help integrate new material in reading (Schiff & Calif, 2004). Additionally, monitoring can be reinforced by utilizing other metacognitive strategies, such as think-aloud and self-regulation, both of which make the act of reading an interactive and active process.

The final strategy in the triumvirate of the reading process is evaluating. Evaluating can help students determine the importance of information obtained from the written text, accuracy and credibility in reading, appropriateness and/or usefulness of ideas, personal enjoyment of reading a text, and one's own progress as a reader (Fries-Gaither, 2012). In reading, self-evaluation can help readers connect their conclusions made after reading with the predictions and guesses they made during the planning phase. Therefore, the strategy provides an overall view of the effectiveness of reading comprehension.

Evaluating can showcase self-initiated assessment of the progress or quality and results of a readers' reading ability, including engagement as well as regulatory processes (Alvarado et al., 2011; Zimmerman, 2008). For example, students would check over their work to ensure their predictions were accurate and that their pre-reading questions were answered appropriately. While many ELs—including international students—sometimes think that the reading activity is complete once they have answered all the comprehension questions (Bentahar & Alalou, 2022), research indicates that proficient readers oftentimes pause to reflect on their use of cognitive strategies before, during, and after reading, which is pivotal to a successful evaluation of one's

comprehension (Honig et al., 2012). While the author of the present study acknowledges the extant literature on reading metacognitive strategies, this study used a different approach by examining metacognitive strategy use among English learners in intensive English programs.

Methods

In this study, the researcher investigated whether training IEP students in the use of metacognitive strategies of planning, monitoring, and evaluating (a) increases their metacognitive knowledge, and, in turn, (b) improves their reading comprehension. Reading comprehension scores were measured using two similar reading passages as a pre- and post-test of comprehension; the participants' knowledge of metacognitive strategies was measured by the Metacognitive Awareness of Reading Strategy Inventory (MARSI; Mokhtari et al., 2018).

Participants

Eight IEP international students enrolled in a reading and writing (RW) course participated in this study. These participants were all non-English speakers taking language classes at a mid-sized four-year public university in midwestern United States. Of the students who participated in the study, six were from Saudi Arabia and two were from South Korea. The RW intensive course lasted six weeks during the summer semester beginning in June. The course was titled *Reading and Writing*, and the students met Monday through Thursday and received three hours of targeted instruction per day. All eight students simultaneously participated in a communications course in the same program. Table 1 presents demographic information of each of the eight students, whose ages ranged from 20 to 31 years. Of the eight, six identified as male and two were female. All students participated for the entirety of the six-week course, and all had regular attendance.

Table 1

Description of the Participants' Demographic Data

Gender	Nationality	Age	Intended Major
M	Saudi Arabia	31	Business Administration
M	Saudi Arabia	31	Respiratory Care
F	Saudi Arabia	24	Finance
M	South Korea	22	NA
F	South Korea	21	NA
M	Saudi Arabia	25	Computer Sciences
M	Saudi Arabia	22	Information Technology
M	Saudi Arabia	20	Biomedical Engineering

Instruments

Two instruments were used in this research. First, the Metacognitive Awareness of Reading Strategy Inventory (MARSI), a widely adopted tool designed by Mokhtari and Reichard (2002), helped measure metacognitive knowledge related to reading comprehension. The other instruments were two reading passages developed by the author to measure the students' reading comprehension (pre- and post-test). Both were similar in difficulty and length to avoid issues with validity and reliability (Mokhtari et al., 2018; Mokhtari & Reichard, 2002).

Metacognitive Awareness of Reading Strategy Inventory (MARSI)

The MARSI is a self-reported survey used to measure students' use of reading strategies in the context of English for Academic Purposes (Mokhtari & Reichard, 2002). The MARSI is one of the few instruments to measure metacognitive knowledge associated specifically with reading tasks. To address issues of validity and reliability, the items of the instrument were

exposed to "successive cycles of development, field-testing, validation, and revision" (Mokhtari & Reichard, 2002, p. 251). As a result, when used correctly, this assessment provides both valid and reliable data regarding the construct of metacognitive strategy proficiency and use.

The MARSI instrument contained thirty Likert-scale statements ranging from 1 to 5 (i.e., 1 represented the statement "I never or almost never do this" while 5 represented the statement "I always or almost always do this"). It includes three domains of reading strategies: Global Reading, Problem-Solving, and Support Strategies. The items which measured global reading strategies were targeted towards analyzing a text holistically. Problem-solving strategies are oriented toward finding solutions to understanding a text when it becomes difficult, and support strategies follow the use of external reference material such as note-taking (Mokhtari et al., 2018).

