A computer-based model to improve the performance of struggling EFL readers in lifelong and continuous learning programs in Saudi universities

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Abstract

Although there is a wealth of literature on improving the reading skills of EFL learners at Saudi universities, very little work has been done on struggling readers in lifelong and continuous learning programs. To address the issue, this study seeks to explore the needs of struggling learners in reading comprehension classes. Interviews were conducted with selected instructors from three Saudi universities to reflect on the challenges and problems faced by struggling readers, as well as their language needs. The instructors reported that the majority of EFL learners in lifelong and continuous learning programs have difficulty decoding monosyllabic and polysyllabic words. They also reported that around 15–20% of learners have difficulties identifying the English alphabet. They attributed the main challenges to poor linguistic knowledge, lack of self-esteem, and lack of motivation. In light of these results, the study proposed a computer-based model implemented through in-sessional support courses to help struggling readers with their reading courses and improve their reading performance. The proposed model addresses the linguistic needs of struggling readers and enhances their motivation and positive attitudes toward L2 learning. In-sessional support courses for struggling readers are supposed to have the potential to improve their vocabulary decoding and retention skills, as well as to enhance their working memory. The use of computers can promote the effectiveness of exploiting reading material in terms of pronunciation, vocabulary, use of words in different contexts, and comprehension. The findings of the study emphasize the significance of incorporating technology in EFL reading instruction.

Keywords: EFL learners; computer-based model; computer-based instruction; Saudi Universities; in-sessional support courses; struggling readers

1. Introduction

In the Saudi educational system, English is now a compulsory course in all university programs. It is even the medium of instruction in many programs, including business, medicine, pharmacy, nursing, and informatics. Although there used to be some resistance to English language instruction in Saudi schools, especially in the last quarter of the 20th century, the increasing use of English globally and the

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need for graduates who can use English appropriately in Saudi society are now putting pressure on Saudi educationalists to improve English language instruction in Saudi schools (Hamdan, 2015; Keezhatta & Omar, 2019). As a result, numerous studies have been undertaken in recent years to provide insights into how to improve teaching and learning practices, as well as how to enhance English as a foreign language (EFL) students' language skills in general and reading in particular (Al-Nafisah & Al-Shorman, 2011; Al Nooh, 2013; Alqahtani, 2016; Moskovsky & Picard, 2019). In spite of there being an extensive body of literature addressing the challenges EFL learners face in the second language (L2) reading in Saudi universities, the issue of struggling readers in lifelong and continuous learning programs has not been given due attention. The entry requirements for these programs and the characteristics of the students enrolled are normally different from those in standard programs. This means that the issue of struggling readers has to be addressed differently.

It has been observed that in different lifelong and continuous learning programs in Saudi universities, the majority of students tend to experience a range of problems with EFL reading. It is also clear that the number of struggling students is relatively high. These issues undoubtedly have serious consequences for students' success and retention rates. This study seeks to investigate the reasons for the poor performance of EFL learners in reading courses with the aim of proposing a model aimed at improving the performance of struggling readers in lifelong and continuous learning programs in Saudi universities. It focuses on responding to the following research questions. First, what are the main challenges and problems faced by struggling EFL readers in lifelong and continuous learning programs in Saudi universities? Second, what are the language needs of these EFL learners? Is it possible to suggest a model that addresses the needs of these struggling readers and that could improve their reading performance?

To answer these questions, a case study was designed. Interviews were first conducted with selected instructors in these programs in three Saudi universities to focus on root cause issues and identify the reasons for the high numbers of struggling readers in such programs. Finally, a computer-based model was proposed to address the needs of the struggling readers and improve their reading performance. The hypothesis was that computer-aided language learning (CALL) tools could effectively be used to address the different needs of EFL learners.

The rest of the article is organized as follows. Section 2 surveys the literature on EFL reading in Saudi Arabia and the use of CALL systems. Section 3 describes the methods and procedures of the study. Section 4 details the analysis and discusses the findings. Section 5 concludes.

