

Measuring Motivation: A Statistical Lens on Gender Differences in Online Reading Activities

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Abstract. When it comes to online reading activities, every student has a different motivation to read, particularly male and female students. The purpose of this study was to test the hypothesis (H1) saying that there is a significant difference between male and female students' motivations in reading online. 31 male and 72 female students from ED of Sunville University, Indonesia are samples used in this quantitative study. To collect data, the researcher employed a questionnaire that was modified from Wigfield and Guthrie (1997). According to the data, male students' reading motivation averages 2.58, while female students' averages are 2.78 in using online platforms. The average score obtained from gender demonstrates a positive attitude. If the 2-tailed Sig. value is less than 0.05, a significant difference exists between male and female students' reading motivations. This study has figures (.027) showing a significant difference between women and men in reading motivation. Thus, the H1 is accepted This suggests that the females and males have a different motivation level in reading online.

1 Introduction

Reading is one of the most essential tasks in formal language learning for obtaining general and linguistic information. Considering general knowledge construction, reading is an activity that can help students improve their understanding of a content knowledge which support their academic achievement. According to [1], when students enjoy the process of reading, it is the best way to get information. The more information they get, the more opportunities students receive to train their analytical and critical thinking that they need to succeed in an academic

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domain. Meanwhile, in a linguistic point of view, reading is a meaning-making process that contains linguistic elements to learn. In addition, the essential key of skill development, including a foreign language, is repetition [2]. Thus, increased reading leads to the frequent recognition of specific words and grammatical structures. Reading enhances familiarity and ensures that words stay in memory.

Facilitating students' academic success through reading cannot be realized without motivation from students to do the activity. [3] proved that reading motivation is a significant tool that students use to improve foreign language learning. With motivation, students can have strong willingness to search, validate, add, and practice new knowledge they gain from the process. That is in line with information that the researchers gained from the preliminary observation which shows that reading activities will not work as planned if students are not motivated. Experts [3], [4] had the same point as what the researchers witnessed during the preliminary observation. They agreed that motivation can drive students' reading interests and increase their quantity of understanding.

Gender is one of popular issues in reading motivation. That is proven by research under the topic that has been carried out by different experts. [5], [6] gave evidence that female students perform better in reading than male students. In line with [7], [8] who posit that students' reading motivation, both males and females, is affected by reading interests. When students find and read texts, they are fond of, they will easily be motivated to finish the texts. In that condition, their motivation is surprisingly inclined. Milal et al added female students tend to enjoy literary works, self-development books and study-oriented materials while males favor popular and practical contents. In a specific term of motivation, [9] presented that females have stronger reading motivation than males. The difference of males and female in reading is also highlighted by [10] which captured different motives that the males and females possess in reading. While those studies discuss the different reading motivation across genders, other studies tend to demonstrate different perspectives. [11] posit that reading motivation between males and females is not different. That is supported by [12] who unveiled the similar strength of reading motivation between males and females.

In Indonesia, specifically in English Department (ED) of Sunville University (pseudonym), reading log that students filled after reading and writing based subjects presented that female students' reading performance is better than males. However, it is still premature to say that male students' motivation is lower than females even though [13] viewed the positive correlation between reading performance and reading motivation due to some cultural issues that happen in the Indonesian context. For instance, males read but they missed recording their reading in reading log every time they read. In addition, from the existing studies that have been reviewed, the discrepancies underscore a significant research gap. Although considerable evidence indicates gender-based differences in reading motivation, there remains a pronounced lack of consensus regarding the consistency and universal applicability of these differences, particularly within specific cultural contexts such as Indonesia. This study aims to address this gap by analyzing reading motivation among male and female students in Indonesia, offering a localized perspective that accounts for cultural variations and enhances the broader conversation on gender and reading motivation. To guide the

investigation to be on track, research questions are formulated as follows : 1) How are female and male students' motivation in the aforementioned context ? 2) Is there any significant difference between students' gender and their reading motivation in the context? The tested alternative hypothesis (H1) of this research is, there is a statistically significant difference in reading motivation between male and female students.

