A COMPARATIVE STUDY ON MALE AND FEMALE STUDENTS' COMPREHENSION OF NON-GENDER BIAS TEXTS

Johanis A. E. Reyaan[1], Sarah Kamagi[2], Aloysius Rettob[3]
English Language and Literature Study Program, Faculty of Language and Arts
Manado State University, Tondano, Indonesia
E-mail: jamesemillio15@gmail.com

Abstract : The present study deals with male and female students' reading comprehension. The purpose is to describe the effect of gender on reading comprehension of neutral or non-gender biased texts. The study is experimental in nature and conducted online through WA and email. The study involved two classes of eight grade students of SMP Negeri Tompaso in academic year 2020-2021. The data are collected using a reading test in multiple-choice format. The data collected are statistically analyzed. Result of the analysis leads to the conclusion that there is no difference between female and male students' reading comprehension performance on gender free bias texts. Put it another way, gender does not affect reading comprehension performance. This conclusion supports William (2000) who affirms that sex differences in cognition are small or have no effect on comprehension. However, since it is conducted online, control over extraneous variables could not be strictly carried out; therefore, more studies are needed to obtain more information about effect of gender on comprehension.

Keywords : *Male, female, gender, neutral/non-gender biased text, comprehension.*

INTRODUCTION

Reading comprehension encompasses three elements: the text, the mental representation (world knowledge), and the integrated situation model, according to recent studies in psycholinguistics (Gutierrez de Blume, *et al.*, 2021). The reader decodes the words to create a mental image of the text, but this only provides him with a cursory understanding. To gain a better understanding, he or she must combine text-based information with general knowledge (Dewantara, *et al.*, 2019).

The impact of various such variables on reading comprehension has been researched. For instance, the relationship between reading comprehension and readers' attitudes has been investigated (Hamedi, Pishghadam & Fadardi, 2020); reading strategies have been studied (Brantmeier, 2002); EFL competency has been studied (Keshavarz, Atai, & Ahmadi, 2007); and cultural familiarity has been studied (Erten and Razi, 2009). Among these, background knowledge (schema) and its impact on reading comprehension have drawn particular focus, and numerous kinds of research have been done in this area. These studies all highlight how important prior information is to reading comprehension.

Prior knowledge has been noted as having the greatest impact on understanding (Sharifi & Khavarian-Garmsir, 2020). According to Brandao and Oakhill (2005), "Prior knowledge, also known as world knowledge or background knowledge, is generally defined as the sum of what a person knows about the content of a text." It takes into account whatever prior knowledge readers may have about the situations, concepts, or things being presented to them, which affects the interpretation they draw from the text. The relevance of prior knowledge is reflected

in the reading theory known as the "schema theory," which states that "comprehension occurs when the reader builds up systems of relationships between existing schemas and the information presented in the text," (Kozminsky and Kozminsky, 2001, p. 2).

The notion that background information is likely to be the first element to explain individual differences in reading comprehension is a significant implication of all of these studies. Background information, however important, is not the only thing that could account for individual variations in reading comprehension (Smith, *et al.,* 2021). Other factors play a role in these discrepancies, particularly when everyone's previous knowledge is very uniform. Gender has received attention as one of these characteristics to explain the degree of success or failure in reading comprehension (Biotteau, *et al.,* 2019). Numerous pieces of research have shown the problem of gender-based disparities in reading comprehension. These studies have come to a variety of conclusions, with the majority favoring women, some preferring men, and many others showing no discernible gender difference (Pae, 2004).

Additionally, other theories have been offered for gender-specific disparities in reading comprehension. The relationship between gender and reading, according to Connell and Gunzelmann (2004), is a complicated issue influenced by a variety of social, cultural, biological, and other factors. Boys and girls use distinct portions of their brains, according to brain-based gender differences, with each group displaying superior left- and right-hemisphere capacities. In the early grades, girls benefit from their left hemisphere's strength in speaking, reading, and writing, whereas boys benefit from their left hemisphere's ability in categorizing and remembering factual knowledge.

In contrast to Brantmeier (2003), who contends that gender and passage content are the main factors that are connected to individual differences in L2 reading comprehension, Smith and Wilhelm (2002) explain gender disparities based on attitude. According to Pae (2004), the passage's content is not a credible factor to account for the interplay between gender and reading comprehension score. Al-Shumaimeri (2005) asserts in a review article that the majority of reading comprehension studies use gender-oriented texts and that more research on L2/FL reading comprehension using gender-neutral texts is necessary; however, some studies, like Bügel and Buunk (1996), have in the past shown a gender-based difference even with neutral texts. They used a text that was gender-neutral and discovered that men fared noticeably better than women. Finally, some other studies have related gender differences in reading comprehension to different strategies that readers employ (Abu-Rabia, 2004).

