Enhancing Reading Strategies of Arab EFL Students Using I-CARe Program: A Case Study

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Abstract

Online reading has become increasingly popular in English foreign language learning, and its effect upon students' comprehensive language ability and their use of reading strategies are apparent. Not mastering adequate reading strategies by some poor English foreign language (EFL) learners could lead to reading comprehension failure (Dentisk, 2010). With the aid of a web-based computer-assisted language learning tool (CALL), six students were allowed to develop their reading strategies. This paper describes the I-CARe program (Interactive Computer-Assisted Reading) and examines its effectiveness upon Arabic-speaking EFL students' reading strategies. The data was collected over an 8-week period that incorporated the qualitative tools of interviews, weekly reflections, and observations. The findings indicated that I-CARe enhanced students' abilities to effectively utilize several strategies, including rehearsing, focusing on meaning, inferencing to guess meanings, predicting outcomes, and resourcing by employing first language reference materials. However, while the results trended towards improved reading, cognitive reading strategies were more prominent amongst the students than the metacognitive and social-affective strategies. The study provides some pedagogical implications for EFL instructors to use CALL effectively to foster students' reading comprehension.

Keywords: Arab EFL learners, CALL, I-CARe, online reading, reading strategies
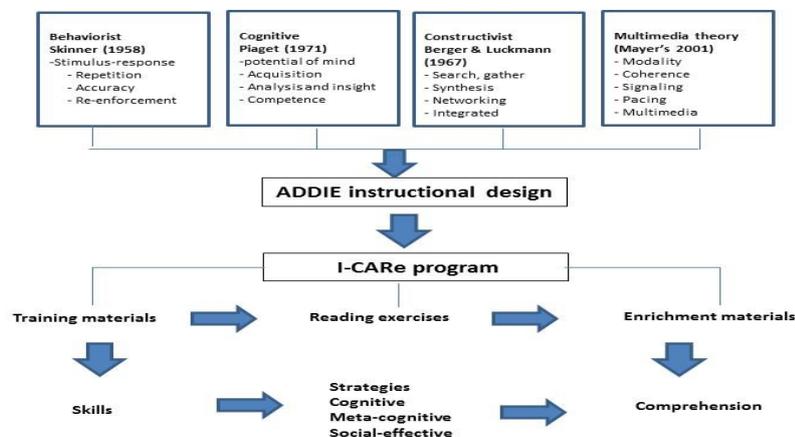
Introduction

Learning to read in a second language is not an easy task. Reading is the next fundamental skill that students need to master after listening (Hashim et al., 2018). Reading enables language acquisition and comprehension and is crucial to academic success in different disciplines (Al-Shawesh & Hussian, 2015; Ahmed, 2016; Luo et al., 2017; Taj et al., 2017; Mukhlif & Amir, 2017; Bataineh & Alqatanani 2017). Many researchers have shown the importance of reading in English and its impact on students' learning (Al-Shawesh, 2015; Mukhlif & Amir, 2017). Reading is a vital enabler of learning for academic purposes (Dagget & Hasselgring, 2007; Ahmed, 2016; Al-Shawesh, 2015). Nevertheless, low reading ability is common among EFL students (Al-Shawesh &

Hussian, 2015). Possible reasons are students' "limited exposure to English texts, lack of motivation, and teacher-centered pedagogical practices" (Taj et al., 2017, p. 109). According to Hammad and Hussin (2017), teachers are still using unsuitable and old teaching methods instead of exploring new technologies for teaching reading. Online reading is a contemporary alternative to conventional reading. Chifari et al. (2010) viewed this as signifying a rapid change in reading nature as the online domain requires a different kind of literacy from traditional literacies. A shift in perspective is needed for the dynamics of reading comprehension. Online reading has also brought about unparalleled growth in online learning because it offers students opportunities to be independent learners, and many suitable materials are now being designed to benefit today's learners (Fitzgerald, 2009).

The current study sets out to design an online comprehensive reading program named I-CARe (Interactive computer-assisted reading) to expose and direct Arab EFL students to the best reading strategies needed for more effective online reading tasks. I-CARe is a web-based reading program offering three crucial aspects of reading support: (a) interactive reading materials assisting students in reading better by applying a variety of reading strategies; (b) bi-directional reading exercises allowing students to practice using reading strategies and get immediate feedback; and (c) reading materials for enrichment, encouraging students to enhance their reading comprehension further.

It is crucial to develop web-based learning programs for EFL learners on proven and sound learning theories to have fruitful learning experiences (Ally, 2004). Thus, behaviorism, cognitive, constructivism, and multimedia theories provide an essential rationale for the design of I-CARe, as shown in Figure 1. The behaviorist theory contributed to creating the buttons and reading materials of different levels serving as stimuli represented by (i.e., input) for learners to respond to (i.e., process) the information in the reading text. The cognitive theory also provides various contents with different difficulty levels, allowing them to practice reading and perform the exercises independently. Moreover, the interactive features of I-CARe served as feedback on the students' progress through the report on the learner's performance. These features guide learners to move from one stage to another according to their reading ability. Through the online forum as a form of constructivist theory, the learners can discuss their reading assignments, reading problems, and reading experience. Finally, Mayer's (2001) approach revealed that people could learn better from pictures and words than words alone. I-CARe provides videos, graphic images, and animation that have already been simplified, and the learning materials are delivered in an easy way to the students. According to Ally (2004), technology can play a facilitative role, but the course's design or instruction determines learning effectiveness. Thus, each theory mentioned above has its specific contribution to the content, structure, and feedback system in the I-CARe program.

Figure 1
Conceptual framework

Behaviorist Skinner (1958) -Stimulus-response - Repetition - Accuracy - Re-enforcement	Cognitive Piaget (1971) -potential of mind - Acquisition - Analysis and insight - Competence	Constructivist Berger & Luckmann (1967) - Search, gather - Synthesis - Networking - Integrated	Multimedia theory (Mayer's 2001) - Modality - Coherence - Signaling - Pacing - Multimedia

ADDIE instructional design

I-CARe program

Training materials → Reading exercises → Enrichment materials

Skills → Strategies Cognitive Meta-cognitive Social-effective → Comprehension

The current study

The study's primary purpose is to investigate the effectiveness of the interactive computer-assisted reading program (I-CARe) in assisting Arab EFL students in improving their reading strategies. It is necessary to develop learning materials based on students' needs to complement English course teaching materials, which is the first step in the ADDIE (Analysis, Design, Development, Implementation, and Evaluation) instructional design model needs analysis. Hutchinson and Waters (1987) highlight that any course and syllabus design should be based on learners' needs and interests, emphasizing the need's demand and awareness. The needs analysis questionnaire was one of the significant steps in developing the I-CARe program as it helped the researcher address the students' problems, difficulties, and needs. Students indicated a desire to practice and learn through online reading as computer-based reading would allow them to become autonomous learners, studying at their own pace (Fard et al., 2014; Taj et al., 2017).