2. Literature review

Recent years have witnessed an increasing focus on EFL teaching and learning in Saudi universities (Alhaisoni, 2012; Alrabai, 2016; Barnawi & Alhawsawi, 2016; Qadeer, 2019). This can be attributed to several factors, including the increasing number of colleges and universities in Saudi Arabia, and the emergence of many MA and Ph.D. programs in Applied Linguistics, through which many researchers have come to address the challenges of EFL teaching and learning in Saudi universities (Alqurashi, 2018; Alrabai, 2019; Moskovsky & Picard, 2019; Shah, Hussain, & Nasseef, 2013). Many of these studies have been focused on EFL reading, addressing the difficulties confronting EFL learners in reading comprehension and ways of improving their reading performance, in particular considering the unique nature of EFL teaching and learning in Saudi Arabia. A point of interest arising in the literature is the broad agreement that CALL systems can be useful in improving the reading skills of EFL learners in Saudi universities (Alharbi, 2018; Alshenqeeti & Alrahaili, 2020; Gutiérrez-Colón, Frumuselu, & Curell, 2020; Khan, Ibrahim, Kassim, & Khan, 2019; Khojah & Thomas, 2021).

Khojah and Thomas (2021) have noted that over the last decade there has been increasing interest in the use of technology-mediated task-based language teaching (TBLT) in the Middle East. The underlying principle is that this kind of teaching presents learners with the opportunity to use the target language and solve a problem such as they would find in the real world. According to Bensalem (2020), the integration of CALL in EFL reading instruction can have positive implications in terms of enhancing and improving the reading skills of learners. Bensalem (2020) adds that incorporating CALL systems and materials in the classroom can help EFL learners interact with queries in a more entertaining and effective way. Unlike teacher-based methods, CALL systems provide good opportunities for EFL learners to develop their language skills and mitigate various challenges, including shyness and lack of motivation, as well as differences in aspects of learning, such as speed, level, and style, which are inherent problems in conventional learning environments.

Similarly, Hassan Taj, Ali, Sipra, and Ahmad (2017) argue that the integration of CALL in teaching EFL reading has positive effects on various L2 reading skills, including decoding, word recognition, and vocabulary retention. They explain that CALL tools can improve the working memory of learners and this has positive impacts on their reading processes. They assert that the use of CALL tools is more effective than traditional methods as EFL learners retain more words and recall word meanings more quickly.

In this regard, the use of CALL systems in reading instruction has been linked to readers' decoding abilities, outputs, experiences, and processes, and to the contribution made by their L2 decoding proficiency to their L2 reading comprehension. Alshammari, Parkes, and Adlington (2017) examined the increase in EFL reading abilities within electronic settings. In their analysis of the use of WhatsApp in EFL instruction with Saudi Arabian university students, they demonstrated that such new technologies can improve learners' reading abilities to a greater extent than old-style classroom teaching. They considered that the electronic setting created a different teacher–student relationship, and changed the nature of both the teachers' and students' roles in EFL academic reading classes. These findings suggest that the use of mobile technologies can exert a positive effect on L2 reading skills and lead to a higher degree of improvement in L2 learners' reading processes compared to conservative teaching methods. These results have implications for the usefulness and reliability of mobile and computer technologies in improving the L2 reading skills of Saudi students.

In the same vein, Castillo (2017) investigated the effectiveness of digital books and materials in EFL reading instruction, specifically the effectiveness of three kinds of reading text: hard copy, computer-based presentation without hypertext, and computer-based presentation with hypertext. According to Castillo (2017), using a mix of multimedia improves understanding, and marks articulation and circumstantial usage of verbal substances. The analysis further established that the participants favored hypertext presentation over non-hypertext presentation in terms of improving L2 reading skills. He also emphasized the value of educating L2 learners in the essential skills to take full benefit of the structures that can be obtained using hypertext settings. Similarly, Varola and Erçetin (2016) considered the influence of direct vocabulary teaching versus employing computers on vocabulary learning, reading comprehension, and speed of word recognition. The outcomes revealed that compared to the control group, those in the CALL class acquired additional words, which considerably improved their understanding of L2 reading. These outcomes may broaden the horizon for robust development of CALL considering the option of integrating hypermedia applications to enhance L2 reading skills.

