Role of Topic Familiarity and Gender Differences in Reading Comprehension

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Abstract: The research of whether topic familiarity in reading can be critical and facilitator to reading comprehension is still a topic that findings from different contexts of research may not be conclusive at this stage. Also, the question of who can be superior; males or females, in comprehension of reading especially when topics are familiar, is also another strand of research and is a topic that is still debatable. This study sought to answer these questions and the findings can be an addition to the previous findings that can present clearer answers to these questions. Forty ESL students participated in this study that was studying in an advanced level in an English Language Centre in Australia. Twenty of them were males and the other twenty were females. The participants were given reading topics that were gender-neutral. One of the topics was assumed to be familiar whereas the other topic was assumed to be unfamiliar. There were questions for each topic to assess the comprehension of the given topics. Two questionnaires were given to the participants. The pre-questionnaire was given to measure the participants' familiarity of the topics whereas the post-questionnaire was given to confirm their familiarity of the topics. The findings indicated that the topic content did not significantly influence the comprehension of reading. Thus, there is no relationship between the topic familiarity and the comprehension of topic. The findings also suggest that there was no difference between the males' and females' ability in comprehension of text. The number of participants in this study was rather small and thus a larger number of ESL participants is needed to generalize these findings.

Keywords: ESL English as a second language. Topic familiarity, reading comprehension, gender differences

Introduction:

Reading is one of the most important skills a learner should master when learning a language. It is also a crucial factor for a learner's success in the academic life (Bernhardt,199). For this reason, each educational institution has employed different measurements to assess the proficiency of reading. Reading performance has widely been investigated to find the factors that can influence the learners' performance. Different factors have been found that can provide an impact on the overall performance in reading. Those factors can include text preference, language ability, background knowledge and gender (Bugel and Bunk,1996). These findings differ based on different environment and also on different proficiency levels of participants.

This study will investigate the differences between males and females in the performance of reading with regard to topic familiarity. It will also investigate the impact of topic familiarity on the comprehension level of different groups of the same sex participants. It will discuss the

previous studies that investigated the same issue. Then the data which were collected by two questionnaires and two different tests will be analyzed to find about the differences between the two sexes and the impact of topic familiarity on the performance of the students.

Background:

Gender differences in reading comprehension have been widely investigated. There were many national and international studies that have been conducted to investigate theses differences. The international studies had been conducted in about 40 countries to investigate the reading comprehension of 10 year old children. The results showed that girls achieved higher scores than boys (Mullis et al.2003; Mullis et al .2007). Differences in reading comprehension were also found between adolescents, boys and girls, in studies conducted in 43 countries (Ming and Chui and Mc Bride-Chang 2006).

In review of the literature, different factors and explanations could be attributed to the differences between males and females with regard to reading comprehension. Some studies explain that these differences are due to differences of biological functions of the two gender. Gurian (2003) found that differences between males and females in their approaches to learning and living were mainly attributed to the differences in the functions of the two sexes' brains. These differences can clearly be seen in their performance. For example, males and females were found to employ different strategies while performing the same reading tasks (Shaywitz et al, 1995; Speck et al, 2000).

Type of text has also been investigated widely in the literature and some of the studies have shown that it had a positive role in facilitating the reading comprehension (Dollitte and Welch,1989) and (Hyde and Linn,1988). These studies compared the differences between the performances of males and females with texts that were related and appropriate to each of the two sexes. Other studies had also been conducted with reading texts that were gender-neutral. These studies had different conclusions with regard to the significance of content on the reading performance of the two sexes. Some studies found that males outperformed females (Bügel and Buunk's ,1996) and (Al-Shumaimeri,2005) whereas some studies found that females outperformed males (Bacon and Finnemann, 1992; Huebner, 1995; Mau and Cheng, 2000).

 However, some studies found that content of reading text was not enough to help in comprehending the text and therefore did not have significant impact on the comprehension of the two sexesr. For example, Alderson and Urquhart(1983,1985a and 1985b) studied the effect of background knowledge on reading comprehension in different follow up studies. In one of their studies ,for example , they compared the scores of Engineering students on ELTS reading test (the social studies module) with the scores of humanities and economic students and found that Engineering students' scores were higher than those of humanities and economic students'.

The study by Salmani-Nodoushan (2007) also investigated the effect of familiarity of topic on the comprehension performance. His study included 541 senior and junior university students majoring in electronic who were given the Task-Based Reading Test (TBRT). The researcher found that the familiarity of text had the smallest effect on students' reading comprehension whereas the language proficiency had the strongest impact on their performance. There were also some studies that investigated the differences of reading performances between males and females and the familiarity of the topic and the results showed that there were no significant differences between both gender with regrd to topic familiarity (Hammadou,1991; Peretz and Shoham, 1990).