I-CARe is a new online software program that is specifically designed to help Arab EFL learners at Geomatika University College in Malaysia improve their use of learning strategies and reading comprehension. It is a CALL program that has two distinct features: 1) it provides individualized instructions with structured and unstructured lessons for self-paced learning, and 2) it offers bi-directional education that gives feedback on the students' performance, and it tracks their learning progress (Al-Shawesh & Hussin, 2015). The I-CARe program was designed in five stages, from the needs analysis to design, development, implementation, and evaluation (ADDIE instructional model) (Frey & Sutton, 2010) and incorporates the four theoretical approaches and three reading strategy models discussed above.

The needs analysis helped in identifying the students' problems, difficulties, and needs. The questionnaire sought to determine students' use of the computer, read online English materials, and what reading strategies they employed. The next step was designing the I-CARe program materials; the instructional strategies had to consider the

pedagogical aspect of delivery (Alessi & Trollip, 2001). Research shows that learning and teaching can be facilitated by 1) introducing the concepts of strategies, 2) guiding the students in understanding them, 3) providing drills and practice to master them, and 4) assisting them in applying the relevant strategies. The I-CARe program delivers guided practice in the form of interactive tutorials. This type of delivery follows Mohin's (2006) recommendations, who noted that guided practice could accelerate students' cognitive strategy acquisition.

The third step in the ADDIE instructional design model entails developing online exercises based on the previous step's materials. The last step involved evaluating and employing the program for the study. After the students had confirmed some positive effects of the I-CARe program on their reading comprehension in general and reading strategies in particular, then, the actual research was ready to be conducted.

This study aims to determine the online reading strategies that the selected group of Arab EFL students employ when reading online texts in an I-CARe environment and identify the challenges that they encounter when engaged in the program. The research questions are as follows:

1) What online reading strategies are employed by Arab EFL students when reading online texts in an I-CARe environment?
2) What are the challenges faced by Arab EFL students when engaging in the I-CARe program?

Literature review

Recent developments in technology have helped to develop and enhance students' learning abilities in the classroom. Employing technology in the EFL classroom has become an integral part of language learning (Cunningham et al., 2019). Over the last few years, teaching using web-based reading programs has become famous worldwide due to its positive results as a supplementary aid in developing students' reading ability (Mohaida, 2006; Al-Shawesh, 2015; Taj et al., 2017). Different teaching strategies were needed for beginner readers to improve their reading comprehension (Hammad & Hussin 2017). In this regard, many web-based CALL programs were designed to successfully teach reading strategies (Hammad & Hussin, 2017; Son, 2003). Through the web-based program, students were encouraged to be autonomous and study at their own pace.

Online reading was considered an essential method for facilitating the reading process and getting more information quickly. It was also known as hypertext reading. Azmuddin et al. (2017) described this as "a complex process that required the act of deciphering letters or words on hypertexts" (p. 9). Researchers also claimed that acquiring knowledge via the Internet was necessary to provide educational advancement for students, especially at higher institutions" (Azmuddin et al., 2017, p. 18). Several researchers suggested that EFL instructors could employ several strategies to help students retrieve information, comprehend text, and acquire storage (Huang et al., 2009; Dehghanpour & Hashemian, 2015; Ahmed, 2020).

Additionally, Yukselir (2014) noted that successful readers/learners knew their strategies and why they used them. Carrell (1998) articulated that "reading strategies which were related to other cognitive strategies enhancing attention, memory,

communication, and learning, allowed readers to elaborate, organize, and evaluate information derived from the text (p.4). That was because reading strategies were controllable by students; they were personal cognitive tools that could be used selectively and flexibly. Besides, reading strategy use reflected both metacognition and motivation, and readers needed to have both the knowledge and the disposition to use strategies effectively (Mukhlif & Amir, 2017).

Reading preference might also develop students' reading strategies. Ahmed (2020) conducted a study to investigate the use of cognitive and metacognitive reading strategies by Omani EFL students. The study found that different reading strategies had significantly enhanced metacognitive, cognitive, and support strategies. Banditvilai (2020) inspected the reading strategies of the second-year English significant students in Thailand. The findings indicated that students utilized various strategies, such as skimming, scanning, making predictions, and questioning. However, the use of these strategies might vary depending on the level of the students' comprehension. On the other hand, a study by Ming and Aziz (2019) indicated that students lack reading strategies due to insufficient attention to these strategies' importance during the reading process. The researchers proposed that strategies should be taught at lower levels and reinforced at high levels.

Applying reading strategies has already been well-known to be a good step for students to enhance their reading comprehension. General reading strategies such as skimming, scanning, and note-taking were among the comprehension processes students/ readers employ to make sense of what they read (Dehghanpour & Hashemian, 2015). In this regard, Barnett (1988) stressed that a general reading strategy involved "the comprehension processes that readers use to make sense of what they read. This process might involve skimming, scanning, guessing, recognizing cognates and word families, reading for meaning, predicting, activating general knowledge, making inferences and separating main ideas from supporting ideas" (p. 10). Some studies also indicated that reading comprehension could be enhanced and developed using different strategies such as top-down, bottom-up, and integrative, which learners critically needed in pursuing academic and professional success (Alshumaimeri, 2017; Grabe & Stoller, 2002).

