SAUDI EFL UNDERGRADUATE STUDENTS' RESPONSES TO COGNITIVE STRESS AND METACOGNITIVE READING STRATEGIES IN READING COMPREHENSION

REMA OQLA AHMAD ABU KHAIT

UNIVERSITI SAINS MALAYSIA

2022

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by

REMA OQLA AHMAD ABU KHAIT

**Thesis submitted in fulfilment of the requirements
for the degree of
Doctor of Philosophy**

February 2022

DEDICATION

First and foremost, Praise be to Allah SWT the One.

I dedicate this thesis in honour of my Father's Soul who was my beloved and sincere friend on earth and who always believed in me. I dedicate this thesis too, to the angel, my beloved mother, Aishah Zamel, who believed in me and raised me to cherish learning, knowledge, and acquiring skills and experiences in life as my father wanted. Her prayers have lightened my way and kept me going. Her love and consideration gave me courage to face challenges and overcome obstacles.

To my beloved brothers and sisters, Ahmad, Muhammad, Mahmoud, Lina, and Valentina, sisters and brothers-in-law Nadia, Islam, Asmahan, Mohammad, and Khaleed for their encouragement, and understanding during all these years.

To my beloved close friends, Robin Attfield, Nebal Saadeh, Amr Tammam, Tareq Gamal El-Din, Muna Ezzi, and Zahraa Akoob for their encouragement and support. They were patient and tolerant in order for me to complete this long journey. If it was not for their support, I would not have been able to accomplish this. Especial thank goes again to the consultant Engineer during my PhD journey Eng. Tareq Gamal El-Din.

ACKNOWLEDGEMENT

your well-wishes and prayers. I especially cannot thank you enough for encouraging

me throughout this PhD journey.

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LIST OF ABBREVIATIONS

CELTA	Certificate of English Language Teaching to Adults
CLT	Cognitive Load Theory
CRS	Coping Reading Strategies
CSTs	Cognitive Stress Tests
D1	Text difficulty low
D2	Text difficulty moderate
D3	Text difficulty high
LCS	Loading Cognitive Stress
EFL	English as a Foreign Language
ELD	English Language Department
ESL	English as a Second Language
FL	Foreign Language
GLOB	Global Reading Strategies
KSA	Kingdom of Saudi Arabia
L1	First Language
L2	Second Language
MARSI	Metacognitive Awareness Reading Inventory
MRS	Metacognitive Reading Strategies
PROB	Problem-Solving Reading Strategies
RCT	Reading Comprehension Test
READS	Reading Evaluation and Decoding System
SL	Second Language
SUB	Support reading strategies

T1	Time on task 20 minutes
T2	Time on task 30 minutes
T3	Time on task 40 minutes
TOEFL	Test of English as a Foreign Language
TU	Testing Unit
ZPD	Zone Proximal of Development

LIST OF APPENDICES

KESAN TINDAKAN TERHADAP TEKANAN KOGNITIF DAN STRATEGI PEMBACAAN METAKOGNITIF PELAJAR EFL SAUDI DALAM PEMBACAAN DAN KEFAHAMAN

ABSTRAK

Kajian ini menyelidiki respons pelajar EFL Saudi terhadap stres kognitif dan penggunaan strategi metakognitif dalam bacaan dan kefahaman. Juga dikenal pasti bahawa sebarang pembelajaran bergantung kepada faktor kognitif, sosial dan emosi yang berkait antara satu sama lain. Bacaan dan kefahaman dalam EFL (Bahasa Inggeris sebagai bahasa asing pada masa yang sama memenatkan dan stress sekiranya ingin berjaya. Pelajar EFL perlu mempunyai strategi daya tindak dan praktikal yang boleh diaplikasikan dengan yakin dan cekap dalam kefahaman teks bacaan. Selain itu, kajian ini mengkaji kesan kesedaran strategi metakognitif, faktor demografik, dan bebanan kognitif terhadap pencapaian dalam pembacaan terhadap pelajar EFL ijazah pertama Saudi. Konsep stres kognitif dalam kajian ini adalah stres yang wujud melalui manipulasi berdasarkan masa yang diambil dalam menyelesaikan tugasan dan kesukaran teks. Bagi tujuan ini, pengumpulan data adalah melalui kaedah campuran iaitu kedua-duanya kuantitatif dan kualitatif digunakan untuk menjawab persoalan kajian. Instrumen kuantitatif mengandungi versi adaptasi *Metacognitive Awareness Reading Strategies Inventory* yang dibina oleh Mokhtari and Sheorey (2002), *Reading Comprehension Test (RCT), Cognitive Stress Tests* (CSTs). Manakala, instrumen kualitatif pula mengandungi temuduga berstruktur. Sampel bahagian kuantitatif terdiri daripada 154 pelajar ijazah pertama EFL, manakala bahagian kualitatif terdiri daripada sepuluh sampel yang dipilih secara tersasar. Data kuantitatif dianalisis menggunakan ujian SPSS yang mengandungi statistiks deskriptif, ujian-t, korelasi Peason, ANOVA

