

The Intertwining of Time and Text Readability on Undergraduate Reading

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Abstract.

Undergraduates are often lagging in their ability to adapt to the demand of college reading tasks. This is further compounded when the task involved a shorter duration and lower readability level texts. Consequently, the objectives of the present study are two folds: first, investigate how the intertwining of time and text readability affect reading performance and second, identify the preferred reading activities when dealing with time and text readability factors. A sequential explanatory design was employed since quantitative data from the reading performance was extracted before qualitative data on the reading activities. Meanwhile, a 3x3 factorial design was employed to develop the reading performance tests. Fifty-seven non-English major undergraduates were identified as the participants who were tested using nine different measures of reading performance. They were also required to reflect on the preferred reading activities used during the tests. Results showed some patterns in the reading performances of the participants associated with the degrees of the intertwining of time and text readability. Patterns in the choice of reading activities can also be observed. Pedagogical implications were also discussed.

Keywords: reading activities; time; text readability; reading comprehension; undergraduates

1. Introduction

The difficulty of university courses often varies depending on the demands of the courses. In some cases, undergraduates may classify the difficulties of the courses based on their influence on the students' performance. According to Skenes et al. (2020), among the factors influencing the performance of undergraduates is in the assignment, specifically its length, frequency, and difficulty levels.

Since reading is often part of a task needed to complete many undergraduates' assignments, difficulties in reading can also be a factor of concern. Williamson (2008) postulates that post-secondary individuals often have difficulties

adjusting to the increase in the difficulty levels of their readings. This has caused them to encounter challenges whenever it involves reading since reading in secondary schools was generally less demanding than reading in post-secondary schools. Furthermore, the reading texts may also vary in terms of difficulties of the subject matter and demands. Although there are a lot of other factors that can cause problems in reading, this paper focused only on two factors, namely text readability and time on task.

Text readability is the extent a text can be read easily. Such a quotient has been used to describe the difficulty level of the texts. Among the most commonly used measures include the Flesch Reading Ease measure and Flesch-Kincaid

Grade Level. However, researchers have since made varied references to the term text readability. For example, Blanc-Goldhammer and Mackenzie (2018) classified text readability on the physical characteristics of the fonts used, Gonzalez-Garduno, and Søgaard (2017) identified text readability based on the syntactic structure. Cha et al. (2017) focused text readability on the semantic features of the text, and Chen and Meurers (2019) categorised text readability based on linguistic complexity. These variations in the measure of text readability induced that there would be multiple factors that can trigger the text to be unreadable. Studies have found that text readability negatively affects learners' reading performance (Dirgantari, & Susantiningdyah, 2020). The higher the readability level, the less complex and easier the texts are, while the lower the readability level, the more complex and challenging the texts are. The issue remains as to what would be considered unreadable to the students.

Meanwhile, time on task is the time used in completing the assigned task. In the context of this study, time on task refers to the time the participants spent reading the text. As far as undergraduate studies are concerned, time has often been the essence of many of their task,

assignment and tests. In a study of time spent on reading and reading comprehension of school students, Locher and Pfof (2020) found that reading time positively impacts reading comprehension ability. The more time students spend on reading. The more positive their performance will be.

Nevertheless, Locher and Pfof (2020) did not observe the impact of time on the students' reading activity. Instead, they observe how the time spent on reading can develop the students' ability to improve their reading comprehension over time. Meanwhile, Sharma et al. (2019), who studied the allocation of time for reading, discovered some correlation between time and reading performance. However, Sharma et al. (2019) did not focus on how time spent influences reading performance as how time spent and text readability influence performance.

Using the word strings of “time”, “text readability”, and “undergraduate readings”, a search was conducted in three major repositories, namely Scopus, Web of Science and Google Scholar. Table 1 below shows the outcome of the investigation:

Table 1: The number of documents in three primary databases using specific search strings.

Search String	Google Scholar	Web of Science	Scopus
time	7, 930,000	7,766,224	12,733, 885
Text readability	9090	206	313
Undergraduate reading	4680	16	47
“time” AND “text readability.”	7580	43	22
“time” AND “undergraduate reading.”	3960	10	2
“text readability” AND “undergraduate reading.”	13	0	0
“time” AND “text readability” And “undergraduate reading.”	10	0	0

Based on Table 1, several studies can be found using the individual search strings of “time” or “text readability” or “undergraduate reading”. However, when the combined search string of “time” AND “text readability” AND “undergraduate reading” was applied, the number of documents dropped. In Google Scholar, the use of the combined search strings identified only ten documents. See Appendix 1 for the list of documents. No record was found in both the Web of Science and Scopus repositories. This result highlighted the lack of documents in the area, which justify the need for research in the area of study.