In the Arab EFL context, several studies indicated that most students had incompetent reading comprehension strategies in different EFL learning contexts (Abanomey, 2013; Elhilali & Omer, 2012; Khan, 2011). In this modern age, and with the advancement of technologies, EFL classrooms in many Arab countries were still inadequately or not at all equipped with computerized resources to motivate EFL students to become skillful readers (Saied, 2011) or improve their willingness to communicate in English (Al Amrani, 2019; Al-Amrani, & Harrington, 2020). As a result, many Arab learners were inept at reading online materials as they were relying on the conventional learning method and were unfamiliar with technological aids. That was possibly due to the type of reading materials offered to these students in traditional classrooms, which were still in the print format, such as books. Several studies indicated that the conventional methods failed to develop and improve students' reading ability (Zhao & Zhu, 2012; Al-Shawesh, 2015). In light of this, the researchers suggested providing these learners with online programs with rich reading content and interactive exercises to help them improve their reading strategies.

Besides, Arab EFL students lacked the motivation to do the online reading without guidance. This observation was supported by Al-Shawesh (2012) and Al-Shawesh (2015),

who concluded that the lack of motivation among Yemeni EFL students had affected their online reading. The students also lacked learning activities to prepare them for real situations; this was reflected in their slow learning development and low English proficiency. Finally, Arab EFL students lacked awareness of reading strategies. Various factors influenced the choice of reading strategies, such as age, language proficiency level, degree of metacognitive awareness, duration of language learning, and socio-cultural background (Al-Amrani, 2009).

In brief, several previous studies indicated that reading accurately and having low reading strategies in English had become a significant problem among EFL Arab students. Thus, instructors should provide students with suitable reading materials and online programs to master adequate reading strategies. Designing online computer-based programs could fulfill the need of the students to enhance their reading strategies. Hence, this study investigates the effectiveness of the Interactive I-CARe in assisting students in their reading comprehension.

Method

Participants

This study sample was selected from students undertaking an intensive English course at Geomatika University College, Kuala Lumpur. Before conducting the study, a need analysis questionnaire was distributed to 20 students who studied at this college that prepares them to enroll at Malaysian universities. The questionnaire enabled the researcher to distinguish the students' level and learning preferences. Their level was a beginner based on the questionnaire findings as there are six English course levels in the school curriculum. For this study, six students were selected using the following four criteria. Firstly, only beginner students at the time of data collection would suit the requirements of this study. Secondly, these students would have limited or no prior knowledge about reading strategies and computer-based reading, as determined by the needs analysis questionnaire's information. Thirdly, they would have scored low in the EPT (English Placement Test) conducted by Geomatika College. Finally, they should be willing to participate in this study. Six Arab EFL students (four females and two males) who met the above criteria were selected for this study.

Instruments

Three instruments were used to gather data from the participants, including structured interview questions, observations, and weekly reflection notes (diaries). Structured interviews were the primary instruments for data collection in this qualitative study to give further insights and support (Frankel & Wallen, 2006). Besides, the interview's purpose was to determine whether they mastered the strategies after joining the I-CARe program. The researcher carried out the observations during the I-CARe reading class to check whether the students followed the I-CARe program's sequences. The reflection notes (diary) included a list of questions relevant to the twenty exercises in the I-CARe program. It was distributed to the students weekly in each meeting during the eight weeks of data collection. The diary was assigned to identify students' perception of their reading abilities through the I-CARe program as a learning tool and strategies

during reading.

Data collection procedure

The participants in this research attended the I-CARe program classes for two hours weekly over eight weeks. First, need analysis was carried out for one month before design and develop the I-CARe program for five months. Two English teachers then pilot the I-CARe program to verify whether the program is in line with the English language center curriculum. Moreover, Piloting I-CARe with ten students, tried out the program to ensure that they are familiar with the program. Then some items were modified according to the feedback obtained from the teachers and students. Introducing the I-CARe program to the students and showing them how to use the program and strategies in their reading for three hours. Besides, observations were carried out one-to-one for fifteen minutes for two participants engaged in the reading exercises provided by the I-CARe program in every session. Furthermore, one–to–one interviews were conducted with the participants after week eight for about 30 minutes each for two days. Finally, analyzing the data collected the data qualitatively from structured interviews, weekly reflection notebook, and observation.

Data analysis

The audio-taped interviews were transcribed and analyzed according to the main themes raised in the research questions and based on the three categories of reading strategies (cognitive, metacognitive, and social effective strategies). As for the observations, the researcher cross-checked the interview responses with the students' reading behavior during the reading process. The weekly reflections (diaries) were structured by seven different questions regarding each reading exercise. The questions were in English, and the students wrote their answers and thoughts in Arabic and English if they could not express themselves entirely in English.

Findings

The interview results showed that the participants used cognitive, metacognitive, and social affective strategies when reading online, but to varying degrees. As illustrated in Figure 1, they reportedly used cognitive strategies more frequently (48) than the other two types of strategies. These included rehearsing the language needed, focusing on the meaning, and resourcing by utilizing first language reference materials such as encyclopedias and dictionaries, employing inferencing to guess meanings, completing missing parts of sentences, predicting outcomes, and other reading strategies.

As shown in Figure 2, the most frequently used cognitive strategies while reading online through the I-CARe program were rehearsing (8), resourcing (16), note-taking (4), translation (3), inferencing (15), and transfer (2).

Figure 2
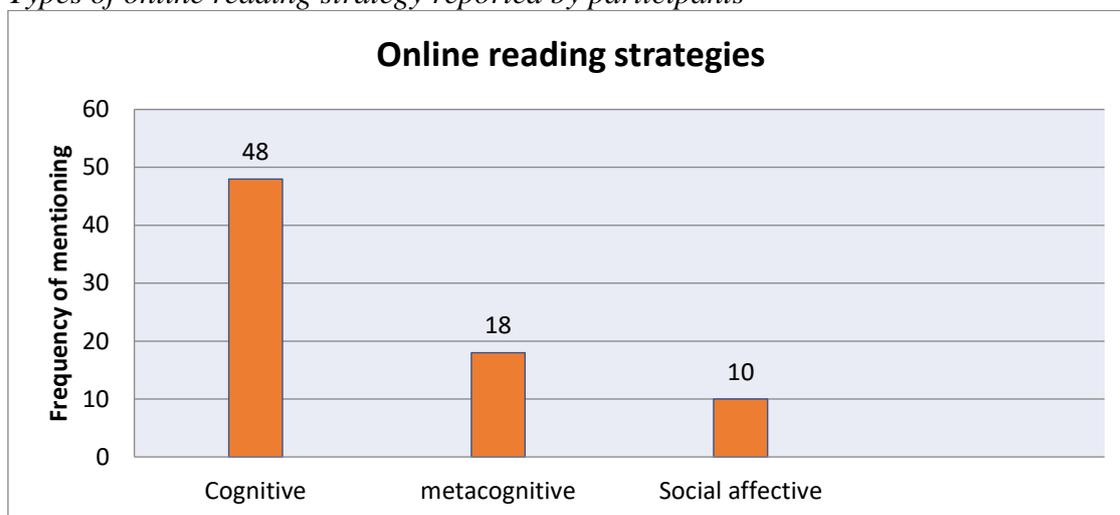*Types of online reading strategy reported by participants*

