Perceptions of ESL/EFL Instructors toward Integrating the Computer into L2 Reading Classrooms and Factors Influencing its Integration

Khalid Al Seghayer

Department of English Language and Literature, College of Languages and Translation, Al Imam Mohammad Ibn Saud Islamic University
Riyadh, Saudi Arabia

ABSTRACT

The success of any initiative to implement computer technology into an ESL/EFL classroom is largely contingent upon the support and attitudes of the instructors involved, as they are the real agents of adoption of instructional technology tools and resources within the English language classroom arena. This study attempts to provide a thorough account of ESL/EFL instructors' perceptions of the importance and usefulness of electronic text for L2 reading and the factors that influence their decision of whether or not to incorporate it into their L2 reading classrooms. Aeventy ESL/EFL instructors at multiple universities that offer ESL/EFL courses responded to a self-developed, four-part survey containing 83 items and open-ended questions. The questions inquired about the respondents' general attitude toward computers for language teaching and learning, their perceived perceptions pertaining to the importance of computer-assisted L2 reading instructions, the effectiveness of electronic texts for teaching and learning L2 reading, and the factors that influence their decision regarding using computers in the delivery of L2 reading class content. The collected data were subjected to descriptive and inferential statistical analysis, including mean, standard deviation, paired t-tests, and bootstrapped p-values. The findings indicated that participants recognize the importance of and hold strong beliefs about the usefulness of computer-assisted reading (CAR) in improving the quality of L2 reading instruction and developing learners' reading skills. Additionally, various factors were reported to facilitate and impede the successful integration of computers into the teaching practices of L2 reading skills. The implications of this study were discussed, and areas of potential future research were also highlighted.

Key Words: Computer-Assisted Reading, Second Language Reading.

INTRODUCTION

Over the course of the past few years, computer-assisted language learning (CALL) has gained paramount importance and acceptance in the field of teaching and learning English as a foreign or second language (ESL/EFL), seemingly due to its appealing features and the potential capabilities embedded within this relatively novel medium of instruction. In particular, this amplified recognition is more noticeable with reference to second-language (L2) reading skills, specifically over other major language skills and areas, as it brings new dimensions and unique opportunities to the area of L2 reading development skills. These dimensions including, but not exclusive to, progress in this electronic environment is reader- controlled, readers are provided with immediate access to a variety of representational modes, and less disruptive ways of accessing extra information. Indeed, CALL has changed the nature of reading and redefined the concept of reading, paving the way for the emergence of the new concept of electronic literacy and exerting a profound impact on the process of learning and teaching L2 reading.

Despite these promises, many ESL/EFL instructors currently do not attempt to harness the potential of embedded technological features when delivering the content or materials of their L2 reading courses. To say the very least, ESL/EFL instructors have not moved beyond mechanistic or low-level computer usage in their instruction of L2 reading courses. Some of the instructors choose to act on the promises of computer-mediated learning and adopt a wait-and-see approach. Although the adoption or integration of computer-assisted reading (CAR), particularly in the L2 reading classroom, is the responsibility of policymakers, stakeholders, school administrators, and other decision-making entities, ESL/EFL instructors are the key agents in this respect, because it is their responsibility to set the tone of their classrooms. The implementation of

computer-based teaching practices is mainly in the hands of these instructors because they are undeniably the key stakeholders in the issue of computer integration in L2 reading classrooms. The success and readiness of ESL/EFL students' efforts to learn to read in English via computer technology depends on the instructors' perceptions and attitudes as well as their willingness to embrace it in their L2 reading instruction, as they can transmit their beliefs and values to learners. Additionally, computer technology, the Internet, and Web-based resources offer teachers vast resources, opportunities, and new directions for developing L2 reading and associated skills; such resources can only be fully exploited through teachers' use of technology in L2 reading classrooms.

English instructors seem to hold certain beliefs that need to be examined closely in order to reveal their perceptions and attitudes concerning integrating computers into L2 reading classes and to understand the biases for teachers' stances pertaining to factors that functions as facilitators or as hindrances to teachers' computer utilization in the L2 reading classrooms. The need for such investigations comes from the assumption that perceptions and attitudes, on the one hand, and computer integration, on the other, have a reciprocal relationship and are so inextricably linked together that one triggers the other. Certain factors could also exert a positive or negative influence on computer integration for instructional purposes.

This study investigates which factors were found to influence ESL/EFL instructors' decisions on whether or not to integrate computer technology intoL2 reading classrooms. Of specific interest was the examination of ESL/EFL instructors' perceptions of the importance and usefulness of computer-assisted L2 reading and the factors that contribute to the instructors' decision whether or not to utilize computers in their delivery of L2 reading class content. As a starting point, this study will first summarize research that was conducted over the years on the importance and effectiveness of electronic text for L2 reading instruction

and the barriers that deter ESL/EFL instructors from using computers in the L2 classroom and reading instruction. Next, the prospective study will be discussed, along with its outcomes and implications. Finally, suggestions for further research on the matter will be offered.

Survey of Relevant Literature
Overview

A brief overview will be given of previous research on computer-assisted second-language (L2) reading instruction. The review of the related literature will focus on three issues: the importance of electronic text for L2 reading; the effectiveness of electronic text in L2 teaching and learning; and barriers that deter ESL/EFL instructors from integrating computers into the L2 classroom and reading instruction. The results of the existing empirical studies and the theoretical speculations or assumptions constitute the theoretical basis for this study.

Importance and Effectiveness of Electronic Text for L2 Reading Instruction

This review begins by scrutinizing the assertions and theoretical perspectives that have been proposed concerning the importance and effectiveness of electronic or computerized text for L2 teaching and learning L2 reading skills. The importance of computers for L2 readers can be seen, as Konishi (2003) viewed it, from the perspective that L2 readers tend to be more motivated to read electronic or computerized English texts. This is apparently due to the characteristics of the computerized reading environment, including built-in multimedia elements such as sound, pictures, and video clips, along with texts that are electronically linked in a non-linear manner, the ability to scroll up and down, and relative accessibility and flexibility in terms of time and space. Bodomo *et al.* (2003) added that interaction between readers and electronic texts is no longer static and that readers become more active as they click and browse through web pages and hyperlinks. In the same vein, Coiro (2003) stressed that the importance of

electronic texts is derived from the importance of one's ability to comprehend what he or she reads as a result of the new supports the computerized reading environment offers to readers. This is in line with the argument put forward by Kasper (2003), who argued that the importance of electronic text lies in a number of issues, including: Increasing comprehension through the elaboration and integration of new information into the existing knowledge network, as readers create and expand the cognitive map that guides their construction of meaning; providing easy access to multiple cross-references on related topics across several documents; and fostering a nonlinear and flexible pattern of exploration and discovery that encourages a natural juxtaposition of ideas presented (p. 2).

Han (2010) asserted that the importance of electronic text is derived from its effect on increasing students' interest in reading and enhancing their motivation due to the rich interactive multimedia reading environment that stimulates readers' auditoryand visual senses. Furthermore, electronic texts make readers independent and autonomous because they do not confine themselves to the textbooks; rather, they are expected to explore the wealth of information often provided by the electronic reading environment. Two additional attributes lead to such importance: promoting an advanced interactive model of reading and increasing readers' awareness of cultural differences, and as a result, enlarging their global understanding.

The efficacy of computer-assisted instruction in facilitating L2 reading skills has been also highlighted by several researchers who underscore that its effectiveness has chiefly resulted from the unique characteristics of the electronic reading environment. Kasper (2003) indicated that one of its advantages appears to be that of actively engaging readers with electronic text, allowing them to choose a path that is most relevant to their interests. The same argument also holds true in that learners can effortlessly access various authentic reading materials that would appeal to the individual

needs of different learners (Lai and Kritsonis, 2006). The effectiveness of electronic texts seems to provide, as pointed out by Tseng (2010), new text formats and different ways to interact with the presented information in a computerized reading environment.

Son (2003) convincingly contended that the integration of textual, audio, and visual presentations of electronic text reinforces reading comprehension and enhances reading strategies, and that linking hypertext to the foregoing can assist L2 readers by providing easy and immediate access to related information.

Kasper (2003) succinctly stated that electronic text enhances comprehension and builds critical reading skills, as it facilitates interaction between readers and text. She further adds that, because electronic text provides easy access to multiple cross-references on related topics, it fosters a non-linear and flexible pattern of exploration that encourages a natural juxtaposition of the ideas that are presented.

