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Interplay of Motivation, Attitude, and Anxiety on L1 and L2 Reading Frequency in Indonesia

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ABSTRACT

Motivation, attitude, and anxiety are significant to overall academic achievement. However, these variables were often looked at in isolation. This study examined reading motivation and attitude, reading anxiety, and reading frequency among high school students in Indonesia ($n = 4738$). Three close-ended questionnaires—the Foreign Language Reading Attitudes and Motivation Scale (FLRAMS), the Foreign Language Reading Anxiety Scale (FLRAS), and a reading frequency scale—were employed and distributed electronically. Descriptive quantitative analysis was used to map the current condition of reading based on three variables. The data revealed the correlation between reading motivation and attitude with reading frequency in L1 and L2 and reading anxiety in two different realms. The result showed that the level of motivation and attitude ($M = 2.75$; $SD = 0.45$) and anxiety ($M = 2.71$; $SD = 0.49$) in reading was at a moderate-to-high level. The L1 and L2 reading frequency differed in that L1 was at 5–6 hours a week ($M = 2.81$; $SD = 1.06$) and L2 at 2–4 hours a week ($M = 1.82$; $SD = 0.87$). The correlation then showed a positive significant correlation between reading motivation and frequency in both L1 and L2, though positively weak in L1 (p value = $0.000 < 0.05$, $r = 0.075$) and very weakly negative in L2 (p value = $0.000 < 0.05$; $r = -0.058$). Reading anxiety did not significantly correlate with L1 reading frequency (p value = $0.538 > 0.05$; $r = 0.009$) but showed a significant correlation in L2 (p value = $0.003 < 0.05$, $r = -0.043$). The result highlights the need for effective reading strategies and comprehensive teacher strategies that address diverse student needs. It finally emphasizes the importance of integrating cognitive and socio-cultural factors into literacy theories to enhance overall literacy outcomes, particularly in reading.

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Keywords: Reading Motivation and Attitude; Reading Anxiety; Reading Frequency in L1 and L2

1. Introduction

The success in reading depends on a plethora of aspects. One of the most important aspects of reading is the dynamic relationship between intrinsic and extrinsic motivation^[1-3], as motivation is positively related to reading achievement. Furthermore, attitude is another key aspect of reading success^[4-8]. Moreover, success in reading is also closely related to anxiety^[9-11], stating that the lower the anxiety, the better the reading will be. Unfortunately, these studies looked at these aspects in isolation, which may have detrimental effects because they may overlook the relationships between variables when making decisions, which can lead to incomplete understandings and ineffective interventions. The current research sheds light on the three aspects to provide comprehensive information that may help to better understand the complexity of reading success and make suitable decisions.

Previous research looks at L1 and L2 in terms of learning strategies^[12], writing strategies^[13], reading comprehension development^[14], self-efficacy in reading comprehension^[15], eye movements^[16], and orthography between Chinese and alphabetical characters^[17]. However, these studies have failed to address the reading frequency or time spent in L1 and L2 has remained unexplored. The time an individual spent to read significantly contributes to the amount of reading, which correlates with reading motivation. Wang et al.^[18] studied that intrinsic motivation played a more important role in the reading amount than extrinsic factors. The research above, however, only looked at one of the three crucial aspects of reading mentioned at the beginning of this paper. This indicates a significant gap in the literature between reading frequency in L1 and L2, and their correlation with important aspects of reading needs to be thoroughly investigated.

The reading frequency may be influenced by motivation^[18], linguistic competence^[19, 20], and independence^[21]. These three systematically embody the core aspects of self-determination theory (SDT): autonomy, competence, and relatedness – the basic psychological needs^[22-24]. In addition, SDT is also concerned with intrinsic and extrinsic motivation, which is closely related to reading motivation.

Although SDT has been utilized in various academic contexts, such as reading^[25-27], studies on SDT used in looking at reading frequency have been relatively scarce. The current study seeks to explore how SDT informs understanding of the L1 and L2 reading frequency.

The complex challenges associated with low reading interest have become a serious issue among Indonesian students^[28]. This situation is presumably caused by decreased motivation and negative attitudes toward reading^[29], lack of academic performance^[30], and perhaps digital addiction^[31-33]. Research indicates a prevailing belief that reading is not enjoyable^[34, 35], supported by studies revealing a lack of correlation between reading achievement, motivation, and overall academic success^[36, 37]. Thus, it is crucial to recognize that these low motivation levels significantly impact students' willingness to engage with reading materials.

