Al-Aqsa University Students' Use of Metacognitive Reading Strategies in Relation to their English Reading Comprehension Competence

توظيف طلبة جامعة الأقصى لاستراتيجيات ما وراء المعرفة الخاصة بالقراءة وعلاقته بكفاءتهم في الفهم المقروء باللغة الإنجليزية

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Abstract

Little research has been conducted on English reading comprehension of Gaza university students. Thus, the study aimed to examine Al-Aqsa University students' use of metacognitive reading strategies in relation to their English reading comprehension. The researcher collected the study data through administering the reading section of the international English language testing system test (2019) and a closed-ended questionnaire to 95 students. The researcher also conducted semi-structured interviews with 16 students selected from the 95 participants. Findings indicated that the participants' use of metacognitive reading strategies was high (75.9%), and there was no statistically significant correlation between the participants' reading comprehension and their use of metacognitive reading strategies. Additionally, the study concluded that the use of metacognitive reading strategies might not be the only factor influencing the participants' reading comprehension level. Based on the study results, the researcher

introduced relevant recommendations, such as the necessity of considering other factors that may contribute to the participants' reading comprehension (improving lexical competence, using monolingual dictionaries, and utilizing some strategies like reading between lines and drawing inferences).

Keywords: Al-Aqsa University, Competence, Metacognitive Strategies, Reading Comprehension.

ملخص

نتيجة لندرة الأبحاث على الفهم المقروء باللغة الإنجليزية لدى طلبة جامعات غزة، هدفت الدراسة إلى استكشاف استراتيجيات ما وراء المعرفة الخاصة بالقراءة، وعلاقتها بالفهم المقروء باللغة الإنجليزية لدى طلبة جامعة الاقصى بغزة. وقد قامت الباحثة بجمع بيانات الدراسة من خلال تطبيق قسم الفهم المقروء باختبار(IELTS, 2019) واستبيان مغلق على 95 طالب وطالبة، كما اجرت الباحثة مقابلات شبه مفتوحة مع 16 طالب وطالبة تم اختيارهم من 95 مشارك. وقد اشارت نتائج الدراسة إلى ان نسبة توظيف افراد العينة لاستراتيجيات ما وراء المعرفة الخاصة بالقراءة كانت مرتفعة (75.9%)، وانه لا يوجد ارتباط ذات دلالة إحصائية بين كفاءة أفراد العينة في الفهم المقروء باللغة الإنجليزية وتوظيفهم لاستراتيجيات ما وراء المعرفة الخاصة بالقراءة، وقد أفادت الدراسة ايضا ان توظيف استراتيجيات ما وراء المعرفة قد لا تكون العامل الوحيد المؤثر على مستوى الطلبة في الفهم المقروء. وبناء على نتائج الدراسة قدمت الباحثة توصيات ذات أهمية مثل ضرورة الاخذ بعين الاعتبار لعوامل اخرى من شانها ان تؤثر على الفهم المقروء مثل تنمية الكفاءة اللغوية، واستخدام القواميس احادية اللغة، وممارسة بعض المهارات مثل قراءة ما بين السطور، والخروج بالاستنتاجات.

الكلمات المفتاحية: استراتيجيات ما وراء المعرفة، الفهم المقروء، الكفاءة ، جامعة الاقصى.

Introduction

Reading may be considered as one of the fundamental language skills to be taught and learnt in EFL/ESL (English as a foreign language, English as a second language) contexts. According to Grabe (2009), L2/FL (second language or foreign language) students practice reading for many purposes, such as reading for pleasure, information (journals and magazines), study purposes, and career. Moreover, Grabe (2002) views that good reading models provide opportunities for introducing

topics, stimulating discussions, studying language items, and improving writing performance. For such reasons, teaching and learning L2/FL reading has recently received a prominent focus, as many empirical investigations (e.g., Ismail & Tawalbeh, 2015; Mokhtari & Sheorey, 2002; Wang, 2009; Zhang & Seepho, 2013) have been carried out to enhance the students' reading comprehension.

Among the research areas educators and practitioners have been interested in is metacognitive reading strategies. According to Cohen (2014), one way of classifying strategies is in terms of functions (cognitive, metacognitive, affective, and social strategies), and metacognitive strategies focus on pre-planning, monitoring, and evaluation activities.

In fact, many studies claimed that metacognitive strategies had a significant role in improving reading comprehension. For instance, Ismail and Tawalbeh (2015) reported that metacognitive reading instruction had a positive impact on EFL reading comprehension proficiency of low achievers at Taif University. Moreover, Tavakoli (2014) revealed that there was a strong positive correlation between Iranian undergraduate EFL students' metacognitive awareness of reading strategies and their reading comprehension competence. Furthermore, Wang (2009) indicated that using metacognitive reading strategies in EFL classrooms enhanced reading comprehension of Taiwanese high school students. Zhang and Seepho also (2013) showed that there was a significant positive relationship between metacognitive strategy use and reading achievement of Chinese EFL students.

However, other related studies reported that there was no significant relationship between EFL/ESL students' use of metacognitive reading comprehension and their competence in reading comprehension. A related study of Fitrisia, Tan and Yusuf (2015) showed a weak positive relationship between Indonesian EFL secondary school students' metacognitive awareness of reading strategies and their proficiency in reading comprehension. Additionally, Jom'a (2013) concluded that there was a low correlation between Palestinian university EFL students' use of problem-solving strategies and their reading comprehension, a trivial

positive correlation between global strategies and reading comprehension, and a negative correlation between supportive strategies and reading comprehension. Sari (2016) also revealed that there was no statistically significant correlation between Indonesian EFL pre-service teachers' use of metacognitive strategies and their proficiency in reading comprehension. Likewise, Turhan and Ozer (2017) found that there was no significant relationship between Turkish EFL students' metacognitive awareness of reading strategies and their reading proficiency.

Needless to say, the use of metacognitive reading strategies had been a debated topic among researchers. Therefore, the present study attempted to contribute to research related to this methodological issue through investigating university students' metacognitive reading strategies in relation to their reading comprehension proficiency in a Palestinian EFL setting i.e., Al-Aqsa University, Gaza.

According to Al-Aqsa University (2020), Al-Aqsa University is a Palestinian governmental university established in 1955 in the Gaza Strip as a teachers' training institute. It became a faculty of education in 1991, then a university in 2000. It consists of eight faculties offering bachelor's degrees. One of the faculty of Education programs is *English Language Teaching*. The researcher has worked as an instructor of English language teaching courses in the university since 2006, and she noticed that some students complained about their poor levels in English reading comprehension. Moreover, Hammad (2012) reported that Gaza EFL preparatory school students had problems with reading comprehension due to their inability to use reading strategies. Given that little research has been conducted on reading comprehension of Gaza EFL university students, the current study aimed to examine Al-Aqsa University EFL students' metacognitive reading strategies in relation to their reading comprehension competence through the following questions:

Research Questions

1. What types of metacognitive reading strategies do Al-Aqsa University EFL students employ most commonly?

2. What is Al-Aqsa University EFL students' current reading comprehension performance level?
3. Is there any statistically significant relationship between Al-Aqsa University EFL students' use of metacognitive reading strategies and their reading comprehension competence?

Theoretical Framework

Theoretical framework introduces definitions of FL/L2 reading, reading competence, and metacognition. Moreover, it discusses cognitive and metacognitive FL/L2 reading strategies.

Definition of 'Reading Comprehension'

According to Oakhill, Cain, and Elbro (2015), 'reading comprehension' is a complex task that requires the orchestration of various cognitive skills and abilities. Furthermore, Goldenberg and Coleman (2010) view that 'reading comprehension' requires both reading skills and fundamental language proficiency like lexical knowledge, grammatical knowledge. Harvey and Goudvis (2007) also state that 'reading comprehension' involves a reader's interaction with a text, and that result in going beyond the literal understanding of texts.

