

The Effectiveness of Multimodal Text to Enhance Attention Span in Students' Reading Performance in SMK Andalusia Wonosobo

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Abstract

The objective of this study is to assess the effectiveness of multimodal texts in enhancing students' attention span in reading performance. This study involves 32 students at SMK Andalusia Wonosobo. This research uses a quantitative method with an experimental research design and data collection techniques in the form of tests, documentation, and hypothesis testing. The results of this research show that the experimental group achieved more effective learning outcomes, as well as showing a contrasting difference with the control class. The T-test result was 0.039. The hypothesis was accepted because T-test was less than 0.05. Moreover, the coefficient of determination value of 0.502 (50.2%) can indicate that multimodal text is sufficiently effective in enhancing students' attention span during reading performance.

Keywords: *reading, attention span, multimodal text*

Introduction

In modern times, using social media has become commonplace, especially among students. Almost every aspect of life, including education, is currently dependent on digital media. Students have used social media for a number of purposes, started by exchanging information, communicating, expressing the individual through images and videos, and looking through educational materials.

Asosiasi Penyelenggara Jasa Internet Indonesia (APJII) announced that the number of Indonesian internet users in 2024 would reach 221,563,479 out of a total population of 278,696,200 Indonesians in 2023. From the results of the 2024 Indonesian internet usage survey released by APJII, the level of Indonesian internet usage touched 79.5%. Compared to the previous period, there was an increase of 1.4%. In terms of age, the majority of people who surf in cyberspace are Gen Z (born 1997-2012) as much as 34.40%. Then, the millennial generation (born 1981-1996) is 30.62%. This showed that most people spent more time surfing on social media. This was consistent with the research findings of Rosmalina & Khaerunnisa (2021), who asserted that individuals generally

communicate indirectly through social media in addition to directly in this age of modern technology.

The momentary, there are benefits and drawbacks to technology. It increased people's knowledge, enlightenment, and awareness of global issues. However, people were exposed to a diverse range of media, including text, images, audio, and video, which affected their way of learned and interacted with the content at hand. Studies indicate that prolonged usage of social media could lead to a decline in focus and academic efficiency. Because they were enticed to check social media platforms for updates, students frequently struggle to focus on academic tasks. It could be difficult to get students to pay attention in class, especially with all of the distractions provided by digital gadgets. According to Alaparthi (2024), students' attention spans were shortening and found it challenging to concentrate on a single topic for extended periods of time. According to research conducted in 2004 that discussed on the American Psychological Association's "Talking about Psychology" podcast, Dr. Gloria Mark, a psychologist and chancellor professor of informatics at the University of California Irvine, stated that the average human attention span was two and a half minutes. That span grew more shorter as time went by. As in 2012, the average attention span decreased to 75 seconds. Researchers subsequently discovered that the average attention span during the previous five or six years was 47 seconds.

Nur, S. et al. (2023) mentioned multimodal texts provide an intriguing way to deal with these kinds of problems. a situation like audio, visual, and textual elements are merged, information is presented in a more dynamic form. Students were better able to focus and pay attention as a result of strategy. Multimodal texts, which integrate several elements, might represent a helpful strategy for increasing students' interest in learning to read. Means & Neisler (2021) stated that many teachers were beginning to explored various digital tools and platforms that allowed for more interactive and engaging learning. Methods such as project-based learning and online collaboration were becoming increasingly common, giving students the opportunity to learn in more flexible and creative ways.

However, there are still certain challenges associated with using multimodal text in the classroom. During the learning process, a number of

technological obstacles frequently surface in both digital and non-digital media. Yuniasari et al. (2023) mentioned that unstable internet connection, limited hardware and software, and lack of skills of students and teachers in information and communication technology affected the learning process. Which was in education, teachers were expected to teach reading skills using increasingly creative methods. Several teachers at SMK Andalusia did not have the necessary access to multimodal materials or lacked confidence in utilizing technology. Teachers have relied more on physical books as media in teaching because using technological media in the teaching process requires adequate time and skills. This was caused SMK Andalusia students have never been very interested in learning English.