Yagi (1998) investigated the effect of Rapid Reader (a CALL application) on the EFL/L2 reading processes of 28 different individuals. As in former analyses, the outcomes showed that employing CALL in the reading classroom had a positive influence, increasing the learners' reading pace and understanding of the text in the L2. Further analysis by Ali (2000) examined the efficiency of teacher-

based instruction (TBI) compared to computer-based instruction (CBI) in improving Arab learners' reading abilities in the L2. His analysis examined three facets: (i) reading pace; (ii) understanding; (iii) vocabulary. He concluded that the use of CBI enhanced learners' aptitudes in all three facets of L2 learning against TBI.

In the Saudi context, Abanomey (2013) explored the effect of reading on the Internet on Saudi EFL learners' overall reading comprehension. The study also addressed the influence of the use of electronic and online dictionaries in terms of expanding L2 vocabulary and language acquisition. EFL Saudi students were randomly allocated to two groups: The first used online dictionaries, while the other employed hard print dictionaries. The results demonstrated that those who used online dictionaries presented a higher degree of vocabulary retention than those using print dictionaries, and thus provided direct evidence of the greater utility and benefit of online dictionaries in increasing L2 reading skills. The findings of the study highlight the potential significance of new forms of technological development for language teaching and learning. Abanomey (2013, p. 11) support this claim, stating that:

The dominance of technology, especially among new generations, necessitates the integration of such technology into language teaching pedagogy. Internet-based technologies are increasingly being integrated into daily life; and there are new web-based products, strategies, and theories being developed each day making it a useful educational tool inside language teaching classrooms as has been proved by the results of the current study.

The literature also suggests that the use of CALL in EFL contexts is associated with enhancing motivation and developing positive attitudes to language learning. Keezhatta and Omar (2019) investigated the use of digital technologies in enhancing the motivation of struggling EFL learners in Saudi secondary schools. They conducted an experimental study with 120 grade 10 students from four public secondary schools in the Riyadh district in Saudi Arabia. The students were randomly divided into two groups: experimental and control. The comparison between the groups highlighted that the use of digital technologies, materials, and systems enhanced the learners' motivation and developed positive attitudes toward language learning. The authors suggested that the digital systems provided a motivating learning environment for L2 reading, which in turn has positive implications for improving the reading skills of students. They concluded that the use of digital technologies encouraged the learners to be less shy and afraid of making mistakes. The participants in the experimental group were encouraged to learn and thus improve their attainment. With the use of digital technologies, the learners felt that they were really responsible for their own learning.

Alotaibi (2012) investigated the effects of using digital materials on enhancing learners' motivation and reading skills in the College of Languages and Translation at King Saud University. The study involved designing computer-based reading lessons to supplement the reading textbook *Interactions I: Reading*, which is taught to first-level students. The study showed statistically significant improvements in students' academic achievement and learning outcomes. Alotaibi (2012) concluded that designing CALL activities had the potential to improve the learners' motivation, and therefore their reading performance. Khojah and Thomas (2021) agree that designing activities using digital technologies can provide a potential solution to low levels of engagement with reading in EFL classrooms. Khojah and Thomas (2021) identified a significant correlation between designing and using mobile-assisted language learning (MALL) activities and EFL learners' motivation, which in turn enhanced their achievement, attention, participation, and acquisition. Through the use of MALL activities, EFL learners were motivated and revealed positive attitudes toward the reading course.

To summarize, CALL systems have the potential to offer a positive environment for the teaching and learning of reading in an L2. They can be exploited usefully to develop learners' language and

improve their reading performance (Gündüz, 2005; Yilmaz, 2015). Despite the wealth of literature on L2 reading in the Saudi context, so far, very little work has been done on exploring the challenges of struggling readers in lifelong and continuous learning programs in Saudi universities. This study seeks to address this gap in the literature by investigating the challenges, problems, and needs of EFL learners in these programs with the purpose of developing a model that can be used to improve their reading performance.