dan ANCOVA. Analisis tematik pula digunakan untuk menganalisis data kualitatif. Hasil dapatan kajian ini menunjukkan terdapat kesan signifikan metakognitif terhadap pemilihan strategi pembacaan dan pencapaian bacaan dan kefahaman pelajar. Hasil kajian juga, menunjukkan korelasi positif di antara umur pelajar dan tahap kesedaran strategi metakognitif. Selanjutnya, kajian ini menunjukkan bahawa tidak terdapat sebarang perbezaan dari segi jantina terhadap kesedaran strategi metakognitif dalam kalangan pelajar EFL Saudi. Satu perkara penting dalam kajian ini, menunjukkan bahawa respons pelajar EFL Saudi terhadap bebanan kognitif memainkan peranan penting berdasarkan masa diambil dalam menyelesaikan tugasan dan kesukaran teks telah menunjukkan kesan terhadap pencaipaian bacaan dan kefahaman mereka. Analisis tematik menunjukkan pelajar EFL Saudi memahami tentang strategi penyesuaian dan juga pilihan yang baik bagi mereka untuk menanggani bebanan yang dialami ketika menjawab soalan kefahaman dalam situasi tertekan dengan kesukaran teks yang tinggi serta dalam masa yang singkat. Tenaga pengajar dalam konteks universiti patut mengambil kira kepentingan strategi pembacaan kognitif, respons pelajar terhadap bebeban bagi membolehkan mereka menyediakan bahan bacaan dan tugasan yang bersesuaian. Selain itu, kajian lanjutan yang berfokuskan eksplorasi respons pelajar EFL terhadap bebanan kognitif dan strategi penyesuaian untuk mengatasi bebaban kognitif dalam kalangan pelajar boleh dilaksanakan.

SAUDI EFL UNDERGRADUATE STUDENTS' RESPONSES TO COGNITIVE STRESS AND METACOGNITIVE READING STRATEGIES IN READING COMPREHENSION

ABSTRACT

This study examined Saudi EFL students' responses to cognitive stress and the use of metacognitive reading strategies in reading comprehension. It is recognised that learning in any form depends on cognitive, social, and emotional factors which are interrelated. Reading comprehension in EFL (English as a Foreign Language) can be both tiring and stressful and, to be successful, EFL learners must have practical and coping strategies that they can apply with confidence and competence in comprehension of reading texts. The study also examined the effects of metacognitive strategies awareness, demographic factors, and cognitive load on Saudi EFL undergraduate students' reading performance. Cognitive stress is conceptualized in this study as the stress created by manipulation of time-on-task and text difficulty. To this end and for the purposes of collecting research data, the researcher applied a mixed-method research design where both quantitative and qualitative data were collected to address seven research questions. The quantitative research instrumentation consisted of an adapted version of the Metacognitive Awareness Reading Strategies Inventory that was developed by Mokhtari and Sheorey (2002), the Reading Comprehension Test (RCT), and Cognitive Stress Tests (CSTs). The qualitative tool, comprised semi-structured interviews. The study sample in the quantitative phase consisted of 154 Saudi EFL undergraduate students, while the qualitative phase included a sample of ten participants who were selected purposively. Quantitative data were analysed using tests in SPSS including descriptive statistics, t-

tests, Pearson Correlation, ANOVA, and ANCOVA. Thematic analysis was used to analyse the qualitative data. The findings of the study showed that there was a significant effect of metacognitive reading strategies on students' strategy employment and consequently on their reading comprehension ability. The findings also showed a positive correlation between the ages of the students and their level of awareness of metacognitive strategies. Furthermore, the study showed no significant differences arising from gender and Saudi EFL students' awareness of metacognitive strategies. An important finding of this study is that Saudi EFL students' responses to cognitive stress were found to play an important role because time-on-task related to text difficulty affected Saudi EFL students' reading comprehension performance. Thematic analysis of the interview data revealed that most Saudi EFL students understand that some coping strategies can be a good choice for them to reduce the stress they may experience when they answer reading comprehension tests under stressful conditions, such as where the difficulty of the test is high or the time-on-task is short. Teachers of reading in the Saudi EFL university context should, therefore, consider the importance of metacognitive reading strategies and students' responses to cognitive stress in the planning and delivery of teaching to produce suitable effective reading materials and tasks. Further studies can be conducted focusing on exploring EFL students' responses to cognitive stress and coping strategies they employ to overcome this cognitive stress.

CHAPTER 1

INTRODUCTION

1.1   Chapter Introduction

This chapter starts with a short background to the study. This is followed by the presentation of the statement of the problem in which the researcher highlights the gaps in previous studies and problems encountered by Saudi English as a Foreign Language (EFL) students in comprehending English texts. This chapter includes the presentation of both the research objectives and questions addressed in this study. The significance of the study is clearly explained to show the importance of the study and its contributions to the field of reading comprehension in the Saudi EFL context. Definitions of the key terms used in this study are given to show readers how the researchers applied these definitions. At the end of this chapter, a short section is included to briefly describe the organization of this thesis and the content of each chapter.

1.2   Motivation for the Study

In this section, the rationale of the study and the researcher's motivated to conduct this particular study are presented. The researcher is an experienced English language teacher and a university lecturer. She has been working for 11 years as a lecturer of EFL in a public university in the Kingdom of Saudi Arabia (KSA. during these years, she has successfully developed awareness of the challenges encountered by Saudi EFL students in learning English in general and, in particular, the core skills of reading for comprehension. These students' grades in their previous education, before joining the university education, reflect that their reading comprehension skills

do not meet the requirements of reading tasks and activities in their courses at the university.