2 Methodology

In this current research, the researchers used quantitative method and survey design to answer the problem formulation. The approach was used since this research aimed to reveal the characteristics of active reading in high schools and determine the factors that motivate students to read articles. [14] noted that survey research design is quantitative research using behaviors or characteristics. Thus, the researcher applied a cross-sectional study. Cross-sectional studies can examine current attitudes, beliefs, and opinions about how individuals think about problems.

This research was conducted at the English Department (ED) of Sunville University in Indonesia. There are several reasons why the researcher chose this place as the setting for this research. First, the respondents of this research are students of this department who joined reading and writing based classes which apply free reading as an additional assignment. Therefore, the researcher believes that students would have various motivations to be encouraged to read. The population in this study were 118 students consisting of 82 female students and 36 male students. The ratio of the two students was 2:1. Before that, the researcher used a pilot study for ten females and five males because the student ratio was 2:1. The sample used after being deducted for the pilot study was 108 students with the composition of 72 females and 31 males. The researcher used total sampling because the population was limited to the number of students.

To find gender differences in reading motivation at ED of Sunville University, the researchers obtained the data using questionnaires. The researcher adapted a questionnaire from the Motivation for Reading Questionnaire [15]. Because the questionnaire had been utilized by other researchers who had previously concentrated on identifying disparities in reading motivation between boys and females, the researcher modified it. The 53-item questionnaire was written in Indonesian and broken down into 11 subsets based on the subtopic of reading motivation comprising reading efficacy, reading challenge, reading curiosity, reading involvement, importance of reading, reading work avoidance, competition in reading, recognition for reading, reading for grades, social reasons for reading, and compliance. To meet the research ethic, the first page of the questionnaire informed the research and the objective of the questionnaire fulfillment. The students were allowed to withdraw if they disagreed to take part of the research. It went to show that all students responded the research positively and felt glad to fulfill the questionnaire.

The validity test was employed by the researcher to assess the instrument's accuracy in gathering data. Validity is crucial in determining the reliability of the data gathering tool, according to [16]. Validity and expert opinion prior to data

collection are two things that must be done to guarantee the validity and readability of the questionnaire in this study. Since the questionnaire was translated from English into Indonesian and modified from another investigation than the original one, to keep the items valid, each item was assessed by three experts who focused on the translation and the content relevance. After being calculated through Aiken test, the result showed that all items were valid. In terms of reliability, the researcher conducted a pilot study on a small group of respondents using this research questionnaire. The pilot study was conducted on fifteen people, consisting of ten females and five males. The result showed that overall Cronbach's alpha value was 0.709, which means the instruments were reliable.

In data collection, the researcher distributed the questionnaires to 72 female and 31 male students through Google Forms to conduct online polls. The Google Form link was distributed via WhatsApp to each student discussion group class. Then, respondents were directed to fill out the questionnaire by clicking on the link, where they could fill out all items in the questionnaire. Additionally, the researcher re-checked the questionnaire, produced a list of students who did not complete it, and provided a link to the respondent through a private WhatsApp message. The return rate of the questionnaire was 100% meaning that all students filled out the questionnaire.

After comprising the data collection, the data were analyzed using a statistical program to find the mean, frequency, and standard deviation. The researchers included the data based on gender in this study by dividing the population's data into groups of men and women. The criteria were created to gauge the degree of students' reading motivation scores to assess the data after determining the mean of the data from male and female students. Meanwhile, inferential statistics revealed the noteworthy distinctions in reading desire between male and female pupils. A t-test was used to assess the data that was gathered for this study. A t-test was employed in this study to compare the mean reading motivation data collected from male and female participants. The data were subjected to a normality test prior to the researcher performing a t-test. To determine if the distribution of the gathered data is normal, a normality test is utilized. The purpose of the normality test is to determine whether the population under the study has a normal distribution. Using Kolmogorov Smirnov's method, the researcher performed the normalcy test.