Reading anxiety, which can manifest as fear of failure, self-doubt, and negative emotions associated with reading tasks^[38], significantly impedes their reading motivation and engagement^[39]. In EFL contexts, students' difficulties with unfamiliar vocabulary, topics, and linguistic, cultural, and curricular knowledge often contribute to reading anxiety^[40, 41]. These experiences cause them to experience feelings of confusion, frustration, and inadequacy. Thus, students may avoid reading or engage in it reluctantly, which hinders their language development and overall academic success.

An innovative approach is required to address the intricacy of boosting reading motivation and reducing reading anxiety. For instance, Wu and Amzah^[42] found that e-picture reading books significantly increase students' reading motivation. Recently, paired reading techniques, as proposed by Müller and Kovač^[43], are essential in cultivating reading habits in a foreign language context. Therefore, undertaking a needs analysis is an essential preliminary measure to determine a practical approach in the domain. The findings of a needs analysis can reveal key considerations to meet students' needs^[44, 45]. The approach will likely affect other aspects, such as reading engagement and frequency. Han^[46] observed a positive correlation between reading frequency and various motivational scales, including efficacy and engagement, util-

ity value, and academic value. Moreover, a substantial body of research has demonstrated that decreased reading anxiety is positively associated with increased reading habits^[47–49]. Shortly, when anxiety levels diminish, individuals are more likely to engage in reading activities and vice versa. To better understand these dynamics, Self-determination theory is considered appropriate as it is grounded in three key aspects of human needs.

Self-Determination Theory (SDT)

Self-determination theory (SDT) bases its core on three human’s basic needs: basic psychological needs, intrinsic motivation, and extrinsic motivation. Deci et al.^[50] studied the effects of extrinsic rewards on intrinsic motivation, proposing that extrinsic rewards, such as verbal and tangible rewards, could potentially enhance intrinsic motivation. They also coined the core aspects of SDT: autonomy, competence, and later relatedness. In later years, SDT has been used in a variety of contexts, such as work organization^[22], cultures^[51, 52], EFL reading^[1, 27], student engagement^[53]. While students may also exhibit detachment and irresponsible behavior (e.g., lack of discipline, rowdy behavior), SDT suggests that educational institutions find strategies to optimize the students’ psychological needs through active engagement^[50].

Understanding how the three variables of human needs interact is crucial for developing effective pedagogical approaches. This leads to the following research questions:

1. What is the reading motivation, attitude, and anxiety and the reading frequency in L1 and L2 among high school students in Indonesia?
2. How is the reading frequency in L1 and L2 among high school students across cities in Indonesia?
3. How is the correlation between reading motivation and attitude and reading frequency in L1?
4. How is the correlation between reading anxiety and their reading frequency in L1?
5. How is the correlation between reading motivation and attitude and their reading frequency in L2?
6. How is the correlation between reading anxiety and their reading frequency in L2?

As the research questions appeared, the hypotheses of this current study are presented as follows:

Hypothesis of research question three: There is a sig-

nificant positive correlation between reading motivation and attitude and their reading frequency in L1.

Hypothesis of research question four: There is a significant positive correlation between reading anxiety and reading frequency in L1.

Hypothesis of research question five: There is a significant positive correlation between reading motivation and attitude and their reading frequency in L2.

Hypothesis of research question six: There is a significant positive correlation between reading anxiety and reading frequency in L2.

2. Materials and Methods

This quantitative study aimed to investigate the interrelationships between reading motivation and attitude, anxiety, and reading frequency among Indonesian high school students’ L1 (Indonesian) and L2 (English). A purposive sampling strategy was employed to recruit 4738 students from grades X to XII across six major cities in Indonesia. Participants completed a self-administered questionnaire distributed electronically through a Google form to collect data. Voluntary participation was ensured through the acquisition of informed consent. Data collection occurred between May and July 2024. The six cities were chosen based on the time frame of the research and the scope of the funding. The bureaucracy complexity of issuing research permits varied significantly among the cities and schools, leading to variations in the sample size. For example, ten out of 22 high schools in Surabaya were contacted for data collection purposes. However, only three schools gave positive responses, with these schools only permitting participation from one grade level. The complexity generally took place in all cities in which the data were collected. All participating schools were attended by 67–360 students per grade. At the time of data collection, one researcher came into a classroom assigned by the school, shared the barcode with the students, and monitored the completion of the questionnaires. Some students were absent, which affected participation numbers. One school in Surakarta and Bandung permitted the data collection; however, they did not consent to the researchers to enter the class, leading to a low return rate (134 out of 216 students and 96 out of 216 students respectively). **Table 1** provides a detailed demographic overview of the participants

Table 1. Respondents' demographic information.