According to Brantmeier (2003), thanks to the rich computer reading environment that is currently available, prior knowledge can be activated prior to reading via visuals, graphics, and even streamlined videos. Hyperlinks can connect the reader to online information about authors, historical periods, geography, and more before the text is actually read. Additionally, existing concept mapping software can serve as a valuable brainstorming tool to activate relevant reading schemata.

Singhal (2006) contended that the effect of CAR instruction can be seen in the acceleration of the development of reading skills as L2 readers receive individualized instruction, immediate feedback, and opportunities to pace up their reading. Readers also have relatively easy access to online resources. Furthermore, Singhal (1999) previously indicated that, because it assists teachers in developing individualized reading instruction that can meet the varied needs of L2 learners, CAR instruction enhances L2 classroom reading instruction. In addition, instructors can guide learners

through the process of developing their reading comprehension skills at the pace that is most comfortable for each individual student.

Ward and Mulholland (2006) mentioned that a computerized reading environment that actively engages L2 readers with visuals and sounds allows them to work in a risk-free environment that provides them with immediate feedback and supports their attempt to learn to read in L2 and improve their reading skills.

Two prominent theories believed to explain the issue of technology integration are the Technology Acceptance Model (TAM) by Davis (1989) and the Diffusion of Innovation Model (DIM) by Rogers (1995). The former is an information system theory that models how users come to accept and use technology. This model suggests that, when users are presented with a new technology, a number of factors influence their decision as to how and when they will use it; specifically, ease of use and usefulness. The latter, on the other hand, is a theory that seeks to explain how, why, and at what rate new ideas and technology spread through cultures. Rogers proposed in the sub-theory of *Innovation Attributes* that potential adopters evaluate an innovation based on their perceptions of five specific characteristics: relative advantage, compatibility, complexity, observability, and trial ability. Rogers asserted that an innovation will be increasingly diffused in the case that adopters perceive that innovation to have an advantage over previous innovations, to be compatible with existing practices, to be viewed as not difficult to understand and use, to be more likely to show observable results, and to be able to be experimented with on a limited basis before actual integration. Consequently, instructors' perceptions and attitudes are indispensable in this respect.

Thus, different perspectives and theories that embody the importance and effective consequences of electronic texts to the development of L2 reading skills and instructions have been proposed. Of special interest is the vital role that computers play—a role that is a consequence of the technological

attributes of computers that are not available from any other medium of instruction. Stated more specifically, these perspectives involve appealing features such as accessibility and flexibility, the impact of electronic text on the processes of reading and comprehending text, and the consequences of electronic text presentation on motivation and making readers more active, engaged, and interested. In addition, the richness of the interactive multimedia reading environment, along with the availability of authentic reading materials and the nonlinear structure of electronic information, are important advantages.

Barriers That Deter ESL/EFL Instructors from Using Computers

This section of the related literature review identifies significant barriers or factors that are known to contribute to or impede teachers' willingness to use computers in the L2 classroom as well as in L2reading instruction. Among the factors that affect the use of computers in L2 reading classrooms are teachers' attitudes about or perceptions of computers, along with other associated factors that can be categorized as either internal or external concerns.

In this regard, Freeman and Johnson (1998) argued that teachers are not "empty vessels waiting to be filled with theoretical and pedagogical skills; they are individuals who enter teacher education programs with prior experiences, personal values, and beliefs that inform their knowledge about teaching and shape what they do in their classrooms" (p. 401). Carless (1999) also maintained that teachers' attitudes are derived primarily from their own experiences as learners, their professional training, their teaching experiences, their interactions with colleagues, and the cultural values and norms of the society in which they live. Along the same lines, Trogia (2004), in studying immigrant ESL students' use of multimedia software, found that students failed to make progress due to a lack of instructor involvement and intervention during the process of using a computer as an ESL/EFL instructional tool. Lee (2000) proposes that

the barriers that hinder the use of computer-assisted language learning in the ESL/EFL classroom fall into the following four categories: financial barriers, availability of computer hardware and software, technical and theoretical knowledge, and acceptance of the technology.

A number of empirical studies have demonstrated ESL/EFL teachers' attitudes regarding the use of computers and have identified the barriers that impede them from integrating it into English teaching classrooms in general and reading instruction in particular. This is despite the rapid development of computer technology and ESL/EFL teachers' recognition of the importance and effectiveness of computer technology in their classrooms. For instance, Brantmeier (2003) examined how informed university-level language instructors perceived the integration of technology in the process of teaching L2 reading. Participants (10 university-level language instructors) were asked to respond to a questionnaire inquiring about their perspectives on using CALL to teach L2 reading. The results identified three main factors that impede instructors from fully integrating technology in their L2 reading classrooms: time commitment needed to create and use materials, the rate of technological change, and technical difficulties.

Furthermore, Arkin (2003) examined one aspect of the way teachers perceive the use of computer technology resources in language teaching by investigating their attitudes and approaches toward using an online supplementary resource in vocabulary instruction in an EFL context. The researcher gave self-developed questionnaires to97 teachers in an English-medium university. The reported findings revealed that the teachers' attitudes toward computers and the use of computer technology resources in language teaching were determined by the amount of training they had received. The author, as a result, postulated that training plays key factor in both changing attitudes and encouraging ESL/EFL teachers to incorporate technology into their instruction.

Velazquez-Torres (2006) also continued along this line of research by exploring Puerto Rican EFL teachers' perceptions, attitudes, and experiences with the use of computer technologies in their English classrooms. The 38 EFL teachers responded to a questionnaire, and nine of them were also interviewed. The results showed that there were a number of factors that negatively affected their use of computers in their English classrooms, which chiefly revolved around the issues of not having sufficient formal training that would enable them to acquire the technology skills they need, along with the lack of enough access and exposure to technology and Internet resources.

Lu (2006) took a similar perspective and conducted a survey study to identify key barriers that are affecting the use of computers in ESL instruction. Sixty-seven ESL teachers from various school levels in south Texas responded to a questionnaire of 29 variables that influence the use of CALL and five open-ended questions. The results that are relevant to this study indicated that three key barriers impact teachers, including technology skills, funding for teaching through technology, and acceptance of technology.

In order to examine Korean secondary school EFL teachers' perceptions and perspectives on the use of the Internet for teaching purposes, Shine and Son (2007) conducted a survey study asking 101 Korean secondary school EFL teachers what they think about Internet-assisted language teaching, how they use the Internet, and what types of resources they use. Based on the findings of this study, the authors identify several contributing factors that affect the use of the Internet in the classroom, including teachers' personal interest in Internet use, teachers' abilities to integrate Internet resources into classroom activities, and computer facilities and technical support in schools.

The findings of a recent study by Ramanair and Sagat (2007) moved in the same direction of revealing ESL/EFL teachers' attitudes toward integrating computers in the EFL classroom. Their research

investigated the knowledge and attitudes of 50 Malaysian secondary English language teachers regarding multimedia technology. To determine the participants' attitudes toward multimode technology, Ramanair and Sagat asked the English teachers to respond to an attitude scale consisting of 15 items involving cognitive, affective, and behavioral categories. The results showed that 80% had a positive attitude about using multimedia technology. A postulated interpretation of the obtained results suggests that this positive attitude is the consequence of a higher knowledge of using multimedia technology that results from formal training and exposure or via self-instruction.

Looking into the factors that affect the integration of computers into English classrooms, Park and Son (2009) reported the results of a research project on factors affecting EFL teachers' use of computers in their classrooms and their perceptions of CALL. Participants (12 EFL Korean teachers) responded to a self-developed questionnaire and were prepared for follow-up in-depth interviews. The results revealed that teachers held positive attitudes regarding the use of computers and reported that their attempts to integrate computers into their English classrooms were negatively affected by a number of external factors, including a lack of time, insufficient computer facilities, rigid school curricula and textbooks, and a lack of administrative support. Additionally, three internal factors affected their decision: limited computer skills, limited computer knowledge, and their beliefs and perceptions of CALL.

Similarly, Dashtestani (2012) examined the attitudes of Iranian EFL teachers toward the use of CALL in EFL courses along with their perceptions of possible barriers to the implementation of CALL. The 212 EFL teachers who participated in this study responded to questionnaires, set for semi-structured interviews, and where observed in their English classrooms. The reported results indicated that Iranian EFL teachers hold positive attitudes toward the use of CALL. Additionally, they reported a number of

barriers that prevented them from integrating computer in their English classrooms. Finally, the study revealed Iranian EFL teachers do not make use of CALL in their courses. This was despite their strong believe regarding the importance of utilizing computers in EFL courses.