The present study will draw on Al-Shumaimeri,(2005) approach to aid in the methodological section. Al-Shumaimeri investigated the differences on the reading comprehension between the two sexes with related to familiarity of topic with gender-neutral texts. His study included 132 participants who were students of English as a Foreign Language and they were in their second year in the university. This study investigated the same issue but with a high proficiency level of students who studied English as a Second Language in Australia.

Research Questions:

RQ1: Is there a difference between males' and females' reading performance with regard to familiarity of topic?

RQ2: Can the content of text influence the reading performance of two different groups of the same gender?

Methodology:

1.1 **Participants:**

40 students of English as a second language participated in this study. They were studying in the Bridging Program which is conducted at Hawthorn Melbourne English Language Centre. The level of the students was considered to be advanced because one of the conditions to be admitted to this program is to get at least band 6 in the International English Language Testing System (IELTS) test. The students usually take this course because they have not yet fulfilled the university of Melbourne's conditions of admission. Therefore, students take this course as an alternative to retaking the IELTS test. They also prefer taking this course in order to consolidate their academic study skills. The participants came from different countries in the world such as China, Columbia, Korea, Brazil. They had conditional admissions on different majors such as Agriculture, education, engineering and computer sciences.

1.2 Material:

Two reading passages which were chosen from McCall-Grabbs Standard Test lessons in Reading, Book D and Book F(1979). These two passages are considered to be gender-neutral. Titanic is the one of the passages which describes how the calamity occurred (see appendix A). It is assumed to be familiar because it is very well known story. Jet Stream is the another passage which describes how the weather and pilots are affected by it and it is assumed to be unfamiliar because it appears only in the reports of weather in the United States(see appendix B). The reliability of the two passages was computed. Titanic's reliability was (.66) and Jet stream was(.7). A pre-test questionnaire to measure the familiarity of the two topics and also a post test questionnaire were used to confirm their familiarity after reading the passages.

1.3 Data Collection:

The data was collected from the same centre during the normal regular classes of the students. The teachers gave me the chance to collect the data and advised me to do the test during the ILC time which is in the break time of the students between their two classes (from 12:30 p.m. to 2:30 p.m). The participants represented two intact classes. The researcher met with the participants during the ILC time and explained to them the instructions of the test. First the pretest questionnaires were distributed among the participants. After they had been collected, the test papers were distributed among the students. The test was of two different reading texts. The first one was about a text with the title "Titanic" and the second one with the title "Jet stream". Each reading passage had 10 multiple-choice questions. The time allocated for the test was 15 minutes. After the students finished the test, the post questionnaire was distributed among all the participants to answer for 5 minutes.

1.4 Data Analysis:

In order to answer the research questions, T tests for independent variables were conducted to measure the significant differences of the comprehension performance scores of the two sexes. The t-tests first examined the differences in scores between males and females with the familiar topic and then examined them with the unfamiliar topic in order to find if there are differences between the two gender's scores. Also t-tests were conducted to measure the performance of each gender group on the familiar and the unfamiliar topics to find if the familiarity of the topic can influence the scores of different groups in the same sex.

Results:

Table 1: Questionnaire results of topic familiarity of the passage (Titanic)

Questionnaire items	Gender	Response	
pretest		**Yes**	**No**
1- Have you heard the name	Male	100%	0%

Titanic?	Female	100%	0%
2- Have you heard the story of Titanic?	Male	100%	0%
	Female	100%	0%
3- Have you seen the movie Titanic?	Male	100%	0%
	Female	100%	0%
4- Have you read any report about the Titanic tragedy?	Male	65%	35%
	Female	75%	25%

Post test	Male	Female
Complete new knowledge	0%	0%
Mostly new knowledge	0%	0%
Half new and half old	31%	21%
Mostly old knowledge	28%	33%
Complete old knowledge	41%	46%

Table2:Questionnaire results of topic familiarity of the passage (Jet Stream)

Questionnaire items	Gender	Response	
pretest		Yes	No
1- Have you heard the term Jet Stream?	Male	13.3%	86.7%
	Female	14.8%	85.2%
2- Have you heard anything regarding Jet Stream?	Male	8.7%	90.3%
	Female	6.7%	93.3%
3- Have you read any report about the Jet Stream?	Male	5%	95%
	Female	3.5%	96.5%
4- Do you know in what way the Jet Stream relates to human life?	Male	8.3%	91.7%
	Female	9.8%	90.2%