Based on the above definitions, the researcher defines 'reading comprehension' as a complex process that requires language knowledge, reading skills, and going beyond the literal understanding of texts.

Definition of 'Competence'

For Hartig (2008), 'competence' refers to complex combinations of abilities and skills that are needed in real life situations. Merriam Webster Online Dictionary (2020) defines 'competence' as the knowledge that enables an individual to understand a language. The present study adopted Merriam Webster Online Dictionary (2020) since it it was relevant to the study objectives.

Metacognition

The term 'metacognition' comes from the field of cognitive psychology, then it has been used in language teaching and learning.

'Meta' means after or behind, and 'cognition' means knowledge or perception (Aebersold & Leefield, 1997). Additionally, 'metacognition' refers to one's knowledge about one's cognitive processes, and it includes active monitoring and consequent regulation of such processes (Tarricone, 2011).

Metacognition in Reading

Metacognition in reading means monitoring one's comprehension process. Thus, one's metacognitive awareness is reflected in his/her metacognitive reading strategies (Aflah, 2017). In fact, metacognition is a key factor for reading comprehension, in that it enables readers to manage and control the reading process (Cakici, 2017).

Cognitive Reading Strategies

According to Assiri (2015), cognitive strategies are usually employed to understand and utilize language (comprehension, memory, and retrieval) (Assiri, 2015). In other words, cognitive strategies are the strategies which readers utilize to decode the text. These include note taking and summarizing (Pang & Kmail, 2004). Grabe (2009) describes cognitive strategies as the strategies that a reader is commonly trained to use, such as guessing from a context, forming specific questions about the text, skipping a word, identifying a known word part, identifying a main idea, and building textual meaning.

Metacognitive Strategies

Pica (2005) refers to metacognitive strategies as thinking about thinking, as they can control cognitive strategies. Furthermore, Anderson (2003) views that many metacognitive processes may be happening at a time during learning a task. Grabe (2009) also describes such strategies as the strategies that require an explicit awareness about what a learner is comprehending, and the learner may consciously carry out a number of metacognitive processes before, during, and after reading.

In the first stage (pre-reading stage), readers may determine reading purposes, and preview or overview the text. Skilled readers may also try to activate their background knowledge (Block & Israel, 2005), since

activating prior knowledge is essential for the comprehension of the text (Ajideh, 2003). In this respect, 'Schemata' means "the organized background knowledge which leads learners to expect or predict aspects in their interpretation of discourse" (Ajideh, 2003, 4). Ajideh further illustrates that schemata can be activated through relating new information from the outside world to already known information stored in memory, or through building new information (new schemata).

As in the during-reading stage, readers may monitor their understanding, adjusting their reading speed to fit the difficulty of the text, creating strategies that might help them decode difficult words and comprehend complex ideas (Block & Israel, 2005). Good readers may also recognize when losing coherence of interpretations, maintaining a coherent interpretation of main ideas, employing different strategies to help repair an incoherent interpretation, and assessing the reading input beyond simple understanding (Grabe, 2009). Thus, in while-reading metacognitive readers constantly make sure that the text makes sense (Maccera, 2007).

In the after-reading stage, good readers may continue to utilize their monitoring strategies, and check their understanding (Block & Isreal, 2005). Post-reading stage includes evaluating the outcomes of learning, such as achieving the purposes of reading and understanding the text. (Chamot &O Malley, 1996).

Mokhtari and Sheorey (2002) maintain that metacognitive reading strategies can be classified into three strategy groups, including global reading strategies, problem-solving reading strategies, and support reading strategies. Global reading strategies help students control their reading through planning and monitoring (determining a purpose, previewing a text as to its length and organization, and employing typographical aids and tables). Problem-solving strategies are the procedures used by readers to solve problems developed in understanding textual information (adjusting ones' speed of reading, guessing the meanings of unknown words, and re-reading the text to improve comprehension). Support strategies are aids supporting readers in

comprehending the text (using a dictionary, taking notes, underlining, and highlighting textual information).

Furthermore, Chamot and Malley (1996) view that metacognitive strategies may be also divided into three types, including planning, monitoring, and evaluating. Planning strategies refer to arranging the learning process. Monitoring means checking comprehension or repairing one's comprehension. Evaluating includes checking the outcome of one's language learning after it has been completed.

Taking the above views into account, it can be concluded that metacognitive reading strategies are the strategies that a reader may consciously practice to plan, monitor, and evaluate his/her cognitive processes. Moreover, metacognitive reading strategies may refer to the processes helping and supporting a reader in comprehending a text. Examples of such strategies are identifying the purpose of the reading task, previewing a text, planning to activate background information, adjusting reading speed to fit the difficulty of the text, checking one's understanding of textual information, and checking whether one's reading strategies were helpful for the text comprehension.

Literature Review

Metacognitive reading strategies have recently been a focus of many researchers and practitioners all over the world. For instance, Chutichaiwirath and Sitthitikul (2017) explored the metacognitive awareness of reading strategies among 15 Thai EFL university learners. Employing a questionnaire and a think a loud protocol, the study concluded that the overall use of metacognitive reading strategies was high. Furthermore, Maasum and Maarof (2012) investigated the metacognitive reading strategies utilized by 41 Malaysian EFL undergraduates when reading academic texts at a public university. A questionnaire analysis reported that the participants were able to utilize a wide range of metacognitive reading strategies. Additionally, Mahdavi and Mehrabi (2014) aimed at exploring the metacognitive awareness of reading strategies among 144 Iranian EFL university learners in an in-put-poor environment. A survey of metacognitive reading strategies data

reported that the participants were moderately aware of reading strategies, and the most frequently used were problem solving strategies. Moreover, a study of Pammu, Amirb, and Maasum (2014) addressed the profiles of metacognitive reading strategies of 40 less proficient EFL learners in an Indonesian university. Utilizing a metacognitive awareness reading strategy inventory, findings indicated that there was a high level of metacognitive awareness of the problem solving strategies.

As in the Arab EFL contexts, a number of studies focused on metacognitive reading strategies use. For example, Abu-Snoubar (2017) examined the use of metacognitive reading strategies of 86 Jordanian EFL students at Al-Balqa University. The survey analysis indicated that the participants were high users of three types of metacognitive reading strategies, including problem solving, support strategies, and global strategies. Moreover, Ghaith and El-Sanyoura (2019) examined the use of metacognitive reading strategies of 119 Lebanese EFL tenth graders. Data of a questionnaire and a reading comprehension test showed that the participants reported high use of problem solving strategies and a moderate use of global and support strategies. Likewise, Ghwela, Mustaffa, and Noor (2017) also aimed to reveal the metacognitive reading strategies utilized by 40 Libyan EFL university learners. Based on a questionnaire data, the study showed that the participants had a high level of metacognitive awareness of the problem solving strategies and a medium level of the global strategies and support strategies. Msaddek (2018) attempted to examine the most frequently implemented metacognitive reading strategies by 63 Moroccan EFL university students. Questionnaire results showed that the participants did not sufficiently use the metacognitive strategies during reading. Finally, a study of Abu Shmais (2002) reported the metacognitive reading strategies utilized by two Palestinian English majors. Data of a reading comprehension test, a questionnaire, an interview, and a think aloud protocol showed that the two students engaged in a variety of strategies that assisted in comprehending texts.