Finally, Aydin (2013) examined the Turkish EFL teachers' perceptions of computer use for teaching EFL. Specifically, 157 EFL teachers were asked to about their attitudes toward and perceived self-confidence in integrating computers. The results showed that Turkish EFL teachers expressed positive perceptions about computer integration and exhibited very positive attitudes toward computer use. Turkish EFL teachers also indicated that they lack technical and instructional support and experienced difficulties using the software programs.

While the above studies explored the perceptions of ESL/EFL instructors toward integrating CALL in classrooms and factors that either obstruct or facilitate their endeavor to integrate computers into the classrooms, none of these studies specifically investigate how English instructors perceive either the importance and effectiveness of computer technology for L2 reading classrooms or the factors that contribute to, or militate against, an instructor's decision to use computers. Therefore, this review of the relevant research, as well as this study, direct attention to an untapped area of research within the field of L2 reading computer-assisted instruction that needs further attention. This study is designed to achieve this objective and fill the gap of the very meager or non-existent research studies.

Overview of the Current Study

Computer technology-enhanced resources offer ESL/EFL reading instructors and learners of English a wealth of resources and opportunities for teaching and learning second language reading. The maximum benefit from these resources can only be achieved through teachers' use of such available technology-enhanced resources, since they are the key to effective implementation

of the use of computers in the L2 reading classrooms. In addition, ESL/EFL instructors have the tremendous potential to transmit beliefs and values to English learners so that they can improve their L2 reading ability with technology and exploit its offered capabilities to the maximum extent.

Although there are hither to studies of the efficacy of computer technology on L2 reading, to date, there do not seem to be any studies whose primary objective is the perceptions of ESL/EFL instructors on using computers in L2 reading classrooms. More specifically, no investigation has been done on instructors' perceptions of computers' importance, usefulness, or the factors that facilitate or hinder instructors' decision to employ computers in L2 reading courses or not to use them. Therefore, this study was designed to investigate ESL/EFL instructors' perceptions of the importance and usefulness of computer-assisted L2 reading and the factors that contribute to their decision to utilize or not to utilize computers in the delivery of L2 reading class content.

The study's goals are outlined in the following four focal questions:

1. What are ESL/EFL instructors' general attitudes toward computers and the use of computer technology resources on language instruction?
2. How do ESL/EFL instructors perceive the importance of computer technology in an L2 reading class?
3. How do ESL/EFL instructors view the effectiveness of instructional reading of electronic text features for L2 reading?
4. 4) Do any factors exert a higher or lower than average degree of influence on instructors'decisionaboutwhethertoutilize computers in their L2 reading classes?

To answer these questions, the study tested the following four hypotheses (H_0):

1. ESL/EFL instructors do not hold positive attitudes toward using computers in teaching English as a second/foreign language.
2. ESL/EFL instructors do not recognize the importance of computer technology in L2

reading classrooms.
3. ESL/EFL instructors do not value the effectiveness of the electronic text features for L2 reading.
4. ESL/EFL instructors do not believe that time, easy access to computers and software, technical support, knowledge of users, and users' willingness are decisive factors in choosing to utilize computers in the L2 reading class.

MATERIALS AND METHODS
Study Participants
Participant selection criteria and profiles

As there was no explicit standard for selecting participants for this study, a convenience sample was selected consisting of 70 ESL/EFL instructors who were teaching at the college level in various universities that offer ESL/EFL courses. The participants were predominantly male—39 (56%) male and31 (44%) female—and ranged in age from 30 to 50, with most being in their 30s. They can be grouped according to their native language: 36 Arabic, two Thai, two German, two Portuguese, two Filipinos, one French, one Indian, one Colombian, one Chinese, one Taiwanese, one Senegalese, one Ukrainian, and 19 native speakers of English (13 Americans, two British, two Canadians, one Australian, and one New Zealander). The 70 language instructors who participated in the study had anywhere from two to 15 years of teaching experience. On average, the body of participants reported having nine years of teaching experience. Less than half of the participants (45%) have been using computers for less than five years, while 55% of them have been using computers for more than five years. Of the participants, eight (11%) had a bachelor's degree; 36 (52%) had a master's degree; and 26 (37%) had a doctorate degree. Table 1 outlines aspects of the background information of each participant that was gathered through the questionnaire, along with the distribution according to country.

The participants were selected according to their teaching experience. Each had spent at least five years teaching college-level

English and accumulated at least three years of teaching reading skills to college ESL/EFL learners. Additionally, they all had more than two years of working experience with computers for instructional purposes. ESL/EFL instructors who had more experience in the field were assumed to have had a wider range of experiences teaching L2 reading and a rich perspective on any changes that have occurred in the ESL/EFL field.

Table (1): Characteristics of the participants

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

Design Overview

This study incorporated standard survey methodologies to gain insight into factors influencing ESL/EFL instructors' decisions on whether or not to employ computer technology in L2 reading instruction, along with examining their perceived perceptions of its importance and usefulness. The survey instrument was developed by the researcher after an extensive review of the related literature. Randomly selected participants were surveyed, and simple descriptive

and inferential statistical analyses were conducted in order to analyze the obtained data. The developed survey addressed three primary topics: perceived importance of computer-assisted L2 reading instruction, a perception of the effectiveness of electronic texts for teaching and learning L2, and a determination of what factors influence the instructor's decisions on whether to use computers in L2 reading classes. In addition to these three primary areas that constitute the major source of data for this study, demographic information, general computer attitude, and answers to open-ended questions were obtained to supplement and enrich the quantitative results. The following describes the procedures used.

INSTRUMENTS
Survey construction

To answer the research questions, a five-part uni-dimensional, Likert scale-based, cross-sectional questionnaire was developed for measurement and consisted of a four-page questionnaire comprised of 83 statements that were presented in a random order and divided into the following three sections, as shown in Table 2.

Section 1, *Background Information,* surveys the demographic information of the participants. It consists of nine Yes/No questions and multiple-choice questions that were used to collect demographic information related to the personal, professional, and educational qualifications of participants. Information asked included gender, age, educational experience, years of teaching experience, level of education completed, level of comfort with utilizing computers in teaching, and computer experience.

Section 2, *The General Attitudes Scale,* includes five statements that were divided into three categories designed to elicit responses from participants regarding their general attitudes toward the importance, effectiveness, and the role of computers in teaching English as a foreign/second language. The category of "Importance" has only one item, which measures instructors'

views concerning the importance of computer technology for learning and teaching English. The category of "Perceived Usefulness," which has one item, measures the instructors' beliefs about the usefulness or effectiveness of computers to help ESL/EFL students learn English. Finally, the category "Role of CALL" is composed of three items that measure the instructors' opinion regarding the expected role of computers in English teaching and learning. Participants completed the general attitude scale by specifying to what extent they agreed with each statement by using a five-choice Likert scale: strongly agree, agree, neutral, disagree, and strongly disagree.

Section 3, *The Importance, Effectiveness, and Factors Scales*, has three parts. The first part or subscale, the *Importance Subscale*, includes 20 items that probe the ESL/EFL instructors' perceptions of the importance of electronic text for L2 reading, learning, and teaching, to be answered on a five-point scale: 'Extremely Important' to 'Not Important at All,' with midpoints of 'Important,' 'Neutral,' and 'Less Important.' These statements were meant to probe the ESL/EFL instructors' perceptions of the importance of various technical features of electronic text for the process of learning and teaching L2 reading. The features included flexibility, multimedia components, arousing students' reading interest and motivation levels, making text more accessible, interacting with the text, a rich reading environment, an interactive model of reading, creating independent readers, and facilitating reading comprehension.

The second part, the *Effectiveness Subscale*, includes 15 items that queried ESL/EFL instructors' views concerning the instructional reading effectiveness of electronic texts for teaching and learning L2 reading using a four-point scale: 'Very Effective,' 'Somewhat Effective,' 'Ineffective at All,' and 'Of No Use.' Participants were asked to indicate the effectiveness of various features of electronic text for teaching and learning L2 reading, namely, whether it is on word level or beyond (i.e., the electronic glossary), tracking devices, authentic reading materials, various multimodality of electronic text, immediate feedback, having control over reading tasks, immediate access to vast amounts of information, and interactive reading activities.