The analysis of gender studies reveals contentious conclusions about gender disparities. In order to give us a clearer understanding of the gender variations in reading comprehension, it also emphasizes the necessity for greater research on gender-neutral literature. This is due to the fact that text familiarity influences comprehension and may skew the depiction of gender differences. It has been noted previously that some research findings suggest that reading comprehension is a skill that women are more superior at than men. Others show that there is no difference in the reading comprehension skills of men and women. Do female students perform better in reading comprehension than their male counterparts when both are exposed to neutral literature, then? is how the study problem is put forth.

The purpose of this study is to describe the reading comprehension performance of

male and female students when they are expose to neutral (or non- gender bias) texts. In other words, the present study tries to find out whether reading comprehension performance of female students is better than their male counterpart when both are exposed to neutral/non-gender bias texts.

The study offers data on how well male and female students comprehend texts that are neutral or don't have any gender bias. It is intended that the results of this study will assist EFL teachers in raising their students' reading comprehension test scores and help EFL learners understand expository texts better. Additionally, it is hoped that these findings will be helpful to test creators and publishers when they choose texts for EFL students. The work is significant for other English-reading researchers as well. To confirm the findings of this study, they might carry out similar investigations.

Based on the research problem mentioned before, two hypothesis, namely alternative and null hypothesis are put forward: Alternative hypotheses: female students perform better in reading comprehension of neutral texts than their male counterpart. Null hypotheses: female students do not perform better in reading comprehension of neutral texts than their male counterpart.

Using the reader's language and the writing system, reading is the process of transforming written form into linguistic signals. Making meaningful representations requires combining details from the text with the reader's prior knowledge and expectations. In order to comprehend printed texts, readers must have a certain level of proficiency in the target language, which is a significant component of linguistic knowledge.

Further research is needed on the use of gender-neutral texts in reading comprehension studies. Previous studies have mostly concentrated on how gender-specific texts affect comprehension; however, gender-neutral texts have not received as much attention. According to Fatemi et al. (2011), examining how gender-neutral texts affect readers' comprehension would be a fascinating complement to previous research and schema theory. Al-Shumaimeri (2005) also highlights the need for additional study on L2/FL reading comprehension using texts that are gender-neutral, emphasizing the need of looking at various textual elements and how they affect readers' comprehension.

Gender Differences in Content Familiarity

Readers' prior knowledge or preconceived notions have a significant impact on how well they understand the material. According to Shin (2002), it is important to activate or provide enough background information to make the reading task more relevant and understandable. Researchers are interested in learning how gender and background knowledge affect reading comprehension because men and women have different experiences and information. This is because different schemata play a role in reading comprehension (Wei, 2009).

Reading Problems Related to Gender

The development of reading has been found to be influenced by gender, with females frequently outperforming boys in verbal and linguistic skills (Rinaldi, *et al*, 2023). Girls typically outperform boys in arithmetic, Maltese, and English at all grade levels, according to studies done with primary school students (Jiang, Simpkins & Eccles, 2020). However, evidence suggests that boys are more likely than girls to struggle with reading, with some studies finding gender ratios of 3:1 or higher (Syamsuri & Bancong, 2020). Some researchers have suggested that gender differences may not be substantial, yet there are contradicting results (Riley, *et al*, 2019; Sagala, *et al.*,

2019). They contend that referral bias may be responsible for the increased prevalence of reading problems in boys since boys are more likely to be recognized through conventional school processes, but reading difficulties in girls may go unrecognized because of their calmer personalities.

Gender neutral Texts

Gendered text is content that is biased toward a particular sex or social gender and frequently uses pronouns that belong to that gender (Selvi & Kocaman, 2021). Gender-neutral or gender-inclusive language, on the other hand, tries to minimize such bias by employing non-gender-specific nouns, encouraging equitable wording, and avoiding the general usage of masculine phrases. Text that is gender-neutral should be devoid of social and linguistic gender markers as well as content that supports one gender over another (Buiatti, 2022). Reading books were chosen for the experiment based on these requirements.