The researcher recognized that even where texts are related to EFL students' experience and English education background, they may experience a further wide range of difficulties in understanding some of the nuances in English reading texts. Furthermore, the researcher noticed that these EFL students encounter other challenges in reading comprehension. For example, it was observed that these EFL students lack the required abilities that enable them to link ideas in a text together to ensure a full understanding of writers' intentions. Taking these issues into consideration, the researcher has become aware of these EFL students' problems in comprehension of texts. In addition, the researcher confirmed these problems through conversations with many of these Saudi EFL students. Additionally, she ascertained these problems through informal conversations with her colleagues who highlighted that some of these EFL students lack a systematic approach to developing reading comprehension of a text and that understanding quickly diminishes when these EFL students are under stressful conditions and some constraints, which can be generally attributed to the complexity of English reading texts and time constraints.

Understanding English texts is an integral part of EFL students' chosen courses and BA programs. Accordingly, the researcher intended to examine teaching strategies that may support better development of EFL comprehension skills and to examine the factors that produce stress for students when working in such a context. Apart from these problems, the researcher noticed that research in the Saudi EFL context has not considered the relationship between students' reading comprehension and other personal variables such as gender, age, the context of language, and parental education

level. There is relatively little relevant research in what is an important and emergent field.

The issues explained in the preceding paragraphs have motivated the researcher to raise questions concerning students' reading comprehension and their enjoyment of learning, in general. This made the researcher believe that the development of reading comprehension strategies is essential if teachers of the reader are interested in improving EFL students' confidence, enjoyment, and success. These concerns are highlighted by Alsamadani (2008) who pointed out that the Saudi EFL undergraduate students' employment of reading strategies deserves researchers' attention. He further clarified that students' awareness of reading strategies should be researched through systematic research in order to come up with suggestions and recommendations that can be used by teachers of reading to raise Saudi EFL undergraduate students' awareness of how to use these strategies effectively in their reading classes, and, in turn, in reading English materials in their major studies.

1.3 Background to the Study

This section offers a brief background to the study focusing on the importance of teaching English and reading comprehension in English for non-native learners, especially in EFL contexts. Within this study, the term EFL will be used as learners are acquiring the language in a country where Arabic is the dominant and official language (Richards, Platt, & Weber, 1985). Hashim, Alam, and Yusoff (2014) and Nayar (1997) have agreed with this conceptualisation of the term EFL. Such conceptualization of this term can be applicable in most Arab countries, including the Saudi EFL context, where English language has acquired an important position in schools, colleges, universities, and social life. Taking this conceptualisation into

account, when students learn English in the Saudi EFL context, they are regarded as EFL learners.

Explanation is provided about the significance of the development of reading skills for Saudi EFL students, especially those at the tertiary level, is given to emphasize the status of such skills for these students in a context where opportunities for reading in English are not sufficient. While explaining the importance of this skill for these students, the researcher sheds light on Saudi EFL students' challenges in their effort to achieve successful comprehension.

Being taught all over the world with variations in the purpose and the objectives of the English programmes and courses, English has achieved the status of a global language (Crystal, 2003; Mirhosseini, 2018). It is also generally viewed as the language of business and research. Teaching English as a foreign language is concerned with teaching English to learners in a non-native English-speaking environment. EFL is taught by non-native English-speaking-instructors, who are also English-language-learners and who generally do not speak English as naturally as English native speakers (Liu, Liu, Yu, Li, & Wen, 2014).

The importance of the major language skills (listening, speaking, reading, and writing) for EFL learners is undeniable. This is evident in several contexts, including English language programmes at university level where learners need to use these four language skills, often on a regular basis. The importance of reading skills for students at all levels, especially at tertiary level, has been noted by several scholars (Khan, 2017). The status of reading as an essential skill for learners' achievement and development of effective intellectual growth has been stressed by various scholars and researchers (Heller & Greenleaf, 2007; Pour-Mohammadi, 2011). Through the

development of reading skills, students can enhance other sub-skills such as identification and acquisition of new meanings and the achievement of proper understanding of texts. Consequently, students use reading skills to support their performance in other skills such as writing. Moreover, reading provides an entrance to the world where individuals encounter massive competition and face varied types of challenges in a knowledge-based environment (Mohamed, Ismail, Eng, & Petras, 2012). EFL students' needs to use effective reading skills to gain access to knowledge and information in all aspects of life (Cook, 2016).

According to Birch (2014), reading is the most important skill in language acquestion. The ability to read is a prerequisite to success in advanced study and provides access to content learning in most areas of study. It is not only a significant life skill but a major language skill that supports comprehension and the development of educational and intellectual growth (August & Shanahan, 2017). Furthermore, researchers have argued that educational success and economic growth may largely depend on EFL students' command of and abilities in English reading skills (Ismail, Petras, Mohamed, & Eng, 2015; Snow & Biancarosa, 2003).

Readers achieve successful reading comprehension using their abilities to construct meaning through converting written texts into meaningful information and messages (Renuga & Mala, 2015). In the process of extraction of meaning, readers rely on existing knowledge to make sense of written texts. Reading comprehension is a cognitive process requiring reader interaction with print and has been defined as a thinking process that is employed by a reader for comprehending facts, information, or ideas in printed materials (Wigfield, Gladstone, & Turci, 2016). Reading comprehension is needed to determine meaning according to the intention of the author (Veeravagu, Muthusamy, Marimuthu, & Michael, 2010).

