

# ESL/EFL Instructors' Perceptions of the Importance of Computer-assisted Reading in L2 Reading Instruction

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**Abstract**—English instructors' perceptions of computer-assisted reading (CAR) influence their tendency to integrate it in the L2 reading classroom. Accordingly, this study assessed English instructors' perceptions of the importance of electronic text in L2 reading and their general attitudes about the role and effectiveness of computers in teaching ESL/EFL. To this end, 70 ESL/EFL instructors at multiple universities responded to a two-part survey containing 34 items and open-ended questions about the respondents' general attitudes about computers in language teaching and learning, and the importance of computer-assisted L2 reading instruction specifically. The researcher performed both descriptive and inferential statistical analyses on the data, including means and standard deviations, as well as paired t-tests and bootstrapped *p*-values. The results indicated that the participants recognized the importance of CAR in improving the quality of L2 reading instruction and developing learners' reading skills. The implications of the study are discussed, and potential areas of future research are suggested.

**Index Terms**—computer-assisted reading, second language reading, importance of electronic text formats, ESL/EFL instructors

## I. INTRODUCTION

In recent years, educators have acknowledged and accepted computer-assisted language learning (CALL) in the field of teaching English as a second language (ESL) and English as a foreign language (EFL). CALL's appealing features and potential capabilities have received particular recognition in relation to second-language (L2) reading skills, as CALL brings new dimensions and unique opportunities to the subject of developing L2 reading skills. For example, in this electronic environment, progress is reader-controlled, such that students have immediate access to a variety of representational modes, and can use less disruptive ways of accessing extra information. Accordingly, CALL has changed the nature of reading, paving the way for the emergence of a new concept, namely, electronic literacy, and exerting a profound influence on the process of learning and teaching L2 reading.

Although policymakers, stakeholders, school administrators, and other decision-making entities are responsible for the adoption or integration of computer-assisted reading (CAR), particularly in the L2 reading classroom, ESL/EFL instructors are its key agents. Instructors set the tone of their classrooms and are those who implement the adoption of technology in the actual English language classroom. As the key stakeholders in the issue of computer integration in L2 reading classrooms, instructors largely determine and control the implementation of practices. Likewise, their perceptions of, and attitudes about incorporating CAR in their L2 reading instruction has a significant influence on the success of ESL/EFL students' efforts in learning to read via computer-based technology. Although the internet, other forms of computer technology, and web-based resources offer vast amounts of information, opportunities, and new directions for developing L2 reading and associated skills, successful exploitation of such resources depends ultimately on instructors' perceptions of using technology in the L2 reading classroom.

To understand the factors that facilitate or hinder ESL/EFL instructors' use of computers in the L2 reading classroom, one must examine their perceptions of, and attitudes about, computer integration closely. The need for such an investigation is based on the assumption that perceptions and attitudes have a reciprocal relationship with computer integration, and are linked so inextricably that one triggers the other. Accordingly, drawing on existing empirical studies and theoretical speculations and assumptions concerning the importance of electronic text in L2 reading, this study investigated ESL/EFL instructors' perceptions of the importance of CAR. Of specific interest was their general attitude about the role, importance, and effectiveness of computers in teaching ESL and EFL. This study also probed the instructors' perceptions of the importance of various technical features of electronic text in the process of teaching L2 reading. These features include flexibility, multimedia components, students' increased interest in reading and motivation to learn, improved accessibility, interaction with the text, a rich reading environment, an interactive model of reading, the creation of independent readers, and facilitation of comprehension.

## II. LITERATURE REVIEW

Computers are important tools for L2 readers. According to Meskill, Mossop, and Bates (1999), computers create optimal conditions for L2 reading instruction and provide rich contexts for the active negotiation of meaning by ESL learners in need of linguistic/cognitive engagement, as well as opportunities for them to develop reading skills. Perhaps most importantly, L2 readers tend to be more motivated to read electronic or computerized English texts (Konishi, 2003). Accordingly, online reading has become a major source of input for ESL/EFL readers, and more and more of them are becoming engaged in online learning tasks (Amer, Al Barwani, & Ibrahim, 2010).