3. Methodology

To collect data on the challenges faced by struggling readers in lifelong and continuous learning programs, unstructured interviews were conducted with 24 instructors at three universities over September–December 2020. One advantage of unstructured interviews is that they give the interviewees the opportunity to express themselves freely, and to reflect on the context of teaching and learning reading comprehension in their programs. The participants included male and female instructors representing different academic qualifications (TESOL Diploma, MA, and Ph.D.) and positions (language instructors, lecturers, assistant professors, associate professors, and full professors).

To analyze the data generated through the interviews with the instructors, thematic content analysis (TCA) was conducted. Thematic content analysis is one of the most popular and common approaches to analyzing qualitative data and interview transcripts. Guest, MacQueen, and Namey (2012, p. 4) define TCA as "a type of inductive analysis of qualitative data that can involve multiple thematic techniques" with the purpose of investigating texts and giving an accurate description of their content, including the apparent and explicit content of the material under analysis.

This study was based on a case study design, exploring the problems and challenges of EFL learners enrolled in lifelong learning programs at Saudi universities. Six programs were selected at three Saudi universities: King Abdulaziz University, King Saud University, and Prince Sattam Bin Abdulaziz University. The three universities offer a wide range of professional programs/diplomas, including marketing, executive secretary training, human resource management, insurance management, skincare, cybersecurity, safety, and firefighting. These diplomas, provided through Community Colleges and Deanships of Community Service and Continuing Education, seek to qualify employees, workers, and those interested in different sectors to improve their scientific understanding and knowledge. English is a core course in almost all such programs.

TCA is characterized by a number of features that can be summarized as follows. First, it can be used to categorize data, and sort and arrange them based on a set of steps associated with a specific pattern for content analysis (Schreier, 2012). Second, TCA embeds a collection of short summaries on the content of a given text or corpus. Third, TCA is based on objectivity. There is no bias in formulating the concepts, ideas, and points of the research (Krippendorff, 2004). Fourth, TCA focuses on the words, phrases, terms, and concepts that are repeated in the text, and contributes to determining the importance of the paragraphs and the text comprising the content. Fifth, the results of TCA are grounded in the data and the information contained in the content of the text (Divakaran, 2009). Finally, TCA methods are replicable. TCA also gives researchers the possibility to recalculate text if the text analyzer, or an analyst, has lost or omitted important information that must be included in the study as part of the content analysis (Drisko & Maschi, 2015).

TCA is usually based on the repetition and frequencies of words, phrases, sentences, and symbols, enabling researchers to make an objective identification of the categories of analysis and units (Miller, Vandome, & McBrewster, 2009). For the purposes of generalizability, the analysis has to be objective and is subject to certain methodological requirements. The analysis should be systematic, and

quantitative analysis should be conducted with the aim of then performing qualitative analysis on an objective basis. The results of the content analysis should be identical in the case that the data are re-examined using the same tool; namely, the same material under analysis should yield consistent results over time when approached by other analysts (external arbitration), and should present consistency with certain external benchmarks. The results of content analysis are related to descriptive, analytical, and theoretical findings in a general and comprehensive framework to explain the phenomenon or the problem; that is, the analysis complements other methodological procedures that precede it or follow it in the context of a comprehensive study (Carmody & Collins, 2014; Franzosi, 2008).

In this study, TCA was used to analyze the data derived from the interviews in a systematic way to provide credible answers to the research questions and address the objectives of the study. The steps followed were coding, generating themes, reviewing themes, and finally defining and naming themes (Guest et al., 2012).

4. Analysis & Discussion

Based on TCA, the main themes can be summarized as follows: (i) the unique cultural, linguistic, and historical context of English in Saudi Arabia, (ii) the larger numbers of struggling readers in lifelong continuous learning programs compared to standard programs, (iii) issues arising from different linguistic systems, (iv) lack of prerequisite linguistic knowledge, and (v) irrelevant study materials.

4.1. The unique cultural and linguistic context of English in Saudi Arabia

The participants stressed the unique cultural and linguistic context of English learning in Saudi Arabia. For many years, and more particularly before the discovery of oil, the Saudi educational system traditionally focused on Islamic teachings, according to no importance or priority to teaching foreign languages (Alshahrani, 2016; Keezhatta & Omar, 2019). English language teaching, Faruk (2013) argues, was very limited in Saudi schools and universities.