Furthermore, the issues of time, text readability and undergraduate reading are of concern, especially among undergraduate educators, since finding the right balance of time, text readability, and undergraduate reading would be essential in light of the input hypothesis (Krashen, 1992; 1985). Without this balance, reading would be problematic, especially among undergraduates. Hence, this paper intends to, first, investigate the participants' performance with the intertwining of time and text readability and, second, identify the preferred reading activities. Hence, this paper will find answers to the following research questions:

- i. How do the participants perform when time is intertwined with text readability?
- ii. What are the participants preferred reading activities to compensate for the difficulties?

2. Review of Related Research

2.1 The input hypothesis

Krashen's input hypothesis has been widely referred to in explaining the learners' language development. The theory states that learners can learn better if the information is connected to what they know (Krashen, 1985). Similarly, in the context of undergraduate reading, the elements of time and text readability should not create a context of difficulty that hinders the learners' ability to comprehend the reading texts. Instead, it should be a booster to propel learners in reading. Nevertheless, O'Flaherty (2021) claimed that learners should not be

pushed beyond their abilities to minimise any detrimental effect.

The focus on the input hypothesis in previous research on reading can be found in some studies. Work by Yang et al. (2021) justified the application of the input hypothesis in studies involving reading difficulties. Browsing through recent publications, it was discovered that there were eight documents found in Google Scholar from January until October 2021 on “input hypothesis”, “difficulty”, and “reading performance”. See Appendix 2 for the list of documents. More research can be expected before the end of the year.

2.2 Time spent and text readability

The nature of time spent on reading has often been associated with the readability of the text. It has been generally assumed that when the text is less readable, more time will be spent reading the text and vice versa. Although there has been claimed of the influence of text readability and the time spent, many of the papers did not use formulated measurement of text readability in combination with the systematic unit of time (See Baazeem et al. (2021), Kauchak et al. (2017)). On the one hand, Neofytou, and Hadzilacos (2017), Kauchak et al. (2017) and Shanta et al. (2019) focused on the measures of the text difficulty but without the systematic unit of time. This indicated the gap in the research in this area of study.

2.3 Time spent and Reading Activity

There have been a lot of studies associated with time spent and reading activities. For example, Špakov et al. (2017) focused on analysing reading performance using eye-tracking. They discovered that the duration of word reading helped to identify students' unknown words. Meanwhile, Reimer, et al. (2021) found the time students spent on reading increased when the school was closed. However, girls were found to accelerate their reading activities, thus improving their time on reading.

Despite the variance in the performance, there has been no significant difference in the performance between gender. Li et al. (2020)

found that the time spent on reading depends on certain contextual factors. These findings summarise the previously reported results of Špakov et al. (2017) and Reimer et al. (2021).

2.4 Text Readability, Reading Activity and Undergraduate

On June 10, 2021, a search was conducted in the Google Scholar repository using the following search criteria (“text readability” AND “reading activity”). The results showed 301 documents. However, none of the documents focused on the relationship between text readability and reading activities. Although the word strings (as used in the search) were found in the documents, the connection between the two has not been the focus indicating the gap that can be further explored.

The studies on the “reading activity” AND “undergraduate” have also been minimal. A search in Google Scholar conducted on June 19 2021, using the two-word strings, identified only 7270 results. For example, Avila (2021) focused on undergraduates’ use of Instagram as a reading activity, while Jung (2020) focused on the impact of glossing and reading activity manipulation on lexico-grammatical and lexical items.

When the search was further refined by including the word strings “text readability”, the result showed only 107 documents. Browsing through the content of the documents published between 2016 to 2021, it was discovered that only one article matched the intended search,

namely Dirgantari and Susantiningdyah (2020). However, their paper focused on the relationship between text readability and difficulties in text comprehension.

The results of the documents have indicated the lack of study in the area, which has increased the motivation to conduct the study. Furthermore, the participants were tested on comprehension abilities with the intertwining of time and text difficulty. How these participants dealt with the escalating difficulties of the text was the main focus of this paper. Specifically, this paper served two objectives: first, investigate the impact of the intertwining of the time on task(duration) and text readability on reading performance and second, identify the preferred reading activities.