Other descriptive studies explored the relationship between metacognitive reading strategies and FL/L2 reading comprehension

proficiency. A study of Fitrisia, Tan, and Yusuf (2015) examined the relationship between reading comprehension and metacognitive awareness of reading strategies of 272 Indonesian EFL secondary school students. A standardized English reading comprehension test and a questionnaire were employed. Results showed a weak positive relationship between the participants' metacognitive awareness of reading strategies and their reading comprehension proficiency. Moreover, Jom'a (2013) investigated the relation between 180 Berziet EFL students' use of metacognitive reading strategies and their reading comprehension. The study employed a questionnaire, a reading comprehension test, and an interview. Results concluded that there was a low correlation between the participants' use of problem solving strategies and their reading comprehension achievement, trivial positive correlation between global strategies and reading comprehension, and a negative correlation between supportive strategies and reading comprehension. Likewise, Turhan and Ozer (2017) explored the relationship between 52 Turkish EFL students' metacognitive awareness of reading strategies and their academic achievement in reading and writing. A questionnaire and an achievement test were administered to the participants. Results revealed that problem-solving reading strategies were the most preferred strategies, and there was no significant correlation between the students' metacognitive awareness of reading strategies and their reading proficiency. Likewise, Sari (2016) examined whether there was a correlation between 118 Indonesian EFL pre-service teachers' use of cognitive and metacognitive reading strategies and their English reading comprehension. Results of a questionnaire and a reading comprehension test revealed that there was no statistically significant correlation between the participants' use of metacognitive strategies and their reading comprehension proficiency.

Nevertheless, the two studies of Tavakoli (2014) and Zhang and Seepho (2013) confirmed the positive relationship between EFL students' awareness of metacognitive reading strategies and their reading comprehension. Tavakoli (2014) explored the metacognitive awareness of reading strategy use and its possible relationship with reading comprehension of 100 Iranian EFL undergraduate students. The study

utilized a questionnaire, a semi-structured interview, and a reading comprehension test. The study revealed that there was a strong positive correlation between metacognitive awareness of reading strategies and reading comprehension achievement. Similarly, Zhang and Seepho (2013) examined the metacognitive reading strategies of Chinese EFL university students. The data of a metacognitive strategy questionnaire, a semi-structured interview, and a reading comprehension test showed that there was a significant positive relationship between metacognitive strategy use and reading achievement.

Additionally, other experimental studies affirmed the positive relationship between FL/L2 reading comprehension proficiency and metacognitive awareness of reading strategies. A study of Ismail and Tawalbeh (2015) assessed the effect of metacognitive reading strategies instruction on EFL reading comprehension proficiency of 21 low achievers at Taif University. Based on a reading comprehension test, results revealed that there were statistically significant differences in reading comprehension between the experimental and control groups in favor of the experimental group. Furthermore, Wang (2009) aimed to examine the effect of metacognitive reading strategy instruction on 110 Taiwanese EFL high school students' reading comprehension, reading strategies awareness, and reading motivation. Using a mixed-method research methodology, the study indicated that metacognitive reading instruction had a positive impact on the participants' reading comprehension.

It is quite notable that while some previous studies claimed that metacognitive reading strategies had a positive role in enhancing reading comprehension, other studies showed that there was no correlation between metacognitive reading strategies and English reading comprehension. This study attempted to contribute to research related to this issue through investigating Al-Aqsa University EFL students' metacognitive reading strategies in relation to their reading comprehension proficiency.

Furthermore, the previous studies provided the researcher with examples of instruments assessing metacognitive reading strategies and reading comprehension.

Methodology

Research Design

The present study employed the descriptive research method for examining the participants' use of metacognitive reading strategies in relation to their reading comprehension competence. According to Chandra and Sharma (2004), descriptive research method is usually employed to get precise information about the current status of phenomena.

Participants

The participants of the study were 95 (64 females and 31 males) EFL students. They were randomly selected from all fourth-year English department students at Al-Aqsa University (128 females and 62 males) in the second semester of the academic year 2019-2020. The selection of the fourth year was based on the fact that the participants passed reading courses (*Reading 1* and *Reading 2*), and literature courses (*Drama*, *Novel, American Literature*, and *Poetry*). All the students had been studying English as a foreign language for 14 years and their ages ranged from 21 to 22 years old. From the 95 students, another 16 students were purposively chosen to be interviewed. The students' average grades (high-proficiency students, 85 %-100%, middle-proficiency students, 70%-84.9%, and low-proficiency students, 69.9%-below). All the participants were willing to take part in the study.

Instruments

The researcher utilized three instruments in the present study: a closed-ended questionnaire, a standardized reading comprehension test, and a semi-structured interview. The questionnaire and the semi-structured interview were introduced to five referees who recommended a few changes, such as adding new items to the questionnaire. Moreover, the reliability of the questionnaire was checked through Cronbach Alpha.

A closed-ended questionnaire

According to Brace (2008), closed-question questionnaires are popular with researchers since such questionnaires imply that there is a predictable set of answers to a closed question that the respondent can give. Reviewing some relevant references (e.g., Block & Isreal, 2005; Grabe, 2009; Mokhtari & Sheorey, 2002; Zhang & Seepho, 2013), the researcher developed a closed-ended questionnaire consisting of three categories, i.e., 'Pre-reading Metacognitive Strategies', 'While-reading Metacognitive Strategies', and 'Post-reading Metacognitive Strategies' (Appendix A). The questionnaire items required multiple choice answers with a five-point Likert scale: 1=always, 2=often, 3= sometimes, 4=rarely, and 5=never. Achieving the content validity of the questionnaire (as mentioned above), researcher used Cronbach Alpha to check its reliability. The Alpha coefficient of the overall questionnaire (22 items) was at 0.79, which was considered a high level of reliability. Furthermore, the Alpha coefficients were at 0.71 for 'Pre-reading Metacognitive Strategies' (6 items), 0.76 for 'While-reading Metacognitive Strategies' (12 items), and 0.77 for 'Post-reading Metacognitive Strategies' (4 items). Table 1 presents the Alpha coefficients of the questionnaire categories.

Table (1): Cronbach Alpha reliability coefficients of the questionnaire categories.

Category	Number of Items	Cronbach Alpha coefficients
Pre-reading Metacognitive Strategies	6	0.71
While-reading Metacognitive Strategies	12	0.76
Post-reading Metacognitive Strategies	4	0.77
Total	**22**	**0.79**

A semi-structured Interview

Semi-structured interviews introduce valuable information that cannot be anticipated by researchers, and it is the best way for searching individuals' views (Raworth, Sweetman, & Narayan, 2012). To

supplement the questionnaire data about the participants' use of metacognitive reading strategies, the study conducted four focus-group interviews with 16 students. Based on some relevant references (e.g., Block & Isreal, 2005; Grabe, 2009; Mokhtari & Sheorey, 2002; Zhang & Seepho, 2013), the researcher prepared the interview questions (Appendix B). Each interview lasted thirty minutes, and was audio-recorded for transcription.

A Reading Comprehension Test

A standardized test is a kind of norm-referenced summative assessment where the test-taker's score is compared to that of all other test takers, and it can be administered efficiently to a large number of learners (Zimmerman, 2010). The researcher administered the IELTS (international English language testing system) reading comprehension test (2019) to assess the participants' reading comprehension skills like skimming, scanning, guessing unknown words, summarizing, identifying details, finding implicit meanings in a text, recognizing an opinion, and understanding organization. The IELTS reading test contains 40 questions. Each correct answer is worth one mark. Scores out of 40 are converted to the IELTS nine-band scale.

Data Collection and Analysis Procedures

The researcher administered the study instruments to the study participants in the second semester of the academic year 2019-2020 (February and March). First, the participants were asked to respond to a closed-ended questionnaire. Then, a standardized reading comprehension test was used to assess the participants' competence in reading comprehension. Finally, the researcher conducted four focus-group interviews with 16 students. Each interview lasted for thirty minutes, and it was audio-taped.

In analyzing the study data, the questionnaire data were processed statistically using Statistical Package for Social Sciences. The participants' responses to the questionnaires were analyzed in terms of percentage, mean, and standard deviation. For determining the relationship between the participants' use of metacognitive reading

strategies and their reading comprehension competence, Pearson product-moment correlation coefficient was calculated. As for analyzing the qualitative data, the researcher employed the qualitative data analysis steps given by Lodico, Spaulding, and Voegtle (2006) in analyzing the interviews. The interviews were transcribed, coded, and organized into three main categories: pre-reading metacognitive strategies, while-reading metacognitive strategies, and post-reading metacognitive strategies. To establish the interview data credibility, another researcher reviewed and coded the data, and the two researchers agreed on 85% of the coded data.