Comprehension Tests

Two reading passages with comprehension tests were utilized to evaluate the reading comprehension levels of the participants. Before and after specific instruction on the use of metacognitive strategies, the participants read a text of approximately 500 words which was selected from a set of texts on two ESL websites (ESL Lounge, 2012; WebRing, 2012). One text was titled "Just Married" about a recently married couple who had both similar and different expectations about future plans for their honeymoon. Titled "Volunteers and Charitable Collections," the other text discussed facets of American culture—volunteering and charity work. The two comprehension tests were chosen by the researcher and examined and piloted by three English as a Foreign Language (EFL) teachers, six students, an EFL teacher supervisor, and the RW course instructor whose input was particularly valuable given their familiarity with the students' English proficiency levels. These consultants all added comments, and as a result, most of the suggested revisions were incorporated. The tests were also examined by a university

professor who is well-versed and extensively published in reading strategy use and metacognition. To ensure that both reading passages were written at an appropriate level with similar length, both passages were entered into Fry's Readability software. The passage about the wedding was 414 words long, and was written at the sixth grade, seventh month reading level. The reading which focused on volunteering was 427 words long and was written at the 7.2 grade level. In consultation with the reading expert, the researcher determined that both reading passages were appropriate to yield valid results.

Each reading test consisted of ten questions with three distinct question types. The first section contained four true/false questions, and for these answers the participants were not required to provide a justification for their responses. In the second section, word reference, the students were asked to identify the antecedent or reference of two words: a pronoun such as *they* and a possessive adjective such as *her*. The third category of questions was composed of four open-ended questions (called constructed response) using *wh*- question words, such as *what* and *why*. After the participants took the reading assessments, in terms of scoring, any correct answer was marked with (1) while wrong responses were marked with (0). The participants were given thirty minutes to complete the MARSI, and 45 minutes was allotted for the students to take the comprehension test. All students completed both instruments within the allotted time.

Procedure

A pretest-posttest design was used to measure the change in both metacognitive knowledge and reading comprehension for the participants in the study. Specifically, the participants completed the MARSI and one pretest before instruction to measure metacognitive strategy knowledge and reading comprehension, respectively. At the end of the six-week class, the participants completed the MARSI again as well as the other reading test, which functioned as

a posttest. To avoid biases in data collection, half of the participants were randomly selected to read "Just Married" first, followed by "Volunteers and Charitable Collections," and the other half of the class read the texts in the opposite order.

To measure if the changes in metacognition and reading comprehension were statistically significant, the researcher conducted a dependent *t*-test using IBM's Statistical Package for the Social Sciences (SPSS) software for Windows (version 19.0) in which the means for the pretest and posttest of both MARSI scales and comprehension tests were analyzed. After obtaining the Institutional Review Board approval, the researcher administered the informed consent form for the participants to sign. Then each participant completed both the MARSI and a pretest to measure their reading comprehension levels. Due to the small class size, there was no control group with which to compare the scores.

The reading metacognitive strategy use intervention consisted of teaching and modeling specific metacognitive strategies to be used by the participants when they encountered reading passages. During the intervention, the instructor deliberately introduced the metacognitive strategies in three phases just like the students would be expected to implement them when reading. Equal time was given to all three phases of reading, which was roughly one week. Soon after the students had completed the informed consent form and the pre-test MARSI survey and the reading test, they were introduced to metacognition as a concept. It was critical that the students had this opportunity to first grasp the concept and the rationale behind adopting a learning approach that is metacognitive in nature.

Starting in Week Two, the RW instructor began by explaining the planning strategy and modeling it for the students. This step was key to piquing student interest and motivation, especially when the concept of metacognition was completely new to them. The instructor was

aware of the research goals, which is why timing and planning this instruction was in concert with the course learning outcomes for that academic session. In fact, it was important to ensure the RW instructor's buy-in as well. The instructor modeled the metacognitive strategy of planning and described aloud his thinking processes while pre-reading passages. The students were encouraged to think aloud while planning, and they were also allowed to use their native languages if they chose to do so. The students practiced the strategy of planning using several texts during the second week until the students made noticeable progress in their use.

During Week Three, the instructor modeled an array of metacognitive strategies related to monitoring. Initially, the instructor read a document as the students followed along with their own copy. For instance, at the end of each sentence or each idea, the instructor would stop and ask a question or share a thought about the sentence previously read. This practice served as a model for students to emulate similar behaviors when deconstructing passages on their own. After students practiced, they were asked to depict their thinking in small groups, which reinforced the concept of monitoring and allowed the students to see other students intentionally recall and share their thinking. Instruction in Week Four focused on specific strategies related to evaluating their reading. Students compared their predictions about the reading, evaluated the quality of the ideas, and checked their understanding of the meaning of the passages with other students and the instructor. These behaviors are examples of effective metacognitive strategies which have been shown to improve reading comprehension (Ahour & Mohseni, 2014).