In the computerized reading environment, texts are linked electronically in a nonlinear manner, and include built-in multimedia elements, such as sound, pictures, and videos. Readers are also able to scroll up and down and benefit from greater temporal and spatial accessibility and flexibility. As Bodomo, Lam, and Lee (2003) noted, interaction between readers and electronic texts is dynamic, and readers become more active as they click and browse through web pages and hyperlinks. The new supports offered in this computerized reading environment improve the reader's ability to comprehend what s/he reads, making electronic texts particularly important in reading classrooms (Coiro, 2003). In particular, Kasper (2003) has argued that electronic texts (a) increase comprehension through the integration of new information into the existing knowledge network; (b) enable readers to create and expand the cognitive maps that guide their construction of meaning; (c) provide simple and ready access to multiple resources and references on related topics; (d) foster a nonlinear and flexible pattern of exploration of the text studied, and, (e) provide a source of innovative approaches to teaching L2 reading.

Several researchers have also highlighted the potential benefits of CAR in facilitating L2 reading skills, and have emphasized the unique characteristics of the electronic reading environment that supports its effectiveness. For example, one of its advantages is that readers engage actively with electronic texts, choosing whichever path is most relevant to their interests (Kasper, 2003). Similarly, electronic texts provide new formats and different ways to interact with the information presented (Tseng, 2010). Learners also have effortless access to various authentic reading materials that appeal to their individual needs (Lai & Kritsonis, 2006).

The rich interactive multimedia reading environment afforded by CAR stimulates readers' auditory and visual senses, increases their interest in reading, and enhances their motivation (Han, 2010). Electronic texts make readers independent and autonomous; rather than being confined to a textbook, they are able to explore the wealth of information available in the electronic reading environment. This exploration promotes an advanced interactive model of reading, and increases readers' awareness of cultural differences, thereby promoting a global worldview.

Given the theoretical advantages and importance of electronic texts in L2 reading, researchers have conducted various studies to examine the benefits of implementing CALL in the ESL/EFL classroom. For example, Marzban (2011) studied the effects of CALL on Iranian EFL students' reading comprehension. He found that by providing them access to information in different forms and media, CALL helped EFL learners become autonomous readers. The authenticity and efficiency of the reading materials CALL offers also underscores its importance in L2 reading.

Similarly, Bahatii (2013) investigated the effects of computers on literal, inferential, and evaluative reading comprehension skills. He found that CALL provided a self-paced and motivating learning environment more conducive to L2 reading instruction. Further, CALL generated significant interest among English learners.

Huang (2013) investigated the motivational pattern among EFL learners who read English texts online. The results demonstrated that importance of electronic text formats seen on a positive effect on students' motivational constructs including reading efficiency, challenge, curiosity, involvement, and integrative ambition.

Finally, Park, Yang, and Hsieh (2014) examined how university-level L2 readers constructed meaning when reading online. Specifically, the authors investigated L2 readers' information-seeking strategies and decision-making processes as they read online. The authors maintained that online reading has become a major source of input for ESL/EFL learners, in that the internet provides diverse reading materials that have the advantage of instant access to a variety of support resources that facilitate reading comprehension.

Overall, researchers have presented various perspectives on the importance of electronic texts in the development of L2 reading skills. Of special interest is the vital role that a computer plays as a medium of instruction—a role that results from its unique technological attributes. These perspectives focus on the appealing features of CALL, including accessibility and flexibility, the influence of electronic text on the processes of reading and comprehending text, and its effects on reader motivation and active engagement. In addition, the richness of the interactive multimedia reading environment, together with the availability of authentic reading materials, and the nonlinear structure of electronic information, are important advantages.

However, as noted in the introduction, effective implementation of CALL in the ESL/EFL classroom depends largely on instructors' perceptions of it, and several studies have addressed this issue. For example, Ramanair and Sagat (2007) investigated 50 Malaysian secondary English language teachers' knowledge of, and attitudes about multimedia technology. To determine their attitudes about multimodal technology, the authors asked them to respond to an attitude scale consisting of 15 items involving cognitive, affective, and behavioral categories. The results demonstrated that 80% had positive attitudes about using multimedia technology. These attitudes may have resulted from a greater understanding of multimedia technology acquired through formal training or self-instruction.

Although the studies above explored the benefits of CALL and ESL/EFL instructors' perceptions of its integration in classrooms, none has investigated specifically English instructors' perceptions of the importance of computer technology in L2 reading classrooms. Therefore, this study was designed to fill this significant gap in the literature.