Results

Results of First Research Question

The first research question was "What types of metacognitive reading strategies do Al-Aqsa University EFL students use most commonly"? The researcher employed a questionnaire and a semi-structured interview. Means, standard deviations, and percentages of the participants' responses to the questionnaire were calculated. Table 2 presents means, standard deviations, and percentages of the participants' responses to the questionnaire. Based on the statistical analyses of data averages, the researcher used the following rubrics for determining the participants' use of metacognitive reading strategies:

- Very High: 84% and above
- High: 68% - 83.9%
- Moderate: 67.9 %- 52%
- Low: 51.9% - 36%
- Very Low: 35.9%- below

Table (**2**)**:** Means, standard deviations, and percentages of the participants' responses to the questionnaire.

No.	Category	Mean	Standard deviation	Percentage
1	Pre-reading Metacognitive Strategies	3.86	0.58	77.2
2	While-reading Metacognitive Strategies	3.76	0.56	75.3
3	Post-reading Metacognitive Strategies	3.82	0.59	76.3
Total		**3.80**	**0.45**	**75.9**

As shown in Table 2, the overall percent frequency of the participants' responses to the questionnaire items was 75.9%. The score shows that the participants' use of metacognitive reading strategies was high.

Regarding the semi-structured interviews results, it was revealed that the metacognitive strategies most students used to practice in the pre-reading stage were previewing the text, identifying the purpose of the reading task, underlining unfamiliar words, using dictionary for identifying the mother tongue equivalents of unfamiliar words.

Participant 7 (a male student with middle achievement level): *At first, I look at the titles, subtitles, pictures, diagrams, and tables for recognizing what the text is about. If there is a summary, of course I read it.*

Participant 10 (a female student with middle achievement level): *In fact, difficult words are the biggest obstacle I encountered during reading. I do not like reading, and cannot understand texts due to unfamiliar words. That is why, prior to understanding the text, I underline all unknown words and check my dictionary for identifying their Arabic meanings. Then, I start reading the text in detail.*

Participant 2 (a female student with high achievement level): *I identify my goals, for example, I should read a chapter and understand it within three days.*

Furthermore, a majority of the interviewees reported that they practiced many metacognitive strategies during reading, including highlighting key information, translating difficult sentences and phrases into the mother tongue language, using margins for writing summarized phrases and sentences, going forth and back in the text, and using internet references.

Participant 12 (a female student with high achievement level): *When reading literary texts, such as a novel, a play, or a story, sometimes I found a difficulty in understanding some paragraphs. In this case, I re-read the previous paragraphs or sentences. In other times, I try to read the next page to understand the hidden meanings, and usually I succeed.*

Participant 9 (a male student with middle achievement level): *When finding difficulty in understanding any sentences or phrases, I check Google to read more about the topic so as to comprehend the material I'm reading.*

Participant 8 (a male student with high achievement level): *Usually, I can understand difficult sentences through reading aloud and translating them into Arabic. I also write the summary of each paragraph or page in the margin. Using margins helps me in controlling reading process.*

As for the post-reading metacognitive strategies students practice, most interviewees reported that they evaluated the information presented in the text, and checked whether their reading purposes were achieved.

Participant 8 (a male student with high achievement level): *After finishing reading and understanding the text, I think about the facts included in the texts. Are they introduced systematically? Is the material comprehensive or does it need enrichment? What are the advantages and disadvantages of the author's style? etc.*

Participant 10 (a female student with middle achievement level): *Once I ended my reading, I ask myself some questions like Have I*

understood the text well? Have I made a comprehensive summary? Have I answered all questions associated with the text? Have I underlined key vocabulary and understood it?

To sum up, a majority of the interviewees in the present study tended to employ a number of metacognitive reading strategies. Such metacognitive strategies included pre-reading metacognitive strategies (previewing the text, identifying the purpose of the reading task, underlining unfamiliar words, using dictionaries for identifying the mother tongue equivalents of unfamiliar words), while-reading metacognitive strategies (highlighting key information, translating difficult sentences and phrases into the first language, using margins for writing summarized phrases and sentences, going forth and back in the text, and using internet references), and post-reading metacognitive strategies (evaluating the information presented in the text and checking whether their reading purposes are achieved).

Results of Second Research Question

The second research question was "What is Al-Aqsa University EFL students' current reading comprehension competence level"? For this question to be answered, the study administered a reading comprehension test (IELTS, 2019). The test results showed that 55% of the participants got scores lower than the raw score, 15 and the band score, five. (2% of the students got the raw score 35; 4% of the students got raw scores between 34-30; 17% got scores 29-23, and 22% got scores 22-15.

Furthermore, the researcher utilized Al-Aqsa University grading system for determining the participants' EFL reading comprehension competence:

- Excellent: 90% and above
- Very good: 80%-89.9%
- Good: 70%-79.9%
- Fair: 69.9%- 60%
- Failure: 59.9%- below

Table (3): Descriptive statistics of the participants' EFL reading comprehension competence.

Level	Raw Frequency	Percent Frequency
Excellent	0	0%
Very Good	4	4%
Good	11	11. 5%
Fair	13	14%
Failure	67	70. 5%
Total	**95**	**100**%

Table 3 shows that while 4% of the participants' scores fell into the very good level, 70.5% fell into the failure level. Considering both IELTS scoring rubrics mentioned above and Al-Aqsa University grading system, the study concluded that the students' level in English reading comprehension was flawed. Though the students' use of metacognitive reading strategies was high, the students' reading comprehension competence was poor. It may be argued that the use of metacognitive reading strategies might not be the only factor contributing to the participants' reading comprehension proficiency. The students' poor level in English reading comprehension may be attributed to many factors other than strategy use, such as lack of linguistic competence and lack of reading practice. In this context, Goldenberg and Coleman (2010) view that successful reading comprehension requires both reading skills and fundamental language proficiency like lexical and grammatical knowledge.

Results of Third Research Question

The third research question was "Is there any statistically significant relationship between Al-Aqsa University EFL students' use of metacognitive reading strategies and their reading comprehension competence"? The study hypothesized that there was no significant correlation between Al-Aqsa University EFL students' reading comprehension competence and their use of metacognitive reading strategies. To test this hypothesis, Pearson product-moment correlation

coefficient was calculated. Table 4 show**s** Pearson product-moment correlations between the participants' EFL reading comprehension competence and their use of metacognitive reading strategies.

Table (4): Pearson Product-moment correlation between the participants' use of metacognitive reading strategies and their EFL reading competence.

Total	**Correlation coefficient**	**Significance level**
	0.174	0.093//

// Correlation is not statistically significant at $\alpha \leq 0.05$

Table 4 shows (R= 0.174). This means that there is no correlation between the participants' reading comprehension competence and their use of metacognitive reading strategies. Consequently, the study confirmed the hypothesis posed.

Discussion and Implications

The study findings indicated that the participants' use of metacognitive reading strategies was high (75.9%), and there was no significant correlation between the participants' reading comprehension competence and their use of metacognitive reading strategies. In line with the study findings, Fitrisia, Tan, and Yusuf (2015) showed a weak positive relationship between Indonesian EFL secondary school students' metacognitive awareness of reading strategies and their proficiency in reading comprehension. Moreover, Jom'a (2013) concluded that there was a low correlation between Berziet EFL students' use of problem solving strategies and their reading comprehension achievement. Likewise, Turha and Ozer (2017) reported that there was no significant correlation between Turkish EFL students' metacognitive awareness of reading strategies and their reading competence. Sari (2016) also indicated that there was no statistically significant relationship between Indonesian EFL pre-service teachers' use of metacognitive reading strategies and their English reading comprehension.