Several previous studies have examined the relationship between gender and reading comprehension. Koban Koç (2016) conducted a study with college students and found that there was no significant difference between males and females in comprehending different genres of texts. Keshavarz and Ashtarian (2008) found that female Iranian EFL students had better reading comprehension ability compared to their male counterparts. On the other hand, Zhau (2008) found no significant effect of gender on reading comprehension among Chinese EFL students. Al-Shumaimeri (2005) discovered that Saudi male students performed better in multiple-choice tests compared to females but found no significant interaction effect between content familiarity and gender. Asgarabadi et al. (2015) also found no significant difference between male and female students in reading comprehension and the use of reading strategies in descriptive and narrative macro-genres. Brantmeier (2003) found that both gender-oriented passage content and readers' gender significantly affected performance on a recall comprehension task at the intermediate level. However, these studies mainly focused on university-level students and gender-oriented texts, with limited research on high school students and gender-neutral texts.

RESEARCH METHOD

This study aims to describe how gender affects learners reading comprehension. The goal of this study is to describe a cause-and-effect relationship between gender (male vs. female) and reading comprehension of non-gender biased content. It is experimental in nature. The connection can be shown as follows:

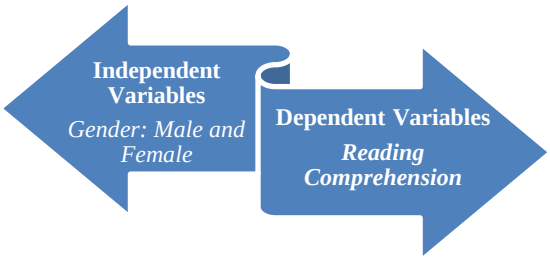

Figure 1. The Relationship between the Dependent and Independent Variables.

Since it is challenging to create new groups at random, the researchers decide to deliberately select two classes from the second grade and create two groups made up of both male and female learners. There are 30 pupils per group. The same text was distributed to both groups, who then responded to comprehension questions based on the chosen text. The posttest-only control group design was employed because the study's participants were chosen at random. The layout is seen below:

X O_1

--
X O_2

Figure 2. The research Design

Where

X = experimental treatment

O_1/O_2 = observation (or posttest)

Data Collection

An objective type test with multiple-choice questions was used to collect the information pertaining to the pupils' reading comprehension skills. The test was created independently based on the chosen texts. The science-related books for the test were chosen from the student book used for SMP's eighth grade. As a result, when it has been created, the test is checked by a thesis adviser and an English instructor at the school to establish whether it evaluated what it was supposed to evaluate.

After it had been verified, the test was administered to students who shared the same traits as the participants in the experiment. On March 12, 2021, an online tryout was held. The outcome was then statistically evaluated using KR-20 for reliability and Point Biserial for validity. The validity and reliability of objective type tests are frequently assessed using these statistics.

The data collected is statistically analyzed using t-test for independent sample.

$$t = \frac{\mu_A - \mu_B}{\sqrt{\left[\frac{\left(\Sigma A^2 - \frac{(\Sigma A)^2}{n_A}\right) + \left(\Sigma B^2 - \frac{(\Sigma B)^2}{n_B}\right)}{n_A + n_B - 2}\right] \cdot \left[\frac{1}{n_A} + \frac{1}{n_B}\right]}}$$

FINDINGS AND DISCUSSION

As previously stated, the data representing female and male students' reading comprehension are obtained using reading comprehension test in multiple-choice format. The test consists of 10 items developed based on three gender free-texts. As pointed out earlier, the data are analyzed statistically using t-test for independent sample. For this purpose, it is necessary to firstly find out the sums, sum squares, and the mean of X and Y. Based on these results, statistical analysis using t-test for independent sample was carried out. The degree of freedom (30 + 30 – 2) was 58. With 58 degree of freedom in the t-table, an alpha level of 0.05 is 2.000. Result of the statistical analysis is matched wits the criteria for accepting or rejecting null hypothesis (Ho) and alternative hypothesis (Ha).

Table 1. Criteria for rejecting/Accepting Ho

Criteria	p level	Meaning
If t calculated value $\geq$ t table value	0.05	Ho is rejected and Ha is accepted, meaning there is a mean difference between reading comprehension of the two groups
If t calculated value $\leq$ t table value	0.05	Ho is accepted, and Ha is rejected, meaning there is no mean difference between reading comprehension of the two groups.

The calculated value of 0.9618 is less than the cutoff 2.000 from the table. Therefore, p > .05. As the p-value is greater than the alpha level, we cannot conclude that there is a difference between means. This in other word means that there is no difference between female and male students' reading comprehension performance on gender free bias texts. Briefly, there is no significant effect of gender on reading comprehension performance.