### III. OVERVIEW OF THE STUDY

Technology-enhanced resources offer ESL/EFL reading instructors and learners a wealth of resources and opportunities for teaching and learning. However, deriving the maximum benefit from these resources depends on instructors' implementation of the technology available and their perceptions of such implementation. At the same time, ESL/EFL instructors often transmit these perceptions to English learners and influence the extent to which students improve their L2 reading ability with technology and exploit the capabilities it offer.

As noted in the literature review, although various studies have explored computer technology and L2 reading, none has focused on ESL/EFL instructors' perceptions of using CAR in L2 reading instruction. Thus, the study focused on the following two questions:

1) What are ESL/EFL instructors' general attitudes about computers and the use of computer technology resources in language instruction?

2) How do ESL/EFL instructors perceive the importance of computer technology in an L2 reading class?

To answer these questions, the study tested the following two hypotheses (H0):

1) ESL/EFL instructors do not have positive attitudes about using computers in teaching ESL and EFL.

2) ESL/EFL instructors do not recognize the importance of computer technology in L2 reading classrooms.

### IV. METHODS

#### Participants

**Participant selection criteria and profiles.** The participants were selected according to their teaching experience. Each had spent at least 5 years teaching college-level English, and had taught reading to college ESL/EFL learners for at least 3 years. In addition, all had more than 2 years of experience using computers in instruction. As there were no other explicit criteria for participation, a convenience sample was selected that consisted of 70 ESL/EFL instructors at the college level at various universities. The participants included 39 males (56%) and 31 (44%) females who ranged in age from 30 to 50, with most in their 30s. With respect to native languages, the majority were native Arabic speakers [36]; 19 spoke U.S., 13 British, 2 Canadian, 1 Australian, and 1 New Zealand English; the remainder spoke various other languages, including German, Thai, and Portuguese. The instructors who participated in the study had between 2 to 15 years of teaching experience, with a mean of 9 years. 55% had used computers in the classroom for more than 5 years, while 45% had done so for less than 5 years. Those who had more experience in the field were assumed to have a wider range of experience teaching L2 reading and a rich perspective on changes that have occurred in the ESL/EFL field. Eight (11%) had bachelor's degrees, 36 (52%) had master's degrees, and 26 (37%) had doctoral degrees. Table 1 presents the participants' demographic information.

TABLE 1  
DEMOGRAPHICS AND PROFILES OF PARTICIPATING ESL/EFL INSTRUCTORS

	%
Gender	
Male	56%
Female	44%
Ages	
25–34	55%
35–44	24%
45–55	14%
60 and above	7%
Highest degree held	
B. A.	11%
M. A.	52%
Ph. D.	37%
Years of teaching experience	
Less than 1 year	9%
1–4	16%
5–8	16%
9–12	13%
13–16	8%
17 or more	38%
Years of using computers in teaching	
Less than 1 year	7%
1–2	15%
3–4	23%
5 and more	55%

#### Design

This study incorporated a standard survey to obtain insight into ESL/EFL instructors' perceived perceptions of the importance of computer technology in L2 reading, as well as their general attitudes about computers and the use of computer technology in language instruction. The researcher developed the survey instrument after an extensive review of the related literature. The author surveyed the convenience sample of participants, and simple descriptive and inferential statistical analyses were conducted to analyze the data. The survey addressed primarily the perceived importance of computer-assisted L2 reading instruction. Demographic information, general attitudes about computers, and answers to open-ended questions also were collected to supplement and enrich the quantitative results.

### Instruments

**Survey construction.** To answer the research questions, a two-part, unidimensional, cross-sectional questionnaire measured on a Likert scale was developed. This two-page questionnaire contained 34 statements presented in random order and was divided into the following three sections, as shown in Table 2.

- Section 1, *Background Information*, collected the participants' demographic information using 9 Yes/No and multiple-choice questions. The information collected included gender, age, educational experience, years of teaching experience, level of education completed, level of comfort using computers in teaching, and computer experience.