Post test	Male	Female
Complete new knowledge	44.3%	47.1%
Mostly new knowledge	26.1%	20.4%
Half new and half old	24.2%	18.2%
Mostly old knowledge	2.3%	12.1%
Complete old knowledge	3.1%	2.2%

The results of the pre and post questionnaires of the topic (Titanic) in table (1) revealed that both males and females had no difficulty in understanding the topic. Both males and females agree that they heard the name of titanic and were quite familiar with its story This can be seen in their

response to the items that ask about the familiarity of the topic in which they represented 100%. For the last item of the pre-test questionnaire,65% of males reported that they read a report about the titanic whereas 75% of females reported for the same response.

For the post questionnaire which was distributed after the students finished their tests, to confirm their familiarity of the topic, the results show that the topic(Titanic) was familiar for both gender.

In table (2) the pre and post questionnaires were about the familiarity of the second topic (The Jet Stream). The results in the pre questionnaire show that 86% of males reported that they did not hear the name jet stream whereas 85.2% of females reported for the same response. For the second item 90.3%of males reported that they did not hear about the topic whereas 93.3% females reported for the same result. For the third item,95% of males reported that they did not read any report about the Jet stream whereas 96.5% of females reported for the same response. For the fourth item,91.7%of males reported that they did not know the relationship between the jet stream and human life whereas 90.2% of females reported the same response. The post questionnaire which was distributed post the test to check the Jet stream familiarity, the overall results show that the topic is unfamiliar to the majority of them.

Table3: t-test results for independent samples of gender for each type of text

Type of text	Gender	N	Mean	STD. DEVIATION	df	T VALUE	SIG. (2-TAILED)	D (effect size)
Familiar Text	Male	10	8.8000	.63246	18	.775	.449	.346
	Female	10	8.6000	.51640				
Unfamiliar Text	Male	10	8.4000	.84327	18	.221	.828	.098
	Female	10	8.3000	1.15950				

To answer the research question (Is there a difference between males' and females' reading performance with regard to familiarity of topic?), an independent-samples t-test was conducted to compare reading performance of males and females in the familiar text "Titanic". Table (3) shows that there was not a significant difference between the males' scores (M=8.80, SD=.63) and the females' scores (M=8.60,SD=.51) in the familiar topic; t (18)=.775,p=.44. To find the effect size between the scores of males and females which their difference was not significant, Cohen's(1988) effect size showed that there was a medium effect size(d=.34).The t-test was also conducted to compare reading performance of males and females in the unfamiliar text "Jet Stream". The results show that there was not a significant difference between the scores of males (M=8.40 ,SD=.84) and the scores of females (M=8.30 ,SD=1.15) in the unfamiliar text "Jet Stream" ; t(18)=.221,p=.82. The effect size for the scores was small (d=.09). These results

suggest that there is no significant difference between males and females in comprehension of reading and whether the reading text is familiar or not.

Table4: t-test results for independent samples of topic familiarity for each gender

Gender	Type of text	N	Mean	STD. DEVIATION	df	T VALUE	SIG. (2-TAILED)	D (effect size)
Male	familiar	10	8.8000	.63246	18	1.200	.246	.536
	unfamiliar	10	8.4000	.84327				
Female	familiar	10	8.6000	.51640	12	.747	.469	.334
	unfamiliar	10	8.3000	1.15950				

To answer the second research question(Can the content of text influence the reading performance of two different groups of the same gender?), an independent-samples t-test was conducted to compare reading performance of males in the familiar text "Titanic" and in the unfamiliar text" Jet Stream". The results in table (4) show that there was not a significant difference between the two male groups' reading scores in the familiar topic"Titanic" (M=8.80, SD=.63) and their scores in the unfamiliar topic"Jet Stream" (M=8.40,SD=.84) ;t(18)=1.200 ,p=.246. The table also shows that there was a medium effect size (d =.53). The independent t test was also conducted to investigate the impact of familiarity topic with females. Table(4) shows that there was not a significant difference in the reading scores of females in the familiar topic "Titanic"(M=8.60 , SD=.51) and their scores in the unfamiliar topic"Jet stream"(M=8.30,SD=1.15); t(12)=.747, p=.469. Also, it shows that the effect size was medium (d=.33). These results suggest that content of text does not significantly affect reading comprehension for both males and females.