Figure 3 shows that the resourcing strategy was mentioned (16) as the most often by the participants, which could be because they were beginners and were unfamiliar with many English words, leading them to take advantage of the available online resources to complete the reading exercises. For example, the researcher asked them how they planned to deal with complicated words or sentences. One of the participants described his strategy of using an online dictionary: *"If I find the text has difficult words or sentences, I start searching in the dictionary for unfamiliar words"* (S1). Another said: *"If I do not understand a word in the question, I look it up in the dictionary"* (S3); similar to the participant who said: *"Well if I do not get the meaning from the sentences, I search in the online dictionary"* (S6).

The inference was the second most frequently used cognitive strategy among the participants. Students reported that they became aware of various reading strategies after using the I-CARe program. One participant clearly emphasized the use of inferencing: *"Sometimes if I still do not understand, I will go back to the question as maybe I can then understand the word more clearly"* (S 2). Another participant also expressed the usage of inferencing: *"I can guess the meanings of words or sentences"* (S3). Another participant confirmed that she became a better reader because: *"I can distinguish the important words, which helps me read the sentence and get the general meaning, and then I guess its meaning"* (S 5). To better understand the reading material or a question, the participants found that re-reading the question while paying attention to the idea helped them better understand the text. For example, one participant stated: *"When I do not understand something, I re-read the text so that I can read it more easily"* (S2). Other participants expressed similar views: *"I re-read the text if it is difficult"* (S 3) and *"Sometimes I tried to re-read some parts of the text"* (S4). The results also indicate that the participants seldom used other cognitive reading strategies such as note-taking, translation, and transfer.

Figure 3
Strategies reported by participants in the interview
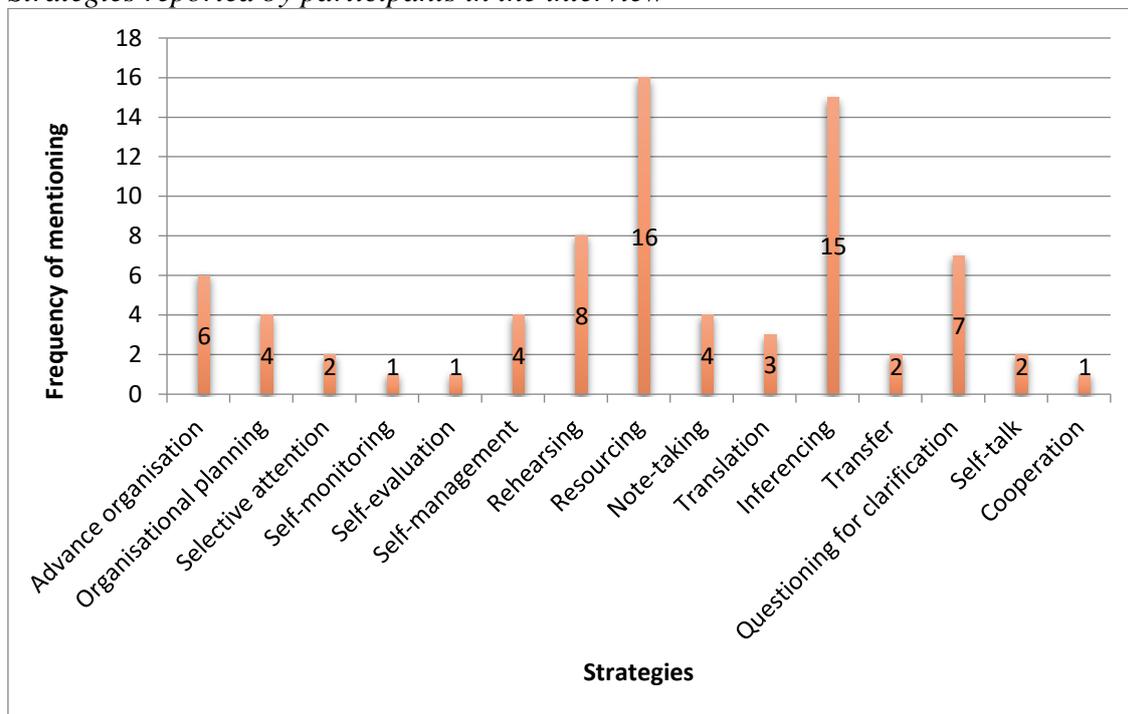
The metacognitive strategy was the next most frequently used reading strategy among the participants (18; refer to Figure 1). Among the metacognitive strategies most commonly cited were advanced organization (6), organizational planning (4), selective attention (2), self-monitoring (1), self-evaluation (1), and self-management (4). The participants used the advanced organization strategy to preview the main idea before they started doing the reading exercises, which involves skimming, i.e., focusing on keywords and scrolling up and down. For example, one of the participants reported that: *"To get the answer to the question, I scroll up and down until I find it"* (S1). Another participant said: *"I can summarise the passage to get a clear idea"* (S4). To understand the text better, one participant stated: *"Sometimes if I cannot understand something, I go quickly through the lines to get to the keyword that will help me"* (S5). To comprehend the text more effectively and to accomplish the reading task, the participants also used self-management. They employed this strategy to identify the available facilities that could help them in their learning process. The participants would continue reading even if they encountered a difficult word or sentence; they would decide how to overcome their difficulties. To illustrate, one of the participants said: *"I try to look for more sources that can help me in my reading such as more exercises and new passages"* (S1). Another participant explained that she would look for *"the keywords in the reading passage and the question"* (S4). According to the interview responses, the participants employed other metacognitive strategies, albeit not very extensively, such as selective attention, self-evaluation, and self-monitoring.