In Week Five, the students were encouraged to practice the three metacognitive strategies independently, with little to no scaffolding from the instructor. The goal was to create meaningful opportunities for them to develop ownership over their own learning while the instructor was there, hoping they would continue to engage in these intentional metacognitive behaviors while

reading. In Week Six, the students completed other assessments for the class, which also included the post-test MARSI survey and the second reading comprehension test, both ungraded.

Results

To evaluate the effect of teaching metacognitive strategies, the researcher compared pre-test and post-test scores on the MARSI. The descriptive statistics for the three scales of the MARSI are presented in Table 2. The table provides statistics for the MARSI, reporting the mean values of the pretest and posttest for each reading strategy. A description of standard deviation and standard error mean values for each of the scales is also displayed.

Table 2

Paired Sample Statistics of Each Reading Scale

Reading Strategy Scale		Mean	N	Std. Deviation	Std. Error Mean
Global Reading strategy	Pre	3.02	8	0.57	0.20
	Post	3.91	8	0.63	0.22
Problem Solving strategy	Pre	3.34	8	0.46	0.16
	Post	4.10	8	0.76	0.26
Support Reading Strategy	Pre	3.00	8	0.69	0.24
	Post	3.91	8	0.68	0.24

As indicated in Table 2, differences on the scores on the global reading strategy scale were significantly higher from pre- to post-test in all three domains, as evidenced by the score for global reading strategy, $t(7)=2.678$, $p=0.032$. Scores on the problem-solving reading strategy were also statistically significantly higher, $t(7)=2.532$, $p=0.039$. Finally, scores on the support reading strategy scale differed significantly, $t(7)=2.539$, $p=0.039$. These scores also increased from pretest

to posttest. Therefore, as seen in Table 2, scores on all three scales increased from pre-test to post-test, which indicates that teaching the metacognitive strategies likely increased the participants' metacognitive knowledge.

Mokhtari and Reichard (2002) developed norms for the MARSI scores and created three categories of low, medium, and high. On this four-point scale, scores greater than 3.5 are considered high, 2.5 and 3.4 are medium, and scores at 2.4 and below are low. Based on these categories, for the three scales of global reading, problem-solving, and support reading, all students in this study had scores which moved from medium to high over the course of their participation in this study.

Changes in Reading Comprehension

After comparing the MARSI pretest scores with those from the posttest, the researcher evaluated whether the participants experienced a change in their reading comprehension. To this end, the researcher compared pre-test and post-test scores from the passages the participants read for the study. Pre-tests and post-tests each contained ten questions related to the respective passages. The reading comprehension questions consisted of three different types of questions. Specifically, the first four questions were binary choice (i.e., true/false), two questions were based on word reference (i.e., providing a pronoun from the passage and asking students to whom the pronoun referred), and the last four were *wh*- questions. Results from the post-test indicate that, overall, reading comprehension scores were not statistically significantly higher after students were taught metacognitive strategies. Table 3 provides paired sample statistics describing the mean values of the pre- and post-test of each question type. A description of standard deviation and standard error mean values for each question type is also presented in Table 3.

Table 3

Paired Samples Statistics of Each Comprehension Test Question Types Used in the Present Work

Comprehension Test Questions		Mean	*N*	Std. Deviation	Std. Error Mean
True/False	Pre	0.84	8	0.84	0.06
	Post	0.71	8		
Word Reference	Pre	0.81	8	0.91	0.06
	Post	0.93	8		
Wh- questions	Pre	0.56	8	0.19	0.14
	Post	*0.84*	8		

Overall, findings from the reading comprehension tests provided mixed results. Specifically, performance on the true/false questions did not differ from pretest to posttest, $t(3) = 1.10$, $p = 0.35$, nor was there a statistically significant difference between word reference questions between the pre and posttest, $t(1) = .92$, $p = 0.52$. However, the one question type on which the students performed demonstrably better was the *wh*- type, with the following scores $t(3) = 4.65$, $p = 0.01$.

Discussion

The purpose of this study was to examine the impact of teaching three metacognitive strategies on reading comprehension for eight students enrolled in an intensive English program. Researchers appear to agree on the positive association between metacognitive knowledge and reading comprehension. After providing explicit instruction and careful modeling of the strategies by the instructor, eight students were assessed to ascertain whether a metacognitive reading

intervention would (a) increase their metacognitive knowledge and, in turn, (b) improve their comprehension.

