

The Effects of Content Familiarity and Language Ability on Reading Comprehension Performance of Low- and High-ability Saudi Tertiary Students Studying English as a Foreign Language

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Abstract. This study investigates the effects of content familiarity and language ability (defined as general L2 proficiency) on the comprehension performance of low- and high-ability Saudi students of English as a foreign language. One hundred and thirty-two male and female university students participated in this study, performing two reading comprehension tests on two different types of text (familiar and unfamiliar). The results showed that content familiarity and language ability had significant effects on the students' comprehension performance. They indicated that content familiarity facilitated reading comprehension, and that language ability had a significant effect on the comprehension performance of students at different levels. Language ability level may have played a compensatory role in facilitating the comprehension of the unfamiliar text. Educators designing and implementing reading courses need to consider these related factors.

Introduction

Reading ability has always been viewed as critical to academic success [7, 13, 22, 29, 40, 62]. Research on reading has attempted to look for components that affect reading performance as well as reading behaviors that distinguish proficient from less-proficient readers. After decades of study, reading researchers generally have come to an agreement that reading is an interactive process, involving lexical, semantic, syntactic, and world knowledge [23, 28, 29, 53, 60, 62]. However, the extent to which each component affects readers' comprehension and their use of strategies to comprehend remains unclear [4, 23, 62]. The uncertainty of the relative importance of each component to reading comprehension causes confusion in reading instruction [29]. This is especially true in the second/foreign language (L2/FL) reading context because the reading task generally demands a great amount of cognitive capacity from FL readers due to the differences between L1 and L2 reading.

Despite the importance of understanding the nature of L2 reading processes, L2 reading research has been dismissed as "being marginal and derivative from first language" [7, p. 2]. The lack of interest in L2 reading research may be related to the belief that reading in a non-native language is merely a mapping task, that is, "replacing one mode of behaviour with another" [7, p. 2], as Bernhardt has put it. Since L2 reading research originated from research on first language (L1), it is logical that L2 research bases its theoretical underpinnings on principles derived from L1 research. However, as Koda has indicated, "When L1 precepts are extrapolated to L2 research without due regard for the unique demands posed by L2 reading, confounding elements arise, inadequate conceptualisations evolve, and practice is less than ideal" [38, p. 1]. Koda [38] has also presented a thorough discussion of the fundamental elements that separate L1 and L2 readers. According to her, there are three dimensions that distinguish L1 from L2 readers. One is the extent of linguistic proficiency acquired before reading instruction. A second dimension is related to the effects of readers' prior experience of L2 reading. The third dimension is the cross-linguistic nature of L2 reading. According to Koda, for second language learners, "L1 and L2 knowledge may coalesce in forming L2 sentence comprehension strategies" [38, p. 7]. For instance, by comparing the rates of acquisition of relative clauses of two groups of learners of English as a second language (ESL), Flynn [26] found that the Spanish ESL group acquired relative clauses significantly faster than the Japanese ESL group. Flynn concluded that the match or mismatch of L1 and L2 syntactic structures might have influenced the rate of acquisition of language features. Studies have also shown that second-language sentence interpretation strategies were strongly related to the linguistic features of L2 readers' native language [31]. For example, students whose L1 is Hebrew or Arabic, which, compared to, say, English, have greater morphological complexity with embedded grammatical information, read more slowly than students whose L1's linguistic features are similar to those of English [29, 56, 57].

Since L2 readers not only differ in their amount of knowledge of and exposure to the target language, but also are affected by cross-language factors, research findings obtained from learners whose native language is an Indo-European language (such as French, Spanish) cannot be generalized to learners whose native language is an Afro-Asiatic language (such as Arabic) without caution. It is important that more research be done on learners of different language backgrounds in order to understand L2 reading processes. Assuming that linguistic differences across languages are likely to influence L2 comprehension variably, and acknowledging the need for more research to be conducted to examine simultaneously the relative effectiveness of language ability and content knowledge on L2 reading comprehension, as will be discussed below, this study aims to explore the relative effects of language ability and content familiarity on foreign language (FL) reading comprehension.

Literature Review

In the last two decades, two major approaches have attempted to shed light on second language reading comprehension. One is associated with the cognitive schema theory and the other is related to the threshold hypothesis.