Reading may be undertaken for a variety of purposes. In his classification of reading purposes, Grabe (2014) declared that reading can be used to search for simple information, combining information, learning from texts, developing abilities to know and master how to critique texts, and reading for general comprehension or for pleasure. In line with the above, He indicated that the notion of reading comprehension is fundamental to all of these purposes. He added that reading for comprehension requires speedy self-processing of words and linguistic processing abilities in their use and their combinations to become a skilled fluent reader and is more challenging than commonly imagined.

Reading is a complicated intellectual process that involves various sub-skills (Hannon & Daneman, 2006; Ismail, Mohamed, & Eng, 2012). Reading and comprehension of texts in the first and an additional language differ in various aspects and in particular depend on students' abilities and cultural backgrounds (Davis & Bistodeau, 1993; Singhal, 1998). Comprehension involves both perception and thought where readers have to construct their perceptions of what they read and how to form ideas based on their reading (Renuga & Mala, 2015). In addition, reading requires the ability to manage demanding cognitive tasks which can encompass other essential simultaneous processes, including the extraction of meaning and abilities to use metacognitive strategies effectively. The functions of working memory appear to play an important role in the process of comprehension of texts (García-Madruga, Gómez-Veiga, & Vila, 2016; Kintsch & Walter Kintsch, 1998; Leong & Ahmadi, 2017). However, readers may face problems related to cognitive load arising from various factors related to the learners themselves or other contextual factors.

Most scholars agree that reading comprehension is a demanding cognitive process where a reader needs to manage ongoing interaction among elements including

knowledge of the theme of the text, wider background knowledge, and linguistic knowledge (Rahmani & Sadeghi, 2011). It is the most important skill in teaching English language skills to EFL undergraduate students in the Saudi context (Abrar et al., 2018). Despite many efforts to enhance EFL students' reading comprehension, they still need to become more skilful in comprehending English texts (Afflerbach, Pearson, & Paris, 2008).

Reading comprehension is a complex process, especially for EFL learners, because it involves the employment of various cognitive and metacognitive processes (Al-Qahtani, 2020; Daradkeh, 2020; Namaziandost, Esfahani, & Ahmadi, 2019). Although there are some variables that contribute to successful and effective reading comprehension, studies have shown that reading strategies play an essential role (Al-Qahtani, 2020; Daradkeh, 2020; Kasim & Darus, 2020; Kazi, Moghal, & Asad, 2020; Zhang & Seepho, 2013). Scholars who are interested in understanding the process of reading comprehension have offered various classifications of reading strategies. Strategies include not only employing reading strategies but also coping strategies, which could be used by EFL readers to manage stress and to have the abilities to read texts with understanding (Nuttall, 1996). Regarding this, Birch (2014) pointed out that EFL students need to practise reading in their daily life in order to gain new knowledge and information. Good EFL readers can be differentiated from poor readers in terms of the abilities to use coping strategies in reading tasks. These types of strategies could be useful to Saudi EFL undergraduate students if they are knowledgeable about these strategies and can be achieved through visible learning (Hattie, 2015). His research indicates the power of metacognition and that the more a learner understands about his or her own learning the better s/he can be supported to develop self-directed strategies to maximize success.

Among the various reading strategies, metacognitive strategies have been reported to be essential for EFL students because these strategies help readers to both extract meaning from text and assess their understanding through various metacognitive strategies. Thus, students' awareness of metacognitive strategies in reading is essential due to its complexity which involves the employment of both cognitive and metacognitive strategies. Regarding the importance of metacognitive strategies, researchers in L2 contexts, including ESL and EFL, have shown a remarkable interest in understanding these strategies. Research has also shown that text difficulty is one of the factors that has a critical influence on students' reading comprehension (Namaziandost et al., 2019). Time constraints have also been found to affect reading comprehension (Delgado & Salmerón, 2021). For example, reading under the pressure of time may not yield successful comprehension. Researchers use time-on-task and text difficulty to refer to these constraints.

In EFL contexts, most scholars agree that students' development of reading comprehension abilities is better achieved through enriching reading materials with texts that integrate topics from the local contexts of EFL students (Paulston & Bruder, 1976). Considering this important issue, a student-oriented approach should be the basis for reading classes in EFL contexts. Thus, the development of EFL students' active engagement and interaction with reading texts can be achieved through teaching them to use reading strategies that are suitable for each reading stage. In this way, EFL students can grow towards becoming self-directed readers and gradually can develop to be competent readers. An essential skill is the ability to read and understand academic texts. Researchers have noted that in EFL university courses teachers of reading rely on helping students to develop text processing for better comprehension of reading materials. Based on this, it is suggested that undergraduate students should

be taught reading strategies directly in order to build their own abilities to comprehend simple texts, and that this can be followed by extensive practices for comprehension of authentic reading texts. (Levine, Ferenz, & Reves, 2000). Wang (2009) pointed out that strategy learning developed in the middle of the previous century. Since then, the role of metacognition in reading comprehension has been increasingly recognized. Reading strategies have been developed to help EFL students develop their reading comprehension abilities and facilitate their understanding.

In this study, stress will be explored as another factor that might hinder Saudi EFL reading comprehension abilities; stress arises from both time constraints and text difficulty. In the context of cognitive stress and coping strategies in reading, researchers found that when reading the same materials, not all readers are able to derive the same amount of information (Horiba, 1996a; Monson, Schnurr, Stevens, & Guthrie, 2004; Wang, 2009; Yamashita & Ichikawa, 2010). In this study, students' responses to cognitive stress are measured through their performance in reading tests that included variations in their text difficulty and the time given to the students to complete reading tasks.