3. Methodology

3.1 Participants

The study was conducted at a university located in the northern part of peninsular Malaysia. A population of 1,452 third semester non-English major diploma students were identified to be used for the study. An invitation was distributed to all 1452 students. However, only 57 students accepted the invitation and expressed their willingness to participate in the study. The gender distributions of the participants were as follows:

Table 2: Gender distributions of the participants

	n	%
Male	14	24.5
Female	43	75.4
Total	57	

3.2 MEASURES

In this study, two measures of the readers were assessed involving reading performance and reading activities.

3.2.1 READING PERFORMANCE

The measures of reading performance involved nine varied sets. Each set consisted of twenty multiple-choice reading comprehension questions. The use of nine different reading comprehension sets meant that there should be a mechanism to regulate and standardise the tests. Consequently, decisions needed to be made on two issues: the benchmark on the readability of

the texts and the standardise variation between levels of the texts.

3.2.1.1 TEXT READABILITY MEASURE

In determining the benchmark on the readability of the texts, the study used the MUET reading test paper as the readability benchmark for the participants. It has been found that the MUET test had the predictive ability of the performance, indicating the appropriate use of the test to benchmark the readability of the test

(Juliana & Abu Bakar, 2013; Rethinasamy & Kee, 2011).

The level of texts in the 2010 MUET reading tests was measured using readability features of MS-Word text analysis which included the number of words, percentage of passive sentences, Flesch Reading Ease and Flesch-Kincaid Grade Level. Table 3 below describes the readability level of the test.

Table 3: Descriptions of the readability level of the test used

Criteria \ Level	Level 3	Level 2	Level 1
Number of words	400 – 499	500 – 599	600 - 699
Passive Sentences	15% - 25%	26% - 35%	36% - 45%
Flesch Reading Ease	51 – 56	45 – 50	39 - 44
Flesch-Kincaid grade levels	9.0-9.9	10.0-10.9	11.0-12.1

Since the readability level indicates the extent a text can be read, the higher the readability level, the easier the text is and vice versa. Using three readability levels meant that level 1 should be the most challenging, while level 3 would be the easiest. Based the criteria presented in Table 3, nine different reading tests were developed and tested with three sets for each readability level.

3.2.1.2 TIME SPENT

Similar to the text level, the time spent (test duration) was decided to be at three different durations. The first duration was based on the time most pilot testing participants spent completing the task. On this basis, the first (longest) duration was decided to be at 35 minutes, a reduction of five minutes for each reading passage was made for level 2 (medium), and a further decrease of five minutes for each reading passage at level 3(shortest). For that reason, Duration 1 (D₁) had the longest time with 35 minutes, Duration 2 (D₂) was shorter at 25 minutes, and Duration 3 (D₃) had the fastest

time at 15 minutes. This meant that the instruments were developed by employing a 3 X 3 factorial design.

3.2.1.3 DESIGN OF THE TEST

Based on the previously described reading performance, a sequential explanatory design was employed since the quantitative data was extracted first prior to the qualitative data. The qualitative data was applied since the study involved three different levels of text and three different durations. Two main independent variables were identified as the readability level and duration. The different durations and the different readability levels were meant to create a robust dataset. The participants were tested nine times using different reading performance tests. This ensured the participants' performances due to the increase in the levels of the texts were genuine. Table 4 below describes the design of the tests.

Table 4: Descriptions of the design of the tests

		DURATION		
		D ₁ (35 MIN)	D ₂ (25 MIN)	D ₃ (15 MIN)
RE A D A B L E	L ₁	D ₁ L _{1a}	D ₂ L _{1b}	D ₃ L _{1c}
	L ₂	D ₁ L _{2a}	D ₂ L _{2b}	D ₃ L _{2c}
	L ₃	D ₁ L _{3a}	D ₂ L _{3b}	D ₃ L _{3c}

3.2.2 READING ACTIVITIES

In this study, reading activity refers to the activities that the participants applied when reading the texts. To determine the actual approach of these EFL readers as they read the texts, the participants needed to, first of all, experience the texts. Studies have found that there have been minimal relationships between perception and actual behaviour (Pinho et al., 2018). Hence, it was important for these EFL readers to experience the levelled texts to ease their reflections of the reading activities.