According to schema theory, our memory system contains "an enormous number of schemata [the plural form of schema]" [54, p. 128]. Each schema contains many components, parts, or "slots", which are hierarchically linked, representing the relationships among the components relative to the schema in question [6, 13].

Enquiries into the schema-comprehension relationship have been conducted initially and primarily in the realm of English as a first language. In general, studies in first language reading have pointed out the critical role of knowledge in comprehension [36, 42, 50, 61].

Motivated by first language studies, second language reading researchers have also attempted to examine the effect of knowledge structures on L2 readers' comprehension. Most of these studies have confirmed the findings of L1 research: that cultural familiarity of a text had a positive effect on readers' comprehension performance measured by recall [43] and by objective questions [21, 34], that exposure to the target culture helped readers in the free recall and sentence recognition tasks [35], and that helping readers build background knowledge through pre-reading activities helped improve their reading scores measured by objective questions [25, 33].

In addition to cultural knowledge, readers' discipline areas have also been found to be a source of bias in the measurement of reading ability [2, 3]. Other studies have indicated that domain-specific knowledge exerts an additive effect on language proficiency, whether measured in terms of listening comprehension [55] or in terms of reading comprehension [24, 32]. In addition, Levin and Haus [41] have provided evidence for the compensatory model [60], finding that, given sufficient domain-specific knowledge, readers at a lower level of language proficiency were able to perform better than, or at least as well as, readers at a higher level of language proficiency on multiple-choice questions.

Results from these studies have convinced L2 reading experts as well as instructors that one source of L2 reading problems is the lack of an appropriate schema for the topic L2 readers are reading about [14, 17, 33, 41]. Given the appropriate schema, readers may be able to overcome their insufficiently developed linguistic knowledge.

However, a review of reading research brings to attention results counter to those of the above studies. In some cases, providing background knowledge seemed to help readers at certain proficiency levels but not others [12, 33]. In other cases, the effect of background knowledge was found to be inconclusive [3, 4, 16, 49]. In still other cases,

background knowledge either did not facilitate comprehension or exerted a reverse effect [7, 12, 30].

For example, in Hudson's study [33], subjects at the beginning and intermediate levels scored much higher when they received prior knowledge treatment. However, the effect was not significant among students at the advanced level. Peretz and Shoham [48] used multiple-choice questions to test EFL college students' comprehension of topics within or outside their areas of study. Domain knowledge effect was found in the test scores of students of humanities and social science, but not in the scores of students of science and technology. Similarly, the series of studies by Alderson and Urquhart [3] also failed to find domain-specific knowledge to be a consistent factor in predicting subjects' comprehension test performance. Hammadou [30] investigated the reading performance of American college students enrolled in French and Italian classes. He found that students in this study recalled more information from the texts rated unfamiliar than from those rated most familiar.

In the light of these results, some researchers have suggested that the absence of knowledge effects may be attributed to ESL readers' insufficient use of their prior knowledge [12, 33, 39, 51, 52]. Carrell [12] suggests that ESL readers fail to use background information because they are linguistically bound. The language itself requires so much attention that non-native readers tend to process at the word and sentence level and do not attend to top-level organizational features and background information. Reading involves different processes including knowledge of language, which is regarded as crucial for reading in L2 [44, 47, 51]. Another possibility is related to the way the text is written [12, 39, 52]. If words used in the text are obscure or abstract, readers will find it difficult to relate the text to what they already know. A third possibility is that L2 readers' lack of control over vocabulary difficulty leads to their inability to activate the appropriate schema. It has been suggested that readers are unable to use background knowledge because they have not reached what has been termed the 'threshold level' necessary for its use [46, 51]. The threshold hypothesis states that L2 readers need to know or reach a certain level of L2 knowledge (vocabulary, structure) so that background knowledge, L1 reading strategies, and skills can be used efficiently to help comprehend the text. This level is obviously not a fixed set of language knowledge that students need. It has been suggested [1, 62] that the threshold level must be reset for each subject or group and each set of tasks.