In other hand, because English words did not pronounce in the correct order, numerous SMK Andalusia students struggle with reading. Most students do not have an English dictionary although some do. Even if they owned one, they did not bring it with them while learning English. Moreover, they don't have any digital dictionary. This showed the lack of awareness of students in learning foreign languages, especially English because rather than translating each sentence word by word, SMK Andalusia students proceed to use Google Translate, which slowed their ability to understand and recall the current vocabulary. In situations like learning English, some of the challenges they encounter made them unconfident when speaking English. In contrast, students' personal issues also have an impact on their learning activities and performance. Several students had difficulty to focus during the class as a result of their personal issues.

This research aims to find out the effectiveness of the multimodal text to enhance attention span in students' reading performance.

Literary Review

To reinforce this research, the researcher has gathered several relevant studies as follows. First, a study by Pema (2022) in “The Application of Intensive Reading Approach with Multimodal Teaching for ESL Reading Comprehension Skill of Grade 6 Bhutanese Students” explored how effectively multimodal teaching and

an intensive reading strategy might enhance Bhutanese sixth-grade ESL students' reading comprehension abilities. In this study, a quasi-experimental technique was applied. Semi structured interviews, pre-test, and post-test assessments were among the quantitative and qualitative data collection techniques used. The results indicated a considerable improvement in reading comprehension with the mean score increased from 16,66 to 24,84. The significant difference between the mean results from the pre-test and post-test showed clearly that before the intervention the learning achievement was low in comparison to the learning achievement after the intervention.

Based on the literature above, researcher found similarities in the research conducted by Pema (2022), which is the utilization of multimodal text in learning as one of the innovations in a varied learning approach. On the other hand, the study by Pema (2022) has several differences such as the focus of the study and the technique used. The study by Pema (2022) focuses on integrating multimodal instruction with an intensive reading strategy with a quasi-experimental technique was applied, whereas this research uses quantitative technique which focused on the application of multimodal text to enhance attention span in students' reading performance.

Furthermore, in another study by Dewi et al. (2023) entitled "*Penerapan Pendekatan Pembelajaran Multimodal untuk Keterampilan Membaca Pemahaman Bahasa Asing: Sebuah Tinjauan Pustaka*" indicated opportunities and difficulties in the use of multimodal learning were discovered following a review of the literature that included 31 papers regarding the application of multimodal approach in learning foreign language reading comprehension skills. Applying multimodal learning to foreign language reading comprehension could lead to more accurate comprehension and demonstrate an improvement in positive sentiments among learners. The use of multimodal learning has led to a rise in positive attitudes among students, as seen by their improved enthusiasm for and engagement in the learning process. Nonetheless, difficulties with time management, technological obstacles, inadequate resources, and organizing the learning process were discovered to be encountered by both educators and

students when implementing multimodal in foreign language reading comprehension skills programs.

Based on the literature above, researcher found similarities in the research conducted by Dewi et al. (2023). The similarities are the effect of multimodal text on learning activities that can increase student interest, motivation, and attention during classroom learning. However, there are differences in the study by Dewi et al. (2023) with this research, such as the research methods used. Study by Dewi et al. (2023) applies the literature review method by analyzed some previous research on multimodal text, while this research uses quantitative methods with experimental methods.

Supported by another study Pan & Zhang (2020) in “An Empirical Study of Application of Multimodal Approach to Teaching Reading in EFL in Senior High School” examined the reading ability of students before and after the multimodal approach was applied in a classroom experiment to teach reading. The researcher applied two different teaching methods; a multimodal approach and a standard teaching method to conduct studies on two classes. The final results revealed that the average score on the post-experimental test of the experimental class was 29.17, while the average score of the control class was 25.75, indicating a 3.42 difference averages between the two classes. Therefore, it could be stated that the experimental class and the control class differ significantly in terms of reading proficiency. Following the implementation of the multimodal teaching technique, students in the experimental class demonstrated superior English reading skills in comparison to their teammates in the control group who took lessons using traditional methods.

Based on the literature above, the researcher found similarities in the study conducted by Pan & Zhang (2020), which uses quantitative research methods with experimental methods in two classes to apply the effectiveness of multimodal text. While the difference, the purpose of the study by Pan & Zhang (2020) focuses on students' reading ability after the application of multimodal text. On the other hand, this study aims to determine the use of multimodal text to enhance students' attention span during learning.