As a result of the 'difficult' texts, the participants were expected to appraise and provide responses as reading activities. If the texts were too complicated, the participants were expected to compensate by applying activities that have been stored in their memory (Han, 2017).

The measures of reading activities were extracted from the written reflective journal of the participants. The participants were prompted to recall the activities that they had applied in reading the texts. This would enable the participants to focus their thoughts on what they had experienced (Bogdan & Biklen, 2007).

3.3 ANALYSIS

As shown in Table 4, the study involved nine reading comprehension tests. Each comprehension test was developed from two combined variables. Hence, in analysing the

results of this study, the following approaches were adopted:

- i. the participants' performance when time is intertwined with text readability

The influences of time and text readability on reading performance were ascertained using the frequency count of the score obtained from the reading performance. The minimum, maximum, mean and standard deviation scores of each set were determined and calculated. The findings were tabulated as displayed in Table 5. The mean score of each set was also used to create a bar graph, as shown in Figure 1. This would provide a graphic illustration of the influence of time and text readability on the performance of the non-English major undergraduates.

- ii. participants preferred reading activities

The participants' preferred reading activities were identified from the responses in the written reflective journal. Inductive processes were applied in determining the reading activities the participants used. Since the study focused on the influence of the combined variables, the reading activities used for each variable cannot be directly presented. Hence, this paper applied the following approaches:

- i. The reading activities used in each test were presented directly from the participants' responses after the inductive processes were completed.

- ii. As each test is a subset of two combined variables, the cumulative reading activities used

for each variable were measured in the following manner:

Text Readability

$$\text{Level 1 (L1)} = D1L1a + D2L1b + D3L1c$$

$$\text{Level 2 (L2)} = D1L2a + D2L2b + D3L2c$$

$$\text{Level 3 (L3)} = D1L3a + D2L3b + D3L3c$$

Time

$$\text{Duration 1 (D1)} = D1L1 + D1L2 + D1L3$$

$$\text{Duration 2 (D2)} = D2L1 + D2L2 + D2L3$$

$$\text{Duration 3 (D3)} = D3L1 + D3L2 + D3L3$$

This was important as D1L1 to D3L3 were the composite subscales representing the durations and the text levels. Therefore, to measure the strategy used with the text levels, the frequency for the composite subscales needed to be calculated.

In naming the reading activities used by the participants, thematic classifications were inductively made based on the reflective feedback of the participants. The frequency of the occurrence of the themes was calculated and categorised as reading activities. As there were participants who applied more than one activity, the frequency count of the activities used would not be consistent. For that reason, the per cent was used as a reliable frequency measure of the reading activities.

To ensure the validity and trustworthiness of the classification, the audit trail technique was applied. A third person reviewer was employed to audit trail the findings. After the deliberation with the reviewer, the results were later confirmed.

4. RESULTS AND DISCUSSION

4.1 THE PARTICIPANTS' READING PERFORMANCE

Table 5: Descriptive analysis of the results from the nine tests.

	N	Min (%)	Max (%)	Mean (%)	Std dev
D ₁ L _{1a}	57	25	75	43.25	9.19
D ₂ L _{1b}	57	25	70	39.65	9.06
D ₃ L _{1c}	57	10	70	31.67	10.66
D ₁ L _{2a}	57	35	85	64.74	10.41
D ₂ L _{2b}	57	30	80	55.44	10.28
D ₃ L _{2c}	57	30	75	48.07	9.10
D ₁ L _{3a}	57	40	90	73.77	10.45
D ₂ L _{3b}	57	30	80	60.44	9.42
D ₃ L _{3c}	57	25	80	52.19	9.16

Table 5 presents the descriptive analysis of the results from nine reading performance tests. There were some variations in the performance of the participants. However, some forms of patterns can be noticed in Table 5. The tests with the lowest readability level (L₁) displayed low

performance, indicating some positive relationship between readability level and performance. For example, D₃L_{1c} showed the lowest mean score (31.67), the lowest minimum score (10) and the lowest maximum score (70) but the highest standard deviation (10.66).

Meanwhile, D_2L_{1b} had the second-lowest mean score at 39.65 compared to the 43.25 mean score for D_1L_{1a} . On the other hand, the highest mean score was for D_1L_{3a} at 73.77. This was followed by D_1L_{2a} at 64.74 and D_2L_{3b} at 60.44, respectively. The standard deviations of the tests were relatively high, with scores ranging from 9.06 to 10.66. This indicated the large gap between high and low-performance participants.