However, critics of this hypothesis have argued that reading success varies with a number of factors and is not bound only by L2 knowledge [29]. Devine [18] argues that the idea that vocabulary difficulty impedes readers' use of their prior knowledge is weak. Readers at the beginning level can still read with good understanding if their theoretical orientation towards reading processing is meaning-centered. Anderson [5] also observed that some ESL students at the beginning level were able to perform as well as those at the advanced or intermediate level on the comprehension questions.

Bernhardt has suggested that:

We know both anecdotally and from research evidence that the linguistic system provides a necessary but insufficient understanding of the second language reading process. We have seen readers with well-developed linguistic system fail to comprehend; we have seen readers with meagre linguistic system succeed in comprehension. The explanation for these phenomena must obviously include, but go beyond, the linguistic base [8, p. 35].

Bernhardt's idea is certainly not revolutionary in the reading field. As early as the late 70s and early 80s, interactive models of reading had already suggested that reading comprehension requires interaction between the linguistic elements in the text and the knowledge elements in the reader [53, 60]. However, few studies conducted on L1 reading have examined the two factors simultaneously. Stahl and his colleagues [58, 59] conducted a series of studies examining vocabulary difficulty (word knowledge) and knowledge of the content domain. They concluded that vocabulary difficulty and prior knowledge functioned independently. Vocabulary difficulty may affect microprocessing whereas prior knowledge may affect macroprocessing. Microprocessing refers to the processing of propositions expressed in the sentences of the text and may be reflected in the processing of text coherence. Macroprocessing refers to the processing of the global semantic structure, such as abstracting or summarizing a text [63]. The few available studies in the field of L2 reading have produced mixed results. Kim [57] investigated the reading comprehension performance of 108 Korean high school EFL students who had studied English for 4 years. The author concluded that vocabulary difficulty and prior knowledge affected the process of reading differently, a conclusion that is consistent with L1 findings.

However, Chen [15] investigated the effect of language proficiency and domain-specific knowledge on the comprehension of science texts by Chinese graduate students studying in Canada. Analysis of variance revealed that domain-specific knowledge exerted strong effects on the recall of propositional information, but surprisingly no significant effect of L2 language proficiency was found.

To summarize, previous studies have come to quite different conclusions about the effects of prior knowledge and linguistic knowledge on reading comprehension. This study attempts to investigate the relative effects of both simultaneously within a Saudi EFL context. It tries to answer the following questions:

1. What are the relative effects of content familiarity on high- vs. low-ability readers' comprehension performance?
 - a. Does content familiarity affect the comprehension performance of high- and low-ability readers differently?
 - b. Do high- and low-ability readers perform differently given equal conditions?

The Study

Participants

The participants of this study were 132 male and female undergraduate English language students at the Department of European Languages at the College of Languages and Translation at King Saud University in Riyadh. The students study in this department to achieve a bachelor's degree in English language translation. It should be noted, however, that in Saudi Arabia all education is segregated and girls have a separate department.

In order to select for higher and lower English ability, this study follows Carrell [14] and Brisbois [11] in dividing readers into levels of general L2 proficiency according to their instruction level. In this study, students from different levels were chosen on the basis of the assumption that students at a higher level and year of study would have gained more exposure to the language and acquired more language skills. The 65 students considered to be of lower ability were at the second level, that is, year one semester two, while the 67 higher-ability students were at the fourth level, that is, year two semester two.

Research design

This study's design was appropriate to its aim: to examine the relative effects of language ability and content familiarity on the comprehension performance of particular group of Saudi students. For this purpose, a 2 x 2 between-subjects design was set up, with 2 levels of language ability (high and low) and 2 levels of content familiarity (familiar and unfamiliar). The dependent variable was the comprehension scores from the multiple-choice questions. Four groups were created: low-familiar (LF) group, low-unfamiliar (LU) group, high-familiar (HF) group and high-unfamiliar (HU) group.

Material

Two expository passages were selected from McCall-Grabbs Standard Test Lessons in Reading, Book D and Book F [45]. These two passages were selected because each has a descriptive top-level structure with a causation structure embedded in it to build up its argument. One passage, The Jet Stream, contains 191 words and explains what the jet stream is and how it affects the weather and pilots flying in the United States (Appendix A). The other passage, The Titanic, contains 182 words and describes the tragedy of the Titanic – what the Titanic was like, what happened to it, and what measures were taken after the disaster (Appendix B). A reliability analysis was computed for each text. The reliability results were (Cronbach's alpha) 0.7462 for the Titanic passage and 0.6605 for the Jet Stream passage. It was felt that the reliability estimates were acceptable because the tests contained 10 items only.