City	Population*	Number of Respondents	Gender Distribution		Percentage (%)
			Male	Female	
Bandung	25.576	1127	504 (26.31%)	623 (22.12%)	23.77%
Malang	13.030	687	216 (11.24%)	471 (16.72%)	14.52%
Semarang	10.105	732	298 (15.56%)	434 (15.41%)	15.46%
Surabaya	23.172	648	284 (14.76%)	364 (12.90%)	13.65%
Surakarta	9.237	818	388 (20.24%)	430 (15.27%)	17.28%
Yogyakarta	13.064	726	232 (12.08%)	494 (17.56%)	15.33%
Total	94.184	4738	1922	2816	100%

* The number of students in public high schools in 2023, taken from Statistics Indonesia (bps.go.id).

from each city.

In this study, the questionnaire was composed of two principal sections: the Foreign Language Reading Attitudes and Motivation Scale (FLRAMS) created by Erten et al. [54], which consists of 16 items focusing on the intrinsic value of reading, six items on reading efficacy, five items on the extrinsic utility value of reading, and four items of foreign language linguistics utility. The Foreign Language Reading Anxiety Scale (FLRAS) [55] comprises 18 items, which actually consists of 20 items. All instruments were developed utilizing a four-point Likert scale: 1 (strongly disagree), 2 (disagree), 3 (agree), and 4 (strongly agree). Furthermore, the eliminated items which “By the time you get past the funny letters and symbols in English, it’s hard to remember what you’re reading about.” and “I am worried about all the new symbols I have to learn in order to read English.” Resulted from the expert judgment of three experts. The two items received low validity scores of 0.665, respectively. In addition, the symbols mentioned in the two items refer to orthographic letters used in some countries, such as Thailand, Cambodia, and China. Thus, these items are not applicable to Indonesian respondents because Indonesia uses alphabetic letters, just like English. Also, to maintain its validity, the reliability test utilizing Cronbach’s alpha was conducted. As seen in **Table 2.** the result of reliability yielded 0.815 as for validity, Aiken text showed a range of 0.83–1.00. The reliability and validity tests were conducted through a pilot study of 53 students in the special territory of Yogyakarta. Apart from obtaining data for reliability, the pilot study was used to find out potential problems arising from the translation. During the pilot study, it was revealed that students were confused with the word ‘grammar’ used in the translated questionnaire. The word ‘grammar’ was then translated

into ‘*struktur tata bahasa*’ for the actual data collection. In the end, 49 items were used in the questionnaires for data collection.

Table 2. Reliability statistics.

N Items	Cronbach’s Alpha
49	0.815

This study analyzed the obtained data through the lens of quantitative analysis, which consisted of descriptive quantitative and correlational analysis. Descriptive quantitative analysis was used to find out the level of reading motivation, attitude, and anxiety as well as the reading frequency of L1 and L2. The categories of the variables are presented in **Tables 3** and **4** below.

Table 3. Reading motivation and attitude; reading anxiety categories.

No	Range Value	Category
1	1.00–1.75	Low
2	1.76–2.50	Moderate Low
3	2.56–3.25	Moderate High
4	3.26–4.00	High

Table 4. Reading frequency categories.

No	Reading Frequency	Category
1	Less than one hour a week (<1 hour/week)	Seldom
2	2–4 hours a week	Occasionally
3	5–6 hours a week	Sometimes
4	More than seven hours a week (>7 hours/week)	Frequently

To categorize respondents based on their reading frequency, the same criteria used for reading motivation, atti-

tude, and anxiety were applied. **Table 5** presents the categories used to classify reading frequency in both the first language (L1) and English (L2).

Table 5. Reading frequency categories.

No	Range Value	Category
1	1.00–1.75	Seldom
2	1.76–2.50	Occasionally
3	2.56–3.25	Sometimes
4	3.26–4.00	Frequently

This study employed a descriptive quantitative approach to capture trends in reading motivation and attitude, reading anxiety, and reading frequency in both L1 and L2. To evaluate the relationships between these variables, Spearman’s correlation analysis was utilized. This coefficient ranges from -1 to 1 , where values closer to 1 indicate a strong positive correlation and values closer to -1 indicate a strong negative correlation.

3. Results

This section presents the quantitative findings of a study investigating the reading motivation, attitude, and anxiety of Indonesian students in six major cities. The analysis includes descriptive statistics on the frequency of reading in both the first language (L1) and English (L2), as well as the correlations between these variables and reading frequency.

3.1. Reading Motivation and Attitude

The initial result pertains to the survey of reading motivation and attitude grounded from the FLRAMS by Erten et al. [54]. The outcomes of this inquiry are presented in **Table 6**.

Table 6. Overall respondents’ reading motivation and attitude.