Next study by Hadianto et al. (2021) in “The Role of Multimodal Text to Develop Literacy and Change Social Behaviour Foreign Learner” examined the literacy skills of BIPA (*Bahasa Indonesia untuk Penutur Asing*) learners using multimodal texts based on Indonesian local culture. This study aimed to improve communication abilities through understanding multimodal texts. A single subject experimental research method was employed due to limited participants, involving four BIPA learners from diverse professions. The results indicated significant development in literacy skills and communication behaviours among participants after using multimodal text. The results of this study showed a significant increase in the reading comprehension scores of BIPA learners in various conditions. The final results showed that four BIPA learners made progress before and after the intervention in BIPA learning using multimodal text with an average pretest was 66.75 while the average posttest was 78.62.

Based on the literature above, the researcher found similarity in the study conducted by Hadianto et al. (2021), which is the utilization of multimodal text in learning as one of the innovations in a varied learning approach. However, the study by Hadianto et al. (2021) has some areas of focus in the use of multimodal texts such as to improve the understanding of communication culture among BIPA learners. On the contrary, this study aims to find out the use of multimodal text to increase students' attention span during English reading learning.

The findings of the research by Fatmawati et al. (2022) entitled “An Application of Multimodal Text-Based Literacy Activities in Enhancing Early Children’s Literacy” primarily addressed the approaches through which these multimodal texts assist in the improvement of students' oral competencies in a critically and creatively engaged manner. The essential features of multimodal texts have facilitated learners in investigating and employing texts across an extensive spectrum of varied forms and content. Students described their ability to utilize multimodal texts with the aim of gaining essential information on oral presentation techniques from a variety of sources that consist of traditional and digital media. Moreover, students were able to engage with these multimodal texts to deliberate on their efficacy in aiding their preparation for the integrated project presentations. Drawing upon these multimodal text sources, the students

successfully generated additional multimodal artifacts, such as the Self-Inventory checklist, to facilitate their own evaluations of oral presentations. Furthermore, the students engaged in a critical review of their own video recording which is another variant of multimodal text and juxtaposed it with the multimodal text Self-Inventory for the purpose of assessment and evaluation of their peers' presentations.

Based on the literature above, the researcher found some differences, such as the method used is a qualitative method for data collection and analysis, and this study focuses on improving literacy through multimodal text-based activities for early childhood. Apart from these differences, the similarity with research by Fatmawati et al. (2022) is the implementation of multimodal text to increase students' motivation and enthusiasm for learning.

Theoretical Framework

Multimodal Text

The digitized world of today has brought new possibilities regarding text design and text production. Digitization has also enabled new forms of mobile learning. One example is the use of mobile phones in the learning process during the Covid-19 Pandemic which has created new innovations in the world of education. Danielsson & Selander (2021) have observed that textbook publishers generally publish a digital edition of a book along with a print version. The possibility to listen to the text by clicking on parts is occasionally, but not always, included in the digital edition. Including search features, allowing the user to take digital notes within the text, or allowing the user to move between sections over links in indexes are more options. The book spread pictures in several of the manuscripts who have examined were the same in both the digital and print versions. Kummin et al. (2020) asserted that text that use many meaningful signs or symbols in a "synchronization of modes" to convey the text's meaning are referred to as multimodal texts. From a multimodal perspective, a "text" can also be understood as separate modes that manifest in various materialities. Multimodal texts can support readers who are struggling with reading comprehension and assist students with reading difficulties. Savic (2020) asserted that multimodal texts,

such picture books that use visuals to convey words are important for second language acquisition.

Attention Span

Students' attention span typically lasts between ten and fifteen minutes, however in most classes it can even double to eighty minutes. Students who struggle to focus on specific material will find it challenging to write down that information. This is caused by the fact that attention, a cognitive activity, modifies behaviour throughout a task and enables working memory to gather information while students complete cognitive activities. For students to apply skills in the process of addressing problems successfully and efficiently, attention span is essential. Alaparthi (2024) asserted that the majority of people nowadays are constantly distracted by their smartphones and computers, which they use on a daily basis. The distraction can seem impossible at times to focus intently on anything for a meaningful amount of time. Parashar (2021) explained that the amount of time that a person can concentrate on a certain subject is known as attention span. For many students, becoming distracted or losing concentration is an ordinary issue. There are usually problems in every educational level with students' capacity to stay focused for the duration of a class.