3 Findings and Discussion

As a data collection instrument, the researchers adopted a questionnaire from [15]. In descriptive statistics, the researcher would see the frequency of the total score and the mean total score.

Table 1

<i>Range Scale of Reading Motivation (Wiersma, 1995)</i>	
Mean Score	Level
1.00-2.00	Low
2.01-3.00	Moderate
3.01-4.00	High

The researcher has divided the level of reading motivation into three levels. The categories of mean score are adopted from [17]. The level of students' motivation to read is low, moderate, and high. The data also show that the mean score of 72 female students' reading motivation is 3.21 which can be concluded in a high level. That means the female students are highly motivated in online reading activity. Meanwhile, the mean score of 31 male students' reading motivation is 2.78. That number brings the level into moderate which mean that the male students' motivation in reading still needs improvement.

To identify the gender differences on reading activities, the data were gone through assumption tests and hypothesis testing. For the normality, the result is presented in a following table.

Table 2 <i>Normality Test for Female Students'</i>		
One-Sample Kolmogorov-Smirnov Test		
		Motivation
N		72
Normal Parameters ^{a,b}	Mean	2.78
	Std. Deviation	.349
Most Extreme Differences	Absolute	.088
	Positive	.056
	Negative	-.088
Test Statistic		.088
Asymp. Sig. (2-tailed)		.200 ^{c,d}
a. Test distribution is Normal.		
b. Calculated from data.		
c. Lilliefors Significance Correction		
d. This is a lower bound of the true significance		

The normality test is separated into two tables, one for female data and one for male data. To determine the normality score, the researcher used the Asymp. Sig. (2-tailed) score. The normality test distribution is normal if the result of sig 2-tailed > 0.05. For both the female and male data, the total score for the normality test is .200. It means the data is normal for distributed and continue to the homogeneity test.

		Levene Statistic	df1	df2	Sig.
Motivation	Based on Mean	3.258	1	101	.074
	Based on Median	3.239	1	101	.075
	Based on Median and with adjusted df	3.239	1	89.513	.075
	Based on trimmed mean	3.296	1	101	.072

After confirming that the data normality test was valid, the researcher moved on to the homogeneity test. If the data is sufficiently homogeneous, it can proceed to the independent sample t-test. If the sig value is more than 0.05, the data are homogeneous. The homogeneity test result is more than 0.05 with a score of 0.72. This showed that the independent sample t-test may be used to discover differences, and that the data is homogenous.

	Gender	N	Mean	Std. Deviation	Std. Error Mean
Motivation	Female	72	2.78	.34945	.04118
	Male	31	2.59	.48945	.08791

The researcher used an independent sample t-test to determine how gender affected the motivation to read. The mean scores on the group statistics for the t-test were examined by the researcher. The overall mean score for female students was 2.78, and the overall mean score for male students was 2.59. The average score of female students is higher than that of male pupils. This shown that compared to male students, most female students are more motivated to read.

	Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
	F	Sig.	T	Df	Sig. (2-tailed)	Mean	Std. Error	lower	upper

						Difference	Difference		
Equal variances assumed	3.258	.074	2.241	101	.027	.19071	.08512	.02186	.35956
Equal variances not assumed			1.965	43.724	.056	.19071	.09708	-.00497	.38639

The Sig. score in Levene's Test for Equality of Variances is $0.74 > 0.05$, indicating that the data is homogeneous across variables. Furthermore, the current study's Sig. (2-tailed) output is $(.027 < 0.05)$. It also indicates that the motivation of male and female students to read differs statistically significantly. Based on the findings of the independent sample t-test, the alternative hypothesis (H1)—which holds that there is a statistically significant difference between female and male students' reading motivation—is accepted. This suggests that male and female pupils have very different motivations for reading.