- Section 2, *The General Attitudes Scale*, included 5 statements designed to elicit responses regarding the participants' general attitudes about the role, importance, and effectiveness of computers in teaching ESL/EFL. These statements were divided into three categories: importance, perceived usefulness, and role of CALL. "Importance" had only 1 item, which measured the instructors' views concerning the importance of computer technology in learning and teaching English. "Perceived Usefulness," which also had 1 item, measured the instructors' beliefs about the usefulness or effectiveness of computers in helping ESL/EFL students learn English. Finally, "Role of CALL" contained 3 items that measured the instructors' opinions of the expected role of computers in English teaching and learning. To specify to what extent the participants agreed with each statement, they completed the general attitude section using a 5-point Likert scale that ranged from "agree strongly," "agree," "neutral," and disagree, to "disagree strongly."

- Section 3, *The Importance Scale*, included 20 items that probed the instructors' perceptions of the importance of electronic text in L2 reading, learning, and teaching using a 5-point scale that ranged from "extremely important" to "not important at all," with midpoints of "important," "neutral," and "less important." These statements were designed to assess the instructors' perceptions of the importance of various technical features of electronic text in the process of learning and teaching L2 reading. These features included flexibility, multimedia components, enhancement of students' interest and motivation, improved text accessibility and interaction, rich reading environment, interactive model of reading, creation of independent readers, and facilitation of reading comprehension.

Each section included qualitative, open-ended questions to encourage the instructors to expand on their views of the importance of electronic text that the Likert-scale items could not capture.

**Instrument validity and reliability.** Several measures were used to ensure the validity and reliability of the research instrument. To assess validity, a panel of four experts examined the instrument for content, clarity, and appropriateness. Their comments were used to reword items to eliminate ambiguous wording, add new items, and delete those deemed irrelevant to the purpose of the study.

The reliability of the instrument was assessed by computing Cronbach's alpha for each section of the questionnaire. The alpha coefficient was 0.72 for the *General Attitudes Scale* and 0.93 for the *Importance Scale*. The alpha coefficient overall was 0.95.

TABLE 2  
DISTRIBUTION OF QUESTIONS/STATEMENTS OF THE DEVELOPED SURVEY

Sections	Section I	Section II	Section III
Type of questions/statements	Background information	General attitudes toward using computers in language learning instruction	About the ESL/EFL instructors' perceptions of the importance of electronic text in L2 reading instruction
Number of questions/statements	9	5	20

**Pilot study.** The researcher conducted a pilot study to ensure the validity and reliability of the survey, and anticipate any problems in the instrument. The pilot study sample consisted of 10 ESL/EFL instructors who did not participate in the actual study; however, they possessed similar credentials, teaching experience, and familiarity with computers to those of the participants in the main study. The procedures used in the pilot study were executed precisely as they were in the actual study.

The instructors were asked to examine the wording, order, and difficulties closely, as well as identify any confusing or ambiguous items or answers. They also were asked to indicate any difficulties they had completing the research instrument. Interviews were conducted with each instructor upon completion of the survey to elicit further detail and feedback concerning the issues above. The instrument was modified thereafter with the guidance of the panel of experts, while maintaining the original intent of the research instrument.

**Survey administration and data collection.** The researcher sent each participant a packet containing a letter describing the purpose of the study, the need for participation, a copy of the survey with an assigned four-digit ID code

affixed to it, instructions explaining how to complete the survey, and a return envelope. The ID codes were recorded in separately to track those who returned the survey.

After 2 weeks, the researcher sent an e-mail reminder to those who had not responded, and attached a link to the online version of the survey. After an additional 2 weeks, the researcher sent another letter and included another copy of the survey as a final reminder to those who had not yet responded. Of the 85 ESL/EFL instructors surveyed, 70 (83%) returned the survey; all participants responded to every item on the survey. On average, participants required approximately 20–25 minutes to complete the instrument. The researcher was available to the participants primarily via e-mail throughout the data collection process to answer any questions.

**Data analyses.** Completed surveys were compiled in an Excel spreadsheet and then imported into an SPSS file. The items in survey sections 1 through 3 were conceived to form multi-item scales of favorable attitudes about CALL generally, and its importance in L2 reading specifically. Next, the reliability of the items in each section was computed, and any items that exerted an appreciable negative effect on reliability were eliminated.