N	Mean (M)	Std. Deviation (SD)
4738	2.75	0.45

Table 6 reveals the general result of reading motivation and attitude from respondents ($n = 4738$). The result falls at the mean score ($M = 2.75$; $SD = 0.45$). Their reading motivation and attitude are at moderate high level, indicating that a learner possesses a moderate-to-high motivation with a high attitude embedded. This motivation can be intrinsic, driven by personal interest, or extrinsic, influenced by

external factors such as rewards or recognition. The presence of a moderate to high level of motivation indicates that these learners are more likely to engage in reading activities voluntarily and persist in their efforts to improve reading skills.

Table 7 depicts the detailed results of reading motivation and attitude from six cities.

Table 7. Reading motivation and attitude across cities.

City	N Respondents	Mean Score (M)	Std. Deviation (SD)
Bandung	1127	2.72	0.46
Malang	687	2.72	0.46
Semarang	732	2.76	0.43
Surabaya	648	2.83	0.42
Surakarta	818	2.73	0.46
Yogyakarta	726	2.77	0.43
Total	4738	2.75	0.45

Table 7 highlights a range of individual differences in reading motivation and attitude among their student populations. Despite these variations, the overall level of both constructs falls within the moderate-to-high category. The data analysis reveals a consistent pattern across all locations, with mean (M) scores ranging from 2.72 to 2.83. This indicates that the overall level of reading motivation and attitude is relatively high among the cities studied. Slight variations between cities were found. Surabaya stands out with a slightly higher mean score ($M = 2.83$; $SD = 0.42$), suggesting a marginally more positive attitude towards reading among respondents from this city. Meanwhile, Bandung and Malang hold the lowest mean score ($M = 2.72$; $SD = 0.46$). This finding suggests that a significant proportion of students in these regions possess positive attitudes and are motivated to engage in reading activities.

3.2. Reading Anxiety

The results of reading anxiety are presented at both the overall sample level and for each individual city. **Table 8** summarizes the aggregate findings on reading anxiety.

Table 8. Overall reading anxiety.

N	Mean (M)	Std. Deviation (SD)
4738	2.71	0.490

The analysis of reading anxiety among a sample of (n

= 4738) respondents reveals a mean score ($M = 2.71$; $SD = 0.49$). This statistical data indicates that the collective reading anxiety of the respondents is positioned at a moderate-to-high level, which means that students experience significant levels of apprehension when engaging in reading activities. This result is particularly noteworthy because respondents also exhibit moderate-to-high levels of reading motivation and attitude. Despite the strong presence of reading anxiety, the overall mean scores for reading motivation and attitude remain higher. This suggests that while students may experience anxiety during reading activities, their positive attitudes and intrinsic motivation toward reading generally outweigh these concerns. It is, therefore, essential to recognize that while high levels of motivation and positive attitudes toward reading can facilitate engagement and comprehension, they do not necessarily mitigate the presence of anxiety. **Table 9** shows the reading anxiety across cities.

Table 9. Reading anxiety across cities.

City	N Respondents	Mean Score (M)	Std. Deviation (SD)
Bandung	1127	2.67	0.50
Malang	687	2.69	0.49
Semarang	732	2.75	0.45
Surabaya	648	2.69	0.50
Surakarta	818	2.72	0.49
Yogyakarta	726	2.69	0.58
Total	4738	2.71	.490

Table 9 revealed a consistent pattern across all locations, with mean scores ranging from 2.67 to 2.75. This indicates that the overall level of reading anxiety is relatively high and across the cities although slight variations are observed. Bandung ($n = 1127$) and Surabaya ($n = 648$) exhibit marginally lower mean scores of ($M = 2.67$; $SD = 0.50$) and ($M = 2.69$; $SD = 0.50$), respectively, suggesting a potentially lower level of reading anxiety. **Table 9** also reveals Semarang's ($n = 732$) reading anxiety is the highest among the six cities ($M = 2.75$; $SD = 0.45$).

Although both reading anxiety and reading motivation and attitude were categorized as moderate high across all cities, a closer examination of the mean scores reveals a consistent pattern. The mean score for reading anxiety in each city did not surpass the mean score for reading motivation and attitude. This suggests that while students may experience some degree of anxiety during reading activities, their positive attitudes and intrinsic motivation toward reading

generally outweigh these concerns. This is encouraging as it indicates that students are more likely to persist in their reading efforts despite potential challenges. It should be noted, however, this result suggests that a significant proportion of students in these cities still experience anxiety while engaging in reading activities.

3.3. Reading Frequency in L1

As for the reading frequency, the overall result of this inquiry is presented in **Table 10**.

Table 10. Overall reading frequency in L1.

N	Mean (M)	Std. Deviation (SD)
4738	2.81	1.06

The analysis presented in **Table 10** reveals the overall reading frequency in the respondents' L1 from a sample of ($n = 4738$). The data indicates that the respondents generally fall into the "sometimes" time range category. It suggests respondents typically spend between 5 to 6 hours per week reading in L1, which suggests that while respondents may not be avid readers in L1, they still allocate a considerable amount of time to reading. This level of engagement is crucial for maintaining and improving reading skills, as well as for fostering a deeper understanding of the language and its cultural nuances. **Table 11** shows the reading frequency mean score of each city.