According to Keezhatta and Omar (2019), there was a misconception that teaching English as an L2 could have a negative impact on children's acquisition of their native language, especially at very early ages. In Saudi Arabia, Arabic is highly celebrated as it is the language of the Holy Quran, and Saudi Arabia itself is the location of the Holy Mosque, Islam's motherland, and the Quran. This is reflected in negative ways in students' attitudes toward learning English. Many students and families still think English is not important for their overall academic achievement. The participants also indicated that English was not taught in primary schools for many years. Students used to start learning English in middle school. This undoubtedly had a negative impact on learners' language acquisition. It was only very recently that English was introduced in the primary stage (for pupils in Grade 4) and it will be introduced to students in Grade 1 in 2021.

4.2. The larger numbers of struggling readers in lifelong and continuous learning programs compared to standard programs

The participants recounted that there are larger numbers of struggling readers in lifelong and continuous learning programs than in standard university programs. They attributed the high rates of struggling readers in such programs to linguistic and non-linguistic factors, including the different linguistic systems of English and Arabic, lack of prerequisite linguistic knowledge, irrelevant study materials, and enrollment conditions. The participants also reported that failure in English language courses, including reading, is closely related to the rates of student retention in these programs. In this

regard, they outlined that EFL learners in these programs have different language needs. Furthermore, their problems and challenges should be addressed in different ways.

4.2.1. Different linguistic systems

In their explanations of the difficulties and challenges faced by EFL learners in reading classes, the participants almost all agreed that the struggling readers generally had problems with word recognition due to the differences in the orthographic systems of English and Arabic. As noted by Cook and Bassetti (2005), Arabic is consonantal, while English has an alphabetic writing system. The degree of transparency also differs between Arabic and English. For instance, Arabic follows 1:1 phoneme-grapheme presentation, and therefore the sound–symbol correspondence is much clearer and more transparent than in English, which has more complex and inconsistent phoneme–grapheme representations, resulting in relatively opaque sound-symbol correspondence. Moreover, there are dramatic differences in the vowel systems between Arabic and English, which have implications for the learners' word decoding skills and abilities. When a native speaker of Arabic is exposed to texts in Arabic, he/she not only uses the phonological and consonant information concerning spelling displayed in the text but also pays attention to extra-lexical information, such as syntactic and morphological knowledge and the context of sentences in the given discourse.

The participants also referred to the influence of the major differences between the phonological systems of Arabic and English. In contrast to Arabic, English always contains vowels in the written structure, and therefore English speakers can utilize contextual information to fill in the gaps for missing vowels displayed in a given text. This results in slowing the reading process, thereby affecting the fluency of reading. The contrasts in the vowel systems between Arabic and English are thus claimed to be among the main challenges confronting Saudi EFL learners (Ababneh, 2018; Al-Seghayer, 2019; Hago & Khan, 2015).

4.2.2. Lack of prerequisite linguistic knowledge

The participants referred to lack of prerequisite linguistic knowledge as one of the main challenges for struggling readers. This problem has negative impacts on learners' reading performance in terms of interaction with texts, word recognition, vocabulary development, processing speed, the use of reading strategies, and cognitive skills. The participants reported that insufficient linguistic knowledge concerning sentence/text structure and meaning construction resulted in their inability to read fluently.

Razi and Grenfell (2012, p. 818) argue that "it is generally accepted that linguistic knowledge is a key element in the comprehension of reading of texts in a second language." In the same vein, the participants suggested that a certain level of linguistic knowledge is necessary for learners to start L2 learning is lifelong and continuous education programs. However, some of them indicated that such prerequisites should not affect in any way the enrollment policies for these programs; rather, they should be available to candidates without any linguistic restrictions.