Social-affective strategies were the least mentioned type of strategy (10), as shown in Figure 1. The most frequently used social-affective strategy was questioning for clarification (7), followed by self-talk (2) and cooperation (1). The participants tended to use the social-affective strategy to reduce anxiety, for example, by using mental

techniques, asking for an explanation from the teacher to gain a better understanding, and working together with another student to check their answers or to obtain feedback on their written performance. The participants used the questioning for clarification strategy to ask the researcher to explain new words, some reading exercise questions, and some grammar rules during the reading process. One participant stated: *"Sometimes I ask my friend or the teacher for help and more explanation"* (S1). Another explained: *"I try to answer the questions on my own, but if I face any difficulty, I ask somebody who knows the exercise"* (S2). Another participant expressed a similar view: *"I ask if something is not clear to me"* (S6). Figure 2 shows that the cooperation strategy is the least used social-affective strategy. Only one of the participants said: *"Also, I discuss what I am reading with others to check my understanding"* (S6).

Regarding the facilities available on the computer to promote an autonomous learning environment, the participants were very interested in integrating the new teaching method in their classroom. They felt that learning via a computer in the school gave them good opportunities to be independent learners and that the computer-facilitated the reading process. They also believed that the computer helped them assimilate the text more easily and read more quickly and efficiently. Besides, the participants were enthusiastic about using the I-CARe program because reading materials online was a new experience to them; they felt that it helped them manage extensive reading and become more independent instead of continually relying on their teachers. However, while acknowledging the computer's facilities, the participants indicated that they needed more training to perform better and become more proficient readers. The following extracts from the interviews are examples of such sentiments:

S1: *"Really, I am pleased that I have had the opportunity to try the I-CARe program. Now I can learn by myself. No one has to tell me that this is true or false; I can check the answer myself. I-CARe has made me confident and motivated. I can now depend on myself. I feel that I am an independent reader.".*

S2: *"Sure, I-CARe has allowed me to become an autonomous learner. I can now read by myself and do the exercise alone without any help because I-CARe provides immediate feedback. Before I started the I-CARe class, I was terrified and did not know how to read online effectively."*

To triangulate the interviews' findings, the researcher observed the participants gain insights into how they dealt with reading online texts and checking whether they implemented any reading strategies. The participants scrolled up and down to find keywords that might help them in their reading exercises. They also clicked on the reading strategy introduction before they started doing each activity. Besides, the participants clicked on the links that led them to the online dictionary website bundled with I-CARe to translate unfamiliar words for them. From time to time, the participants asked the researcher for clarification regarding the exercises. Finally, the participants repeated the reading exercise more than once to better understand the text's general meaning.

The first question in the interview targeted three main themes: the participants' evaluation of the program, ease of use, and helpfulness in learning English in the classroom, and the reasons for their responses. The analysis of the participants' answers to this question showed overall satisfaction with the program's usefulness and ease of use.

The program helped them in learning English in general and reading in particular. Concerning the difficulties and challenges encountered while using the I-CARe program, most of the participants faced some issues at the beginning of the I-CARe classes because they were beginners and had never been exposed to such a reading method. Furthermore, they were more accustomed to reading printed materials as their schools did not have computers for learning English. However, after a short time of using the program, they felt that their reading comprehension had improved. Besides, none of the participants gave any negative opinions about the I-CARe program; they believed it had created a suitable learning environment. They mentioned that I-CARe presented the contents in a simple way that was very familiar to them and allowed them to practice as much as they wanted on their own, which helped them become independent learners. The results showed that most participants became aware of a wide range of reading strategies after using I-CARe. They were able to distinguish what strategies were available and how they could use them in their reading. There were considerable differences between the time they started using the I-CARe program and after a few sessions of using it. The following extracts from the interview responses illustrate their experiences:

S1: Of course, when I started, I faced some difficulties, and I was not sure what I was doing. First, I read line by line, not like what I have learned regarding scanning the passage and looking for essential words. Also, I was afraid because when I read things on the computer and the Internet, my eyes became confused, and I would lose the keywords that I needed to help me in my reading. Now I can read alone and feel more comfortable.

S2: I-CARe is an exciting and valuable program. I enjoy using it and feel comfortable. Yes, I am happy while using I-CARe because I can depend on myself without the teachers' help. I think it's easy because everything in the I-CARe program is introduced in simple language and in a straightforward way.

The participants' weekly written reflections (diaries) and their answers to open-ended questions were analyzed to ascertain their individual development in each week of the program to obtain more accurate results. The participants faced a few difficulties when they started using the I-CARe program. However, despite their unfamiliarity with this new learning method, the results showed that they were satisfied with the program. They confirmed that they did encounter minor difficulties while using the program across various parts and stages over the eight weeks of the study, including confusion over some unfamiliar words and other grammar-related issues. However, these difficulties were addressed either by the teacher or by the students using the I-CARe program's facilities. Some informants reported other challenges related to the mechanisms used to present the questions in the exercises, such as the rearrangement of sentences in a passage or gap-filling activities.

S1 (diary1): "There were some difficult words I could not understand. Some grammar points were difficult, but the teacher helped me to understand them."

S2 (diary2): "Some words were unfamiliar to me. Remembering the countries without reading the passage in Ex. 3 was difficult, but I succeeded in the end."

S3(diary3): "*I did not know the meaning of certain words, but I learned them later. The third reading passage was difficult for me.*"

S4 (diary4): "*Many words were new to me, so I used the dictionary to check them. Exercise 10 was difficult for me at the beginning, but after trying to do it many times, I answered the questions correctly.*"

S5 (diary5): "*A few questions were difficult, especially rearranging the words; I tried many times but couldn't make the correct sentence.*"

S6 (diary6): "*I couldn't understand some grammar rules, but later, when I referred to the grammar section, I understood them better. I had difficulties with the missing word exercise because I had to understand the whole sentence to add the correct word.*"

Although the participants faced difficulties in the abovementioned areas, those difficulties were only reported at the beginning of the I-CARe program. As the participants continued reading practice, they gained more experience and became more confident reading independently. The participants asked the researcher fewer questions over time, which implied that they had become more familiar with the reading strategies and understood how to process the texts as the program progressed. Towards the end of the classes, they had already understood how the I-CARe program features work, including the online dictionaries. This immediate feedback helped them identify their mistakes and the hints they could use to facilitate their reading. The participants also clicked on the enrichment materials icon for further reading passages and exercises. Some of the participants discussed with one another while doing the reading exercises to gain further clarification. More interestingly, the participants seemed active, interested, and thoroughly familiar with the required strategies and applied them in their reading.