Incongruent with the present study results, other relevant studies affirmed the positive relationship between FL/L2 reading comprehension proficiency and metacognitive awareness of reading strategies. For example, Tavakoli (2014) revealed that there was a strong positive correlation between Iranian EFL undergraduate students' metacognitive awareness of reading strategies and their reading comprehension achievement. Moreover, Zhang and Seepho (2013) showed that there was a significant positive relationship between Chinese EFL university students' metacognitive strategy use and their reading achievement. Additionally, Ismail and Tawalbeh (2015) concluded that metacognitive reading strategy instruction had a positive impact on low achievers' reading comprehension proficiency at Taif University. Wang (2009) also showed that metacognitive reading strategy instruction improved Taiwanese EFL high school students' reading comprehension.

Based on the study findings, it may be argued that the use of metacognitive reading strategies might not be the only factor influencing the participants' reading comprehension level. One important factor may be linguistic competence. The interviews analyses showed that a large number of the participants had problems with reading comprehension due to their lack of lexical knowledge. Therefore, Al-Aqsa University students are recommended to work on improving their linguistic competence. In this respect, Hill (2005) views that for FL students to be successful learners, they have to do their best to develop their linguistic abilities. Goldenberg and Coleman (2010) also provide that successful reading comprehension requires both reading skills and fundamental language proficiency like lexical knowledge and grammatical knowledge.

One way of improving lexical knowledge is employing mono-lingual dictionaries. Results revealed that most interviewees used bilingual dictionaries for identifying the meanings of unknown words, the thing which might hinder them from comprehending texts appropriately. In this context, Hedgcock and Ferris (2009) view that avoiding monolingual dictionaries may give inappropriate translation. Thus, Al-Aqsa University EFL students are strongly advised to enhance their lexical knowledge

through employing monolingual dictionaries so that they could recognize the appropriate meanings and uses of English words.

Furthermore, the interviews data revealed that a majority of the students did not guess meanings of unknown words from context, and tended to check bilingual dictionaries for finding the mother tongue equivalents of all key words prior to practicing reading. According to Levine and Reves (1998) and Jones (2006), guessing meaning from context is a very essential reading skill, and successful FL/L2 readers can guess the meaning of unknown words while reading. Thus, it is recommended for Al-Aqsa University EFL students to train themselves to guess meanings from context through re-reading entire paragraphs.

Another important factor that may contribute to the participants' poor reading comprehension was that the students were interested in comprehending explicit details rather than implicit or hidden information in the text. According to the interview data, some students complained that they encountered a difficulty in reading between lines since they used to look at facts that were explicitly stated in the text. In this vein, Champions Learning Center (2018) points to the importance of reading between lines, in that it helps in finding implicit information and comprehending texts effectively. Therefore, Al-Aqsa University EFL teachers are strongly recommended to train students on reading between lines and drawing inferences.

Additionally, some interviewees reported that they cannot answer all test questions because they were not familiarized with international standardized tests, such as the EILTS test. In this context, Kellaghan, Madaus, Airasian (1982) refer to the objectivity and reliability of standardized tests. Consequently, it is advantageous for EFL reading instructors at Al-Aqsa University to employ international standardized reading tests in their classes so as to train students on practicing the sub skills emphasized in such tests (summarizing, guessing, following an argument, identifying an opinion, and understanding implicit meanings).

A final recommendation in the present study is that Al-Aqsa University EFL students should practice extensive reading since it may

improve students' reading comprehension, specifically when giving students the chance to read texts of their choice. According to Macalister (2008), extensive reading is very effective for enhancing L2 reading rate and general language proficiency.

References

- Abu Shmais, W. (2002). Identifying the metacognitive reading strategies of Arab university students: A case study. *An-Najah Univ*. J. *Res*.(*H.Sc*), *(16),* 2, 633-661.
- Abu-Snoubar, T. (2017). The metacognitive reading strategies employed by Jordanian English as a foreign language students at Al-Balqa Applied University. *Journal of Literature, Languages and Linguistics, 3*5, 16-27.
- Aebersold, J. A., & Field, M.L. (1997). *From reader to reading teacher: Issues and strategies for second language classroom*. Cambridge: Cambridge University Press.
- Aflah, M. (2017). The role of metacognition in reading comprehension. *Jurnal Pendidikan Bahasa* 6(1), 10-24.
- Ajideh, P. (2003). Schema theory-based pre-teaching tasks: A neglected essential in the ESL reading class. *The Reading Matrix*, 3 (1), 1-14.
- Al-Aqsa University (2020). Al-Aqsa University. Retrieved from https://www.alaqsa.edu.ps/en/page/2650/Alaqsa-University-Gaza-About-AQU
- Anderson, N. (2003). Metacognitive reading strategies increase L2 performance. *The Language Teacher*. Retrieved from https://jalt-publications.org/old_tlt/articles/2003/07/anderson?y=2003&mon=07&page=anderson
- Assiri, M. (2015). *Englishas a foriegn or second language: Selected topics in the areas of language learning, teaching, and testing. (Paper back)*. Singapore: Partridge Singapore.

- Block , C.C. & Israel, S.E. (2005). *Reading first and beyond: The complete guide for teachers and literacy coaches.* Californian: CORWIN Press.
- Brace, I. (2008). *Questionnaire design: How to plan, structure and write survey material for affective market research.* London*:* Kogan Page.
- Cakici, D. (2017). An overview of metacognitive strategies in reading comprehension skill. *The Journal of Academic social Science Studies, 57*, 67-82.
- Champions Learning Center (20018). *Mastering reading comprehension, workbook, year 6: The complete guide and workbook with answers for year 6SATs success.* Britain: Lulu Press.
- Chamot, A., & O'Malley, M. (1996). The cognitive academic language learning approach: A model for linguistically diverse classrooms. *The Elemetary School Journal*, 69(3), 259-273
- Chandra, S.S., & Sharma, R.K. (2004). *Research in Education*. New Delhi: Atlantic Publishers and Distributors.
- Chutichaiwirath, K., & Sitthitikul, P. (2017). The metacognitive awareness of reading strategies in Thai EFL learners. *Journal of Nusantara Studies,* 2 (2), 1-14.
- Cohen, A. (2014). *Strategies in learning and using a second language.* New York: Routledge.
- Competence (2020). In *Merriam Webster Dictionary*. Retrieved from https://www.merriam-webster.com/dictionary/competence.
- Fitrisia, D., Tan, K., & Yusuf, Y.Q. (2015). Investigating metacognitive awareness of reading strategies to strengthen students' performance in reading comprehension. *Asia Pacific Journal of Educators and Education*, 30, 15-30.

- Ghaith, G., & El-Sanyoura (2019). Reading comprehension: The mediating role of metacognitive strategies. *Reading in a Foreign Language*, 31(19), 19-43.
- Ghwela, M., Mustaffa, R., & Noor, N. (2017). Metacognitive reading strategies of EFL Libyan university learners. *International Journal of Social Science and Humanities Research,* (5), *3, 332-339.*
- Goldenberg, C., & Coleman, R. (2010). *Promoting academic achievement among English learners: A guide to the research*. California: CORWIN.
- Grabe, W. (2009). *Reading in a second language: Moving from theory to practice.* Cambridge: Cambridge University Press.
- Grabe, W. (2002). Dilemmas for the development of second language reading abilities. In J. Richards and W. Renandya (Ed.) *Methodology in language teaching: An anthology of current practice.* (pp.276-286) Cambridge: Cambridge University Press.
- Hartig, J. (2008). Psychometric models for the assessment of competences. In J. Hartig, E. Klieme, & D. Leutner. *Assesment of competences in educational contexts* (pp.69-91). U.S.A.: HOGREFE.
- Harvey, S., & Goudvis, A. (2007). *Strategies that work: Teaching comprehension for understanding and engagement*. England: Stenhouse Publishers.
- Hammad, E. (2013). Palestinian EFL university-level students' use of writing nstrategies in relation to thier EFL writing performance. *Journal of Basic and Applied Scientific Research*, *3*(10), 214-223.
- Hammad, E. (2012). *Teaching and learning English reading in Gaza prep schools: A descriptive study.* (Unpublished doctoral dissertation). Egypt, Cairo University.
- Hedgcock, J., & Ferris, D. (2009). *Teaching readers of English: Students, texts, and contexts*. New York, NY: Routledge.
- Hill, M. (2005). *Harsh words: English words for Chinese learners*.