Differences in Metacognitive Knowledge

Findings from this study indicate that it is possible for IEP teachers to train students in the use of reading metacognitive strategies. The increase in students' metacognitive knowledge is a likely outcome of the specific metacognitive strategies modeled during their five weeks of instruction. The selection by the researcher of the three strategies of planning, monitoring, and evaluating was not arbitrary. They lend themselves to a range of areas other than reading, including speaking, writing, and listening. Implementation of planning, monitoring, and evaluating aligns well with pre-reading, reading, and rereading.

The strategies selected for this study also fit in Zimmerman's (2008) self-regulatory processes, which consist of three cyclical phases. Planning is matched with the concept of forethought. Forethought processes always precede learning cognitive efforts and are intended to enhance these efforts. The processes of self-reflection occur after applying and exerting cognitive efforts in reading, as an example. Improving self-monitoring is the goal and outcome of performance phase actions. As a result of this self-regulation, all the participants in the study seem to have improved their MARSI scores from pre- to post-test, indicating that the instruction provided was effective at improving the ability to use reading metacognitive strategies. Specifically, the improvement in global reading strategies is most likely associated with students learning the use of strategies. Related strategies include previewing to see what they know about the topic before starting to read, setting a purpose before reading, using graphs and pictures to formulate a preliminary idea about the topic, as well as considering the length and organization of

the text. All of these strategies were modeled for participants during their five weeks of instruction on metacognitive strategy use.

Schiff and Calif (2004) examined how the use of pre-reading strategies (e.g., planning) can empower learners to cope with academic English text with more confidence and accuracy. One important outcome of increased confidence is the alleviation of student anxiety levels (Schiff & Calif, 2004). While engaged in a cognitive task, increases in self-confidence can positively impact readers' self-reflective behaviors and reinforce the forethought [planning] processes (Zimmerman, 2008). Other researchers (e.g., Wiggins & McTighe, 2005) have posited that effective readers are less likely to resist the need to rethink and revisit background knowledge, which usually takes place during planning.

Apparently, the participants in this study also increased their knowledge of metacognitive problem-solving strategies. Questions on the MARSI regarding problem-solving included strategies such as rereading, visualizing, guessing the meaning of difficult words, and adjusting their reading pace according to their comprehension level. Resorting to metacognitive experiences may result directly from the occurrence of a cognitive failure (e.g., inability to understand a word). That is, when students encounter unfamiliar words, they may automatically strive to attain what Johnson-Glenberg (2005) called immediate and personalized feedback, which is expected to help ameliorate problems with reading comprehension. It should be mentioned that not all learners use metacognitive knowledge or metacognitive experiences in the same manner or frequency. Individual readers remedy cognitive breakdowns by using and adjusting reading strategies, including problem-solving ones. For instance, while some English learners in IEPs are accustomed to highlighting key words, others are more used to questioning while reading. Despite the multitude of personal interpretations and implementation, findings from the present study

offer insights and indicate that students can learn to be more effective at implementing problem solving for reading in five weeks, three hours per day.

Finally, in this study, the participants seem to have increased their knowledge of support strategies. Related strategies include self-questioning, summarizing, paraphrasing, note-taking, discussing the learned material with peers, and identifying relationships between ideas back and forth in the text. The cognitive and metacognitive strategies that fall into the support category align well with monitoring, which was the second strategy suggested for instruction in the present study. For instance, questioning as a support reading strategy is designed to promote students' comprehension because it allows for readers' activation of their prior knowledge. During the instruction in metacognitive strategy use, the students were encouraged to write questions on the margins or make connections; they were also expected to employ other reading strategies such as making inferences and using context clues. Although the sample size in this study is relatively small (N=8), the findings of this study indicate that targeted instruction using metacognitive strategies can result in a significant gain in the use of metacognitive strategies, which in turn, might lead to higher reading comprehension scores.

The findings from this study suggest an increase of metacognitive knowledge reinforces the importance of introducing metacognition in ESL classrooms and reliance on effective instruments, such as the MARSI, to obtain accurate research data. The MARSI survey has three advantages (Mokhtari & Reichard, 2002). First, it helps increase students' awareness of their reading strategies. Second, teachers can use the instrument as a tool to assess, monitor, and document the number and type of reading strategies that their students use. Third, researchers can use the MARSI as a useful tool to investigate the effect of teaching reading strategies on the learners' reading comprehension under numerous reading conditions.