It has been explained above that statistical analysis uses t-test to obtain an independent sample and the result is that there is no difference between the reading comprehension of male and female students. This clearly shows that gender has no effect on understanding gender-free biased texts. The results of this study are the same as previously stated by Asgarabadi, namely there is no statistically

significant difference between men and women in terms of reading comprehension and there is no difference in the application of overall reading strategies in descriptive and narrative texts. The same research results were found by Koban Koc (2016). He revealed that men and women were significantly better at understanding essays than fiction about history and fantasy, between men and women there was no difference in understanding different types of genres.

From the research that has been done, the results show that there is no statistically significant difference between male and female students in reading comprehension in the macro genre. Other results also show that between male and female students there is no difference in the application of reading strategies in descriptive and narrative genres. His previous research showed that in neutral texts, gender had no effect on students' reading ability. Differences will appear if a text is familiar to the reader. In other words, the topics read significantly affect their performance in the comprehension task. In this context, this study confirms that the familiarity of schema theory topics positively influences understanding; topic ignorance is not. Thus, gender is not a factor or variable that affects reading comprehension.

It should be noted that this study has a number of weaknesses. One of them is research conducted online. This makes it difficult for researchers to strictly control the variables that can affect the experimental results. Second, test trials are also conducted online so it is difficult to ensure that the tests are administered by individual students. These weaknesses can be the basis for other research in psycholinguistics to conduct similar studies to verify the findings of this study.

CONCLUSION

The data analysis using t-test for independent sample reveals that the calculated value of 0.9618 is smaller than the cutoff 2.000 from the t-table. As the *p-value* is greater than the alpha level, it can be concluded that there is no difference between female and male students' reading comprehension performance on gender free bias texts. Put it another way, gender does not affect reading comprehension performance. This conclusion supports William (2000) who affirms that sex differences in cognition are small. To sum up, gender seems to have no effect on comprehension.

The finding of the present study indicates that gender does not affect reading comprehension; in fact, background knowledge is the determinant factor in successful reading comprehension. Therefore, English teachers need to consider choosing non-gender bias texts. Such texts do not favor neither male nor female students. The present study has at least two potential weaknesses. Other researchers when conduct similar studies, are expected to use true experimental designs so that those weaknesses can be minimized.

REFERENCES

Al-Shumaimeri. Y. A. N. (2005). Gender Differences in Reading Comprehension Performance in relation to content familiarity of gender-neutral texts. Paper presented at *The second international conference: Language, culture and literature*, Minia University, Eygept.

Asgarabadi, Y H., Rouhi, A., & Jafarigohar, M. (2015). *Learners' Gender, Reading Comprehension, and Reading Strategies in Descriptive and Narrative Macro-genres*. Theory and Practice in Language Studies, 5(12).

Biotteau, M., Tournay, E., Baudou, E., Lelong, S., Iannuzzi, S., Faure-Marie, N., & Chaix, Y. (2019). What Can Attention Abilities Teach Us about Reading Comprehension in NF1. *J Neurophysiol Neurol Disord, 5*, 1-17.

Brandao, A. C. P. & Oakhill, J. (2005). How do you know this answer? Children's use of text data and general knowledge in story comprehension. *Reading and Writing,18*, 687–713.

Brantmeier, C. (2003). Does gender make a difference? Passage content and comprehension in second language reading. *Reading in a Foreign Language, 15* (1), 10-27

Buiatti, M. V. (2022). Gender Neutral Legal Language: A Comparative Analysis: Overview of the Experiences of Canada, The United States of America, Malta, Italy, Mali, India. *Comparative Law and Language*, *1*(2).

Connell, D., & Gunzelmann, B. (2004). The next gender gap: why are so many boys floundering while so many girls are soaring? *Instructor, March*, 14-17.

Dewantara, I., Suandi, I. N., Rasna, I. W., & Putrayasa, I. B. (2019). Cultivating Students' Interest and Positive Attitudes towards Indonesian Language through Phenomenon-Text-Based Information Literacy Learning. *International Journal of Instruction*, *12*(2), 147-162.

Erten, I., H., & & Razı, S. (2009). The effects of cultural familiarity on reading comprehension. *Reading in a Foreign Language, 21*(1), 60–77.

Gutierrez de Blume, A. P., Soto, C., Ramirez Carmona, C., Rodriguez, F., & Pino Castillo, P. (2021). Reading competence and its impact on writing: an approach towards mental representation in literacy tasks. *Journal of Research in Reading*, *44*(3), 617-635.