China: Hong Kong University Press.

- Levine, A., & Reves, T. (1998) Interplay between reading tasks, reader variables, and unknown word processing. In E. Alcon, & V. Codina (Eds) . *Current issues in English language methodology* (pp.119-133). Spain: Univerrsitat Jaumel.
- Lodico, M., Spaulding, D., & Voegtle, K. (2006). *Methods in educational research*:*From theory to practice*. San Francisco: John & Sons, Inc.
- IELTS. (2019). IELTS reading practice tests. Retrieved from https;//ielts-up.com/reading/ielts-reading-practice.html#academic
- Ismail, N., & Tawalbeh, T. (2015). Effectiveness of a metacognitive reading strategies program for improving low achieving EFL readers. *International Education Studies,(8*), 1, 71-87.
- Jom'a, F. I. (2013). *Investigating Berziet students' awareness of thier knowledge and use of metacognitive reading strategies.* (Unpublished M.A. Dissertation). Berziet University, Palestine.
- Jones, L. (2006). Welcome! English for the travel and tourism industry: Teacher's book. Cambridge: Cambridge University Press.
- Kellaghan, T., Madaus, G., & Airasian, P. (1982). *Evaluation in education and human services: The effects of standaridized testing*. Boston: Kluwer. Nijhoff Publishing
- Maasum, T., & Maarof, N. (2012). Empowering EsL readers with metacognitive reading strategies. *Procedia- Social and Behavioral Sciences*, 69, 1250-1258.
- Macceca, S. (2007). *Reading strategies for science.* U.S.A.: Shell Education.
- Macalister, J. (2008). Implementing extensive reading in an EAP program. *Oxford Journals, Humanities, ELT Journal*, 62(3), 248-256. doi:10.1093/elt/ccm021

- Mahdavi, M., & Mehrabi, M. (2014). Metacognitive awareness of reading strategies among Iranian EFL learners in an 'input-poor' environment. *International Journal of Innovation and Applied Studies,*5,(4), 360-366.
- Mokhtari, K., & Sheorey (2002). Measuring ESL students' awareness of reading strategies. *Journal of Developmental Education, 25*,(3), 1-10.
- Msaddek, M. (2018). Metacognitive reading strategy use among Morrocan EFL university students. Retrieved from http://www.worldresearchlibrary.org/up_proc/pdf/1869153923301001-06.pdf
- Oakhill, J., Cain, C., & Elbro, C. (2015). *Understanding and teaching reading comprehension: A handbook*. New York: Routledge.
- Pammu, A., Amir, Z., Maasum, T.M. (2014). Metacognitive reading strategies of less proficient Tertiary Learners: A case study of EFL learners at a public university in Makassar, Indonesia. Science Direct, Social and Behavioral Sciences,118, 357-364.
- Pang, E. & Kamil, M. (2004). Second language issues in Early literacy and instruction. In O. Saracho and B. Spodek(Ed.), *Contemporary perspectives on language policy and literacy in early childhood education*(pp.29-56). USA: Information Age Publishing Inc.
- Pica, T. (2005). Second acquisition research and applied linguistics. In E. Hinkel(Ed.), *Handbook of research in second language teaching and learning* (pp.263-280) Mahwah: Lawrence Erlbaum Associates, Inc Publishers.
- Raworth, K., Sweetman, C., & Narayan, S. (2012). *Conducting semi-structured interviews: Research guidelines.* Oxford: Oxfam GB.
- Sari, M. (2016). Cognitive and metacognitive reading strategy use and reading comprehension performance of Indonesian EFL pre-

service teachers. *Journal of Foreign Language Teaching & Learning, 1*(2), 46-61

- Tarricone, P. (2011). *The taxonomy of metacognition.* New York: Psychology Press.
- Tavakoli, H. (2014). The effectiveness of metacognitive strategy awareness in reading comprehension: The case of Iranian university EFL students. *The Reading Matrix, 14*(2),314-336.
- Turhan, B., & Ozer, H.Z. (2017). Metacognitive awareness of reading strategies and academic achievement in reading and writing: A correlational research in an EFL context. *International Journal of Language academy, 5*(3), 23-34.
- Wang, M. (2009). *Effects of metacognitive reading strategy instruction on EFL high school students' reading comprehension, reading strategies awareness, and reading motivation*. (Doctoral Dissertation). Retrieved from https://ufdc.ufl.edu/UFE0041084/00001
- Zhang, L., & Seepho, S. (2013). Metacognitive strategy use and academic reading achievement: Insights from a Chinese context. *Electronic Journal of Foreign Language Teaching, 10*(1), 54-69.
- Zimmerman, L.W. (2010). *ESL, EFL, and bilingual education: Exploring historical, sociocultural, linguistic, and instructional foundations*. U.S.A.: Information Age Publishing.

Appendices

Appendix A: The closed-ended Questionnaire

Dear Student,

Read the sentences carefully and tick the appropriate

Category	Item	Always	Often	Sometimes	Rarely	Never
Pre-reading Stage	1. I identify the purpose of the reading task. 2. I try to activate the background knowledge. 3.I preview the text to see what is about before reading it. 4.I try to predict the content of the text from the title. 5.I think of the strategies I would probably use in reading the text. 6. I think whether the content reviewed fit my reading purpose					
While-reading Stage	7. I read slowly and carefully to make sure that I understand what I'm reading. 8. I take notes while reading to help me understand what I read. 9.When the text becomes difficult, I read aloud to understand what I'm reading. 10.I underline or highlight key information to help me remember it. 11.I When the text becomes difficult, I translate the sentences and phrases into the first language. 12.I adjust my reading speed according to what I'm reading of unknown words and phrases. 13.I use reference materials to help me understand what I read. 14.I use figures and tables to help me understand the text. 15. I stop from time to time to check my understanding of the text. 16. I use margins for writing any summarized or paraphrased phrases and sentences. 17. I ask myself questions and answer them while reading the text. 18. I go forth and back in the text to find relations between ideas					
Post-reading Stage	19.I check to see if my guesses about the text are right or wrong. 20 I critically evaluate the information presented in the text. 21.I check to see if my reading strategies were helpful for the text comprehension. 22.I check whether my reading purposes are achieved.					

Appendix B: The Semi-structured Interview

1. What strategies do you practice prior to practicing reading? For example, do you preview the text?....etc.
2. Do you encounter problems or difficulties (comprehension difficulties) during reading? If yes, what are they? How can you overcome such problems?
3. What strategies do you practice after finishing reading? For example, do you evaluate the text critically?....etc.

***

Appendix C: The EILTS Reading Test

The students' problem

(A) The college and university accommodation crisis in Ireland has become 'so chronic' that students are being forced to sleep rough, share a bed with strangers – or give up on studying altogether.

(B) The deputy president of the Union of Students in Ireland, Kevin Donoghue, said the problem has become particularly acute in Dublin. He told the Irish Mirror: "Students are so desperate, they're not just paying through the nose to share rooms – they're paying to share a bed with complete strangers. It reached crisis point last year and it's only getting worse. "We've heard of students sleeping rough; on sofas, floors and in their cars and I have to stress there's no student in the country that hasn't been touched by this crisis. "Commutes – which would once have been considered ridiculous – are now normal, whether that's by bus, train or car and those who drive often end up sleeping in their car if they've an early start the next morning."