4.2.3. Irrelevant study materials

The majority of the participants indicated that one of the reasons for the low performance of EFL learners in reading courses was the use of irrelevant study materials. The course materials are often not related to their chosen career, discipline, or the programs in which they are enrolled. Therefore, the learners are not usually motivated. Al-Mahrooqi and Roscoe (2014) argue that reading materials should be interesting, motivating, and relevant to the learners' needs. Likewise, Day (2013) indicates that the use of reading texts should be linked to the learners' goals and purposes. The participants thus called for the importance of considering the learners' background in designing the courses and selecting the reading materials. Some complained that the language textbooks, including those for reading courses, are the same for all programs (e.g., marketing, executive secretary training, human

resource management, insurance management, skincare, safety, and firefighting). Instead, they proposed that learners in different classes could have reading texts selected for them based on their needs. Some considered that L2 learning in such programs might best be described as learning in English for specific purposes (ESP) environment. This recognizes the differing language needs of specific groups of learners, and these should be considered when designing the learning programs.

In light of these results, the study proposed a computer-based model to be implemented through in-sessional support courses to help struggling readers with their courses and improve their performance. The proposed model should address the linguistic needs of struggling readers and enhance their motivation, fostering positive attitudes toward L2 learning. The integration of CALL has proved effective in developing word recognition and decoding skills among EFL learners within a short period of time; short duration is one of the main features of the programs under study. Hubbard (2009) found that on-screen activities aimed at word recognition and decoding drills were a source of great interest and fun for the students, who benefited from CALL teaching in terms of improving their L2 reading skills within a short period of time compared to the teacher-led method of teaching. Studies have also reported the effectiveness of CALL in teaching adult learners with a little linguistic background (Heift & Vyatkina, 2017; Presson, Davy, & MacWhinney, 2013).

The introduction of in-sessional support courses for struggling readers is supposed to have the potential for improving vocabulary decoding and retention skills, as well as working memory. These courses will help the learners with their reading courses as they will address their language needs, and their problems and challenges. In this way, the learning environment will become less frustrating. CALL-based in-sessional courses should be designed to motivate and sustain the students' attention and participation in the tasks. They should also be designed to develop students own self-regulation and foster their independence. The teacher's role should be that of a counselor or a helper, able to generate inspiration to acquire knowledge of the language and to deliver diverse language learning opportunities for all learners.

We propose that CALL-based in-sessional courses will provide a self-paced learning environment that addresses the learners' needs, one in which they will be encouraged to work with a high level of interest at a faster pace than in a traditional classroom. The proposition is that the CALL environment is motivating for EFL learners, and this motivation is an important factor in developing and improving reading performance. The application of computers can promote the effective use of reading material in terms of developing pronunciation, vocabulary, the use of words in different contexts, and comprehension. With the use of CALL activities, students' skills in relation to vocabulary recognition and textual understanding could greatly be improved. Finally, computer-assisted courses will help struggling readers in problem-solving and will enhance self-confidence, which will, in turn, have positive impacts on their motivation and achievement.

5. Conclusion

In this study, we sought to investigate the challenges and problems of struggling readers in lifelong and continuous learning programs in Saudi universities and explore their needs. To do so, interviews were conducted with selected instructors at three Saudi universities to reflect on the challenges and problems faced by struggling readers, and their language needs. The instructors reported that the majority of EFL learners in lifelong and continuous learning programs have difficulty with decoding monosyllabic and polysyllabic words. They also reported that around 15–20% of the learners have difficulties with identifying the English alphabet. They attributed the main challenges of EFL learners in reading classes to their poor linguistic knowledge, lack of self-esteem, and lack of motivation. In light of these results, the study proposed a computer-based model to be implemented through in-

sessional support courses to help struggling readers with their reading courses and improve their performance. The proposed model will address the various language needs of the struggling readers, and enhance their motivation and positive attitude toward L2 learning. In-sessional support courses for struggling readers are supposed to have the potential to improve their vocabulary decoding and retention skills, as well as their working memory. The application of computers can promote the effective use of reading materials in terms of developing pronunciation, vocabulary, the use of words in different contexts, and comprehension. Computer-assisted courses can help struggling readers with problem-solving and enhance self-confidence, which will have positive impacts on their motivation and achievement.