The final part, the *Factors Scale,* includes 28 statements describing factors that facilitate or hinder ESL/EFL instructors from using computers in L2 reading classes. The instructors were asked to respond to each statement on a five-point scale ranging from a 'Strong Positive Influence' to a 'Strong Negative Influence,' with a midpoint of 'No Influence.' The factors used in this section were based on the various internal (five factors with three statements each) and external factors (five factors with three statements each) that ranged from statements inquiring about the factor of time constraints, the accessibility and availability of computers and relevant facilities, technical and administrative support, and training on how to integrate technology into L2 reading classrooms. Other factors include technical skills and theoretical knowledge, personal attitude toward the use of computers, a belief in the usefulness of computers for L2 reading, and the self-confidence or efficacy to use technology effectively in L2 reading instruction.

Each of the above three parts of the section, along with the first two sections, include open-ended questions that were developed to elicit instructors' expanding views pertaining to the importance of electronic text, its instructional effectiveness for the process of teaching and learning L2 reading, and the factors that impact the decisions of instructors to use or not to use computers in the L2 reading classroom that may not have been captured by the Likert scale items. These open-ended questions provided qualitative data that enriched the quantitative responses of the other sections of the developed survey.

Table (2): Distribution of Questions/ tatements of the Developed Survey

Sections	Section 1	Section II	Section III		
Type of questions/ statements	Background information	General attitudes toward using computers in language learning instruction	Part One	Part Two	Part Three
			About the ESE/EFL instructors' perceptions of the importance of electronic text for L2 reading instruction	Queried EFL instructors' views concerning the instructional reading effectiveness of electronic text features for teaching and learning L2 reading	Probed the factors facilitating or limiting instructors from integrating computers in L2 reading classrooms
Number of questions/ statements	9	5	20	15	28

Instrument validity and reliability

Several measures were used to ensure the validity and reliability of the research instrument. A panel of four experts examined the validity of the instrument; each panelist examined the instrument for content, clarity, and appropriateness. Their comments were taken into consideration in rewording items, adding new ones, modifying ambiguous wording, and deleting items deemed irrelevant to the purpose of the study.

The reliability of the instrument was assessed by computing Cronbach's Alpha for each of the four sections of the questionnaire. The alpha coefficient of general attitude toward the CALL Scale was 0.722, and the Importance Scale was 0.927. The alpha coefficient for the Effectiveness Scale was 0.841; and, for the Factors Scale, it was 0.934. An overall reliability alpha coefficient of 0.954 was found.

Pilot study

A pilot study was conducted to ensure the validity and reliability of the developed survey as well as to test its adequacy and provide a "dry run" in order to anticipate any problems in using the instrument. The pilot study sample consisted of 10 ESL/ EFL instructors. These instructors did not participate in the actual study, although they were similar to the actual participants in terms of their credentials, teaching experience, and familiarity with computers as teaching tools in the ESL/EFL classroom. All the procedures used in the pilot study were executed precisely as they were administered in the actual study. Instructors were asked to closely examine the wording, order, and difficulties, as well as confusing or ambiguous use of the items or the range of answers. They were also asked to indicate any difficulties they had in completing the research instrument. Interviews with each of those instructors were conducted after they had completed the survey to elicit further details and feedback concerning the above issues. Modifications to the instrument were made considering of the original intent of the research instrument with the guidance of the panel of experts.

Survey administration and data collection process

The researcher sent each voluntary participant a packet containing a letter describing the purpose of the study, the need for participation, a copy of the survey with the assigned four-digit ID code affixed to it, instructions explaining how to respond to the

survey, and an envelope in which to return the completed survey to the researcher. The ID codes were recorded in a separate file to track who returned the survey.

After two weeks, the researcher sent an e-mail reminder, including a link to the online version of the survey, to those who had not responded. After an additional two weeks, the researcher sent participants another letter, including another copy of the survey, as a final reminder to those who had not yet responded. A total of 85 ESL/EFL instructors were surveyed, 70 of whom returned the survey. The return rate for this survey was thus 83%. All 70 participants responded to all items on the survey; and, as such, no missing data was found. Data was collected over the course of the entire Spring 2012 semester. On average, it took participants approximately 20–25 minutes to complete the survey forms. On all occasions, the researcher was available to the participants primarily via e-mail throughout the data collection process to answer any questions the participants may have had.

Data analysis procedures

Completed survey responses were compiled into an Excel spreadsheet and then imported into an SPSS dataset. The items in survey sections 1 to 3 were conceived to form multi-item scales of attitudinal favorability toward, importance, and effectiveness of computer assisted language learning, respectively. Accordingly, the reliability of the items in each section was computed and any items that exerted an appreciable negative impact on reliability were eliminated. The mean scores in each section were then computed to represent scores on the construct purported to be measured by each section. Descriptive statistics were computed for the scale scores generated for each of these three sections. The first three hypotheses were tested by assessing the significance of the difference between the mean scale value for each section and the neutral point of the measurement scale for the section (i.e., 3.0) using the 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 .05 was used as the criterion for statistical significance. All of the first three hypotheses were 1-tailed.

The data for section 4 of the survey was treated differently. Hypothesis 4 focuses on each of the 28 items separately in terms of whether its mean differed significantly from the mean of the other 27 items. Accordingly, descriptive statistics were computed for each item and for the mean of the other 27 items in each case. The hypothesis was tested by computing the paired t-test between each item and the respective mean of the other 27 items. The normality of the distribution of differences in each case 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. The alpha level for each t-test was corrected to achieve a familywise Type I error rate of .05.

RESULTS

Hypothesis One predicted that ESL/EFL instructors hold a positive attitude toward using computers in teaching English as a second/foreign language. The measure of "positive attitude" was the score on the Attitude Favorability scale, which consisted of the respondents' mean scores on all the items in Section One of the questionnaire. The descriptive statistics for the Attitude Favorability scale and its component items are presented in Table 3.

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	0.496
1. CALL is an important component of ESL/EFL	70	1	5	4.40	0.824
2. CALL promotes learner autonomy, motivation, and involvement with English	70	3	5	4.39	0.687
3. CALL provides learners with exposure to and practice in the four main language skills	70	2	5	4.24	0.751
4. CALL provides authentic tasks and access to a wealth of ESL/EFL materials	70	1	5	4.61	0.687
5. CALL offers new ways to practice language and assess performance	70	3	5	4.53	0.631

Hypothesis one was tested by computing the p-value of the difference between the mean of the scores on the Attitude Favorability scale and the value of the neutral point of the response scale (i.e., 3.0). The p-value for the D'Agostino-Pearson test of the normality of the distribution of Attitude Favorability scores was 0.059, indicating that the data satisfied the normality assumption of the one sample t-test. The result of the t-test was: $t = 24.263$, for which $p< .001$ (1-tailed) with 69 degrees of freedom. The null hypothesis is consequently rejected. The mean Attitude Favorability score was significantly higher (i.e., more favorable) than the neutral point of the response scale. Reviewing the means of the individual items composing the scale indicates that there was less than half a scale interval (i.e., 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 predicts that ESL/EFL instructors will ascribe more than moderate importance to the role of computer technology in L2 reading classrooms. The measure of "importance" was the score on the Importance scale, which consisted of the respondents' mean scores on the 20 items in Section Two of the questionnaire. Table 4 presents the descriptive statistics for the Importance scale and its component items, and the p-values pertinent to the test of hypothesis two and to the divergence of each item mean from the mean of the other Importance items.

Table (4): Descriptive Statistics for the Importance Scale and Its Component Items, and p-Values of Differences of Item Means from the Means of Their 20-Item Complements

Effect of CALL	N	Minimum	Maximum	Mean	SD	p-value
Importance (full scale)	70	2.35	5	4.06	0.519	<.001[a]
1. Better graphics, images, and colors hold learners' attention better	70	1	5	4.29	0.819	0.044[b]
2. Fosters a nonlinear and flexible pattern of exploration and discovery	70	1	5	3.83	0.884	0.008[c]
3. Promotes the cognitive flexibility that is necessary for the integration of knowledge	70	1	5	3.73	0.883	<0.001[b]
4. Motivational effect on English learners	70	1	5	3.47	1.139	<0.001[b]

Table 4, Cont.