The mean scores for each section were then computed to represent scores on the construct each section was designed to measure. Descriptive statistics were computed for the scale scores generated for each of the three sections. The first two hypotheses were tested by assessing the significance of the difference between the mean scale value for each section and the neutral point of the scale for the section (i.e., 3.0) using a one-sample *t*-test. The normality of the distribution of scale scores in each section was tested using the D'Agostino-Pearson test. In any case where a significant departure from normality was found, bootstrapping was used to estimate the *p*-value of the difference from the neutral value. An alpha of 0.05 was used as the criterion for statistical significance. The first three hypotheses were 1-tailed.

## V. RESULTS

Hypothesis one predicted that ESL/EFL instructors hold a positive attitude about using computers to teach ESL/EFL. The respondents' mean scores on all items in section two of the questionnaire, the Attitude Favorability Scale, determined the measure of "positive attitude." Table 3 presents the descriptive statistics for the Attitude Favorability Scale and its component items.

TABLE 3  
DESCRIPTIVE STATISTICS FOR THE ATTITUDE FAVORABILITY SCALE AND ITS COMPONENT ITEMS

Scale or item	N	Minimum	Maximum	Mean	SD
Attitude Favorability (full scale)	70	3	5	4.43	0.50
1. CALL is an important component of ESL/EFL	70	1	5	4.40	0.82
2. CALL promotes learner autonomy, motivation, and involvement with English	70	3	5	4.39	0.69
3. CALL provides learners with exposure to and practice in the four main language skills	70	2	5	4.24	0.75
4. CALL provides authentic tasks and access to a wealth of ESL/EFL materials	70	1	5	4.61	0.69
5. CALL offers new ways to practice language and assess performance	70	3	5	4.53	0.63

Hypothesis one was tested by computing the *p*-value for the difference between the mean of the scores on the Attitude Favorability Scale and the value of the neutral point on the response scale (3.0). The *p*-value for the D'Agostino-Pearson test of the normality of the distribution of Attitude Favorability scores was 0.06, indicating that the data satisfied the normality assumption of the one-sample *t*-test. In this case,  $t_{69} = 24.263$ ,  $p < 0.001$  (1-tailed). Consequently, the null hypothesis was rejected.

The mean Attitude Favorability score was significantly higher (i.e., more favorable) than the neutral point on the response scale. The means of the individual items indicated that there was less than half a scale interval (0.37) between the lowest and highest means among the five items. The means of all items fell within the fourth ("agree") or fifth ("strongly agree") interval of the response scale.

Hypothesis two predicted that ESL/EFL instructors ascribe more than moderate importance to the role of computer technology in L2 reading classrooms. The respondents' scores on the Importance Scale, calculated using the mean scores of the 20 items, determined the measure of "importance." Table 4 presents the descriptive statistics for the Importance Scale and its component items, as well as the *p*-values pertinent to the test of Hypothesis two and the difference of each item's mean from the mean of other Importance items.

TABLE 4  
DESCRIPTIVE STATISTICS FOR THE IMPORTANCE SCALE AND ITS COMPONENT ITEMS AND THE P-VALUES OF DIFFERENCES  
BETWEEN ITEM MEANS AND THE MEANS OF THEIR 19 ITEM COMPLEMENTS

Effect of CALL	N	Minimum	Maximum	Mean	SD	p-value
Importance (full scale)	70	2.35	5	4.06	0.52	<0.001 <sup>a</sup>
1. Better graphics, images, and colors hold learners' attention better	70	1	5	4.29	0.82	0.04 <sup>b</sup>
2. Fosters a nonlinear and flexible pattern of exploration and discovery	70	1	5	3.83	0.88	0.01 <sup>c</sup>
3. Promotes the cognitive flexibility that is necessary for the integration of knowledge	70	1	5	3.73	0.88	<0.001 <sup>b</sup>
4. Motivational effect on English learners	70	1	5	3.47	1.139	<0.001 <sup>b</sup>
5. The multimodality associated with electronic text	70	1	5	4.03	0.78	0.55 <sup>c</sup>
6. Multimedia facilitates comprehension	70	2	5	4.36	0.62	0.00 <sup>b</sup>
7. The high level of interactivity of electronic reading	70	1	5	4.10	0.90	0.90 <sup>c</sup>
8. Promotes critical reading skills	70	1	5	3.79	0.90	0.01 <sup>c</sup>
9. Increases effectiveness of reading practice	70	2	5	3.91	0.81	0.08 <sup>b</sup>
10. Promotes an advanced interactive model of reading	69	1	5	3.97	0.82	0.26 <sup>b</sup>
11. Provides a rich reading environment	70	2	5	4.06	0.72	0.77 <sup>b</sup>
12. Makes online resources available to help language learners improve their cognitive and metacognitive reading skills	70	3	5	4.33	0.65	0.00 <sup>b</sup>
13. Offers virtually unlimited opportunities to practice reading	70	1	5	4.34	0.78	0.01 <sup>b</sup>
14. Raises motivation by fostering a sense of independence	70	2	5	4.17	0.82	0.37 <sup>b</sup>
15. Plays an important role in L2 reading	70	2	5	4.23	0.75	0.08 <sup>b</sup>
16. Encourages students to use the text interactively	70	2	5	4.14	0.67	0.45 <sup>b</sup>
17. Allows flexibility in accessing or studying the textual information available	70	2	5	4.17	0.74	0.39 <sup>b</sup>
18. Makes texts more accessible to ESL/EFL readers	70	2	5	4.11	0.83	0.82 <sup>b</sup>
19. Allows learners to be more active in the process of reading	70	2	5	4.01	0.89	0.55 <sup>b</sup>
20. Allows readers to explore their interests through links that lead to additional information	69	2	5	4.10	0.62	0.71 <sup>b</sup>