Familiarity of content

Because the film "Titanic" was a great success all over the world, it was assumed that the movie was likely to have been seen by the participants of this study, who therefore should have been familiar with the story of the Titanic. On the other hand, the

term "jet stream" mainly appears on weather reports in the United States and Canada. Therefore, it was assumed that Saudi students would have little or indeed no idea about it at.

In order to determine whether or not the participants did in fact know more about the Titanic and less about the Jet Stream, two sets of questions written in English were attached to the reading test as pre- and post-test questionnaires. The pre-test questions required the participants to check whether or not they had heard the terms 'Titanic' or 'Jet Stream', whether or not they had ever heard or read the story or a report about either one of these topics, and whether or not they had ever watched films related to these topics. As a further measure, the participants were asked at the end of the test to evaluate their knowledge of the content on a five-point scale from 'completely new' to 'completely old'. Tables 1 and 2 summarize the results of this content familiarity survey.

Table 1. Summary of the results of the content familiarity survey for the Titanic passage

Pre-test questionnaire:		Yes
	1- Have you heard the name 'Titanic'?	100%
	2- Have you heard the story of the 'Titanic'?	89.6%
	3- Have you seen the movie 'Titanic'?	88.1%
	4- Have you read any report about the Titanic tragedy?	31.3%
Post-test questionnaire:		
To me, the content of this passage is	A. completely new knowledge.	1.5%
	B. mostly new knowledge.	14.9%
	C. half new and half old knowledge.	52.2%
	D. mostly old knowledge.	17.9%
	E. completely old knowledge.	13.4%

Table 2. Summary of the results of the content familiarity survey for the Jet Stream passage

Pre-test questionnaire:		Yes
	1- Have you heard the term 'Jet Stream'?	1.5%
	2- Have you heard or seen anything regarding the Jet Stream?	1.5%
	3- Have you read any report about the Jet Stream?	0%
	4- Do you know in what way the Jet Stream relates to human life?	0%
Post-test questionnaire:		
To me, the content of this passage is	A. completely new knowledge.	52.3%
	B. mostly new knowledge.	35.4%
	C. half new and half old knowledge.	7.7%
	D. mostly old knowledge.	3.1%
	E. completely old knowledge.	1.5%

The results showed that all students reported that they had heard the name Titanic. The post-test questionnaire also indicated that the students felt that they were quite familiar with the story. For the Jet Stream passage, 83.1% reported that they had never heard the term Jet Stream. The post-test questionnaire revealed that 52.3% thought that the content of the Jet Stream passage was completely new to them. The overall results indicate that the content of the Titanic passage seemed to be familiar to the students, whereas that of the Jet Stream passage appeared to be unfamiliar to them, as the results showed.

Data collection and analysis procedures

The data collection was conducted in the university setting on normal university days during the reading module lecture times for all students. The students were assigned to the four conditions (LF, LU, HF, HU). First, the second-level (low-proficiency) students were grouped into two groups (LF, LU) randomly. They were allowed 20 minutes to finish the first test, after which they were instructed to start doing the second test. Thus, one group started with the familiar test (LF condition) and when they had finished, they started to read the unfamiliar text (LU condition). The other group did the tests in the reverse order. In this way, the effects of individual differences and the advantage of taking one test before the other were minimised. The same procedure was followed with the high-proficiency students at the fourth university level. Both male and female departments followed this procedure. All the students were told to read the reading instructions carefully and to ask for clarification if needed.

The data collected consisted of the comprehension scores obtained from the 10 multiple-choice questions designed for each of the two passages. The data analysis was conducted in accordance with the research questions, all of which were concerned with comprehension performance as measured by the scores from the multiple-choice questions, which were considered as the dependant variable. A one-way analysis of variance (ANOVA) was used to test the differences between the groups and a post-hoc analysis using the Scheffe test was conducted to locate the source of differences. Then, t-tests were conducted for each independent variable to show the significant differences in terms of the comprehension performance. The study results are reported below.