Table 11. Reading frequency in L1 across cities.

City	N Respondents	Mean Score (M)	Std. Deviation (SD)
Bandung	1127	2.37	1.22
Malang	687	2.87	1.06
Semarang	732	2.71	1.25
Surabaya	648	2.88	1.05
Surakarta	818	2.82	1.05
Yogyakarta	726	2.87	1.05
Total	4738	2.81	1.06

Table 11 exhibits a relatively high and consistent level of reading frequency across cities, with mean scores ranging from ($M = 2.37$) to ($M = 2.88$). While there are minor variations between cities, the overall pattern suggests that a significant number of students in these regions engage in regular reading activities and place them into 'sometimes' categories. Although all cities hold a 'sometimes' category in

reading by engaging 5–6 hours in reading activities, Bandung stands out with a slightly lower mean score of ($M = 2.37$; $SD = 1.22$). This lower mean score indicates a potentially lower reading frequency, categorizing Bandung respondents into the “occasionally” category, which means respondents in Bandung generally spend only 2–4 hours a week engaging in L1 reading.

3.4. Reading Frequency in L2

Table 12 depicts the reading frequency in L2 in the overall landscape.

Table 12. Overall reading frequency in L2.

N	Mean (M)	Std. Deviation (SD)
4738	1.82	0.870

Table 12 reveals the reading frequency of all respondents ($n = 4738$), which shows the mean score at ($M = 1.82$; $SD = 0.87$), meaning it falls into the “occasionally” category. This category suggests that the respondents engage in reading activities using L2 for approximately 2 to 4 hours per week. In addition, it indicates that while some respondents may engage in reading more frequently in such a time range, others may do so less often.

Table 13 presents the reading frequency scores for each city in L2.

Table 13. Reading frequency in L2 across cities.

City	N Respondents	Mean Score (M)	Std. Deviation (SD)
Bandung	1127	2.20	1.02
Malang	687	1.84	0.85
Semarang	732	2.17	1.01
Surabaya	648	1.94	0.93
Surakarta	818	1.89	0.86
Yogyakarta	726	1.74	0.82
Total	4738	1.82	0.870

Table 13 displays the L2 reading frequency scores for participants from the six cities. The results show a uniform trend across all cities, with mean scores varying between ($M = 1.74$) and ($M = 2.20$). Bandung shows notably higher mean score ($M = 2.20$; $SD = 1.02$) which indicates a potentially greater frequency of L2 reading. The lowest mean score was noted in Yogyakarta ($M = 1.74$; $SD = 0.82$). This result also derives from the fact that only Yogyakarta displays a mean

score below the benchmark of overall reading frequency in L2 ($M = 1.81$; $SD = 0.87$). It is, therefore, crucial to emphasize promoting reading activities to enhance L2 learning.

3.5. The Correlation between Reading Motivation and Attitude and Reading Frequency in L1

A correlational analysis was conducted to investigate the intricate interrelationships between reading motivation and attitude and their reading frequency in L1. Spearman’s rank correlation coefficient, a non-parametric statistical method, was employed to assess the strength and direction of the associations between these variables. This analytical approach allowed for examining how reading motivation and attitude collectively influence the development and maintenance of overall reading frequency. By doing so, the study could effectively quantify the degree of association between these variables, thereby providing insights into the complex dynamics underlying the development of robust reading habits in L1 learners. **Table 14** shows the result of the analysis.

Table 14 presents a correlational analysis examining the relationship between reading motivation and attitude and reading frequency L1. While the results indicate a significant positive correlation, as evidenced by the p -value of 0.000 (<0.05), the strength of this association, as measured by the correlation coefficient of 0.75, is at a positive but weak level. This suggests that while there is a clear relationship between these variables, other factors may also be associated with reading frequency in L1. Also, it is believed that those who possess high reading motivation as well as a positive attitude will frequently engage with L1 reading activities. It means that even though this current research found a low impact of reading motivation and attitude on reading frequency, the impacted variable, which is represented by reading frequency, cannot be solely influenced by reading motivation and attitude. It is widely open to other factors. To sum up, having this result, it accepts the alternative hypothesis.

3.6. The Correlation between Reading Anxiety and Reading Frequency in L1

Table 15 then shows the result of analysis.

Table 15 reveals a lack of significant correlation be-

Table 14. Reading motivation and attitude and reading frequency in L1.