In order to achieve the study goal, the researcher seeks to explore and highlight some factors that may hinder Saudi EFL undergraduate students from achieving their potential in reading comprehension. These include cognitive stress in terms of time constraint which refers to the limitations on the start and end times of a task Ferrari (2001) and text difficulty that refers to text readability and employing reading strategies which, when addressed, will improve the quality of their reading comprehension experience. On the other hand, poor readers are those who have difficulties in reading due to their inadequate use of strategies, and consequently, they may abandon prematurely seeking extraction of meaning from texts. The researcher is

keen to establish what strategies might be adopted, how they could be used, and whether direct teaching in EFL courses will support students to learn in authentic world subject study.

1.4   EFL in the Saudi context

Similar to most Arab countries, the Arabic language is the mother tongue and the official language in Saudi Arabia. Saudi Arabia's Education Policy states that all students in the Kingdom of Saudi Arabia are to be taught English as EFL (Alharbi, 2019). This decision was taken as a result of taking into account the importance of studying foreign languages in the Saudi educational system and the status of the English language as the language of international communication (Al-Qahtani, 2020). The importance of English language in the Saudi EFL context has been highlighted and emphasised by recent publications that have stressed the use of English in various aspects of life such as its use in social, professional, and educational fields (Alqahtani, 2019; Alrahaili, 2018; Alsowat, 2017). In the Saudi educational system, English language is taught in the country as the main foreign language. Its importance as a foreign language is ascribed to its essential roles in various aspects of life in the country and its status as the global language of the 21st century (Al-Seghayer, 2014).

As an educational subject, English was introduced in the late 1950s (Alharbi, 2019; Alshahrani, 2016). Since then, EFL in KSA has evolved significantly over the decades. In the Kingdom of Saudi Arabia, English is the only foreign language taught in schools (Al-Johani, 2009). The recognition of English language as the main foreign language in KSA is associated with the discovery of oil in the 1930s. However, this language gained the status of a subject in the educational system in schools in the country in the 1950s. Initially, the government in KSA made English language a

compulsory course in intermediate and secondary schools. It was not introduced as a subject in primary school because the government believed at that time that Saudi students' studying English along with Arabic language would affect Saudi students' progress in learning Arabic language. However, the current status of the English language has changed, and it is now taught at all levels of education.

Arabic is the official language of Saudi Arabia. It is a central component in the culture of the country, linked firmly with the country's culture, and, especially, religious traditions. Like many oil-producing countries, formal education is a relatively recent phenomenon and the introduction of English into the curriculum at school and higher education has a limited history compared with many other countries (Al-Hazmi, 2017; Mahboob & Elyas, 2014). Given the pride in the country's traditions and culture, there has not been universal acceptance of the growing importance to the teaching of English. According to Aljohani (2016), "It is mainly against sociocultural beliefs which affect the way of teaching English as a second language in Saudi Arabia and control the materials and the text books, which have a great impact on both the teachers and the students' English language proficiency". The time and importance given to English teaching in schools have gradually grown in the country. In 2011, the Ministry of Education ruled that English would be taught as a second language beginning at the 4th grade level in primary schools.

Aljohani describes the considerable efforts made within Saudi Arabia to assure the quality of teaching of English in schools through its supervisory systems but concludes that "the English teachers in Saudi Arabia leave much to be desired." Thus, many Saudi EFL students are still entering higher education with lower levels in English than might reasonably be expected.

It takes time to develop effective systems for teaching and learning, and these cannot be developed in isolation from the community and context. Currently, students enter higher education in the country with diverse experience of English teaching and, consequently, variable ability, skills, and confidence in learning in this medium. To access and apply information in their subject-specific study at university, and increasingly in their careers, students need the highest possible level of skills in English. Reading with understanding of texts in English is an important component of study and career skills.

Since the 1970s, English started occupying an important position in the curriculum of schools in KAS (Al-Abdulkader, 1978; Mahboob & Elyas, 2014). English language instruction is available to all students at the universities in Saudi Arabia. This is because the language policy of the country emphasise that in the higher education institutions in KSA, English occupies an important role and should be taught to all students in these universities (Alnasser, 2018). This important status of English in the country can be attributed to the impact of various aspects of globalisation and modernisation policies that have been adopted in KSA (Mahboob & Elyas, 2014). Further, the medium of instruction in some disciplines such as sciences and biology. English is also taught in the Saudi EFL context as there are English departments in most of the universities in the country. In these English departments in the Saudi universities, academic staff are qualified with academic degrees in English-related specialist subjects, including foreign staff from English-speaking countries. In all universities in KSA, English departments offer also English proficiency courses to students from other majors such as biology and pharmacy (Al-Zumor, 2019). Further, some universities offer foundation programmes in which English is a compulsory course.