Reading

Ahmed Okasha (2020) explained that one of the most crucial English language abilities that students must acquire is reading, moreover reading skills are essential for students in acquiring knowledge and new information of what they read. This is supported by Ardhian et al. (2020) that understanding the content of reading materials is the goal of reading comprehension. A number of smaller skills are required to read, which is a challenging ability. **However, reading is not only limited to a text but can be in the form of images or sounds. Reading** is a crucial component of English language ability. It involves understanding, interpreting, and analyzing text effectively. Using a variety of reading techniques, language learners use reading as an interactive process in order to understand the text's main ideas. Effective reading techniques are essential skills that should be prioritized and developed in order to get better at reading.

Research Method

This study aimed to determine the effects of multimodal text on attention span in students' reading performance. This study was a type of quantitative research. Sugiyono (2013) asserted quantitative research, with its focus on numerical measurement, provides a solid foundation for understanding measurable phenomena. This method enables scientific analysis of data by converting existing phenomena into numbers that can be processed. This approach opens up great opportunities to develop knowledge and solve problems by exploring relationships between variables, identifying patterns, and generating strong inferences to support research results.

Experimental research was chosen as the study's research methodology. Arioen et al. (2023) explained that the experimental method involves the application of a treatment that differs from normal conditions by the researcher. The purpose of this treatment is to test the effectiveness of a method or technique. Experimental research is used to identify differences in the outcomes of two types of treatments applied to the same sample. In this method, there are various research designs that consistently involve providing treatment and differentiating between the control group and the experimental group.

The design used in this research is pre-test and post-test control group design, in order to find the significant difference between the experimental class and the control class. The experimental class applied multimodal text learning media, on the other hand, the control class was not applied.

Table 1
Research Design

Group	Pre-test	Treatment	Post-test
Experimental Class	O ₁	X	O ₂
Control Class	O ₁	O	O ₂

Sugiyono (2013)

Description:

O₁ : Pre-test

O₂ : Post-test

N : Use Multimodal Text

O : Without using Multimodal Text

Finding and Discussion

In this research, the student data used were pre-test and post-test scores. Pre-test was conducted before the research to measure the students' basic skills in the English language learning. The results of the pre-test of students' reading ability with the average value of the experimental class amounted to 61 and the control class amounted to 59. Then the post-test was conducted after the treatment was given in order to determine the improvement of students' abilities. The post-test results for the experimental class averaged 85 and for the control class amounted to 75. The table below demonstrates the pre-test and post-test assessments in the experimental and control classes.

Table 2
Data Result of Students

No.	Experimental Class		Control Class	
	Pre-test	Post-test	Pre-test	Post-test
1.	70	100	30	60
2.	50	70	60	90
3.	80	100	60	70
4.	70	80	70	80
5.	50	90	70	70
6.	30	70	60	80
7.	80	100	90	100
8.	50	70	70	70
9.	80	100	50	70
10.	70	90	30	60
11.	70	100	60	60
12.	60	90	40	70
13.	40	60	60	90
14.	70	90	60	70
15.	60	80	70	80
16.	30	60	-	-
17.	80	90	-	-
Total	1040	1440	880	1120
Mean	61	85	59	75

No.	Experimental Class		Control Class	
	Pre-test	Post-test	Pre-test	Post-test
Max.	80	100	90	100
Min.	30	60	30	60

For the experimental class, the lowest pre-test score was 30 and the highest score was 60 while for the control class, the lowest pre-test score was 30 and the highest score was 60. During the post-test, the lowest score for the experimental class was 80 and the highest score was 100 compared to the control class with the lowest post-test score of 90 and the highest score of 100. However, before the questions were used for research, the questions were tested beforehand for validity, reliability, differentiating power, and difficulty level of the questions.