Acknowledgments

References

Ababneh, I. (2018). English pronunciation errors made by Saudi students. *European Scientific Journal, 14*(2), 244-261.

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

Al-Mahrooqi, R., & Roscoe, A. (2014). *Focusing on EFL reading: Theory and practice*. Newcastle upon Tyne, UK: Cambridge Scholars Publisher.

Al-Nafisah, K., & Al-Shorman, R. d. A. (2011). Saudi EFL students' reading interests. *Journal of King Saud University - Languages and Translation, 23*(1), 1-9. doi:https://doi.org/10.1016/j.jksult.2009.07.001

Al-Seghayer, K. (2019). Unique challenges Saudi EFL learners face. *Studies in English Language Teaching, 7*(4), 490-515.

Al Nooh, A. (2013). The effectiveness of reading techniques used in a Saudi Arabian secondary school classroom as perceived by students and teachers: A study of methods used in teaching English and their effectiveness. *Arab World English Journal, 4*(3), 331- 345.

Alhaisoni, E. (2012). Language learning strategy use of Saudi EFL students in an intensive English learning context. *Asian Social Science, 8*(13), 115-127.

Alharbi, B. (2018). The impact of glossed texts on reading comprehension among tertiary Saudi students. *English Language Teaching, 11*(3), 153-161.

Alotaibi, H. (2012). *Decide, design, develop and evaluate: Computer-based reading lessons for ESL learners.* Paper presented at the ICT for Language Learning, Florence, Italy.

Alqahtani, A. (2016). Why do Saudi EFL readers exhibit poor reading abilities? *Journal of English Language and Literature, 6*(1), 1-15.

Alqurashi, F. (2018). Learning strategies in L2 settings in Saudi Arabia: An annotated bibliography. *International Journal of Applied Linguistics and English Literature, 7*(7).

Alrabai, F. (2016). Factors Underlying Low Achievement of Saudi EFL Learners. *International Journal of English Linguistics, 6*(3), 21-37.

Alrabai, F. (2019). Learning English in Saudi Arabia. In C. Moskovsky & M. Picard (Eds.), *English as a foreign language in Saudi Arabia: New insights into teaching and learning English* (pp. xx-xx). London; New York, NY: Routledge.

Alshahrani, M. (2016). A brief historical perspective of English in Saudi Arabia. *Journal of Literature, Languages and Linguistics, 26*, 43-47.

Alshammari, R., Parkes, M., & Adlington, R. (2017). Using WhatsApp in EFL instruction with Saudi Arabian university students. *Arab World English Journal (AWEJ), 8*.

Alshenqeeti, H., & Alrahaili, M. (2020). Effects of task repetition on Saudi EFL learners' reading comprehension. *Arab World English Journal (AWEJ), 11*.

Barnawi, O. Z., & Alhawsawi, S. (2016). English language education policy in the Kingdom of Saudi Arabia: Current trends, issues, and challenges. In R. Kirkpatrick (Ed.), *English language education policy in the Middle East and North Africa* (pp. 199-222). xx: Springer.

Bensalem, E. (2020). Foreign language reading anxiety in the Saudi tertiary EFL context.

Carmody, D. C., & Collins, V. E. (2014). *Content analysis: Images of dating violence in the Twilight series.* xx: SAGE Publications Limited.

Castillo, N. M. (2017). *Technology for improving early reading in multilingual settings: Evidence from rural South Africa.* (Doctor of Philosophy Thesis), The University of Pennsylvania.

Cook, V. J., & Bassetti, B. (2005). An introduction to researching second language writing systems. In V. J. Cook & B. Bassetti (Eds.), *Second language writing systems* (pp. 1-67). Clevedon, UK: Multilingual Matters.

Day, R. R. (2013). *Teaching reading.* xx: TESOL International Association.

Divakaran, A. (2009). *Multimedia content analysis: Theory and applications.* xx: Springer.

Drisko, J. W., & Maschi, T. (2015). *Content analysis.* Oxford: Oxford University Press.

Faruk, S. (2013). English language teaching in Saudi Arabia: A world-system perspective. *Scientific Bulletin of the Politehnica University of Timişoara Transactions on Modern Languages, 12*(1-2), 73-80.