Taking into account that this study was conducted in the Saudi EFL context, it is essential to highlight what has been reported by researchers regarding the difficulties faced by EFL learners in Arab contexts. Development of all language skills is important for all EFL students. Challenges in both receptive and productive skills have been reported in EFL learners in Saudi Arabia (Fareh, Jarad, & Yagi, 2020). Balfakeh (2009) pointed out that EFL students in the Arab contexts show some serious problems in reading skills, especially discourse-based skills such as the abilities to understand how a reading text is organized and how cohesive devices are used in the text. He also noted that the difficulties students face when comprehending English texts may force them to rely on their first language, Arabic, in order to understand the text and to respond to reading comprehension questions. Further recent studies have revealed that Arab students confront several reading difficulties, including improper use of reading strategies (Mohammed & Ab Rashid, 2019). Furthermore, it has been argued that EFL students in the Arab context struggle to comprehend English due to their vocabulary limits and the strategies they use in reading (Abdulaziz Ali Al-Qahtani, 2016; Mohammed & Ab Rashid, 2019).

Research has shown that many EFL students often postpone their study activities until they feel that these cannot be avoided. Therefore, they have to study intensively, encountering difficult texts over a short period of time just before an examination. Some contextual variables such as text difficulty and time constraint may affect the relations between intelligence and metacognition and serve as predictors of learning ability and performance (Rothblum, Solomon, & Murakami, 1986; Veenman & Beishuizen, 2004). Previous studies that have examined these issues have highlighted the importance of using appropriate metacognitive reading strategies in reading classes because these strategies are beneficial for readers to develop their

experience. The ability to use these skills is a way of assessing students' success and performance in other learning skills. Skilled readers are known for their successful performance in exams and good achievement because skilled readers possess abilities to extract meanings from text, perform their reading tasks successfully, comprehend, and manage the time they spend in comprehension (Ziegler & Goswami, 2005).

Successful use of English language as the language of instruction at higher education level requires more improvement at school level (Habbash, 2011). However, taking into consideration the importance of English globally, the education system in the country was revised in 2010, resulting in making English a school subject in lower levels of schooling, starting from the fourth grade of elementary school (Alrashidi & Phan, 2015). English is also the medium of instruction in scientific courses and programmes including medicine and engineering disciplines. However, in other courses and programmes where Arabic is the medium of instruction students in most universities in KSA are required to finish an English course as a required university course. This English course is compulsory for all students where they do not have English as a medium of instruction. For example, students pursuing their B. A. in History or Geography are required to clear some English proficiency courses such as English for academic purposes before graduation. The additional English unit is intended to improve students' competence in English and enable them to use the language as a tool for knowledge acquisition in addition to Arabic (Alrashidi & Phan, 2015).

Standards in English for students entering Saudi universities are not high. Singh (2013) reported that there is considerable variation depending on the students' home area with city dwellers having much greater opportunity to speak English than those from rural environments. In administering simple questionnaires to students in a

university, he found that students relied on translation to understand what was required of them.

In the Saudi EFL context, previous and very recent studies have reported that Saudi EFL students have difficulties in reading skills. For example, in a very recent study, Mohammed and Ab Rashid (2019) have highlighted this in their review of the current status of English language in the Saudi context. Further, Alharbi (2019) argued that educators, teachers, and students in the Saudi EFL context encounter various difficulties and challenges. Abdulaziz Ali Al-Qahtani (2016) emphasized that reading is a fundamental skill for foreign language learners such as Saudi EFL students. Recent research has supported this by highlighting the difficulties faced by Saudi EFL students (Alshammari, Ahmed, & Shouk, 2020). Among the difficulties encountered by Saudi EFL students in the context of reading, metacognitive strategies have been highlighted as one of these difficulties.

Al Asmari and Javid (2018) revealed that Saudi EFL students' English language proficiency and poor reading skills are the causes of difficulties faced by these students in their reading comprehension. Although English language has been taught as a foreign language in the country for several decades in the Saudi educational system, Saudi EFL students' insufficient language proficiency and ability to achieve successful reading comprehension are far from satisfactory (Al-Karroud, 2005; Abdulaziz Ali Al-Qahtani, 2016; Al-Roomy, 2013; Alqahtani, 2010). Noor (2010) pointed out that many first-year university students at tertiary levels, including those taking English language courses, are underprepared and inadequately equipped to meet the requirements of reading and learning. Thus, the focus should be geared toward raising readers' awareness of reading strategies, which is found to be important for

students' academic success. Yet, these researchers have not given full attention to understanding the effect of metacognitive reading strategies on comprehension levels.

This section has provided a background on the Saudi EFL context and difficulties encountered by Saudi EFL students in their reading skills. The following section highlights the gaps in previous studies and shows the need to conduct this study in the EFL context.

1.5   Statement of the Problem

EFL students have been described as reading slowly; they often do so laboriously word by word and check unfamiliar words as they encounter them (Chang, 2010). This affects students' reading comprehension and, undoubtedly, can lead to laboured acquisition of English. By reading slowly, EFL students' attention is given to two sub-processes: extraction of meaning and comprehending the content of the texts. This is also clear among EFL students in the Saudi context as previous studies have noted (Alhaysony, 2017; Baniabdelrahman & Al-shumaimeri, 2014; Madkhali, 2005; Masadeh, 2015). Studies in the Saudi EFL context have shown that reading is a crucial problem for Saudi EFL studies in universities and is an issue that may impair student learning in their chosen area of study.