Validity

Table 3
Pre-test and Post-test Validity Test Result

Test	No. Item	R-count	R-table	Criteria
Pretest	P1.1	0.663	0.349	Valid
	P1.2	0.584	0.349	Valid
	P1.3	0.609	0.349	Valid
	P1.4	0.586	0.349	Valid
	P1.5	0.614	0.349	Valid
	P1.6	0.586	0.349	Valid
	P1.7	0.407	0.349	Valid
	P1.8	0.432	0.349	Valid
	P1.9	0.382	0.349	Valid
	P1.10	0.663	0.349	Valid
Posttest	P2.1	0.451	0.349	Valid
	P2.2	0.571	0.349	Valid
	P2.3	0.605	0.349	Valid
	P2.4	0.622	0.349	Valid
	P2.5	0.624	0.349	Valid
	P2.6	0.616	0.349	Valid
	P2.7	0.697	0.349	Valid
	P2.8	0.397	0.349	Valid
	P2.9	0.654	0.349	Valid
	P2.10	0.399	0.349	Valid

Based on the table above, it showed that all items were stated to be valid, as the resulting coefficient is greater than 0.349.

Reliability

If reliability is less than 0.6 is not good, while 0.7 is acceptable and above 0.8 is good. Based on the results of calculating the Alfa Cronbach formula using SPSS version 25, the reliability coefficient decision of this research was obtained as follows:

Table 4
Pre-test Reliability Test Result

Reliability Statistics	
Cronbach's Alpha	N of Items
.745	10

Table 5
Post-test Reliability Test Result

Reliability Statistics	
Cronbach's Alpha	N of Items
.761	10

Difficulty Level

The index of difficulty is generally expressed in the form of a proportion in the range from 0 to 1. The greater the index of difficulty obtained from the calculation results, then the easier the question would be.

Table 6
Pre-test and Post-test Difficulty Level Result

Test	No. Item	Difficulty level	Criteria
Pretest	P1.1	0.656	Medium
	P1.2	0.625	Medium
	P1.3	0.625	Medium
	P1.4	0.750	Easy
	P1.5	0.750	Easy
	P1.6	0.750	Easy
	P1.7	0.625	Medium
	P1.8	0.281	Hard
	P1.9	0.625	Medium
	P1.10	0.656	Medium

Test	No. Item	Difficulty level	Criteria
Posttest	P2.1	0.750	Easy
	P2.2	0.281	Hard
	P2.3	0.625	Medium
	P2.4	0.656	Medium
	P2.5	0.281	Hard
	P2.6	0.688	Medium
	P2.7	0.656	Medium
	P2.8	0.656	Medium
	P2.9	0.625	Medium
	P2.10	0.594	Medium

Differentiating Power

The following differential power classification was explained by Zainal (2020).

Table 1

The Classification of Differential Power

No	Index of differential power	Classification
1	0.00 – 0.199	Bad
2	0.200 – 0.399	Medium
3	0.400 – 0.699	Good
4	0.700 – 1.000	Excellent

Table 2

Pre-test and Pot-test Differential Power Result

Test	Question Number	Corrected Item - Total Correlation	Criteria
Pre-test	Question 1	0.538	Good
	Question 2	0.437	Good
	Question 3	0.468	Good
	Question 4	0.457	Good
	Question 5	0.491	Good
	Question 6	0.457	Good
	Question 7	0.232	Medium
	Question 8	0.274	Medium
	Question 9	0.204	Medium

Test	Question Number	Corrected Item - Total Correlation	Criteria
	Question 10	0.538	Good
Post-test	Question 1	0.306	Medium
	Question 2	0.439	Good
	Question 3	0.468	Good
	Question 4	0.491	Good
	Question 5	0.502	Good
	Question 6	0.488	Good
	Question 7	0.584	Good
	Question 8	0.230	Medium
	Question 9	0.529	Good
	Question 10	0.227	Medium

Based on the table above, it shows that all items passed the differentiating power, as the resulting corrected item-total correlation is greater than > 0.2 .