Effect of CALL	N	Minimum	Maximum	Mean	SD	*p*-value
5. The multimodality associated with electronic text	70	1	5	4.03	0.780	0.548[c]
6. Multimedia facilitation of comprehension	70	2	5	4.36	0.615	0.003[b]
7. The high level of interactivity of electronic reading	70	1	5	4.10	0.903	0.901[c]
8. Promotes critical reading skills	70	1	5	3.79	0.899	0.010[c]
9. Increases effectiveness of reading practice	70	2	5	3.91	0.812	0.081[b]
10. Promotes an advanced interactive model of reading	69	1	5	3.97	0.822	0.258[b]
11. Provides a rich reading environment	70	2	5	4.06	0.720	0.774[b]
12. Makes online resources available to help language learners improve their cognitive and metacognitive reading skills	70	3	5	4.33	0.653	0.004[b]
13. Offers virtually unlimited opportunities to practice reading	70	1	5	4.34	0.778	0.012[b]
14. Raises motivation by fostering a sense of independence	70	2	5	4.17	0.816	0.365[b]
15. Plays an important role in 2L reading.	70	2	5	4.23	0.745	0.081[b]
16. Encourages students to use the text interactively	70	2	5	4.14	0.666	0.446[b]
17. Allows flexibility in accessing or studying the available textual information.	70	2	5	4.17	0.742	0.393[b]
18. Makes the texts more accessible to EFL/ESL readers.	70	2	5	4.11	0.843	0.818[b]
19. Allows learners to be more active in the process of reading	70	2	5	4.01	0.893	0.552[b]
20. Allows readers to explore their interests through links that lead to additional information	69	2	5	4.10	0.622	0.709[b]

(a) *p*-value for comparison of Importance scale mean to neutral scale vale (3.0)

(b) normality assumption satisfied; *p*-value of paired *t*-test difference between item's mean and the mean of the other 19 items.

(c) normality assumption violated; *p*-value of difference between item's mean and the mean of the other 19 items estimated via a 5000-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 of the response scale (i.e., 3.0). The *p*-value for the D'Agostino-Pearson test of the normality of the distribution of Importance scores was .107, indicating that the data satisfied the normality assumption of the one sample *t*-test. As reported in Table 3, the result of the *t*-test was: $t = 17.05$, for which $p < .001$ (1-tailed) with 69 degrees of freedom. The null hypothesis is consequently rejected. The mean Importance score was significantly higher (i.e., more favorable) than the neutral point of the response scale.

The differences between the means of the individual items composing the scale and the mean of the other 19 items (excluding the item being compared) were tested using either the paired t-test or, where the normality assumption was not satisfied, a 5000-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 differences between the same set of variables, it is necessary to adjust the alpha level of the individual comparisons to achieve a familywise Type I error level of 0.05. This was accomplished by applying the Bonferroni correction, which resulted in a requisite p-value of 0.003 in order to attribute statistical significance to any of these comparisons. These tests found that the mean importance rating of each of the following two items was significantly *higher* than the mean importance rating of the other 19 items:

1. Better graphics, images, and colors hold learners' attention better.
6. Multimedia facilitation of comprehension.
      The mean importance rating of each of the following two items was found to be significantly *lower* than the mean importance rating of the other 19 items:
3. Promotes the cognitive flexibility that is necessary for the integration of Knowledge.

4. Motivational effect on English learners.
      There was a range of 0.97 of a scale interval between the lowest and highest means among the 20 items. Only one of the items (4. Motivational effect on English learners) had a mean which 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.

Hypothesis Three predicts that ESL/EFL instructors will ascribe a positive degree of effectiveness to the electronic text features for L2 reading. The measure of "effectiveness" was the score on the Effectiveness scale, which consisted of the respondents' mean scores on the 15 items in Section Three of the questionnaire. Table 5 presents the descriptive statistics for the Effectiveness scale and its component items, and the p-values pertinent to the test of Hypothesis two and to the divergence of each item mean from the mean of the other Effectiveness items.

Table (5): Descriptive Statistics for the Effectiveness Scale and Its Component Items, and p-Values of Differences of Item Means from the Means of Their 15-Item Complements

Effectiveness of CALL	N	Minimum	Maximum	Mean	SD	*p*-value
Effectiveness (full scale)	70	2.73	4.93	4.299	0.434	<0.001[a]
1. Improving the reader's vocabulary	70	2	5	4.16	0.773	0.064[b]
2. Tracking progress in learning English	70	2	5	4.16	0.845	0.175[b]
3. Locating and accessing authentic reading materials	70	3	5	4.63	0.569	<0.001[b]
4. Engaging learners in interactive reading activities	70	3	5	4.57	0.604	<0.001[b]
5. Providing access to new tools for learning English	70	3	5	4.23	0.685	0.324[b]
6. Engaging interest through the use of multiple modalities (text, video, pictures, sound, animations, etc.)	70	2	5	4.64	0.638	<0.001[b]
7. Immediate corrective feedback	70	2	5	4.34	0.700	0.547[b]
8. Hyperlinks to gain access to multiple cross-references on related topics	70	1	5	4.33	0.847	0.638[b]
9. Reader control over paths followed in completing assignments	70	2	5	4.01	0.876	0.003[b]

Table 4, Cont.

Table 5, Cont.

Effectiveness of CALL	N	Minimum	Maximum	Mean	SD	*p*-value
10. Immediate access to vast amounts of information.	70	1	5	4.34	0.883	0.886[a]
11. Multi-linearity texts and an open-ended reading environment	70	2	5	4.24	0.788	0.526[b]
12. Ease of access to various modalities	70	1	5	4.06	0.961	0.007[c]
13. Accessing extra information without losing track of ones' place in a lesson	70	1	5	4.14	0.937	0.084[c]
14. Different levels of support and comprehension assistance	69	1	5	4.36	0.766	0.417[c]
15. Developing high-order reading cognitive skills	69	2	5	4.26	0.779	0.582[b]

Hypothesis Three was tested by computing the *p*-value of the difference between the mean of the scores on the Effectiveness scale and the value of the neutral point of the response scale (i.e., 3.0). The *p*-value for the D'Agostino-Pearson test of the normality of the distribution of Importance scores was 0.002, indicating that the data failed to satisfy the normality assumption of the one sample *t*-test. Consequently, the p-value for the difference between the observed mean than the neutral point was estimated on the basis of a bootstrapping process employing 5000 bootstrapping samples. The resulting *p*-value was < 0.001(1-tailed). The null hypothesis is consequently rejected.

The differences between the means of the individual items composing the scale and the mean of the other 14 items (excluding the item being compared) were tested using either the paired t-test or, where the normality assumption was not satisfied, a 5000-sample bootstrap estimate of the *p*-value of the difference. Given the multiple testing of differences between the same set of variables, it is necessary to adjust the alpha level of the individual comparisons to achieve a familywise Type I error level of 0.05. This was accomplished by applying the Bonferroni correction, which resulted in a requisite *p*-value of 0.003 in order to attribute statistical significance to any of these comparisons. The resulting *p*-values are listed in the last column of Table 4. These tests found that the mean Effectiveness rating of each of the following three items was significantly *higher* than the mean effectiveness rating of the other 14 items:
3. Locating and accessing authentic reading materials.
4. Engaging learners in interactive reading activities.
6. Engaging interest through the use of multiple modalities (text, video, pictures, sound, animations, etc.).

The mean effectiveness rating of only the following one item was found to be significantly *lower* than the mean effectiveness rating of the other 14 items:
9. Reader control over paths followed in completing assignments.

There was a range of 0.63 of a scale interval between the lowest and highest means among the 15 items. None of the items had a mean, which fell below the fourth response scale interval ("somewhat effective"). The means of the three items listed above which were significantly higher than the means of their respective14-item complements fell into the highest scale interval ("very effective"). The means of the other 12 items fell within the fourth ("somewhat effective") interval of the response scale.

Hypothesis four predicted that the mean of one or more of the 28 items describing influences on the decision to use CALL technology in Section 4 of the questionnaire would differ from the mean of the other 27 Influence items. This hypothesis was tested

using the paired t-test of the difference between each item's mean and the mean of the complementary average of the other 27 items for all cases where the normality assumption was satisfied. In cases where the distribution of differences departed significantly from normality, a 5000 sample bootstrapping process was used to estimate the p-values. Table 6 presents the descriptive statistics for the Influence items, and the p-values pertinent to the test of the divergence of each item mean from the mean of the other 27 Influence items.