Hamedi, S. M., Pishghadam, R., & Fadardi, J. S. (2020). The contribution of reading emotions to reading comprehension: The mediating effect of reading engagement using a structural equation modeling approach. *Educational Research for Policy and Practice*, *19*, 211-238.

Jiang, S., Simpkins, S. D., & Eccles, J. S. (2020). Individuals' math and science motivation and their subsequent STEM choices and achievement in high school and college: A longitudinal study of gender and college generation status differences. *Developmental Psychology*, *56*(11), 2137.

Kozminsky, E., & Kozminsky, L. (2001). How do general knowledge and reading strategies ability relate to reading comprehension of high school students at different educational levels? *Journal of Research in Reading, 24*(2), 187-204.

Pae, T. (2004). Gender effect on reading comprehension with Korean EFL learners. *System, 32*(3), 265-281

Prior, Jemma. (2017). *Teachers, what is gendered language? British Council*, https://www.britishcouncil.org/voices-magazine/what-is-gendered-language

Razi, O & Grenfell, M. (2012). The Impact of Linguistic Knowledge on Learner Strategy Deployment. *Procedia-Social and Behavioral Sciences, 47*:818-822.

Rinaldi, P., Pasqualetti, P., Volterra, V., & Caselli, M. C. (2023). Gender differences in early stages of language development. Some evidence and possible explanations. *Journal of Neuroscience Research*, *101*(5), 643-653.

Sagala, R., Rofiqul, U. M. A. M., Thahir, A., Saregar, A., & Wardani, I. (2019). The effectiveness of stem-based on gender differences: The impact of physics concept understanding. *European Journal of Educational Research*, *8*(3), 753-761.

Selvi, A. F., & Kocaman, C. (2021). (Mis-/Under-) Representations of gender and sexuality in locally-produced ELT materials. *Journal of Language, Identity & Education*, *20*(2), 118-133.

Sharifi, A., & Khavarian-Garmsir, A. R. (2020). The COVID-19 pandemic: Impacts on cities and major lessons for urban planning, design, and management. *Science of the total environment*, *749*, 142391.

Smith, R., Snow, P., Serry, T., & Hammond, L. (2021). The role of background knowledge in reading comprehension: A critical review. *Reading Psychology*, *42*(3), 214-240.

Syamsuri, A. S., & Bancong, H. (2022). Do Gender and Regional Differences Affect Students' Reading Literacy? A Case Study in Indonesia. *Eurasian Journal of Applied Linguistics*, *8*(1), 97-110.

Wei. (2009). *Gender differences in reading comprehension for Chinese secondary school students.* A Seminar Paper Presented to the Graduate Faculty; University of Wisconsin-Platteville.

APPENDIX

Appendix A. Statistical Analysis

No.	Female (X)	X2	Male (Y)	Y^2
1	6	36	7	49
2	5	25	6	36
3	7	49	5	25
4	6	36	8	64
5	7	49	6	36
6	4	16	5	25
7	8	64	5	25
8	6	36	6	36
9	7	49	6	36
10	5	25	7	49
11	8	64	4	16
12	6	36	5	25
13	4	16	7	49
14	7	49	7	49
15	6	36	6	36
16	5	25	4	16
17	6	36	4	16
18	8	64	6	36
19	6	36	8	64
20	4	16	6	36
21	7	49	6	36
22	6	36	5	25
23	5	25	7	49
24	6	36	5	25
25	8	64	6	36
26	5	25	5	25
27	6	36	3	9
28	7	49	6	36
29	6	36	7	49
30	5	25	6	36
N=30	182	1144	174	1050

T-test Analysis

$$t = \frac{6.1-5.8}{\sqrt{\left(1144 - \frac{(182)2}{30}\right) + \left[1050 - \frac{(174)2}{30}\right]}\left[\frac{1+1}{30+30}\right]}$$

$$t = \frac{0.3}{\sqrt{(1144 - 1104.1) + [1050 - 1009.2]}}[0.07]$$

$$t = \frac{0.3}{\sqrt{39.9 + 40.8}}[0.07]$$

$$t = \frac{0.3}{\sqrt{80.7}}[0.07]$$

$$t = \frac{0.3}{\sqrt{(1.39)(0.07)}} = \frac{0.3}{\sqrt{0}.973} = \frac{0.3}{0.3119} = 0.9618$$