The Results

This study investigated two different factors, English Ability Level, and Content Familiarity, in order to explore their relationship to the participating readers' comprehension performance. The scores obtained by the participants of high and low English ability reading familiar and unfamiliar passages were compared. The results obtained are presented in accordance with the research questions, beginning with the main research question exploring the relative effects of content familiarity on the high-vs. low-ability readers' comprehension performance. Then, further analysis explores the sub-questions, which target each independent variable to draw a detailed picture of the patterns and differences between the four conditions (LF, LU, HF, and HU).

In order to answer the main research question "What are the relative effects of content familiarity on high- vs. low-ability readers' comprehension performance?", a one-way analysis of variance (ANOVA) test was conducted with the post-hoc Scheffe test. The test explores the differences between the four conditions. Table 3 shows the results of the ANOVA test of the differences between the four groups.

Table 3. ANOVA results of the differences between the experimental conditions

		Means	F-ratio	Sig.
Between Groups	LF	7.1212	7.5795	.0001*
	LU	5.8125		
	HF	7.2353		
	HU	7.4848		

* Significant at the alpha level of .05.

The results revealed significant differences between the four conditions at the alpha level of .05. The Scheffe test results showed that there are three significant differences at the .05 level located between the LU (low ability-unfamiliar) group and the LF (low ability-familiar) group in favor of the LF group. The same results were found between the LU and HF (high ability-familiar) groups and the HU (high ability-unfamiliar) group in favor of groups HF and HU.

The interaction effects result shows that there is significant and a positive interaction ($F = 16.972$, $Sig. = .000$) between the two independent variables (language ability and content familiarity). These results indicate that there was a relationship between content familiarity and language ability in the students' reading comprehension.

To answer the research question "Does content familiarity affect the comprehension performance of high- and low-ability readers differently?", t-tests for independent samples of language ability were conducted for each type of text. Table 4 below shows the differences between the low- and high-ability students for each type of text.

Table 4. t-tests results for independent samples of language ability for each type of text

Type of text	Language ability	Number of cases	Mean scores	t-value	Sig. 2-tail
Familiar	Low	66	7.1212	-.28	.780
	High	68	7.2353		
Unfamiliar	Low	64	5.8125	-4.75	.000*
	High	66	7.4848		

* Significant at the alpha level of .05.

Table 4 shows that there are no significant differences in the comprehension performance on the familiar text (the Titanic passage) between the low- and high-proficiency students. However, the picture is different regarding the comprehension

performance on the unfamiliar text (the Jet Stream passage), as there are significant differences between the low- and high-proficiency students at the alpha level of .05 ($p = .000$). The high-proficiency students performed better on their comprehension test, as shown by the mean scores they achieved. With regard to the students' overall comprehension performance on the familiar and unfamiliar texts, the t-tests conducted for independent samples of type of text revealed significant differences between the performances on the familiar text and the unfamiliar text ($t\text{-value} = 2.563$, $p = .011$) in favor of the performance on the familiar passage. The results indicate that content familiarity may have affected the comprehension performance of both low- and high-ability students.

To answer the research question "Do high- and low-ability readers perform differently given equal conditions?", a t-test for independent samples of language ability was conducted to explore the differences between the low- and high-ability students' overall performance on their reading tests. Table 5 shows the t-test results for the differences between the comprehension scores of the low- and high-ability students.

Table 5. t-tests for independent samples of language ability

Language ability	Number of cases	Mean	t-value	Sig. (2-tailed)
Low	130	6.4769	-4.473	.000*
High	134	7.3582		

* Significant at the alpha level of .05

Table 5 shows that there are significant differences between the students of high language ability and the students of low ability in favor of the students of higher proficiency; the latter performed better on their reading tests, as the overall mean scores show. These results indicate that the high-ability students performed significantly better than the low-ability students in both comprehension tests. In order to explore the performance of each language ability group, t-tests were conducted for each language ability group on their performance on the different types of texts. Table 6 shows the results of the independent samples t-tests for both low- and high-ability groups.