<sup>a</sup> p-value for comparison of Importance Scale mean to neutral scale value (3.0)

<sup>b</sup> Normality assumption satisfied; p-value of paired t-test of the difference between an item's mean and the mean of the other 19 items.

<sup>c</sup> Normality assumption violated; p-value of the difference between item's mean and the mean of the other 19 items estimated via a 5,000-sample bootstrap.

Hypothesis two was tested by computing the p-value of the difference between the mean of the scores on the Importance Scale and the value of the neutral point on the response scale (3.0). The p-value for the D'Agostino-Pearson test of the normality of the distribution was 0.11, indicating that the data satisfied the normality assumption of the one-sample t-test. As reported in Table 3,  $t_{69} = 17.05$ ,  $p < 0.001$  (1-tailed). Thus, the null hypothesis was rejected. The mean Importance score was significantly higher (i.e., more favorable) than the neutral point on the response scale.

The differences between the means of the individual items and those of the other 19 items (excluding the item being compared) were tested using a paired t-test or, where the normality assumption was violated, a 5,000-sample bootstrap estimate of the p-value of the difference. The resulting p-values are listed in the last column of Table 4. Given the multiple testing of the differences between the same set of variables, it was necessary to adjust the alpha level of the individual comparisons to achieve a familywise Type I error of 0.05. This was accomplished by applying the Bonferroni correction, which resulted in a requisite p-value of 0.003 to attribute statistical significance to any of these comparisons.

The mean importance ratings of the following two items were significantly higher than that of the other 19 items:

1. Better graphics, images, and colors hold learners' attention better.
6. Multimedia facilitates comprehension.

The mean importance ratings of the following two items were significantly lower than that of the other 19 items:

3. Promotes the cognitive flexibility necessary for the integration of knowledge.
4. Motivational effect on English learners.

The range between the lowest and highest means among the 20 items was 0.97 of a scale interval. The mean of only one item (Motivational effect on English learners) fell below the fourth response scale interval ("important"). The means of the other 19 items fell within the fourth ("important") interval of the response scale.

### Open-Ended Questions

In addition to the survey, which was this study's primary research instrument and source of data, open-ended questions served to supplement and enrich the quantitative results. Each of the major sections of the self-developed survey ended with the following open-ended questions:

- 1) What are your general perceptions concerning the use of computers in teaching English as a foreign or second language?
- 2) Where do you see the importance of computer-assisted reading?

The participants made 143 remarks in response to these questions, in which they shared their general perceptions of utilizing computers for teaching ESL/EFL as well as the importance of electronic text in L2 reading instruction and learning. The first question generated 78 remarks (54%), and the second 65 remarks (45%). A major portion of these insights were positive (134 = 92.0%), but a few were negative (9 = 6.3%). The responses also fell into two major domains: general or overall perceptions and specifically defined perceptions.