This finding indicated the intertwining of time and text readability influenced the performance, especially when the readability was low. The

combination of time and readability variables can have a much more significant impact on the reader's performance. However, time appeared to be less influential compared to readability. This can be observed from the variations in the participants' performance with texts of similar readability levels but different in the test duration. Nevertheless, the high standard deviations showed that the findings might not generalise the participants' overall performance.

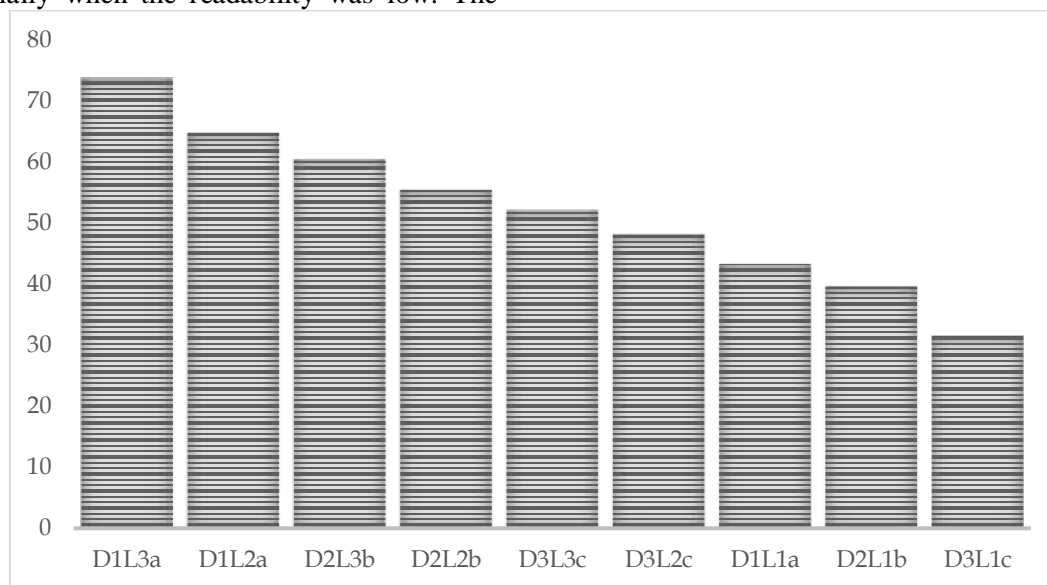


Figure 1: The performance of the participants based on the mean score of reading performance tests

Figure 1 above shows the performance of the participants based on the mean score of reading performance tests. The participants performed the lowest at D_3L_{1c} (the shortest duration and the lowest readability level) and achieved the highest at D_1L_{3a} (the longest time and the highest readability level). The figure also shows that L_1 (the lowest readability) appeared the most difficult among the participants. This can be seen based on the participants' mean scores in D_1L_{1a} , D_2L_{1b} and D_3L_{1c} . Compared to the duration the participants spent on the test, the influence of the readability level on the performance was more significant.

4.2 THE PREFERRED READING ACTIVITIES

This section presents excerpts from the reflection describing the reading activities used in dealing with the texts. The activities used

were numerous. This can be seen reported from the participants' reflections. The following are some of the responses of the participants as cited in the reflections.

- [sic] I read the question first then find answer from text

[P 26 in D_3L_{3c}]

- [sic] First time I read it word for word. The second time I go through it and stop at the word that I do not understand, read it over and over again until I understand even there is a few that I still do not understand.

[P 8 in D_2L_{3b}]

- I read both texts once and after reading the question I read it again to find the answer

[P 8 in D_1L_{3a}]

The above remarks showed that these participants used reading the questions first and

repeated reading activities as the chosen activities. Participant P26 and participant P8 voiced that the reading activities were employed to answer the questions, while participant P3 attributed the activities to understanding the texts.

- Membaca soalan dahulu kemudian baru membaca teks dan mencari idea utama bagi mendapatkan jawapan (Read the question first then read the text, next look for general idea to answer the questions)

[P35 in D₁L_{2a}]

- Saya membaca teks tersebut dengan mengenalpasti idea utama dahulu dan selepas itu saya akan membaca soalan yang diberikan kemudian baru mengenalpasti jawapan untuk soalan tersebut (I read the text by identifying the main idea first followed by reading the questions and identifying answers to the questions)

[P 58 in D1L2a]

- I will read the whole text first and then read the question because it is easier that way

[P 49 in D1L2a]

The above reflections showed that the participants identified the overview of the texts, indicated by participant P35 and participant P58, and read the texts followed by the questions,

stated by participant P49, as their reading activities. Unlike participant P49, participant P35 and participant P58 have indicated the importance of overviewing the texts. They believed that there was a need to answer the questions.