(C) Worry is increasing over the problems facing Ireland's 200,000 students as the number increases over the next 15 years. With 165,000 full-time students in Ireland – and that figure expected to increase to around 200,000 within the next 15 years –fears remain that there aren't enough properties to accommodate current numbers.

(D) Mr. Donoghue added: "The lack of places to live is actually forcing school-leavers out of college altogether. Either they don't go in the first place or end up having to drop out because they can't get a room and commuting is just too expensive, stressful and difficult."

(E) Claims have emerged from the country that some students have been forced to sleep in cars, or out on the streets, because of the enormous increases to rent in the capital. Those who have been lucky enough to find a place to live have had to do so 'blind' by paying for accommodation, months in advance, they haven't even seen just so they will have a roof over their head over the coming year.

(F) According to the Irish Independent, it's the 'Google effect' which is to blame. As Google and other blue-chip companies open offices in and around Dublin's docklands area, which are 'on the doorstep of the city', international professionals have

been flocking to the area which will boast 2,600 more apartments, on 50 acres of undeveloped land, over the next three to 10 years.

(G) Rent in the area soared by 15 per cent last year and a two-bedroom apartment overlooking the Grand Canal costs €2,100 (£1,500) per month to rent. Another two-bedroom apartment at Hanover Dock costs €2,350 (almost £1,700) with a three-bedroom penthouse – measuring some 136 square metres – sits at €4,500 (£3,200) per month in rent.

(H) Ireland's Higher Education Authority admitted this was the first time they had seen circumstances 'so extreme' and the Fianna Fáil party leader, Michael Martin, urged on the Government to intervene. He said: "It is very worrying that all of the progress in opening up access to higher education in the last decade – particularly for the working poor – is being derailed because of an entirely foreseeable accommodation crisis.

Questions 1-8

Reading Passage 1 has eight paragraphs, **A–H.**

Choose the most suitable paragraph headings from the list of headings and write the correct letter, **A–H**, in boxes 1–8 on your answer sheet.

1. Cons of the commuting

2. Thing that students have to go through

3. Commutes have become common in Ireland nowadays

4. Danger of the overflow

5. Cause of the problems

6. Pricing data

7. Regression

8. Eyeless choice

Questions 9–14

Do the following statements agree with the information given in Reading Passage 1?

In boxes 9–14 on your answer sheet, write

TRUE if the statement agrees with the information

FALSE if the statement contradicts the information

NOT GIVEN if there is no information on this

9. The accommodation problem in Ireland is especially bad in Dublin.

10. Commutes are considered ridiculous.

11. The number of students in Ireland is not likely to increase in the future.

12. Due to the opening of the new offices around Dublin, the number of local restaurants will go up significantly over the next 3 to 10 years.

13. The rent price went up by 15% last year.

14. Michael Martin stated that crisis could have been omitted if the government reacted properly.

Each question correctly answered scores 1 mark. **Correct** spelling is needed in all answers.

Answers: Section 1

1. D
2. A
3. B
4. C
5. F
6. G
7. H
8. E
9. True
10. False
11. False
12. Not Given
13. True
14. Not Give

Passage 2 The science of sleep

– We spend a third of our lives doing it. Napoleon, Florence Nightingale and Margaret Thatcher got by on four hours a night. Thomas Edison claimed it was waste of time.

– So why do we sleep? This is a question that has baffled scientists for centuries and the answer is, no one is really sure. Some believe that sleep gives the body a chance to recuperate from the day's activities but in reality, the amount of energy saved by sleeping for even eight hours is miniscule - about 50 kCal, the same amount of energy in a piece of toast.

- With continued lack of sufficient sleep, the part of the brain that controls language, memory, planning and sense of time is severely affected, practically shutting down. In fact, 17 hours of sustained wakefulness leads to a decrease in performance equivalent to a blood alcohol level of 0.05% (two glasses of wine). This is the legal drink driving limit in the UK.
- Research also shows that sleep-deprived individuals often have difficulty in responding to rapidly changing situations and making rational judgements. In real life situations, the consequences are grave and lack of sleep is said to have been be a contributory factor to a number of international disasters such as *Exxon Valdez*, Chernobyl, Three Mile Island and the *Challenger* shuttle explosion.
- Sleep deprivation not only has a major impact on cognitive functioning but also on emotional and physical health. Disorders such as sleep apnoea which result in excessive daytime sleepiness have been linked to stress and high blood pressure. Research has also suggested that sleep loss may increase the risk of obesity because chemicals and hormones that play a key role in controlling appetite and weight gain are released during sleep.
- What happens when we sleep?
- What happens every time we get a bit of shut eye? Sleep occurs in a recurring cycle of 90 to 110 minutes and is divided into two categories: non-REM (which is further split into four stages) and REM sleep.

Non-REM sleep

- Stage one: Light Sleep
- During the first stage of sleep, we're half awake and half asleep. Our muscle activity slows down and slight twitching may occur. This is a period of light sleep, meaning we can be awakened easily at this stage.
- Stage two: True Sleep
- Within ten minutes of light sleep, we enter stage two, which lasts around 20 minutes. The breathing pattern and heart rate start to slow down. This period accounts for the largest part of human sleep.
- Stages three and four: Deep Sleep
- During stage three, the brain begins to produce delta waves, a type of wave that is large (high amplitude) and slow (low frequency). Breathing and heart rate are at their lowest levels.
- Stage four is characterised by rhythmic breathing and limited muscle activity. If we are awakened during deep sleep we do not adjust immediately and often feel groggy and disoriented for several minutes after waking up. Some children experience bed-wetting, night terrors, or sleepwalking during this stage.

REM sleep

- The first rapid eye movement (REM) period usually begins about 70 to 90 minutes after we fall asleep. We have around three to five REM episodes a night.
- Although we are not conscious, the brain is very active - often more so than when we are awake. This is the period when most dreams occur. Our eyes dart around (hence the name), our breathing rate and blood pressure rise. However, our bodies are effectively paralysed, said to be nature's way of preventing us from acting out our dreams.
- After REM sleep, the whole cycle begins again.
- How much sleep is required?
- There is no set amount of time that everyone needs to sleep, since it varies from person to person. Results from the sleep profiler indicate that people like to sleep anywhere between 5 and 11 hours, with the average being 7.75 hours.
- Jim Horne from Loughborough University's Sleep Research Centre has a simple answer though: "The amount of sleep we require is what we need not to be sleepy in the daytime."
- Even animals require varied amounts of sleep:

Species	Average total sleep time per day
Python	18 hrs
Tiger	15.8 hrs
Cat	12.1 hrs
Chimpanzee	9.7 hrs
Sheep	3.8 hrs
African elephant	3.3 hrs
Giraffe	1.9 hr

- The current world record for the longest period without sleep is 11 days, set by Randy Gardner in 1965. Four days into the research, he began hallucinating. This was followed by a delusion where he thought he was a famous footballer. Surprisingly, Randy was actually functioning quite well at the end of his research and he could still beat the scientist at pinball.

Questions 15–22

Do the following statements agree with the information given in Reading Passage 1?

In boxes 15–22 on your answer sheet, write

TRUE if the statement agrees with the information

FALSE if the statement contradicts the information

NOT GIVEN if there is no information on this

15. Thomas Edison slept 4 hours a night.

16. Scientists don't have a certain answer for why we have to sleep.

17. Lack of sleep might cause various problems.

18. Sleep-deprivation may be the cause of anorexia.

19. There are four stages of the REM sleep.

20. According to Jim Horne, we need to sleep as much as it takes to not be sleepy during the day.

21. Giraffes require less sleep than dogs.

22. After four sleepless days, Randy had a delusion about him being a football celebrity.

Questions 23–27

Choose the correct letter, **A, B, C** or **D.**

Write the correct letter in boxes 23–27 on your answer sheet.