**General Perceptions of CALL.** The participants' general perceptions of CALL focused on the options and advantages computers offer to learners, teachers, instruction, and the overall process of learning English. They also made some general statements and offered practical suggestions. For example, the participants indicated that computers help English learners become autonomous. Computers also shift ESL/EFL classes from teacher-centered to learner-centered and give students many opportunities to learn English. Further, computers provide interesting and helpful activities and enable students to find different sources and additional information about various subjects. Thus, learners who use computers are more motivated to learn English and experience increased exposure to authentic materials.

With respect to teaching English, the participants acknowledged that computers help with various aspects. They make teachers more confident by providing access to a wealth of information and resources, thereby helping them achieve their objectives more efficiently and effectively. They also enable teachers to apply methods that encourage student involvement in the learning process, and free students from the conventional that make them dependent entirely on their instructors. The participants also noted that computers enhance English instruction by reducing time and effort, providing a positive learning environment, enriching the teaching process, and making lessons more interesting and interactive. Overall, the general perception was that computer use affects the process of learning English positively because it forces learners to use the target language outside the classroom, makes the learning process more successful, and serves as a useful resource for language learning.

In commenting on their general attitude about CALL, the participants noted that CALL represents a breakthrough in language learning and creates more possibilities. Now a necessity, computers play a major role in language learning and possess limitless potential. Moreover, computers make English learners more creative and help them develop new ideas.

In addition to these general remarks, the participants proposed a number of practical suggestions. For example, the participants felt that teacher training is necessary to optimize their use of computers in the classroom. Without training, teachers are ill prepared to recognize the computer's potential. Moreover, using computers for language learning requires the orchestration of various skills, without which teachers tend to use computers less effectively.

**Defined Perceptions of CAR. The Importance of Electronic Text for L2 Reading Instruction and Learning.** When asked about the importance of electronic text in L2 reading instruction and learning, several participants indicated that computers are important because they create a motivational reading atmosphere, enhance cognitive and metacognitive skills, and improve reading comprehension by offering multimedia presentations and making related textual information available immediately. One participant said, "The way I see the importance of computers for L2 reading is in creating a motivating atmosphere." Yet another stated, "I can see the importance of CAR in improving cognitive and metacognitive skills." Other participants maintained that computers foster critical reading, and equip learners better to read on their own, and make them more enthusiastic about reading English texts.

Further, the participants noted that CAR improves learners' engagement and independence, provides unlimited resources for students to choose what interests them most, and "allows more flexibility in accessing or studying the available textual information." CAR also improves the speed and ease of access to reading materials. In particular, one participant commented, "The reader is no longer confined to just one or two pages without any possibility to go beyond those." The participants also acknowledged that visual presentations help learners understand the text they are studying better and stimulate their thinking. Another participant made a similar statement: "The importance of CAR is seen in allowing more flexibility in accessing or studying the available textual information."

## VI. DISCUSSION

In general, the participants demonstrated favorable attitudes about the use of computers in teaching English, as shown by the mean scores of the five General Attitude Scale statements. This positive attitude overall about computer use can be attributed to the numerous advantages computers offer in language teaching and learning, including: making language lessons easier, more interesting, and more enjoyable; providing better motivation for learners; making teaching practices more student-centered, and engaging ESL/EFL learners in instructional activities. Such features thereby enhance both the teaching and learning of English. These results are consistent with those of previous studies, particularly that of Ramanair and Sagat (2007), where 80% of participants had a positive attitude about integrating computers into ESL/EFL classrooms.

The results of the survey item analyses, as well as the close analysis of the open-ended questions, suggested that the ESL/EFL instructors believed strongly in the importance of using computer technology in L2 reading classrooms. The mean scores of the 20 Importance Scale items indicated that the participants placed a high value on integrating computers in L2 reading classrooms. These favorable impressions can be attributed to a variety of factors, especially the particular features of electronic text noted in the introduction. The results of this study also were consistent with the findings of previous studies, including those of Bahatii (2013) and Hsieh (2014). Both studies showed that CAR is important in L2 reading because: it provides a more conducive, self-paced, and motivating learning environment for L2

reading instruction; generates considerable interest among English learners, and presents diverse reading materials with the advantage of instant access to a variety of support resources.

### **Pedagogical, Technological, and Policy Implications**

This study has several pedagogical, technological, and policy implications, particularly with respect to ensuring the successful integration of computers into L2 reading classrooms and the realization of CAR's maximum benefits. With reference to pedagogical implications, to ensure that computers are used in the most effective pedagogical manner, English teachers need to acquire technology-supported skills and pedagogical knowledge. This will enable them to draw on technological skills and knowledge when they incorporate computers into L2 reading classroom instruction, and will assist them in their efficient and effective implementation.