The results of female students' reading motivation have been presented in table above. The results showed that 2.78 is the mean score of female students. This result means female students have moderate reading motivation. Reading motivation based on interest, preference, and frequency of reading became a measure of the reading motivation score of female students included in the questionnaire set. As the results shown above, female students have good reading motivation.

Furthermore, in the results shown above, the students' Reading Curiosity and Importance of Reading have a high level. These results are related to the findings of a study from [3], Curiosity in reading can motivate students to have a great desire to collect information in terms of reading in class. Female students are interested in reading about new things and learning information in books on topics that match their interests. Female students like to read non-fiction books and living things. This statement is supported by Duncan et al. (2015), girls report greater motivation to read and are interested in reading fiction books or new topics of interest to their readers. The importance of reading for female students can impact reading activities. Female students believe it is very important to be a good reader to improve critical thinking and reading skills. This results in line with [18], who said that reading is an essential activity that might influence students to understand their surroundings better. Thus, through reading, students can train their sensitivity in giving response to what happened in their life and to be more aware with contexts which lead them to possess good critical thinking.

Then, the mean score of male students' reading motivation is 2.58 or in a moderate level. According to the results of social reasons for reading, male students showed low levels. They never do read with their family and friends

because of the environmental stereotype which states that reading is for females. This statement is in line with previous research from [12], the low achievement and motivation of boys in reading seems to reflect the gender stereotype that reading is for girls. Stereotypes have the belief that women have a higher motivation to read than men [5]. The reading motivation of male and female students is different; female students more often share experiences in terms of reading with friends or family, while male students show that they do not read for friends or family. According to [10], reading is perceived within the family setting as an activity strongly associated with females.

An independent sample t-test was used to determine that, in ED of Sunville University, there was a significant difference in the reading motivation of male and female students. The significance level ($0.027 < 0.05$) is not met by the significance value. Additionally, the results presented that the mean score for females (2.78) was higher than the mean score for males (2.58). These findings demonstrate that there is already a statistically significant difference in the reading motivation of male and female students, with female students being more favorably motivated. The alternative hypothesis (H1), which states that there is a statistically significant difference in reading motivation between male and female students, was also accepted. The result contrasts with the study by [19], who stated that although there were no differences in the motivation of girls and boys as readers, boys reported that they valued reading less than girls. Female students have a high social for reading compared to male students; female students are more motivated to read in general. These results are in line with Mucherah and Yoder (2008). Female and male students showed different levels of reading motivation. For social reasons, academic compliance, and academic excellence, female students read more. Nevertheless, compared to male students, they also read more challenging content, read with greater efficacy, and read out of curiosity.

4 Conclusion

This research aims to find differences between female and male students in reading motivation. Reading is part of daily life, but every person has different motivations towards reading. The researcher aimed to explore students' reading motivation by underlying the statement above. To collect the data, the researcher adapted Motivation Research Question (MRQ) from [15]. The questionnaire was distributed to students. The researcher used a statistical analysis program to analyze the data.

The findings in the study found that female students had moderate motivation in reading motivation. This finding was indicated by the total mean value of 2.78. Meanwhile, male reading motivation students had a mean value of 2.58. The results concluded that female and male students had moderate motivation in reading. Furthermore, compared to male pupils, female students were more motivated to read. There was a significant difference in reading motivation between male and female pupils, as indicated by the t-test result of 0.027. The results of this study indicate that students have distinctions in reading motivation. Students can increase their motivation in reading. They must find ways or solutions to increase

motivation in reading. For example, they must discuss reading with their teachers, friends, and family. By doing so, it can increase their reading motivation.

Teachers can pay attention to students' reading motivation when the learning process is a reading activity. Teachers can help students to increase reading motivation so that students can build good reading habits. In addition, teachers can find differences in students' reading interests due to differences in students' reading preferences. The researcher discovered notable differences in reading motivation between male and female pupils based on the study's findings. The researcher recommends that other researchers interested in reading motivation, particularly gender differences, can use this research as a reference.

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