	Reading Freq in L1	Reading Motivation and Attitude		
Spearman's rho	Reading Freq in L1	Correlation Coefficient	1.000	0.075**
		Sig. (2-tailed)	.	0.000
		N	4738	4738
	Reading Motivation and Attitude	Correlation Coefficient	0.075**	1.000
		Sig. (2-tailed)	0.000	.
		N	4738	4738

Table 15. Reading anxiety and reading frequency in L1.

	Reading Freq in L1	Reading Anxiety		
Spearman's rho	Reading Freq in L1	Correlation Coefficient	1.000	0.009
		Sig. (2-tailed)	.	0.538
		N	4738	4738
	Reading Anxiety	Correlation Coefficient	0.009	1.000
		Sig. (2-tailed)	0.538	.
		N	4738	4738

tween reading anxiety, as indicated by the value of Sig. (2-tailed) > 0.05. Specifically, the calculated *p*-value of 0.538, derived from a dataset comprising (n = 4738), signifies that the observed association between these variables is not statistically significant. In addition, the correlation between reading anxiety and reading frequency in L1 exhibits a positive and weak correlation, as evidenced by the correlation coefficient value and a corresponding *p*-value of 0.009. This finding suggests that while there is no significant relationship between reading anxiety and reading frequency in L1, there is a positive relation, albeit weak, between those variables. This result also suggests that the proposed alternative hypothesis was rejected.

3.7. The Correlation between Reading Motivation and Attitude and Reading Frequency in L2

Table 16 shows the results in a statistical landscape.

The correlation, as revealed in **Table 16**, reveals a significant correlation (*p* value < 0.05) where the value was at (*p* = 0.00). As for the direction, it was found that there is a negative relationship between reading frequency L2 and both reading motivation and attitude (*p* value = -0.058) with a negative and weak direction. It furthermore indicates that, as reading frequency in L2 increases, reading motivation and attitude tend to decrease, and vice versa. As a result, the alternative hypothesis was rejected since the analyzed result

showed a negative direction. This result advocates that there may likely be a certain degree of contributions from these variables, which is potentially influenced by factors such as individual differences, language proficiency, and the specific content of reading materials. Research on how each variable predicts the reading frequency in L2 needs to be investigated further. Furthermore, the imposition of mandatory L2 reading activities, such as assigned reading logs, structured reading assignments, or required group discussions, whether through teacher directions or institutional regulations, may unintentionally lead to a decrease in L2 reading engagement. It happens since the intention of reading is cultivated through an inherent task rather than a genuine desire on the part of students to interact with reading materials.

3.8. The Correlation between Reading Anxiety and Reading Frequency in L2

The results of the computation are shown in **Table 17**.

Table 17 presents a correlational analysis examining the relationship between reading anxiety and reading frequency L2. While a significant negative correlation was observed, as evidenced by the *p*-value of 0.003, the strength of this association is remarkably weak, as evidenced by the correlation coefficient value of -0.043. Although the negative correlation was statistically significant, the weak correlation indicates that reading anxiety has minimal effects on L2 reading frequency. In this sense, the alternative hypothesis was

Table 16. Reading motivation and attitude and reading frequency in L2.

Reading Freq in L2		Reading Motivation and Attitude		
Spearman's rho	Reading Freq in L2	Correlation Coefficient	1.000	-0.058**
		Sig. (2-tailed)	.	0.000
		N	4738	4738
	Reading Motivation and Attitude	Correlation Coefficient	-0.058**	1.000
		Sig. (2-tailed)	0.000	.
		N	4738	4738

Table 17. Reading anxiety and reading frequency in L2.

Reading Freq in L2		Reading Anxiety		
Spearman's rho	Reading Freq in L2	Correlation Coefficient	1.000	-0.043**
		Sig. (2-tailed)	.	0.003
		N	4738	4738
	Reading Anxiety	Correlation Coefficient	-0.043**	1.000
		Sig. (2-tailed)	0.003	.
		N	4738	4738

rejected.

4. Discussion

The study brought to light the moderate-to-high level of reading motivation and attitude among students, which does not substantially vary throughout the six cities. It might be because the six cities provide similar learning environments to encourage readers^[56]. For instance, all cities offered comparable educational facilities and curricula that centered on their students' interests, skills, and choices while supporting their development in reading^[27]. We, to some extent, believed that the reading process, particularly in reading motivation, is entailed with some aspects, as Schutte and Malouff^[57] found that the enjoyment of reading and self-reported reading frequency is moderately associated with the duration of one's interaction with the reading material. This, then, is how the reading motivation is constructed. On the other hand, the students might have had higher motivation to read if they see their teachers also read so that students can become the learners' role models in reading^[58]. Additionally, the social environment throughout the six cities does not differ significantly. Kambara and Lin^[59], for example, found significant differences in reading motivation between students in the US and Japan, which have polarized social environments. While Indonesia may be culturally diverse, the diversity between the six cities is not too significant.