Studies, including recent studies, in the Saudi EFL context, have shown that Saudi EFL students encounter various challenges in reading comprehension and that Saudi EFL students' level of reading comprehension performance was below average (Al-Nafisah, 2011; Abdulaziz Ali Al-Qahtani, 2016; Alsubaie, 2014; Meniado, 2016). These studies have attributed these challenges to some factors that are connected to students' lack of knowledge of reading strategies and the existence of time constraints when they are reading (Alebsi, 2002; Alsamadani, 2008; Alsulaimani, 1990; Awad,

2002). Al-Nafisah (2011) reported Saudi EFL concerns about the difficulties they faced in terms of time constraints, negative beliefs, and attitudes towards reading. Al-Nafisah added that age and gender as demographic factors are also important factors that influence students' reading interest. Further, Abdulaziz Ali Al-Qahtani (2016) argued that Saudi EFL students' lack of reading strategies can be associated with a lack of training in reading strategies. Moreover, it has been reported that there is an absence of correlation between metacognitive reading strategies and reading comprehension among Saudi EFL students (Meniado, 2016).

With regard to the English Department, where the researcher is holding a teaching position, the Testing Unit records display that most of the students' reading scores fall in the satisfactory levels based on the reading component in the Mid-Exam and Final Exam. Low reading abilities were reflected in students' grades in reading comprehension tests. This can be connected to students' lack of appropriate reading strategies and their lack of engagement in reading activities. In another study, Alqahtani (2010) reported that Saudi EFL undergraduate students' poor reading ability can be associated with students' inability to use these strategies successfully as they have lacked specific training in the use of strategies (Alsamadani, 2008; Mohammed & Ab Rashid, 2019) .

Daradkeh (2020) examined the correlation between both cognitive and metacognitive reading strategies and reading comprehension of Saudi intermediate EFL university students. His study revealed a high relationship between metacognitive strategies and students' scores in reading comprehension. He concluded that metacognitive strategies are a powerful predictor of Saudi EFL students' achievement in reading comprehension scores.

The overview of previous studies reveals that most of the studies in the Saudi EFL context have focused on reading strategies in general. Furthermore, it can be understood that studies which have focused on reading comprehension among Saudi EFL students have not dealt with the text difficulty and time-on-task and their effects. This is one of the gaps that the current study aims to address. Additionally, studies in the Saudi EFL context have shown that most Saudi EFL students rarely use reading strategies during their English reading lessons (Abdulaziz Ali Al-Qahtani, 2016). Metacognitive strategies were not addressed adequately in previous studies in the Saudi EFL context.

The review of previous studies in the EFL Saudi context demonstrates that there is a need for more studies that target exploring the extent of the use of reading strategies by Saudi EFL undergraduate students. Only a few studies have been conducted on the effectiveness of reading strategies on Saudi EFL reading comprehension (Al-Nujaidi, 2003; Al-Seweed, 2000; Madkhali, 2005; Mushait, 2004). Besides, it has been identified that reading comprehension is influenced by readers' background knowledge, proficiency, and metacognitive knowledge (Ismail & Tawalbeh, 2015).

Thus, these factors can contribute to the time learners take to improve their reading comprehension, especially EFL learners who lack adequate exposure to the use of English in real life. Since English is not a spoken language at home or in daily communications in Saudi Arabia, and it is not a second language, there are no sufficient opportunities for Saudi EFL students to learn English outside their classrooms. Consequently, Saudi EFL students' reading abilities in English, as might be expected, may not match with their first language reading ability.

In this research, the focus is on the influence of two variables which are time-on-task and text difficulty on Saudi EFL students' reading performance. Text difficulty refers to how easy and hard the text is (Klare, 1963). Text difficulty continues to be an issue of interest in studies on reading comprehension among researchers who seek to examine the suitability of texts for language learners. Sentence length, level of words difficulty, the syntactic structure of sentences, and familiarity of the words are criteria that can be used to assess text difficulty (Webb, 2007). Another variable is time on task which is used in this study to refer to the amount of time a student takes to finish a reading task and comprehend a text successfully (Prater, 1992). These two elements (text difficulty and time-on-task) were selected in this study because previous studies in the Saudi EFL context have not focused on the impact of these two elements on reading comprehension abilities of Saudi EFL students.

The current study attempts to investigate how Saudi EFL undergraduate students employ reading strategies to achieve their reading comprehension ability. It also aims to describe the most frequent reading strategies utilized by Saudi EFL undergraduate students. The study also attempts to investigate how far cognitive stress factors, conceptualized as time on task and text difficulty, affect reading comprehension ability of Saudi EFL undergraduate students.

The target population of this study was 418 Saudi EFL students who were pursuing their undergraduate studies in one of the public universities in KSA. These students were chosen because they were taking reading courses which are relevant to purpose of the study. As the study examined the differences in students; responses to cognitive stress in reading among male and female students, students included both males and females. They were also chosen because the students in the selected reading courses include a mixture of students from different levels of study. Some students

were taking Reading 1 (a course in their undergraduate programme, while some were taking Reading 2) another reading course in their study. The sample of the study is 154 students from English Department who were having Reading 1 and Reading 2.

1.6   Research Objectives

Taking into account the statement of the problem explained in Section 1.5, the current study intends to address the following seven research objectives which arise from reviewing previous literature and the researcher's experience of working as a lecturer in the context of the study (a public university in the Saudi EFL context) for a number of years.

RO 1: To explore the most frequent metacognitive reading strategies used by Saudi EFL undergraduate students.

RO 2: To measure the relationship between Saudi EFL undergraduate students' awareness of metacognitive reading strategies and their age.

RO 3: To identify the differences in Saudi EFL undergraduate students' awareness of metacognitive reading strategies across their genders and study level.

RO 4: To measure the relationship between Saudi EFL undergraduate students' awareness of metacognitive reading strategies and demographic variables (father's and mother's education).