Teachers also should be aware of the different types of CALL reading programs, which vary based on the targeted reading strategy and skill, as well as the need to consider the learners' reading ability and control of the content, the text type, issues involved in attending to and processing the various modes of information associated with electronic texts, and ways to optimize reading performance when text is displayed electronically. In addition, ESL/EFL instructors need to focus on technology-related classroom management skills to organize the L2 reading class effectively. Such organization will ensure that English learners have equal opportunities to use computers and engage in the reading tasks and activities assigned, and will receive proper help when they face technical problems.

Technological implications include the clear need for in-service professional development opportunities, as well as the provision of state-of-the-art infrastructure and facilities. General, technical, and specialized training should be offered to L2 reading instructors, as specialized training on L2 reading theory could help them make informed decisions about integrating computers into their classrooms. In addition, instructors need to develop relevant technological skills and understand how to design reading tasks and activities to make computer-based instruction and resources more appealing and accessible to L2 learners.

English instructors also may benefit from general technological training opportunities in different formats that provide hands-on experience in incorporating CAR into lesson plans and delivering L2 reading instruction based on sound pedagogical and practical skills. Specifically, instructors can be shown how to: (a) use available technological reading resources effectively; b) create or select reading-based activities; (c) develop CAR lessons, and (d) integrate technological reading resources into the L2 reading classroom.

In addition to this training, ESL/EFL instructors need access to modern, advanced, and functional computer facilities with appropriate sustained technical support, as well as reliable high-speed broadband Internet connections and administrative support at all levels, including departmental, college, and university. Of equal importance is instructors' access to useful reading software programs, websites, and related technology-enhanced reading materials and resources. Finally, institutions need to work with instructors to develop specific goals and guidelines for the integration of CAR.

### **Limitations of the Study**

This study's implications and interpretations have several limitations. First, because the data were collected using a Likert-scale, unidimensional, cross-sectional questionnaire and open-ended questions, it was possible to capture participants' attitudes accurately as they were elicited by other methods of inquiry. Combinations of both qualitative and quantitative methods produce data that are more in-depth, shed additional light on the issues involved, and provide plausible explanations of the data.

Second, the variables investigated were self-determined based on the relevant literature. Variables excluded here might yield a clearer understanding of English instructors' attitudes about the importance of CAR in L2 reading instruction.

Third, the data were collected at a specific time rather than at periodic and frequent intervals; the latter would allow an assessment of the stability of the participants' attitudes over time.

Finally, the sample size was relatively small. This limits the extent to which the study's findings can be generalized.

### **Directions for Future Research**

Using selected variables, this study demonstrated ESL/EFL instructors' perceptions of the importance of CAR in L2 reading and their general attitudes about the role, importance, and effectiveness of computers in teaching ESL and EFL. We hope that the study will stimulate additional research on ESL/EFL instructors' roles in integrating computers into the L2 reading classroom. In particular, future studies should examine changes in teachers' attitudes about computer use over time via a longitudinal study, as well as the relationship between their attitudes and personal characteristics or demographic variables, such as gender, age, computer experience, and techno-anxiety. Future studies also could examine whether perceptions are the best predictors of ESL/EFL instructors' use of computers in L2 reading classrooms.

## VII. CLOSING REMARKS

This study on English reading instructors' perceptions of the importance of CAR in L2 reading instruction and their general attitudes about the role, importance, and effectiveness of computers in teaching ESL/EFL found that instructors recognize the importance of CAR in enhancing L2 reading instruction, prompting and advancing learners' learning process, and developing their reading skills. However, although the participants primarily stressed CAR's usefulness in engaging English learners in a meaningful and authentic computerized reading environment, they also noted the breadth of resources and reading materials CAR supplies. These findings serve as a departure point for future

explorations of ESL/EFL instructors' perceptions of CAR in the L2 reading classroom and may be useful in shaping computer integration practices in L2 reading classrooms. They also highlight the growing need for ESL/EFL instructors to have the skills, knowledge, and attitudes necessary to infuse computer technology into L2 reading classrooms and exploit all reading resources and learning opportunities available.

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