Skilled readers are usually good at comprehending texts, using their world knowledge, drawing valid inferences from text, using comprehension monitoring, and repairing comprehension breakdowns (Mokhtari & Reichard, 2002). They also "often engage in deliberate activities that require planful thinking, flexible strategies, and periodic self-monitoring" (Mokhtari & Reichard, 2002, p. 249), strategies that were the focus of this study. The MARSI strategies lend themselves to many reading behaviors such as monitoring, which, in turn, can foster active reading.

Difference in Reading Comprehension

The reading comprehension results from this study were mixed. Performance on true/false and word reference tests was not statistically significantly different between the pre and posttest. In contrast, performance on *wh*- questions increased over a period of six weeks. One explanation for the results is that *wh*- questions tend to assess comprehension to a greater degree than do true/false or word reference tests, which may only assess surface knowledge. Another possible explanation is that the binary nature of true/false questions made it possible for participants to guess the correct answer correctly. One suggested hypothesis is that the metacognitive strategies learned in this study may improve students' ability to comprehend texts but do little to help students remember the details of the text. In retrospect, asking more questions may have provided a more robust and accurate picture of any real changes in reading comprehension after students received explicit instruction on using reading metacognitive strategies.

When combining the results of the MARSI instrument with the changes in reading comprehension, the increased performance on the *wh*- questions seems to be a direct result of the ability of the IEP students to effectively employ the metacognitive strategies learned. That is, as some researchers have posited, reading comprehension is not always the product of compatibility

of the readers' knowledge with text content, rather it is also directly impacted by active strategies readers use while dealing with texts to enhance understanding and retention and circumvent comprehension breakdowns (Camahalan, 2006). Benlyazid's (2019) study is an example supporting the key role of explicit instruction of metacognitive strategies in boosting ELs' comprehension and strategy use. The use of two groups (i.e., control and experiment) with 32 intermediate-level ESL international students using MARSI, helped enhance reading proficiency levels of struggling ELs in college. Findings from the present study align well with Benlyazid's results.

Another reason for the lack of improvement in reading comprehension on some of the posttest questions may lie with the reading test itself. Unlike the MARSI, which was shown to meet the criteria of validity, reliability, and consistency (Mokhtari & Reichard, 2002), the two comprehension tests were not tested to ensure validity or reliability. Rather, they were verified and approved by selected students and instructors only. Using unreliable tests could add measurement error to the study and make it more difficult to find significant gains in test performance. While both were similar in length and reading level, the two passages were not identical in number of syllables per 100 words nor did they have the same number of sentences per 100 words, which are commonly used to measure difficulty. These positive results are indicative of the merit and potential of metacognition English learning because, in Tregaskes' and Daines' (2010) words, "when students implement metacognitive strategies effectively, their reading comprehension improves" (p. 52).

Limitations and Future Research

In addition to question type, sample size, and research design, two other variables must be considered when interpreting the reading comprehension scores of the participants in the study.

The current results of the students' metacognitive knowledge and comprehension might have been different had the present study included a larger sample, with more comprehension questions, and a design with a control group. The small sample size (N=8) is one possible cause for the students' comprehension scores not being statistically different for the true/false and word reference scores. When it comes to empirical interventions such as examining the impact of training students in metacognitive strategy use, a small size usually has negative effects and may therefore interfere with the findings of the experiment. One last possible explanation for the lack of difference in comprehension is that the short duration of the study was not sufficient for students to master the strategies to improve their reading comprehension. This study was conducted over a six-week period, and other researchers (e.g., Shanahan, 2017) have long hypothesized that it may take at least three months for a reading intervention to impact gains and progress in this reading. Therefore, a logical suggestion is for future researchers who investigate this phenomenon to implement the treatment over longer periods, such as an entire semester or a calendar year to measure the impacts of targeted instruction on reading comprehension

Conclusion

The present study utilized a relatively homogeneous sample of students enrolled in an intensive English program over a six-week period. Students demonstrated significant gains in the use of metacognitive reading strategies, as well as gains in comprehension on *wh*- questions asked of them about selected readings. While it is impossible to generalize to all IEP students due to the study design, small sample size, and short duration, the results of this exploratory study offer insights into, and present another piece of evidence, the extant literature on teaching metacognitive strategies of planning, monitoring, and evaluating. While no strategy is a panacea for addressing reading deficiencies, explicit instruction of reading metacognitive strategies is one

possible solution to improving the effectiveness of RW instruction in IEPs and supporting the growth of college and university ELs, whose voice must be heard more frequently in peer-reviewed literature.

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