Table 6. Independent samples t-tests for low- and high-ability students

Language Ability	Type of Text	Mean	t-value	Sig. (2-tailed)
Low	Familiar	7.1212	4.419	.000*
	Unfamiliar	5.8125		
High	Familiar	7.2353	-1.052	.295
	Unfamiliar	7.4848		

* Significant at the alpha level of .05

Table 6 shows that there are significant differences with regard to the performance of the low-ability students on the familiar and unfamiliar texts. These students performed

better in the test related to the familiar text (the Titanic passage) than in the test related to the unfamiliar text (the Jet Stream passage). However, the performances of the high-ability students showed no significant differences between the familiar and the unfamiliar texts. These results indicate that ability level may have affected the students' comprehension of specific types of information, as the low-ability students' scores for comprehension of the unfamiliar text did not match their scores for the familiar text.

To summarise, content familiarity was found to have greatly facilitated the comprehension performance of both the low- and the high-ability students. The results also showed that there were significant differences in comprehension performance between the high-ability and the low-ability students, especially in their performance on the unfamiliar text. Next, the results will be discussed in relation to what is reported in the literature.

Discussion

This study sought to explore the relative effects of language ability and content familiarity on text comprehension. In general, content familiarity was found to have significantly affected the students' overall comprehension performance. Compared with their performance on the unfamiliar passage, they tended to score higher on the familiar passage. These results appeared to support the schema theory of reading and research on L2 reading [14, 17, 33, 41]. According to the schema theory of reading, knowledge of text content can facilitate comprehension during the encoding/decoding process by providing a knowledge structure to which readers can compare and fit pieces of incoming information, thus making it possible to assimilate text information without the need to consider all the words and phrases in the text.

On the other hand, the inability to fit incoming information to the existing knowledge structure not only increases the necessity to comprehend each individual idea unit, but also increases memory constraints and reduces the cognitive resources available for the reader to integrate and incorporate ideas in the passage, making information assimilation difficult. The results support Urquhart and Weir's [62] suggestion that the content of a text should be sufficiently familiar to permit the deployment of appropriate skills and strategies in order to understand the text.

Content familiarity may have helped the low-ability students to bridge the gap between them and the high-ability students and perform as well as they did in the familiar passage (see Table 3). This can also be seen in the difference between the low-ability students' performances on the familiar and unfamiliar passages, which was found to be highly significant (see Table 6).

Language ability was also found to have significantly affected the learners' comprehension performance. This can be seen in the overall differences between the low-ability and high-ability students (see Table 5) and can also be seen in their

performances on the unfamiliar passage (see Table 4); in both cases the high-ability students performed significantly better than the low-ability students. These results support some of the results found in the literature, which indicate that reading is a complex process and needs a sufficient amount of L2 knowledge to make effective use of skills and strategies in order to understand a text [29, 51, 62]. The high-ability reader uses his or her language knowledge (e.g. semantic and syntactic) to predict words from sentence cues or to predict meaning [44, 47]. It is suggested here that the high-ability students passed beyond the necessary threshold level regarding these two texts as they seemed to have enough linguistic knowledge to read and understand the texts without great difficulty.

However, the results also showed that the lack of prior knowledge (content knowledge) seems to have affected the low-ability students but not the high-ability students (see Table 4). One possibility is that, as suggested in the literature, background knowledge helps readers at a certain proficiency level (here, the low-ability students) but not those at other levels [12, 33]. The other possibility is related to language ability effects; that is, the lack of prior knowledge seemed not to hinder the high-ability students' performance on the unfamiliar passage as their proficiency level compensated for this lack of familiarity and they performed better. This possibility can be supported by the interactive model of reading, which suggests that reading comprehension requires interaction between the linguistic elements in the text and the knowledge elements in the reader [12, 53, 60]. It might be the case that knowledge of the language, vocabulary repertoire, and reading skills helped the high-ability students to overcome the unfamiliarity of topic and content; their language knowledge freed their cognitive resources to make effective use of the skills and strategies of their comprehension procedures. This possibility can be supported by the study's interaction effect results, which were found to be highly significant between language ability and content familiarity. These results, then, suggest that content familiarity and language ability had significant but different effects on the students' reading comprehension performance at different levels of proficiency.