Normality Test

Based on the results of the normality test carried out by researcher, the Shapiro-Wilk Test technique was used to test the normality of the data. This test is generally considered stronger than the Kolmogorov-Smirnov test, particularly for small to medium sample numbers. The result is if Sig. > 0.05 , this means that the data is normally distributed while if Sig. < 0.05 , this means that the data is abnormally distributed. The following table demonstrates the normality test results.

Table 3
Data Analysis Normality Test

Test	Class	Sig.	Criteria
Pre-test	Control	0.096	Normal
	Experimental	0.133	Normal
Post-test	Control	0.079	Normal
	Experimental	0.125	Normal

Homogeneity Test

Table 4
Data Analysis Homogeneity Test
Test of Homogeneity of Variance

		Levene Statistic	df1	df2	Sig.
PRETEST	Based on Mean	1.361	1	30	.253
	Based on Median	.864	1	30	.360
	Based on Median and with adjusted df	.864	1	29.731	.360
	Based on trimmed mean	1.250	1	30	.272
POSTTEST	Based on Mean	.015	1	30	.903
	Based on Median	.002	1	30	.966
	Based on Median and with adjusted df	.002	1	29.871	.966
	Based on trimmed mean	.008	1	30	.929

As a basic decision on the homogeneity test is if the probability value sig. < 0.05 then the variance of two and more population groups or data samples is not homogeneous. And if the probability value sig. > 0.05 then the variance of two and more population groups or data samples is homogeneous. Based on the table above showed that both pre-test and post-test were stated to be homogenous, as the resulting significant is greater than 0.05.

Determination Coefficient

The correlation of determination was done to figure out the significant influence of the independent variable on the dependent variable. The lowest value of R² is probably 0 and the highest value is probably 1. In other terms, the better a model is at making predictions, the closer its R² is to 1.

Table 5
Data Analysis determination Coefficient Test

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.709 ^a	.502	.469	1.08960

a. Predictors: (Constant), X

Based on the table above, the value of the coefficient of determination (R²) could be seen in the R Square column, which is equal to 0.502.

T-test

A t-test assists researcher to ascertain a difference observed between two groups is indeed significant, or merely a coincidence. The result is if Sig. > 0.05, this means there is no significant difference between groups while if Sig. < 0.05, this means there is a significant difference between groups.

Table 6
Independent Sample T-test Result

		Independent Samples Test								
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
HASIL	Equal variances assumed	1.141	.294	-2.153	30	.039	-10.03922	4.66246	-19.56122	-.51721
	Equal variances not assumed			-2.178	29.928	.037	-10.03922	4.60956	-19.45414	-.62429

From the table above, the sig.2 tailed value is 0.039, indicating that there was a difference in learning descriptive text using multimodal text media and without multimodal text media because the significance value is less than 0.05.

Conclusion

Based on the results of the calculation of those data, this research has shown that the implementation of multimodal text has a significant impact on the English learning process, especially in increasing students' attention span during learning with descriptive text topic. The researcher used innovative teaching methods by integrating different types of media such as images, videos, and audio during learning and this has been proven to be quite effective. Data analysis also showed that the research instruments used had gone through validity, reliability, differentiating power, and difficulty level tests with satisfactory results. The results of statistical tests such as the normality test and homogeneity test showed that the data used in this study were reliable and suitable for further analysis using the T-test.

Hypothesis testing with the T-test showed that there was a significant difference between student learning outcomes in the experimental and control groups. This indicated that the use of multimodal text effectively contributed to improving students' English language skills. The t-test results showed a significance value (sig. 2-tailed) of 0.039. This value, which is significantly lower than 0.05, indicated a significant difference in descriptive text learning between

the experimental class that used multimodal text media and the control class that did not use it. In other terms, the implementation of multimodal text media significantly affected students' learning outcomes in descriptive text topics.

Furthermore, this study shows that the use of multimodal texts not only contributes to enhancing students' understanding of the course content, although multimodal text essentially enhances the quality of students' focus and concentration during the learning session. The result of the coefficient of determination analysis revealed that the R Square value was 0.502, which was equivalent to 50.2%. This means that the use of multimodal texts in reading performance has an effect as great as 50.2% on increasing students' attention span. In contrast, the remaining 49.8% of the students' focus span improvement was affected by other factors beyond the variables observed in this research.

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