- Saya akan membaca soalan dahulu baru membaca teks dan akan menggaris ayat yang mempunyai kaitan dengan soalan (I will read the questions followed by the texts and will underline related information to the question).

[P 42 in D₂L_{1b}]

- I read the text by paragraph [sic] and to find [sic] the points and then highlights [sic] the important point.

[P 51 in D₂L_{2b}]

The above reflections showed the use of varied reading activities. Participant P42 chose to read the questions first, followed by underlining relevant sentences. Meanwhile, participant P51 decided to read text paragraph by paragraph and highlight essential ideas as reading activities.

Based on the analysis of the participants' reflections, the thematic classification was made. Table 6 shows the frequency of the reading activities used by participants according to the text levelled factor.

Table 6. Reading activities used according to text readability level and time factor

Reading activity	L ₃ %	L ₂ %	L ₁ %	Avg	D ₃	D ₂	D ₁	Avg
Question first (Refocusing)	35.6	37.6	32.3	35.1	31.3	37.5	38.5	35.8
Skipping	5.2	7.4	5.4	6.00	5.5	6.3	6.7	6.2
Multiple reading	9.9	10.1	4.3	8.10	9.3	8.9	6.7	8.3
Slow reading	1.0	1.6	1.1	1.23	1.1	1.6	1.1	1.3
Guessing word meaning		0.5	1.6	.70	0.5	1	0.5	0.7
Increase reading speed			1.1	.37	0.5	0.5		0.3
Reading word by word	27.7	18	27.4	24.3	28	21.4	25.3	24.9
Chronological reading	7.9	11.1	10.8	9.93	11.5	9.9	8.8	10.1

Conventional Reading	4.7	3.2	5.4	4.43	5.5	3.6	4.4	4.5
Identifying main ideas	7.3	7.9	9.7	8.30	5.5	7.3	7.1	6.6
Selective reading		1.1	0.5	.85		0.5	1.1	0.5
Identifying typographical features		0.5		.17		0.5		0.2
Previewing the texts		1.1		.37	1.1			0.4
Underlining	0.5		0.5	.33		1.0		0.3

It could be observed that reading the questions (question first) was the most frequently used activity regardless of the time factor or the text readability factor. This was followed by reading the text word by word. It was also found that the least preferred activity was identifying typographical features.

The table also shows the use of question first activity was consistently high at all the levels of texts, but the highest was at Text Readability Level 2. Meanwhile, reading word by word activity was the second most used activity, but the activity was the lowest at Text Readability Level 2. Reading word by word activity was almost identical at Text Readability Level 1 and Text Readability Level 3.

Based on Table 6, the extent of the use of each reading activity was identical throughout the three Text Readability Levels except for some of the reading activities. For example, “guessing the word” and “selective reading” were found to be used in Text Readability Level 1 and Text Readability Level 2 but not at Text Readability Level 3.

5. DISCUSSION AND CONCLUSION

The study on the intertwining of time and text readability on reading activities of the non-English major undergraduates has revealed several issues. First, the participants' performances were affected due to the influence of the combined factor of time and text readability. Although the effects of the individual factors of text readability and time were not revealed, there were some indications that the influence of text readability was more significant than time factors. There was no attempt to separate the intertwined factors as attempts to separate the combined factors can

compromise the findings. Furthermore, the findings which were extracted from descriptive data may not be adequate for hypothesis testing. It only described the tendency or the inclination of the results.

The participants' performances in the nine reading tests appeared to be insignificant. The variations of the participants' mean scores in all nine tests were relatively small except for the difference between the highest and the lowest mean scores. The high standard deviations of the nine tests indicated the significant differences in the performance of the participants. This means that the use of the mean score to reflect the performance may not be adequate.