Pedagogical Implications

Some pedagogical implications can be drawn here. First, language educators need to take advantage of the significant effects of content familiarity on learners' comprehension performance. They should therefore provide low-ability students, especially beginners and those at the elementary level, with familiar content in order to enable them to deploy the appropriate skills and strategies to understand the texts. Then, they can advance step by step, making the texts more challenging in terms of language difficulty and in terms of unfamiliarity of content as the students' language ability improves. By implementing this gradual process, we will provide students with adequate opportunities to develop their reading skills and strategies, their language ability and vocabulary repertoire. If topics and texts are familiar to them, students' memory and cognitive resources can be freed somewhat to concentrate on other language-processing

aspects such as new vocabulary and sentence patterns. Class time should be allocated not only to the discussion of the topic, but also to the discussion of the strategies used by individual students to understand the texts they encounter. The teacher's responsibility is to encourage students to identify their reading problems and how they solve their problems. The teacher should also point out the weaknesses and strengths of students' strategies and provide opportunities for students to use such strategies. This can be done through teaching strategies, such as skimming, scanning, and note taking. Previous research has drawn attention to the need for and the effectiveness of the explicit teaching of reading strategies [13, 19, 20].

However, the findings of this study must be interpreted in the light of a number of limitations. One limitation pertains to the study's use of a single measurement of comprehension performance, that is, the multiple-choice questions. It would be better if more than one test of comprehension were used to give more insight into students' performance and to strengthen the results by gathering evidence from more than one setting. For example, free recall is one way to measure the comprehension performance of students, which has been used in L2 research before [10, 27, 59]. However, in this study, it was difficult to employ this measurement because of administrative and contextual constraints. A second limitation pertains to the generalizability of the findings in this study to Saudi students in general education such as secondary and intermediate schools. The results should be regarded with caution, especially if one agrees that students at lower levels are more likely to have more limited English language ability.

Conclusion

This study has explored the relative effects of content familiarity and language ability on low- and high-ability students' comprehension performance. Content familiarity and language ability seem to have significantly affected the participating readers' comprehension performance. While prior knowledge of content seems to have facilitated the reading comprehension of the low-ability students, which was reflected in their performance, greater language ability may have helped the high-ability students in their performance on the unfamiliar passage. These results suggest that language instruction should focus on improving the reading and language ability of students through the presentation of reading materials with appropriate linguistic challenges. The limitations of this research suggest the need for future research to include other methods of comprehension measurement, such as free recall. Also, the participants of this study were male and female students at the same levels of study. It would be interesting in future research to study gender differences, especially as it is documented that males and females differ in their reading abilities [e.g. 9, 10, 48]. Future research may also include other factors to be examined simultaneously.

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Appendix A

The Jet Stream

Just as there are powerful currents like the Gulf Stream in the oceans, there are raging streams of air high in the sky. These are called jet streams. One jet stream blows always from west to east over the United States and is about 100 miles wide. This great current of wind usually flows at a speed of more than 100 miles per hour. Ordinarily, it flows five or six miles above the earth, but sometimes it dips as low as two miles.

One day in May, the jet stream collided over the Texas Panhandle with warm, moist air from the Gulf of Mexico, thus producing 50 tornadoes in Kansas and Oklahoma. Frequently the jet stream also causes hailstorms and cloudbursts. When it turns to the southeast, it pushes Atlantic Ocean hurricanes away from the land. When it does not, hurricanes often rip into the mainland causing great destruction.

Pilots flying eastward have learned how to locate and stay in this jet stream, thus gaining speed with less fuel used. Those pilots who fly into the jet stream when travelling westward sometimes make little headway even while flying at top speed.

After reading the above passage, please answer the following questions
Please draw a circle around the correct answer:

1. **A jet stream is** A. gas left by a jet airplane. B. a new type of fish. C. an air current. D. a water current.
2. **A jet stream blows from** A. east to west B. north to south C. west to east D. south to north.
3. **The jet stream collided with warm air over Texas Panhandle in** A. August B. July C. May D. April.
4. **A southeast jet stream** A. increases hurricane size B. causes hurricanes C. pushes hurricanes inland D. pushes hurricanes out to sea.
5. **A pilot flying eastward in the jet stream** A. uses more fuel and flies more slowly B. uses less fuel and goes faster C. uses more fuel and goes faster D. uses less fuel and goes more slowly.
6. **A pilot flying westward should try to** A. stay in the jet stream B. avoid the jet stream C. fly at top speed D. fly slowly.
7. **The width of a jet stream is usually about** A. 100 miles B. 200 miles C. 300 miles D. 400 miles.
8. **The jet stream is likely to be part of the weather report in** A. China B. Russia C. Europe D. the U.S.
9. **The jet stream is compared to** A. currents in the ocean B. the wind C. the Milky Way D. a flying airplane.
10. **The writer of this article use the word “raging” to describe the jet stream because** A. it makes people angry B. it moves very fast C. it causes hurricanes D. it always results in hailstorm and cloudburst.

Appendix B

The Titanic

On the night of April 14th, 1912, one of the worst calamities at sea that the world has ever known occurred. The British luxury ship, S. S. Titanic, was on its maiden voyage to the United States. The Titanic was considered the fastest ship afloat and all but unsinkable. Over 2,200 passengers were aboard, many of them the upper class of Europe and America.

In spite of warning messages, the huge ship collided, going at full speed, with an iceberg south of Newfoundland. There were not enough lifeboats to seat everyone. Because of the panic, many lifeboats were launched with only a few people aboard. Over 1500 lives were lost. The “safest ship in the world” sank on its very first voyage. To add to the irony of the catastrophe, there was another ship only ten miles away that could have saved hundreds of people. They never heard the SOS because their wireless operator had gone to bed.

As a result of this disaster, patrols were established to locate icebergs and strict rules concerning safety precautions on ships are enforced.

After reading the above passage, please answer the following questions
Please draw a circle around the correct answer:

1. **The Titanic sank** A. off the coast of the U.S. B. 2,200 miles from port C. in wintertime D. close to Newfoundland.
2. **The Titanic was** A. a British ship B. sailing to Europe C. from America D. in Newfoundland.
3. **Many lifeboats were launched** A. on the iceberg B. by the social elite C. without anyone aboard D. without being full.
4. **How many people were killed in the incident?** A. 2,200 B. 1,500 C. over 2,200 D. over 1,500.
5. **Because of the Titanic** A. people no longer panic B. there are new ship safety regulations C. Newfoundland is patrolled D. no ships ever sink.
6. **The other ship did not hear the SOS because** A. it was too far away B. none was sent C. everyone was asleep D. the wireless operator was in bed.
7. **Another word for calamity is** A. construction B. collision C. catastrophe D. consideration.
8. **A maiden voyage refers to the voyage** A. that is its first voyage B. that has only maidens aboard C. that is fun and full of energy D. that carries passengers from Europe to other places.
9. **The sinking of the Titanic was partly caused by** A. not having enough lifeboats B. no warning message being sent C. too much panic D. its fast speed.
10. **The writer of this article considered the calamity of the Titanic to be** A. ironical B. expected C. possible D. a joke.

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(/ / / /)

ملخص البحث. تبحث هذه الدراسة أثر إلفة المحتوى، والقدرة اللغوية (المعرفة بالمستوى العام للغة الثانية) على أداء الفهم للطلبة السعوديين منخفضي وعالي القدرة اللغوية الدارسين للغة الإنجليزية كلغة أجنبية. شارك في هذه الدراسة مائة و اثنان وثلاثون طالباً وطالبة من الجامعيين المتخصصين في اللغة الإنجليزية، وقد أدى الطلاب اختبارين لقياس أداء فهم المقروء لديهم على نوعين من النصوص (مألوف وغير مألوف). كشفت النتائج أن إلفة المحتوى والقدرة اللغوية لهما أثر دال على أداء الفهم للطلبة، وأشارت النتائج إلى أن إلفة المحتوى تسهل من عملية فهم المقروء، كما توصلت الدراسة إلى وجود أثر دال للقدرة اللغوية على أداء الفهم للطلبة في مستويات مختلفة. وأيضاً، من المحتمل أن مستوى القدرة اللغوية قد لعب دوراً تعويضياً في تسهيل فهم النصوص غير المألوفة. توصي الدراسة بأن على التربويين الذين يقومون بتصميم مقررات القراءة وتطبيقها مراعاة هذين العنصرين المترابطين.