Discussion

This study's findings show that the participants used cognitive, metacognitive, and social affective strategies for online reading. Besides, they utilized rehearsing strategies, focusing on meaning, resourcing by utilizing first language reference materials such as encyclopedias and dictionaries, inferencing to guess meanings, completing missing parts of sentences or predicting outcomes, and several other reading strategies. Simultaneously, the students were provided with links to online dictionaries to look up the meaning of difficult words whenever necessary. This finding is congruent with Mukhlif and Amir (2017), who reported that Iraqi EFL students used "facilities and tools such as dictionaries, search engines and hyperlinks that can help to make online reading for EFL learners efficient and effective" (p.382). The current study also revealed that students utilized other strategies to facilitate the reading process included scanning, skimming, and predicting. This finding coincides with other studies that found that reading strategy usage plays a significant role in facilitating students' reading comprehension (González Meza, 2017).

Moreover, the students' feedback supports the idea that strategies were useful and helpful to develop their reading comprehension. These strategies were classified into cognitive, metacognitive, and social affective. The data indicated that the participants employed cognitive strategies most frequently while reading online. This result goes hand in hand with Ahmed's (2020) finding, which concludes that cognitive strategies are the most preferred reading strategies among Omani EFL students.

All participants indicated that the I-CARe program had enhanced their reading process in general and reading strategies in particular. They were excited and motivated to read via I-CARe, and the program was instrumental in encouraging their autonomous learning. These findings were consistent with those of previous researchers (Mohaida, 2006; Marzban, 2011; Abdi, 2013; Al-Shawesh & Hussin, 2015; Omar, 2015; Hahnel et al., 2016; Saeed & Ghazali, 2016), highlighting the benefits of web-based learning over conventional or traditional learning methods in fostering learner-independence. However, this is in direct contrast to Zhang and Cui's (2010) study, where the students preferred the teacher's role in aiding their learning and overcoming learning difficulties. Besides, the findings of the current study highlighted the importance of online platform awareness for learners. In line with the findings above, Hazaea et al. (2021) confirmed that "universities should raise students' and instructors' awareness of using online teaching" (p.214). Theoretically speaking, this study's results are consistent with the cognitive principles, which state that strategies should be taught to the students to enable them to practice, which allows them to transfer their acquired knowledge to their working memory. Moreover, the participants were convinced with the reading strategies explanation provided in the I-CARe program. They also confirmed that the reading exercises in I-CARe helped them to reinforce and practice the reading strategies that they have learned. The design of the contents and the online materials in the I-CARe program was suitable for their level, which helped the participants activate and link their background knowledge to what they were reading.

According to responses gathered from the interviews, weekly reflections, and observations, the participants faced several difficulties, particularly at the beginning of the I-CARe classes. That was because the participants were beginners and had never been exposed to such a teaching method for reading. For example, they were confused by unfamiliar vocabulary, which consequently drove them to use a dictionary. This finding is congruent with Al-Shawesh's (2015), who reported that the students resorted to using a dictionary to figure out words' meanings due to their poor vocabulary. The participants in the current study had never been used technology in second language learning due to lack of technological infrastructure in their home countries, such as defective computer equipment in their schools and universities hinder the learning process. Onyema et al. (2020) found that poor infrastructures, including network, power, inaccessibility, and unavailability issues, were a massive obstacle for developing online learning in some countries.

The present study indicated that the participants spent more time doing the reading exercises at the beginning of the I-CARe classes. This finding supports other researchers' observation (Wright et al., 2013) that students spent more time reading online texts than reading printed texts. Despite facing difficulties at the beginning of the program, the students overcame them as they gained more confidence to read on their own over time. The participants highlighted several features of online learning. First of all, online learning provided a richer experience with various materials that are easily accessible.

Secondly, online learning allowed them to understand the given information easily. Thirdly, online learning was exciting and engaging. Al-Shawesh (2015) reported that the students had great experiences integrating technology in the classroom and concluded that computer facilities significantly impacted their learning outcomes.

The current study's findings mostly match behaviorism theory principles that evaluate and assess the learners' progress. The researchers monitored the participants' learning progress and assessed by the feedback they sent through the online forums provided in the I-CARe program. Based on the behaviorism theory, materials should cater to the different abilities and be sequenced from simple, intermediate, and advanced reading materials that allow students to use bottom-up, top-down, and interactive approaches in their reading process. In fact, in designing web-based reading materials in I-CARe, all materials were presented from simple to intermediate to advanced. The participants positively evaluated that they could practice continuously and repeated the exercises until they reached mastery in reading. In other words, computer-based reading played a significant role in the participants' reading improvement over the eight weeks of using the I-CARe program. The participants were more motivated and engaged in learning when using the I-CARe program than offline reading materials. Although the study's findings indicated that computer-based reading creates an autonomous and beneficial learning environment for the participant, the teacher's role is still very significant, especially for beginners. Lowery (2017) stated that web-based reading programs could improve students' reading proficiency levels, but they should never replace the teacher's explicit differentiated instruction.

It can be concluded from the discussion that the I-CARe program had a significant impact on students' learning outcomes, the specific features, a plethora of resources, and the simplicity of the online materials that enable them to overcome their difficulties. Moreover, integrating technology in the classroom helps create an autonomous environment that enables students to be independent and study at their own pace. Adding to that, low-performance students need to be more encouraged by providing them with particular courses on using technologies in the classroom and using online material effectively. Furthermore, they also show that it is significant to determine the students' particular needs and their study level. Based on that, they provide relevant online teaching sources and classroom practices. Therefore, it is highly recommended for the EFL instructors to improve the quality of teaching and their technical and pedagogical knowledge to "achieve a smooth transition to online learning" (Rahiem, 2020, p. 20). Finally, there is a great need to address the students' difficulties in reducing the challenges that could occur anytime they read online.

Conclusion

Making classes more interactive could motivate students to be more interested and participative. Taking on a more active role gives them a sense of ownership, develops independence, cultivates responsibility for their learning, and rewards them with pride in their work. A more interactive class could also make things easier for the teachers: the more work the students do on their own, the less burdensome it gets for the teachers. Since this study's findings are mostly positive towards I-CARe, EFL practitioners teaching Arab students could incorporate it into their classroom as a technological aid.