As for reading anxiety, this study found that it falls into

a moderate-to-high-level category. This finding suggests that although students exhibit a moderate level of reading motivation and positive attitudes toward reading, these factors are not necessarily related to their reading anxiety. In other words, even with a reasonable degree of motivation and a positive outlook on reading, students still experience significant levels of anxiety related to reading tasks. This result indicates that reading motivation and attitudes alone may not be associated with reading anxiety and highlights the need for additional strategies or interventions to address this emotional barrier. This result becomes reasonable when previous studies found no reading motivation and attitude as factors of reading anxiety. Research has identified several key factors contributing to L2 reading anxiety, including unfamiliar vocabulary, unfamiliar topics, complex text structures, and the fear of making mistakes^[45, 60] and confidence in reading and orthographic identification^[17, 61]. These studies suggest it is reasonable to infer that reducing these factors can be related to lowering students' reading anxiety. Therefore, a moderate-to-high level of reading motivation and positive attitudes alone may not be sufficiently related to reducing reading anxiety if other associated factors are still present, as noticed in this current study. Furthermore, the result is consistent with the observation that there was no noticeable variation in reading anxiety levels among the six cities studied. This suggests that cultural and geographical factors may have a limited influence on making significant differences in reading anxiety across these cities. Even though^[62] ar-

gued that L2 reading anxiety among students is influenced by specific cultural factors, the study did indicate that, despite the cultural diversity across these cities in Indonesia, there were some minor variations in reading anxiety levels, which were generally categorized within a moderate-to-high range category.

The fact that reading frequency between L1 and L2 showed a distinction also brings further discussion. This distinction can be attributed to the different ways in which L1 reading is often strongly associated with intrinsic motivation^[63] as it stems from a natural engagement with the content and a deeper connection to the language and culture. On the contrary, L2 reading tends to be influenced more by extrinsic factors, such as achieving academic success, meeting test requirements, and fulfilling social expectations^[26]. In addition, Huang^[64] also found that while Western culture holds a strong intrinsic reading motivation, in the Asian context, extrinsic motivation appears as the majority reading. This means that learners may approach L2 reading with a focus on practical outcomes rather than personal enjoyment. The need to excel academically, comply with educational standards, and engage in social sharing can significantly impact how frequently and effectively individuals read in their L2.

The low reading frequency may be explained by the three basic psychological needs proposed by SDT – autonomy, competence, and relatedness. Autonomy is popular among students who live in individualistic cultures, whereas for students who live in collectivist cultures (e.g., Indonesia)^[51], autonomy may not be as high. In terms of competence, to enjoy reading in L2 requires a certain linguistic proficiency^[19, 20]. As English is not used in daily life in Indonesia, it may explain the low reading frequency in L2. As for the relatedness, the low L2 reading frequency may also be due students' unfamiliarity with the topic or the stories published by Western publishers. In short, while the motivation to read in L1 and L2 was moderate-to-high, students lacked volition to read.

The current study also documented the significant relationship between reading motivation and attitude and L1 reading frequency. It then can be assumed that such motivation (e.g., genuine love of reading, interest, mark, and expectation from others) can lead students to trigger prolonged reading time in L1. In addition, the reading anxiety

and L1 reading frequency also showed a positive correlation, suggesting that as reading anxiety increases, the L1 reading frequency also tends to rise. While this result may seem in contradiction to the general agreement since, logically, higher anxiety is often correlated with avoidance behaviors, this result navigates to a deeper exploration between variables. A possible explanation can be connected to the experience of anxiety where it may be a booster for students to read more frequently as a means of improving their reading skills or to overcome fear. It becomes acceptable when students are faced with the condition of 'must read' to meet certain demands for instance minimal score, assessment requirement, prerequisite activity as required by school even though it heightens their anxiety.

As for L2 reading frequency, this current study found a significant correlation between reading motivation and attitudes with reading frequency in L2 in a negative direction. This unusual result suggests that as motivation and positive attitude towards reading increases, reading frequency decreases and vice versa. The findings by Johari et al.^[65] suggest that in Indonesia, students often regard reading as a hobby that ranks low on their list of preferred activities when it comes to engaging with reading practices. This condition implies that while students look frequently engaged with reading materials in L2, they do not engage with a genuine interest in L2 reading. The downside is that students who struggle with reading in L2 might feel unmotivated and develop a negative reading attitude, even though they are forced by teachers and themselves to read and to achieve certain goals in reading or academic standards. Students' English proficiency may also be a hindrance to improving their motivation to read in L2 due to a lack of knowledge and skills on how to choose the right books to read. In addition, students may not be motivated in L2 reading because their teachers do not give examples of being readers.