The participants' performance also meant that the $i+1$ concept, as championed in Krashen's input hypothesis, was relevant and can be applied to explain the varied performance of the participants. As indicated, the different performance levels verified that the participants' performance was influenced by how complex the reading texts were. When the texts were slightly difficult ($i+1$ level), the participants had few problems. However, when the texts were beyond the $i+1$ level, the participants' performance dropped (Keshmirshakan, 2019). Furthermore, this explained that the participants' performances were not identical as they would have different proficiency levels. Hence, one person $+1$ can be another person -1 or $+2$.

In relation to the preferred reading activities employed, the study found the two most dominant activities were reading the question first and reading word by word. However, the variations in the frequency of the activities at the different readability levels and durations were relatively small. This meant that the use of the activities was consistent at all levels, which also meant that the variations in the level of

readability and time had little influence on the choice of activities that the participants had opted for. Though many other reading activities were named, the frequency of the activities was too small to bear some significance to the study.

The intertwining of time and text readability on undergraduate reading was the motive of the study as existing studies have not been decisive as to how undergraduates should read, especially in the completion of their assignments. However, the study supported the idea that undergraduates should be equipped with all the necessary knowledge of reading activities.

Despite the strong findings, the approach to the study was not without any weakness. First, the study tested only on a small number of participants. This was after efforts were made to invite 1452 participants. The small number of participants meant the study was not used for generalisations leading to the use of descriptive and instead of inferential statistics.

Secondly, the study used only descriptive statistics for quantitative datasets. The use of descriptive statistics was mainly due to the fact that the existing data was small, and it might not be adequate to be used for generalisations. Hence, it was sufficient for the study to use descriptive statistics.

Due to this, future research should explore the possibility of increasing the number of participants, enabling them to use inferential statistics that can lead to hypothesis testing. It is recommended that future measures of text readability should also include time spent on reading.

To sum up, the study has managed to answer that the intertwining of time and text readability did influence the participants' performance. It was also found that the preferred reading activities of these participants were mainly reading the question first and reading word by word. Pedagogically, educators should consider the two variables of time and text readability before designing the tasks for their students.

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8. APPENDIX 1

Table 7: Documents found in google scholar using the search string of “time” AND “text readability” AND “undergraduate reading”

Authors	Title	Year
Gallagher, D. J., & Thompson, G. R.	A readability analysis of selected introductory economics textbooks	1981
Peters, P., & Kruger, J. L.	The readability of online health information for L1 and L2 Australians: text-based and user-focused research	2021
Reutzel, D. R.	C ⁶ : a reading model for teaching arithmetic story problem solving	1983
McDonald, P. J., & Savage, P.	Prose and cons of scholarly articles: How readability tests expose poor knowledge mobilisation in academic publications	2021
Ritchey, K. A., & List, A.	Task-oriented reading: a framework for improving college students' reading compliance and comprehension	2021
Au, K. H., & Raphael, T. E.	The staircase curriculum: Whole-school collaboration to improve literacy achievement	2011
Morris, D., Trathen, W., Gill, T., Perney, J....	Reading instructional level from a print-processing perspective	2019
Rosenkjar, P. R.	Reading for content and for language input: Japanese undergraduates in an English immersion setting in Japan	1995
Tillman, M. K.	Levels of abstraction in extended discourse and recall-recognition tasks	1988
Rodero, C. E.	Anglo and hispanic sixth graders' social studies textbook processing skills	1986

9. APPENDIX 2

Table 8: Documents found google Scholar published between January until October 2021 using the search strings of “input hypothesis”, “difficulty”, and “reading performance

Authors	Title	Year
Yang, Y. H., Chu, H. C., & Tseng, W. T.	Text difficulty in extensive reading: Reading comprehension and reading motivation	2021
O'Flaherty, E.	How does the use of annotation affect reading comprehension in the primary grades of immersion education?	2021
Harroudi, Y., & Oubaha, D.	The effect of motivation on moroccan secondary school students' language proficiency	2021

Si, Q., & Hubbard, J	A comparison of elementary foreign language programs in China and the USA	2021
Padget, R.	The effects of sheltered instruction observation protocol strategies on the reading proficiency of english language learners	2021
Hirsch, L.	Teaching EFL in Norwegian Primary School	2021
Singh, D., Wonnacott, E., & Samara, A	Statistical and explicit learning of graphotactic patterns with no phonological counterpart: evidence from an artificial lexicon study with 6–7-year-olds and adults.	2021
Alalwany, F. S.	Enhancing reading skill via readtheory. Org: students' attitudes, motivation, autonomy and perceptions	2021