23. During the Light Sleep stage:

A. Muscle activity increases

B. Jiggling might occur

C. It is not easy to be woken up

D. After waking up, one may experience slight disorientation

24. Heart rate is at the lowest level during:

A. Light Sleep stage

B. Rem Sleep

C. True Sleep stage

D. Third Sleep stage

25. The brain activity is really high:

A. During REM sleep

B. During the stage of True Sleep

C. When we are awake

D. During the Deep sleep stage

26. Humans require at least:

A. 7.75 hours of sleep

B. 5 hours of sleep

C. 8 hours

D. There is no set amount of time

27. Pythons need:

A. Less sleep than tigers

B. Twice as much sleep as cats

C. Almost ten times more sleep than giraffes

D. More sleep than any other animal in the world

Questions 28–30

Complete the sentences below.

Write **NO MORE THAN THREE WORDS** from the passage for each answer.

Write your answers in boxes 28–30 on your answer sheet.

28. If we continually lack sleep, the specific part of our brain that controls language, is _____.

29. True Sleep lasts approximately _____.

30. Although during REM sleep our breathing rate and blood pressure rise, our bodies _____.

ANSWERS

Each question correctly answered scores 1 mark. **Correct** spelling is needed in all answers.

Section 2

15. Not Given
16. True
17. True
18. False
19. False
20. True
21. Not Given

22. True
23. B
24. D
25. A
26. D
27. C
28. practically shutting down
29. 20 minutes
30. are (effectively) paralysed

A new study finds that half of human cultures don't practice romantic lip-on-lip kissing. Animals don't tend to bother either. So how did it evolve?

- When you think about it, kissing is strange and a bit icky. You share saliva with someone, sometimes for a prolonged period of time. One kiss could pass on 80 million bacteria, not all of them good.
- Yet everyone surely remembers their first kiss, in all its embarrassing or delightful detail, and kissing continues to play a big role in new romances.
- At least, it does in some societies. People in western societies may assume that romantic kissing is a universal human behaviour, but a new analysis suggests that less than half of all cultures actually do it. Kissing is also extremely rare in the animal kingdom.
- So what's really behind this odd behaviour? If it is useful, why don't all animals do it – and all humans too? It turns out that the very fact that most animals don't kiss helps explain why some do.
- According to a new study of kissing preferences, which looked at 168 cultures from around the world, only 46% of cultures kiss in the romantic sense.
- Previous estimates had put the figure at 90%. The new study excluded parents kissing their children, and focused solely on romantic lip-on-lip action between couples.
- Many hunter-gatherer groups showed no evidence of kissing or desire to do so. Some even considered it revolting. The Mehinaku tribe in Brazil reportedly said it was "gross". Given that hunter-gatherer groups are the closest modern humans get to living our ancestral lifestyle, our ancestors may not have been kissing either.
- The study overturns the belief that romantic kissing is a near-universal human behaviour, says lead author William Jankowiak of the University of Nevada in Las Vegas. Instead, it seems to be a product of western societies, passed on from one generation to the next, he says. There is some historical evidence to back that up.
- Kissing as we do it today seems to be a fairly recent invention, says Rafael Wlodarski of the University of Oxford in the UK. He has trawled through records

to find evidence of how kissing has changed. The oldest evidence of a kissing-type behaviour comes from Hindu Vedic Sanskrit texts from over 3,500 years ago. Kissing was described as inhaling each other's soul.

- In contrast, Egyptian hieroglyphics picture people close to each other rather than pressing their lips together.
- So, what is going on? Is kissing something we do naturally, but that some cultures have suppressed? Or is it something modern humans have invented?
- We can find some insight by looking at animals.
- Our closest relatives, chimpanzees and bonobos, do kiss. Primatologist Frans de Waal of Emory University in Atlanta, Georgia, has seen many instances of chimps kissing and hugging after conflict.
- For chimpanzees, kissing is a form of reconciliation. It is more common among males than females. In other words, it is not a romantic behaviour.
- Their cousins the bonobos kiss more often, and they often use tongues while doing so. That's perhaps not surprising, because bonobos are highly sexual beings.
- When two humans meet, we might shake hands. Bonobos have sex: the so-called bonobo handshake. They also use sex for many other kinds of bonding. So, their kisses are not particularly romantic, either.
- These two apes are exceptions. As far as we know, other animals do not kiss at all. They may nuzzle or touch their faces together, but even those that have lips don't share saliva or purse and smack their lips together. They don't need to.
- Take wild boars. Males produce a pungent smell that females find extremely attractive. The key chemical is a pheromone called androstenone that triggers the females' desire to mate.
- From a female's point of view this is a good thing, because males with the most androstonene are also the most fertile. Her sense of smell is so acute, she doesn't need to get close enough to kiss the male.
- The same is true of many other mammals. For example, female hamsters emit a pheromone that gets males very excited. Mice follow similar chemical traces to help them find partners that are genetically different, minimising the risk of accidental incest.
- Animals often release these pheromones in their urine. "Their urine is much more pungent," says Wlodarski. "If there's urine present in the environment, they can assess compatibility through that."
- It's not just mammals that have a great sense of smell. A male black widow spider can smell pheromones produced by a female that tell him if she has recently eaten. To minimise the risk of being eaten, he will only mate with her if she is not hungry.

- The point is, animals do not need to get close to each other to smell out a good potential mate.
- On the other hand, humans have an atrocious sense of smell, so we benefit from getting close. Smell isn't the only cue we use to assess each other's fitness, but studies have shown that it plays an important role in mate choice.

A study published in 1995 showed that women, just like mice, prefer the smell of men who are genetically different from them. This makes sense, as mating with someone with different genes is likely to produce healthy offspring. Kissing is a great way to get close enough to sniff out your partner's genes.

- In 2013, Wlodarski examined kissing preferences in detail. He asked several hundred people what was most important when kissing someone. How they smelled featured highly, and the importance of smell increased when women were most fertile.
- It turns out that men also make a version of the pheromone that female boars find attractive. It is present in male sweat, and when women are exposed to it their arousal levels increase slightly.
- Pheromones are a big part of how mammals chose a mate, says Wlodarski, and we share some of them. "We've inherited all of our biology from mammals, we've just added extra things through evolutionary time."
- On that view, kissing is just a culturally acceptable way to get close enough to another person to detect their pheromones.
- In some cultures, this sniffing behaviour turned into physical lip contact. It's hard to pinpoint when this happened, but both serve the same purpose, says Wlodarski.
- So if you want to find a perfect match, you could forego kissing and start smelling people instead. You'll find just as good a partner, and you won't get half as many germs. Be prepared for some funny looks, though.

Questions 31–35

Do the following statements agree with the information given in Reading Passage 3?

In boxes 31–35 on your answer sheet, write

TRUE if the statement agrees with the information

FALSE if the statement contradicts the information

NOT GIVEN if there is no information on this

31. Both Easter and Wester societies presume that kissing is essential for any part of the world.

32. Our ancestors were not likely to kiss.

33. Chimpanzees and bonbons kiss not for the romance.

34. There are other animal, rather than apes, that kiss.

35. Scent might be important in choosing your partner.

Questions 36–39

Complete the sentences below.

Write **NO MORE THAN TWO WORDS** from the passage for each answer.

Write your answers in boxes 35–39 on your answer sheet.

36. According to the Mehinaku tribe, kissing is _____.

37. Human tradition is to _____ when they meet.

38. A male black widow will mate with the female if only she is _____.

39. Humans benefit from getting close due to the fact that we have an _____ of smell.

Question 40

Choose the correct letter, **A, B, C** or **D.**

40. Passage 3 can be described as:

A. Strictly scientific text

B. Historical article

C. Article from a magazine

D. Dystopian sketch

ANSWERS

Each question correctly answered scores 1 mark. **Correct** spelling is needed in all answers.

Section 3

31. False
32. True
33. True
34. False
35. True
36. gross
37. shake hands
38. not hungry
39. (an) atrocious sense
40. C