Reading anxiety and L2 reading frequency, furthermore, showed a significant correlation with the negative direction captured in it. This indicates that students with higher reading anxiety tend to engage in slightly less frequent reading activities. It is concluded that heightened anxiety in reading may lead to irresponsible engagement in L2 reading, where students are less likely to engage with reading due to fear of failure, embarrassment, and inadequacy in their reading skills. In this sense, if students are in high-pressure

situations, such as high-stakes tests or receiving harsh feedback, their anxiety in reading can worsen. The same result was also captured by Gencer and Demergunes^[66] and Tonka and Bakır^[48], who found that students' anxiety decreased when reading frequency increased. Thus, it is understandable that when reading anxiety increases, the interaction with books, as suggested in reading frequency in L2, decreases.

The discussion implies that L2 teachers need to understand and master pedagogical practices to provide sufficient and meaningful intervention. McBreen and Savage^[39] contended that self-regulated reading instructions, which include planning, monitoring, and evaluating students' own learning, can motivate students to read and improve students' achievements. The other reading intervention that was successful in improving students' reading motivation was proposed by Marcelo and Santillan^[3], who proposed activities targeting literal, inferential, and evaluative levels of reading. Last but not least, Webber et al.^[35] argue that technological resources, such as reading devices, can also be used to carry out interventions to support students' reading motivation and lower their reading anxiety.

5. Conclusions

This current study sheds light on the reading motivation, attitude, and anxiety among high school students in a large context (N = 4738), as well as their reading frequency in L1 and L2. Their reading motivation and attitude and reading anxiety were revealed at a moderate-high level. In contrast, their reading frequency shows a notable difference between L1 and L2, which is 5 to 6 hours and 2 to 4 hours per week, respectively. The analysis shows a significant positive correlation between motivation and attitude and reading frequency in L1, which is also consistent in the L2 context. Yet, the direction for L1 reading was a positive weak association, while L2 indicated a negative weak direction. Interestingly, reading anxiety in reading frequency in L1 showed a non-significant correlation, contrasting with a significant correlation observed in L2.

While these findings highlight critical aspects of reading engagements, the study also acknowledges significant limitations. The sample of the study was predominantly composed of Javanese students from public schools in developed cities, which raises concerns about the generalizability of the

findings to all high school students across diverse cultures, regions, and socio-economic backgrounds. Thus, future recommendations on efforts to improve reading motivation and reduce anxiety should take this limitation into account. The findings suggest that teachers and curriculum developers need to collaboratively improve students' reading motivation. Integrating culturally relevant materials that resonate with students' backgrounds can be a solution to effectively promote reading practices. This approach could enhance reading motivation and create an inclusive environment. Additionally, a curriculum that addresses varying L2 proficiency levels is essential as a one-size-fits-all method may not meet diverse student needs.

The second limitation is that the current study did not specify the types of reading strategies (i.e., skimming, scanning, reading by heart) and the type of texts (e.g., Whatsapp messages, books, short stories, social media posts) it tries to address. The definitions of reading strategies and types of texts were not clearly conveyed in the questionnaire. Understanding the variety of reading strategies and text types could have impacted the results of reading frequency and motivation. Future research should focus on these areas to capture a more comprehensive picture of reading behavior. The other limitation is that while the study sample was quite large, the study lacks qualitative data to support the quantitative data. Future research should incorporate qualitative data to more comprehensively understand these variables. In addition, future research on reading frequency should include real measurement of reading times (e.g., reading logs or digital tracking tools) instead of self-reported data.

Author Contributions

Conceptualization, S.R.M. and E.P.; methodology, S.R.M.; software, S.M.M.H.; validation, S.R.M.; formal analysis, S.M.M.H.; investigation, E.P.; resources, E.P.; data curation, S.R.M., D.P.; writing—original draft preparation, S.R.M., E.P., S.M.M.H.; writing—review and editing, S.R.M.; visualization, S.R.M., E.P., D.P.; supervision, D.P.; project administration, S.R.M., D.P.; funding acquisition, S.R.M., E.P. All authors have read and agreed to the published version of the manuscript. Authorship must be limited to those who have contributed substantially to the work reported.

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Institutional Review Board Statement

Research permits were obtained from the government offices where the schools were located. Only schools which issued permits to the researchers were included in the data collection process. Each respondent filled out an informed consent prior to completing the questionnaire.

Informed Consent Statement

Informed consent was obtained from all subjects involved in the study.

Data Availability Statement

The data supporting the findings of this study are available on request. Please contact Sri Rejeki Murtiningsih at jackie@umy.ac.id for access to the data.

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Conflicts of Interest

The authors declare no conflict of interest.

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