Franzosi, R. (2008). *Content analysis*. London: SAGE

Guest, G., MacQueen, K. M., & Namey, E. E. (2012). *Applied thematic analysis*. London: SAGE Publications.

Gündüz, N. (2005). Computer-assisted language learning. *Journal of Language and Linguistic Studies*, *1* (2), 193-214.

Gutiérrez-Colón, M., Frumuselu, A. D., & Curell, H. (2020). Mobile-assisted language learning to enhance L2 reading comprehension: A selection of implementation studies between 2012–2017. *Interactive Learning Environments*, 1-9.

Hago, O. E., & Khan, W. A. (2015). The pronunciation problems faced by Saudi EFL learners at secondary schools. *Education and Linguistics Research, 1*(2), 85-99.

Hamdan, A. (2015). *Teaching and learning in Saudi Arabia: Perspectives from higher education*. New York, NY: Springer.

Hassan Taj, I., Ali, F., Sipra, M., & Ahmad, W. (2017). Effect of technology-enhanced language learning on vocabulary acquisition of EFL learners. *International Journal of Applied Linguistics & English Literature, 6*(3).

Heift, T., & Vyatkina, N. (2017). Technologies for teaching and learning L2 grammar. In xx (Eds.), *The handbook of technology and second language teaching and learning* (pp. 26-44). xx: xx.

Hubbard, P. (2009). Educating the CALL specialist. *International Journal of Innovation in Language Learning and Teaching, 3*(1), 3-15.

Keezhatta, M. S., & Omar, A. (2019). Enhancing reading skills for Saudi secondary school students through mobile assisted language learning (MALL): An experimental study. *International Journal of English Linguistics, 9*(1), 437-447.

Khan, I., Ibrahim, A. H., Kassim, A., & Khan, R. M. I. (2019). Evaluating the efficacy of active reading software in enhancing EFL learners' reading comprehension skills. *International Journal of Scientific & Technology Research, 8*(12), 1861-1869.

Khojah, M., & Thomas, M. (2021). Smartphone-mediated EFL reading tasks: A study of female learners' motivation and behavior in three Saudi Arabian classrooms. *Asian EFL Journal, 25*(2).

Krippendorff, K. (2004). *Content analysis: An introduction to its methodology*. London: Sage.

Miller, F. P., Vandome, A. F., & McBrewster, J. (2009). *Content analysis.* xx: VDM Publishing.

Moskovsky, C., & Picard, M. (2019). *English as a foreign language in Saudi Arabia: New insights into teaching and learning English*. London; New York, NY: Routledge.

Presson, N., Davy, C., & MacWhinney, B. (2013). Experimentalized CALL for adult second language learners. In J. W. Schwieter (Ed.), *xx* (pp. 139-164). Amsterdam; Philadelphia, PA: John Benjamins Publishing Company.

Qadeer, A. (2019). Saudi EFL learners' perceptions about the teaching of English by native and non-native English teachers. *Arab World English Journal, 10*, 137-153.

Razi, O., & Grenfell, M. J. (2012). The impact of linguistic knowledge on learner strategy deployment *Procedia - Social and Behavioral Sciences, 47*, 818-822.

Schreier, M. (2012). *Qualitative content analysis in practice*. London: SAGE

Shah, S. R., Hussain, A., & Nasseef, O. A. (2013). Factors impacting EFL teaching: An exploratory study in the Saudi Arabian context. *Arab World English Journal, 4*(3), 104-123.

Varola, B., & Erçetin, G. (2016). Effects of working memory and gloss type on L2 text comprehension and incidental vocabulary learning in computer-based reading. *Procedia - Social and Behavioral Sciences, 232*, 759–768.

Yagi, S. M. (1998). *A bilingual rapid reader.* Paper presented at the Proceedings of the Sixth International Conference and Exhibition on Multilingual Computing, Cambridge.

Ylmaz, Y. (2015). Learning vocabulary in a foreign language: A computer software-based model attempt. *Journal of Language and Linguistic Studies*, *11*(2), 23-38.

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