Discussion:

This study seeks to find the differences in reading comprehension of familiar and unfamiliar texts between males and females. The performances of the two gender groups in the familiar topic were compared and the results showed that there were no significant differences between the two sexes' perfprmance. The performances of the two groups were also compared with the unfamiliar text test and the same results were found which indicated that there were no significant differences between the males and the females. However, these findings contradict with the findings found in the literature which found significant differences between the two sexes' performances. Most of the studies found that females significantly outperformed males Bacon and Finnemann, 1992; Huebner, 1995; Mau and Cheng, 2000 ,whereas, other studies found males achieved significantly higher than females (Bügel and Buunk's,1996) and (Al-Shumaimeri,2005)

There are different interpretations that could explain the findings in this study. One explanation is that these results could be attributed to the high proficiency level of the participants. The participants are considered to be advanced English learners. They were students in the Bridging program which is considered to be the highest level of English language at Hawthorn institute. The high proficiency may contribute in reducing the differences of performances between males and females. This assumption is supported by the study of Brantmeier (2002) who found that gender difference does no interact with gender-oriented passage at advanced level.

The results in table 4 show that there is no significant difference in the performances of the groups who did the test with familiar topic and the groups who did the test with unfamiliar topic.

The results indicate that unfamiliarity of topic does not hinder the comprehension of texts being read which can be concluded that the background knowledge of the topic is not significantly crucial in understanding the text. These results can also support the findings by Shoham, Peretz and Vorhaus (1987) who found that although the students in the humanities and social sciences were given reading test which was related to topics in their field , their performance in the reading test was lower than the performance of other students who were not specialized in humanities field and did similar test. The study by Peretz and Shoham (1990) also supported the same findings. These findings can also support the contention of Lipson (1984) that " a totally unfamiliar texts often easier to comprehend than a text with a partially familiar content".

On the other hand, the linguistic experience of the participants which is represented in their high proficiency had made the unfamiliar text easier to comprehend. This is supported by the study by Clapham (2000) who studied the effect of background knowledge on two groups of different levels of proficiency, medium and high proficiency groups. Clapham found that the background knowledge had its greatest effect on the performance of the medium-proficiency group whereas the high proficiency group scores were not significantly affected by the background knowledge. Calpham interpreted these findings that the high proficiency group rely heavily on their linguistic skills than the background knowledge in their performance whereas the medium-proficiency group rely heavily on the background knowledge because they did not have a strong linguist skills as the high proficiency group.

Moreover, the literature indicated that background which can be in the form of familiarity of topic as in this study is not the only factor contributing to reading comprehension. Other factors such as cognitive experience, interest, reading purpose, linguistic experience, sociocultural factors and speed of reading can play significant roles on reading performance (Collins and Cheek 1993).

Nonetheless, some limitations in this study should be taken into account when interpreting the results. One limitation is concerned with the number of the participants which is considered to be rather small compared with participants in similar studies. This study was also conducted in one

single setting and with only high proficiency level of participants which limit the scope of the study and make it difficult to be generalized. Therefore, other levels of proficiency need to be considered in order to generalize the results. Another limitation is concerned with the type of measurements of reading comprehension, which was only a single measurement in the form of multiple-choice questions. Additional measurements should have been included such as immediate written recall which has been used in L2 research. (Alderson,2000,Brnhardt,1991,Brantmeier,2003).

Conclusion:

The present study investigated the differences in comprehension performances between males and females with regard to familiarity of topic. The results showed that there was no significant difference between males and females with regard to topic of familiarity. It also investigated whether topic familiarity affect the performance of each sex group and the results were also similar that there was no significant difference between each gender on familiarity of topic.

The limitations in this study suggest a further research to investigate the same research questions by including large number of sample and also by examining other level of proficiency and in different settings. It also should consider other types of measurements of reading comprehension other than just the multiple questions.

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Appendix A:

Name: Gender:

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.

Appendix B:

Name/   Gender/
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 a hundred 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 fifty 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. usesless 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 C: Pre-test Questionnaire (Titanic passage)

Questionnaire items	Response	
pretest	Yes	No
1- Have you heard the name Titanic?		
2- Have you heard the story of Titanic?		

3- Have you seen the movie Titanic?		
4- Have you read any report about the Titanic tragedy?		

Appendix D: Pre-test questionnaire (Jet Stream passage)

Questionnaire items pretest	Response	
	Yes	**No**
1- Have you heard the term Jet Stream?		
2- Have you heard anything regarding Jet Stream?		
3- Have you read any report about the Jet Stream?		
4- Do you know in what way the Jet Stream relates to human life?		

Appendix E:Post-test Questionnaire

Post test Questionnaire	
Complete new knowledge	
Mostly new knowledge	
Half new and half old	
Mostly old knowledge	
Complete old knowledge	