Table (6): Descriptive Statistics and Results of Tests of Differences Between Section 4 Items and Their Complementary 28-Item Averages

Influence on CALL use decision	N	Minimum	Maximum	Mean	SD	p-value of difference
1. Time necessary to plan computerized-based reading activities	70	1	5	3.69	1.222	0.002[b]
2. Time required to locate appropriate CALL reading materials	70	1	5	3.77	1.253	0.014[a]
3. Time and effort needed to learn how to integrate technology into L2 reading instruction	70	1	5	3.73	1.179	0.001[b]
4. Amount of effort required to load the syllabi into the program and the amount of time available to figure out how to integrate computer-based reading activities into an L2 reading class	70	1	5	3.56	1.187	<0.001[a]
5. Ease of access to computers	70	1	5	4.13	1.048	0.797[b]
6. Availability of high-quality L2 reading software and technology-enhanced resources	70	1	5	4.01	1.161	0.404[b]
7. Availability of sufficient facilities	70	1	5	4.07	1.121	0.649[b]
8. Your perception of the degree of technical and administrative support that would be available	70	1	5	4.01	1.110	0.489[a]
9. Your perception of the degree of support that would be offered by staff	70	1	5	3.84	1.163	0.022[a]
10. Your perception of the degree of support by the department for integrating CALL reading materials and resources into L2 reading classes	70	1	5	4.06	1.128	0.759[b]
11. Availability of in-service and workshop training on how to integrate CALL into an L2 reading class	70	1	5	4.10	1.105	0.773[b]
12. Availability of training in the use of technology in the classroom	70	1	5	4.29	0.950	0.04[b]
13. Technological training received on how to guide students in use of computer - assisted reading language learning programs	70	2	5	4.19	0.952	0.178[a]
14. Your relevant technical skills at utilizing the computer as an instructional L2 reading tool	70	2	5	4.36	0.682	<0.001[a]
15. Your knowledge of how to take advantage of what technology can offer L2 reading instruction	70	1	5	4.31	0.826	0.008[b]
16. Your knowledge of the features of CALL that enhance the L2 teaching and learning processes	70	1	5	4.24	0.859	0.115[b]
17. Your knowledge of theories and research on the impact of integrating CALL materials into L2 reading class	70	1	5	4.06	1.048	0.565[b]
18. Your knowledge of the theoretical basis for CALL	70	1	5	4.00	0.868	0.137[b]

Table 6, Cont.

Influence on CALL use decision	N	Minimum	Maximum	Mean	SD	p-value of difference
19. Your knowledge of the advantages that computers can bring to L2 reading instruction	70	1	5	4.31	0.860	0.014[b]
20. Your opinion regarding the expected benefits that technology brings to teaching and learning L2 reading	70	2	5	4.23	0.820	0.118[a]
21. Your expectations for the outcome that can make for L2 reading.	70	2	5	4.23	0.685	0.075[a]
22. Your opinion regarding the usefulness of computers in teaching and learning L2 reading.	70	2	5	4.39	0.728	<0.001[a]
23. Your willingness to make a time commitment and to take personal risk to meaningfully integrate computer into L2 reading classroom	69	1	5	4.33	0.780	0.003[a]
24. Your openness to change	70	2	5	4.43	0.734	<0.001[b]
25. Your knowledge of how computers can enhance your success at teaching English	69	2	5	4.29	0.730	0.008[b]
26. Your belief in your own ability to effectively utilize a computer to teach L2 reading	69	1	5	4.38	0.709	<0.001[a]
27. Your sense of self-efficacy in using a computer to teach L2 reading	69	1	5	4.25	0.847	0.012[b]
28. Your feeling of not being in complete control when you use a computer	66	1	5	3.58	1.371	0.004[b]

Given the multiple testing of differences between the same set of variables, it is necessary to adjust the alpha level of the individual comparisons to achieve a familywise Type I error level of 0.05. This was accomplished by applying the Bonferroni correction, which resulted in a requisite p-value of 0.002 in order to attribute statistical significance to any of these comparisons. The resulting p-values are listed in the last column of Table 5 and reveal that 7 of the 28 Influence items differed significantly from the averages of the other 27 items. The null hypothesis is consequently rejected. Some items were rated as having exerted significantly more influence than the others, and other items were rated as having exerted significantly less influence. Four of items were rated as having exerted significantly *more* influence than average, as follows:

14. Your relevant technical skills at utilizing the computer as an instructionalL2 reading tool.

22. Your opinion regarding the usefulness of computers in teaching and learning L2 reading.

24. Your openness to change.

26. Your belief in your own ability to effectively utilize a computer to teachL2 reading.

Three of the items were rated as having exerted significantly *less* influence than average, as follows:

1. Time necessary to plan computerized-based reading activities

3. Time and effort needed to learn how to integrate technology into L2 reading instruction.

4. Amount of effort required to load the syllabi into the program and the amount of time available to figure out how to integrate computer-based reading activities into an L2 reading class

The mean ratings of all 28 items fell within the interval labeled "positive influence".

Open-Ended Questions

In addition to the survey, which is the

primary research instrument and is the major source of data for this study, open-ended questions served to supplement and enrich the quantitative results. Each one of the four 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?

3. Would you comment on the effectiveness of computer-assisted reading for L2 reading and teaching?

4. In your view, what factors facilitate or hinder the integration of computer-assisted reading resources into L2 reading?

Participants made a total of 240 remarks in answer to the questions, in which they shared their general perceptions toward utilizing computers for teaching ESL/EFL, their perceptions of the importance and effectiveness of electronic text for L2 reading instruction and learning, and the factors that facilitate or impede instructors in integrating computers in the English reading classroom. The question about general perceptions generated 78 remarks (33%), and there were 65 remarks (27%) for preconceptions of importance. Participants also made 44 (18%) comments concerning their perceptions of the instructional reading effectiveness of electronic or computerized texts; the rest (190 = 79.5%) generated comments that pertained specifically to the factors that influence instructors in their decision of whether or not to incorporate computer use in the English reading classroom. A major portion of these insights were positive (223 = 92.0%); a few were negative (19 = 8.0%). Therefore, the generated ideas fell into two major domains: general or overall perceptions and specifically defined perceptions. The obtained remarks associated with each sphere will be considered in correspondence with the question at the end of each section.

General Perceptions of CALL

The general domain ideas created by the participants centered on the options and advantages that computers offer to learners of English, English teachers, English instruction, and the overall process of learning English. They also made some general statements and offered practical suggestions. Participants indicated that computers help learners of English become self-dependent, autonomous learners. They also transform ESL/EFL classes from being teacher-centered to being learner-centered classes, and they give students ample opportunities to learn English. Furthermore, computers provide learners with interesting and helpful activities and enable them to find different sources and additional information about different subjects. Learners who use computers are also more motivated to learn English, and they become more exposed to authentic materials.

Regarding English teachers, computers help with various issues. They make teachers more confident by giving them access to a wealth of information and resources, thereby helping them to achieve their teaching objectives more efficiently and effectively. They also enable teachers to apply teaching methods that encourage the involvement of students in the learning process. Free learning and teaching processes form the conventional methods that make students depend entirely on their instructors to spoon-feed them, so to speak. Participants also pointed out 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. The shared general perception of computer use was that it positively affects the process of learning English because it forces learners to use the target language outside the classroom, makes the learning process more successful, and is a useful source for language learning.

Furthermore, participants offered several comments reflecting their general attitude toward CALL, the first being that CALL

represents a breakthrough in language learning and creates more possibilities than there have been in the past. Other related notes indicate that using computers in language learning brings revolutionary trends. They have become a necessity more than an option, play a major role in language learning, and have limitless potential in language learning. Moreover, computers make English learners more creative and help them to develop new ideas.

Along with these general remarks, participants also proposed a number of practical suggestions; for example, training teachers is necessary for optimal use. A lack of training leaves teachers ill-prepared to recognize the computer's potential. In addition, using computers for language learning requires the orchestration of various skills, without which they tend to be used less effectively.

More Defined Perceptions of Computer-Assisted Reading

The Importance of Electronic Text for L2 Reading Instruction and Learning

When answering the open-ended question, "Where do you see the importance of computer-assisted reading?" participants spelled out their perceptions concerning the importance of electronic text for L2 reading instruction and learning. The remarks for this specific domain produced insights that constitute various aspects of the importance of computer-assisted learning to L2 reading. A number of participants indicated that the importance of computers is that they create a motivational reading atmosphere, enhance cognitive and metacognitive skills, and improve reading comprehension through multimedia presentations and by making related textual information immediately available. 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 make learners more ready to read on their own and more enthusiastic about reading English texts.