This study has shown that I-CARe can effectively facilitate the language learning process while also contributing to students' reading comprehension.

Consequently, I-CARe can help educators identify students' weaknesses and provide them with ample time to master the reading strategies. Most importantly, this will help students develop reading at their own pace with confidence, towards becoming more effective readers and independent learners. The findings of this study carry several pedagogical implications. It is advisable to use strategies training to be a useful tool for Arab EFL students and teachers. Evidence from the findings suggests that the Arab students are motivated and in favor of using technology in the classroom once made available. Essentially, this is an encouraging factor in highlighting the importance of incorporating computers in the school. Besides, a larger sample of participants could be considered to yield more accurate results about the effects of reading strategies among Arab EFL students to recognize further and appreciate the benefits of using the I-CARe program to enhance Arab EFL learners' reading comprehension reading strategies in an online environment. Future studies could also expand the current scope by incorporating different learners of other nationalities and diverse ethnic, racial, and geographical backgrounds. Focusing on different cultural contexts or physical settings could also contribute to a better understanding of learners' reading behavior outside the classroom.

References

Abanomey, A. A. (2013). Do EFL Saudi learners perform differently with online reading? An exploratory study. *Journal of King Saud University-Languages and Translation*, *25*(1), 1-11. https://doi.org/10.1016/j.jksult.2012.12.001

Abdi, R. (2013). The effect of using hypertext materials on reading comprehension ability of EFL learners. *Procedia-Social and Behavioral Sciences,* 83, 557-562. https://doi.org/10.1016/j.sbspro.2013.06.106.

Ahmed, Z. A. A. (2016). The Effect of Motivation on Developing EFL Learners' Reading Comprehension Skills. *International Journal of English Language Teaching, 4*(10), 1-9.

Ahmed, R. M. (2020). Investigating EFL learners' awareness of cognitive and metacognitive reading strategies of students in different disciplines. *Arab World English Journal, 11*(3) 294 -304. https://eric.ed.gov/?id=EJ1269297

Al-Amrani, S.N. (2009). Strategies for reading online and printed texts by Omani EAP students. In T. Roche (Eds.), *Orientations in language learning and translation* (pp. 41-60). Alfalaj Press.

Al Amrani, S. N. A. (2019). Communication and affective variables influencing Omani EFL learners' willingness to communicate. *Journal of Research in Applied Linguistics, 10*(1), 51-77. https://doi.10.22055/RALS.2019.14179

Al-Amrani, S. N., & Harrington, M. (2020). The Impact of Online Social Presence on Omani Female Students' Willingness to Communicate in English. *Computer-Assisted Language Learning Electronic Journal, 21*(2),220-237. http://callej.org/journal/21-2/Al-Amrani-Harrington2020.pdf

Alessi, S. M., & Trollip, S. R. (2001). *Multimedia for learning: Methods and development (3rd ed.).* Allyn & Bacon, Inc.

Ally, M. 2004. Foundations of educational theory for online learning. Theory and Practice of Online Learning, 2, 15-44.

Al-Shawesh, M. Y., & Hussin, S. (2015). The Effect of the CAREY Program on the Students' Reading Attitude Towards Reading English Materials. *English Language Teaching*, *8*(12), 98-111. https://eric.ed.gov/?id=EJ1084308

Alshumaimeri, Y. (2017). The effects of reading method on the comprehension performance of Saudi EFL students. *International Electronic Journal of Elementary Education*, *4*(1), 185-195. https://files.eric.ed.gov/fulltext/EJ1068613.pdf

Azmuddin, R. A., Nor, N. F. M., & Hamat, A. (2017). Metacognitive Online Reading and Navigational Strategies by Science and Technology University Students. *GEMA Online Journal of Language Studies, 17*(3), 19-36. http://ejournal.ukm.my/gema/article/view/18864

Bataineh, R. F., & Alqatanani, A. K. (2017). The effect of a thinking maps-based instructional program on Jordanian EFL tenth-grade students' critical reading skills. *Asian EFL Journal, 101*(2), 31-61.

Banditvilai, C. (2020). The Effectiveness of Reading Strategies on Reading Comprehension. *International Journal of Social Science and Humanity, 10*(2). http://www.ijssh.org/vol10/1012-CH06.pdf.

Barnett, M. A. (1988). Reading through context: How real and perceived strategy use affects L2 comprehension. *The modern language journal*, *72*(2), 150-162. https://doi.org/ 10.2307/328238.

Carrell, P. L. (1998). Can Reading Strategies Be Successfully Taught? *Australian Review of Applied Linguistics*, 21, 1-20. https://doi.org/10.1075/aral.21.1.01car

Chifari, A., Chiazzese, G., Seta, L., Merlo, G., Ottaviano, S., & Allegra, M. (2010). A reflection on some critical aspects of online reading comprehension. *Informatica*, *34*(4), 491–495. http://www.informatica.si/index.php/informatica/article/viewFile/322/321

Cunningham, U., Rashid, S. & Le, T. (2019). The Effect of Learner Training on the Use of Digital Tools to Support English Writing Skills. *Asian EFL Journal*, *21*(2.1), 27-49. https://www.researchgate.net/profile/Shaista_Rashid2/publication/332010521

Dagget, W., & Hasselbring, T. (2007). What we know about adolescent reading. *International Center for Leadership in Education*. http://www.daggett.com/pdf/What_We_Know_ About_Adolesent_Reading_2014.pdf

Dehghanpour, E., & Hashemian, M. (2015). Efficiency of Using a Web-Based Approach to Teach Reading Strategies to Iranian EFL Learners. *English Language Teaching*, *8*(10), 30-41. https://eric.ed.gov/?id=EJ1078775

Elhilali, N. M. E., & Omer, M. A. A. (2012). Applying a cognitive learning approach to unravel problems encountered by Arab students in reading and understanding texts in English: A case study geared to improving reading skill of undergraduate students at Khulais Faculty of Science and Arts, King Abdul-Aziz University. *International Journal of Linguistics, 4*(3), 604. doi:10.5296/ijl.v4i3.2388

Fard, S. M., Azman, H. & Amir, Z. (2014). Academic Hypermedia Reading At Postgraduate Level: A Case Study Of EFL Learners. *Procedia-Social and Behavioral Sciences*, 136, 2-7. https://doi.org/10.1016/j.sbspro.2014.05.277

Fitzgerald, N. S. (2009). *Exploring the effects of online instruction on reading comprehension achievement of students with learning disabilities.* University of Nevada, Las Vegas, USA.