RO 5: To analyse the effect of Saudi EFL undergraduate students' awareness of metacognitive reading strategies on their reading comprehension ability and six reading strategies.

RO 6: To assess the effect of cognitive stress (time on task and text difficulty) on Saudi EFL undergraduate students' reading comprehension ability, reading strategies, age, and gender.

RO 6 (a): To examine the effect of time-on-task on Saudi EFL undergraduate students' reading comprehension ability.

RO 6 (b): To examine the effect of text difficulty on Saudi EFL undergraduate students' reading comprehension ability.

RO 6 (c): To examine the relationship between Saudi EFL undergraduate students' responses to cognitive stress and their ages.

RO 6 (d): To examine the differences in Saudi EFL undergraduate students' responses to cognitive stress (time on task and text difficulty) across their gender.

RO 6 (e): To examine the differences in Saudi EFL undergraduate students' responses to cognitive stress (time on task and text difficulty) and how they differ across their study level.

RO 6 (f): To examine the relationship between cognitive stress (time on task and text difficulty) and Saudi EFL undergraduate students' metacognitive reading awareness.

RO 7: To explore the reading strategies and coping strategies used by Saudi EFL undergraduate students to address cognitive load in reading texts.

In accordance with the research objectives mentioned above, below are the following research questions.

1.7   Research Questions

The current study addresses the following seven research questions which arise directly from the objectives and frame the research methodology described in Chapter 3:

RQ 1: What are the most frequent metacognitive reading strategies used by Saudi EFL undergraduate students?

RQ 2: Is there any relationship between Saudi EFL undergraduate students' awareness of metacognitive reading strategies and their age?

RQ 3: Does awareness of metacognitive reading strategies among Saudi EFL undergraduate students differ across their genders and study level?

RQ 4: Is there any relationship between Saudi EFL undergraduate students' awareness of metacognitive reading strategies and demographic variables (father's and mother's education)?

RQ 5: What is the effect of Saudi EFL undergraduate students' awareness of metacognitive reading strategies on their reading comprehension ability and six reading strategies?

RQ 6: What is the effect of cognitive stress (time on task and text difficulty) on Saudi EFL undergraduate students' reading comprehension ability, reading strategies, age, and gender?

RQ 6 (a): What is the effect of time on task on Saudi EFL undergraduate students' reading comprehension ability?

RQ 6 (b): What is the effect of text difficulty on Saudi EFL undergraduate students' reading comprehension ability?

RQ 6 (c): Is there any relationship between Saudi EFL undergraduate students' responses to cognitive stress and their ages?

RQ 6 (d): Do Saudi EFL undergraduate students' responses to cognitive stress (time on task and text difficulty) differ across their gender?

RQ 6 (e): Do Saudi EFL undergraduate students' responses to cognitive stress (time on task and text difficulty) differ across their study level?

RQ 6 (f): What is the relationship between cognitive stress (time on task and text difficulty) and Saudi EFL undergraduate students' metacognitive reading awareness?

RQ 7: What are the reading strategies and coping strategies used by Saudi EFL undergraduate students to address cognitive load in reading texts?

1.8   Research Hypotheses

The research questions were drawn from relevant research and personal experience. The researcher sought to address the inevitable hypotheses which she developed over years and in the initial compilation of the project. However, not all research questions have hypotheses. Based on the nature of the research questions, only five research questions have hypotheses. These research questions are 2-6. The hypotheses addressed in this study are given below based on a selected number of research questions. Specifically speaking, the current study has 13 hypotheses: one for Research Question Two, two for Research Question Three, two for Research Question Four, two for Research Question Five, and six for research Question Six. Research Question Seven does not have hypotheses because it was examined through qualitative data collection (semi-structured interviews). In other cases, the researcher was keen to establish whether there were discernible outcomes that could be generalized but had a completely open mind about what these might be.

1.8.1   Hypothesis for Research Question Two

H_1: There is a significant correlation between Saudi EFL undergraduates' awareness of metacognitive strategies and their age.

1.8.2 Hypothesis for Research Question Three

H$_2$: There are significant differences between Saudi EFL undergraduates' awareness of metacognitive reading strategies according to their gender.

H$_3$: There are significant differences between Saudi EFL undergraduates' awareness of metacognitive reading strategies according to their study-level.

1.8.3 Hypothesis for Research Question Four

H$_4$: There are significant differences between Saudi EFL undergraduates' awareness of metacognitive reading strategies linked to their father's education.

H$_5$: There are significant differences between Saudi EFL undergraduates' awareness of metacognitive reading strategies linked to their mother's education.

1.8.4 Hypothesis for Research Question Five

H$_6$: There is an impact of Saudi EFL undergraduates' awareness of metacognitive on their reading comprehension ability.

H$_7$: There is an effect of Saudi EFL undergraduates' awareness of metacognition on their use of reading strategies.

1.8.5 Hypothesis for Research Question Six

H$_8$: There is an effect of time on task on Saudi EFL undergraduate students' reading comprehension ability.

H$_9$: There is an effect of text difficulty on Saudi EFL undergraduate students' reading comprehension ability.

H$_{10}$: There is a significant correlation between Saudi EFL undergraduate students' responses to cognitive stress and their age.

H$_{11}$: Saudi EFL undergraduate students' responses to cognitive stress (time on task and text difficulty) differ according to their gender.