Additionally, CAR allows learners to be engaged and independent, provides unlimited resources for students to choose what interests them most, and allows more flexibility in accessing or studying the available textual information. Its importance also lies in making access to reading materials faster and easier. In addition, the visual presentations help learners better understand the text they are studying and stimulate their thinking. Along these lines, a participant made the following comments: "Computer-assisted reading offers unlimited resources from which the reader can choose. The reader is no longer confined to just one or two pages without any possibility to go beyond those." Another participant made a similar statement: "The importance of CAR is seen in allowing more flexibility in accessing or studying the available textual information."

The Instructional Reading Effectiveness of Electronic Text Features for L2 Teaching and Learning Reading

Participants also discussed the effectiveness of electronic texts for L2 teaching and learning reading in their insightful replies to the question that asks them to comment on the effectiveness of CAR for L2 reading and teaching. The remarks made by participants in this respect fall into two major categories: general and more defined. According to participants, the effectiveness of electronic texts is generally to make reading English texts easier, provide access to a vast amount of authentic information, accelerate the reading process, and not disrupt the flow of reading. More specifically, their effectiveness can be seen in a number of implications, such as promoting high-order thinking, expanding vocabulary, improving visual memory, tapping multiple levels of intelligence, and allowing learners to use the provided learning supports effortlessly. The following are examples of the participants' comments depicting their

perceptions regarding the effectiveness of CAR.

One participant commented, "The effectiveness of CAR lies in prompting high-order reading skills." Another asserted, "It is a very effective tool because it makes the process of learning to read in L2 and teaching L2 reading easier and increases the effectiveness of instruction." In a similar statement, another participant mentioned that "the advantages of CAR can be seen in providing visual aids and instant access to many resources related to the assigned reading materials." Yet another participant stated, "Students can benefit from CAR through expanding their vocabulary knowledge." One participant summed up his position by saying: "Integrating technology in teaching L2 is undoubtedly of a high effectiveness as it, with its built-in capabilities, improves greatly visual memory."

Factors Facilitating or Limiting the Use of Computers in L2 Reading Class

The participants were also asked the following open-ended question: In your view, what factors facilitate or hinder the integration of CAR resources into L2 reading? In the 64 comments they made, participants identified various factors that hinder the incorporation of computers intoL2 reading classrooms. The 64 remarks touched on the following:

1. Insufficient time to locate and prepare related digital reading materials, as well as the fact that using computers in reading class causes potential interruption to teaching and learning time and individualized lessons, monitoring use, and providing assistance; all of these add burdens to the teacher's time (10 remarks).
2. The unavailability of the necessary facilities, including access to the Internet, newer technology, and computer labs, and a shortage of computers and CAR resources (15 remarks).
3. Personal stance toward incorporating computers into L2 reading classrooms, such as: not demonstrating serious attempts or willingness to use them in actual teaching practice, not having a positive attitude toward their use, not knowing how to use them effectively, not having a personal belief in the effectiveness of using computers in teaching L2 reading, not having enough experience and technical knowledge, a lack of sufficient knowledge of recent theories and pedagogical philosophies that articulate how to effectively integrate computers in L2 reading classrooms, and the factors that facilitate the integration of CAR resources into L2 reading classrooms (21 remarks).
4. A lack of administrative support due to not providing adequate CALL training opportunities, a lack of encouragement and recognizing efforts, and the unavailability of proper equipment (seven remarks).
5. Lack of continuous technical assistance (seven remarks).
6. Learner attitude is also a contextual factor that negatively affects the incorporation of computers into the L2 reading classroom. This can be traced back to the fact that learners are often not informed about how to take advantage of computers' capabilities in order to improve their reading skills. In addition, they are not skillful enough to use the technology effectively and they are not willing to use and fully accept it as a valuable learning tool (4 remarks).

DISCUSSION

The results obtained are discussed in light of the four research questions that guided this study. In reviewing them, an attempt has been made to discuss the findings in detail, determine whether they concur with those of previous studies, and suggest theoretical explanations or justifications for the findings.

The results presented above in reference to the general attitude toward using computers in teaching English as a second/foreign language, which was measured in terms of importance, effectiveness, and the role of computers in teaching English, revealed that,

participants showed a favorable attitude that highly values the use of computers in teaching English, as shown by the mean scores of each of the five statements containing the general attitude scale. The overall positive attitude toward computer use may be attributed to the numerous advantages that computers offer for language teaching and learning, including making language lessons more interesting, easier, and more enjoyable; providing better motivation for learners; making teaching practices more student-centered than teacher-centered; and engaging ESL/EFL learners in instructional activities. All these features enhance both the teaching and the process of learning English. The results coincide with those of previous studies, particularly that of Ramanair and Sagat (2007), who showed that 80% of participants in their study had a positive attitude toward integrating computers into ESL/EFL classrooms.

Survey item analysis, along with the close analysis of the open-ended questions, showed that ESL/EFL instructors strongly believed in the importance of using computer technology in L2 reading classrooms. The mean scores of the 20 items included in the *Importance Subscale* indicate that participants place a high value on integrating computers in L2 reading classrooms. The mean score was for the subscale (*M*=4.0.6). The favorable impressions may have arisen from a variety of factors, most notably, the nature or characteristics of the electronic text. Features such as flexibility, multimedia components, arousing students' reading interest and motivation levels, making the text more accessible, interacting with the text, a rich reading environment, an interactive model of reading, creating independent readers, and facilitating reading comprehension, all leave great impact on the process of learning and teaching L2 reading.

The effectiveness of the electronic text features for L2 reading is evident in these findings, confirming the perceived value of the instructional reading effectiveness of electronic texts for teaching and learning L2 reading. The mean scores (*M*= 4.299) of the 15

items included in the Effectiveness Subscale suggest that participants were more positive about the effectiveness of various features of electronic text for L2 reading. The results obtained with reference to such effectiveness align with the previously cited theoretical speculations postulated by a number of researchers, notably, those proposed by Singhal (2006), and Ward and Mulholland (2006). They indicated that the effects of computers for L2 reading were seen in the acceleration of the development of reading skills as L2 readers receive individualized instruction, immediate feedback, and opportunities to pace their reading, as well as engaging L2 readers with visuals and sounds.

The data also suggest that a number of factors impede the incorporation of computers into L2 reading classrooms. The most important of these factors is a higher degree of openness to change, as one of the personal characteristics of English teachers, whichstands as the first factor negatively affecting ESL/EFL instructors' use of computers in L2 reading classes. The results are in line with the results of other research on the various contributing factors hindering ESL/EFL instructors in using computers in L2 reading classroom practices, such as the work of Shine and Son (2007) and Park and Son (2009).

IMPLICATIONS

Several pedagogical, technological, and policy implications can be drawn for second-language reading instruction to ensure the successful integration of computers into English reading classrooms and to avoid misemploying computer-assisted English reading instruction so that its maximum benefits for the process of learning and teaching L2 reading skills are assured.

PEDAGOGICAL IMPLICATIONS

To ensure that computers are used in the most valuable pedagogical manner, English teachers need to acquire a technology-supported pedagogy knowledge and skills base. Doing so will enable them to draw

upon technological knowledge and skills when planning to incorporate computers into L2 reading classroom instruction and will assist them in efficiently and effectively implementing computer-based learning into their classroom practices. Teachers should be aware that there are different types of CALL reading programs, some of which focus on specific reading skills, while others focus on a wide range of reading strategies and skills. Other pedagogical issues that L2 reading instructors who intend to incorporate computers into their instruction need to consider are, the reading ability of English learners, the text type, the learners' degree of control of the content of the electronic text under study, the issues involved attending to and processing various modes of information associated with electronic texts, and ways to optimize reading performance when text is displayed electronically. Additionally, ESL/EFL instructors need to be aware of technology-related classroom management skills so that they are able to organize the L2 reading class effectively. In doing so, English learners will have equal opportunities to use computers and engage in the assigned reading tasks and activities, as well as being provided with proper help when they run into problems operating computers.

Technological and Policy Implications

The current study suggests a number of technological implications. Second-language reading instructors are clearly in need of in-service professional development training opportunities with unique characteristics in terms of nature and length, along with the provision of state-of-the-art infrastructure and cutting-edge facilities. General, technical, and specialized training should be offered to L2 reading instructors who may profit from specialized training that is designed to teach them the theories and research of L2 reading so that they can make informed decisions about the integration of computers in their classrooms. Additionally, they need to be aware of the relevant necessary technological skills and how reading tasks and activities

can be designed to make computer-based instructions and resources more appealing and accessible to L2 learners.