Fraenkel, J.R. & Wallen, N.E. (2006). *How to Design and Evaluate Research in Education*. McGraw-Hill.

Frey, B. A., & Sutton, J. M. (2010). A model for developing multimedia learning projects. *Merlot* journal of online learning and teaching, 6(2), 491-507.

Grabe, W., & Stoller, F. (2002). Teaching and Researching Reading. Pearson Education.

González Meza, J.M. 2017. The Impact of Scanning Reading Strategy in Young EFL Learners' Reading Comprehension.Tesis Universidad del Norte,

Hahnel, C., Goldhammer, F., Naumann, J., & Kröhne, U. (2016). Effects of linear reading, basic computer skills, evaluating online information, and navigation on reading digital text. *Computers in Human Behavior*, 55, 486-500. https://doi.org/10.1016/j.chb.2015.09.042.

Hammad, Z. M., & Hussin, S. (2017). The Implementation of Computer Assisted Language Learning in EFL Classroom: Arab EFL Learner's Attitudes and Perceptions. *International Journal on Studies in English Language and Literature, 5*(9), 27-37. http://dx.doi.org/10.20431/2347-3134.0509004.

Hashim, H. U., Yunus, M. M., & Hashim, H. (2018). Language Learning Strategies Used by Adult Learners of Teaching English as a Second Language (TESL). *TESOL International Journal, 13*(4), 39-48. https://eric.ed.gov/?id=EJ1244116

Huang, H. C., Chern, C. L., & Lin, C. C. (2009). EFL learners' use of online reading strategies and comprehension of texts: An exploratory study. *Computers & Education*, 52(1), 13-26. https://doi.org/10.1016/j.compedu.2008.06.003

Hutchinson, T., & Waters, A. (1987). *English for specific purposes*. Cambridge University Press.

Hazaea, Abduljalil & Bin-Hady, Wagdi Rashad & Mekni Toujani, Marwa. (2021). Emergency Remote English Language Teaching in the Arab League Countries: Challenges and Remedies. CALL-EJ. 22. 201-222.

Khan, I. A. (2011). Learning difficulties in English: Diagnosis and pedagogy in Saudi Arabia. *Educational Research*, 2(7), 1248-1257. http://www.interesjournals.org/ER.

Luo, T., Lee, G-L.., & Molina, C. (2017). Incorporating IStation into early childhood classrooms to improve reading comprehension. *Journal of Information Technology Education: Research*, 16, 247-266. https://doi.org/10.28945/3788.

Marzban, A. (2011). Improvement of reading comprehension through computer-assisted language learning in Iranian intermediate EFL students. *Procedia Computer Science*, *3*, 3-10. https://doi.org/10.1016/j.procs.2010.12.003.

Ming, T. S., & Aziz, N. B. A. (2019). Using Eye Tracking to Investigate Malaysian ESL Students' Reading Processes and Preferences. *Computer-Assisted Language Learning-Electronic Journal, 20*(3), 92-116. http://callej.org/journal/20-3/Thang-Abdul%20Aziz2019.pdf

Mohin, M. (2006). *Enhancing reading skills among ESL learners using CARE program at the International Islamic University Malaysia*. [Unpublished doctoral dissertation]. Universiti Kebangsaan Malaysia.

Mukhlif, Z., & Amir, Z. (2017). Investigating the metacognitive online reading strategies employed by Iraqi EFL undergraduate students. *Arab World English Journal (AWEJ)(8)*1. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2945916.

Nasr, A. A. (2011). *Teaching of English reading skills: A case study with reference to the colleges of education under the University of Aden*. [Unpublished doctoral dissertation]. University of Pune.

Omar, M. A. (2015). Improving reading comprehension by using computer-based concept maps: A case study of ESP students at Umm-Alqura University. *British Journal of Education*, *3*(4), 1-20.

Onyema, E. M., Eucheria, N. C., Obafemi, F. A., Sen, S., Atonye, F. G., Sharma, A., & Alsayed, A. O. (2020). Impact of Coronavirus pandemic on education. Journal of Education and Practice, 11(13), 108--121. http://doi.org/10.13140/RG.2.2.2 7946.98245

Rahiem, M. D. (2020). The emergency remote learning experience of university students in Indonesia amidst the Covid-19 crisis. International Journal of Learning, Teaching and Educational Research, 19(6) 1-26 http://doi.org/10.26803/ijlter. 19.6.1

Rodríguez, M. Q. (2012). *Use of hot potatoes to improve effective paragraph writing*. [Unpublished doctoral dissertation]. University of La Sabana.

Saeed, M. A., & Ghazali, K. (2016). Modelling Peer Revision among EFL Learners in an Online Learning Community. *Electronic Journal of Foreign Language Teaching*, *13*(2), 275–292. https://e-flt.nus.edu.sg/wp-content/uploads/2020/09/ saeed.pdf

Son, J. B. (2003). A hypertext approach to foreign language reading. *Australian Review of Applied Linguistics. Supplement Series*, *17*(1), 91-110. https://doi.org/10.1075/ aralss.17.07son.

Taj, I. H., Ali, F., Sipra, M. A., & Ahmad, W. (2017). Effect of Technology Enhanced Language Learning on EFL Reading Comprehension at Tertiary Level. *Arab World English Journal*, *8*(1). https://papers.ssrn.com/sol3/papers.cfm?abstract_id= 2941443.

Yukselir, C. (2014). An investigation into the reading strategy use of EFL prep-class students. *Procedia-Social and Behavioral Sciences*, 158, 65-72. doi: 10.1016/ j.sbspro.2014.12.034

Zhang, X., & Cui, G. (2010). Learning beliefs of distance foreign language learners in China: A survey study. *System*, *38*(1), 30-40. https://doi.org/10.1016/j.system.2009. 12.003.

Zhao, X., & Zhu, L. (2012). Schema Theory and College English Reading Teaching. *English Language Teaching*, *5*(11), 111-117. https://eric.ed.gov/?id= EJ1080109