English instructors may also benefit from general technological training opportunities in different formats, so as to gain hands-on experience in incorporating CAR instruction into their plans and in the delivery of L2 reading instruction based on sound pedagogy and practical skills. Specifically, through such training, they can be shown: (a) how to use available technological reading resources effectively; (b) how to create or select computer reading-based activities; (c) how to develop CAR lessons; and (d) how to integrate technological reading resources into the L2 reading classroom. The ultimate aim of engaging English reading instructors in the form of training opportunities is to increase their interest and willingness to employ computer-based reading resources into the actual reality of practice. Furthermore, being provided with professional training opportunities will increase their awareness of the computer's pedagogical values for L2 reading instruction and learning.

On the other hand, further technological implications that emerge from the results of the current study appear to be necessary in order to provide English reading instructors with modern, advanced, and functional computer facilities that are assisted by appropriate sustained technical support, as well as reliable high-speed broadband Internet connections, administrative support at different levels, including departmental, college, and university. Of equal importance is providing English reading instructors with useful reading software programs, websites, and useful related technology-enhanced reading materials and resources. Another vital aspect to be considered is that institutions need to work with the involved instructors in order to develop a CAR integration plan with specific articulated goals and guidelines.

All in all, with adequate training, administrative and monetary support, as well as technical assistance, the utilization

of computer-assisted instruction can make L2 reading instruction more effective, more efficient, more likely to assist in developing the reading skills of learners of English as a foreign, or second language, facilitate change in the perceptions, and attitudes of instructors concerning the integration of computers into L2 reading classrooms.

LIMITATIONS OF THE STUDY

The implications and interpretations of the findings of this study have several limitations. First, since the data was collected using a uni-dimensional, Likert scale-based, cross-sectional questionnaire, and open-ended questions, it was possible to accurately capture the attitudes of participants as they were elicited by other methods of inquiry. A combination of both qualitative and quantitative methods may lead to the extraction of data in a more in-depth manner by drawing on all possibilities, shedding additional light on the issues involved, and providing plausible explanations of the data. Second, the investigated variables were self-determined based on consulting relevant literature; as a result, other variables were excluded that might have yielded a much better understanding of English instructors' attitudes about integrating computers in the L2 reading classroom. Third, the data was collected at a specific point in time rather than at more periodic and frequent intervals, which would have made the stability of the participants' attitudes less likely to be firmly established beyond the time of conducting the study. Finally, the size of the sample in this study is relatively small, thus limiting the extent to which the findings of this study may be generalized.

DIRECTIONS FOR FUTURE RESEARCH

This study provides a glimpse of selected variables that examine ESL/EFL instructors' perceptions of the importance and usefulness of electronic text for L2 reading and the factors that influence their decision of whether or not to incorporate it into their L2 reading classrooms. The results yielded suggest that additional directions merit further consideration in future research. Among the areas that should be explored in future studies are changes in teachers' attitudes about computer use over time (via a longitudinal study). Additionally, a ripe area of research is determining the impact of integrating CAR instruction in the development of the reading ability and skills of English learners. Similarly, further experiments could explore the relationship between teachers' attitudes and factors related to their personal characteristics or demographic variables, such as gender, age, computer experience, techno-anxiety, and other similar variables. Further research of the subject area pertaining to the examination of other internal and external factors that influence English instructors' inclinations toward integrating computers into L2 reading classrooms may be quite enlightening. Another possibility would be to examine whether perceptions are the best predictors of ESL/EFL instructors' use of computers in L2 reading classrooms. It is hoped that the current study will stimulate additional research in these domains and encourage additional studies to be conducted in order to explore ESL/EFL instructors' roles in integrating computers in L2 reading.

CLOSING REMARKS

This study reported on English reading instructors' perceptions of the importance and effectiveness of computers for English reading instruction and identified key factors that motivated instructors to integrate computers into their classrooms, as well as which factors were barriers toward such efforts. The results suggest that participants recognize the importance of and strongly believe in the usefulness of CAR in enhancing the quality of L2 reading instruction, prompting and advancing learners' learning process, and developing the reading skills of learners. However, they mainly stress its usefulness in terms of engaging English learners in a meaningful and authentic

computerized reading environment that is of no less importance than proving the breadth of resources and reading materials.

The results also revealed impedimentary factors, including both context-related factors and instructor-related factors that encompass the issues of a lack of equipment and resources, time constraints, and inadequate technical and administrative support. Other reported obstacles that dissuaded instructors of English reading courses from the successful integration of computers into their teaching practices in reading classrooms were a lack of, or inadequate, training; their attitudes toward using computers in L2 classrooms; and the extent of the instructor's knowledge of technology and skill at effectively integrating computers into reading classrooms. Conversely, factors that facilitated teachers' recognition of the usefulness of CAR included perceived support by the instructor's department, which often encourages the integration of CALL reading materials and resources in L2 reading classes, and technological training on how to guide students in computer use and its assisted reading language learning programs.

The findings of this study should serve as a starting point for future exploration of the perceptions of ESL/EFL instructors concerning integrating computers into the L2 reading classroom and the factors influencing their adoption. It is also hoped that the outcomes of this study may be of use in shaping the computer integration practices in L2 reading classrooms. Detecting the varying deterrents of various resources to the successful integration of computer technology into L2 reading classrooms avoids ramifications on the utilization of the new tools. It is also equally crucial that ESL/EFL instructors have the skills, knowledge, and attitudes necessary to infuse the school's computer technology into L2 reading classrooms and to exploit available reading resources and learning opportunities in order to continue offering computer technology.

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رأي معلمي اللغة الإنجليزية تجاه استخدام الحاسب الآلي في تدريس مهارة القراءة والمعوقات التي تحول دون ذلك

خالد محمد الصغيّر

قسم اللغة الإنجليزية وآدابها، كلية اللغات والترجمة، جامعة الإمام محمد بن سعود الإسلامية
الرياض، المملكة العربية السعودية

الملخص

يتوقف نجاح استخدام الحاسب الآلي في فصول تعليم اللغة الإنجليزية في المقام الأول على معلميها؛ بوصفهم المُوظِّفين الحقيقيين للتقنية الحديثة وأدواتها خلال عملية تعليمهم للغة الإنجليزية. وتهدف الدراسة الحالية إلى استطلاع آراء معلمي اللغة الإنجليزية حيال (أهمية وفائدة) توظيف إمكانات البيئة الإلكترونية في تدريس مهارة القراءة، وفي الوقت نفسه تلمس العوامل التي تساعد أو تحد من إقدامهم على استخدام التقنية الحديثة في تدريس مهارة القراءة باللغة الإنجليزية. ولتحقيق ذلك تم استفتاء ٧٠ معلمًا للغة الإنجليزية من الذين يقومون على تدريسها كلغة ثانية في عدد من الجامعات؛ وذلك بطلب الإجابة عن استبانة احتوت على ٨٣ عبارة استطلعت آراءهم حول أهمية استخدام الحاسب الآلي في تعليم اللغة الإنجليزية، وأهمية استخدامه في تدريس مهارة القراءة، وفاعلية استخدامه في تدريسها، وكذلك العوامل التي تؤثر في استخدامه من عدمه عند تدريسها. كما تم استطلاع آرائهم حيال تلك القضايا عبر أسئلة أتاحت لهم الفرصة للتعبير عما يرونه حيال ذلك كله. وتم استخدام عدد من الأساليب الإحصائية من أهمها: المتوسطات الحسابية، والانحرافات المعيارية، واختبار (T) للعينتين الثنائيتين، وإجراء (bootstrap) الإحصائي.

أسفرت نتائج الدراسة عن تأكيد المشاركين أهمية استخدام الحاسب الآلي في تعليم اللغة الإنجليزية، و(أهمية وفائدة) توظيفه في تدريس مهارة القراءة، بالإضافة إلى الإبانة عن العديد من العوامل التي تسهم أو تحد من توظيفه في تعليم القراءة، وقد تمت مناقشة هذه النتائج وتفسيرها في ضوء بعض العوامل ذات العلاقة. كما قدم البحث مجموعة من التوصيات والاقتراحات الهادفة لاستثمار الإمكانات المتاحة من خلال الحاسب الآلي في تدريس مهارة القراءة باللغة الإنجليزية.

الكلمات المفتاحية: تدريس القراءة باستخدام الحاسب، القراءة باللغة الأجنبية.