

**The Influence of Content and Learning Application Usage on Mandarin Vocabulary Among Students at Prima Indonesia University in Medan**

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**ABSTRACT**

This study aims to analyze the impact of content and learning applications on Mandarin vocabulary enhancement among students at Prima Indonesia University in Medan. Employing a quantitative approach, the research involved 36 respondents selected through purposive sampling. The sample selection criteria were based on the use of content and learning applications to improve Mandarin vocabulary. Data were collected through questionnaires and analyzed using SPSS with a series of statistical tests, including validity and reliability tests, classical assumption tests, multiple linear regression analysis, as well as F and t tests. The results revealed that content had no significant influence on Mandarin vocabulary skills, while learning applications had a significant impact. The study concludes that the integration of digital technology in Mandarin language learning can accelerate vocabulary acquisition. These findings provide valuable insights into the effectiveness of using learning applications in enhancing Mandarin language skills at the university level.

**Keywords:** Content; Learning Apps; and Chinese Vocabulary

## INTRODUCTION

In the rapidly advancing era of globalization, mastery of Mandarin Chinese has become an increasingly crucial skill, both in academic and professional contexts. However, students at Prima Indonesia University face significant challenges in their efforts to develop Mandarin vocabulary skills. The primary issue they encounter is the limited vocabulary acquired through traditional learning methods in classrooms and from textbooks. These conventional approaches are no longer adequate to meet the communication demands of an increasingly complex and dynamic global environment. As a result, many students feel frustrated and lack confidence due to insufficient vocabulary knowledge needed to communicate effectively in various situations, both on campus and in the workplace.

The digital era has opened up new opportunities in language learning, including Mandarin Chinese. The emergence of various learning applications and diverse online content offers great potential to enrich the learning experience and accelerate vocabulary acquisition. Applications such as Hello Chinese, Du Chinese, ChineseSkill, Super Chinese, Pleco, provide interactive features and learning modules designed to help users expand and remember vocabulary more effectively. Additionally, online content such as videos, podcasts, and articles in Mandarin offer exposure to vocabulary in more authentic and varied contexts.

However, despite the promise of this technology, there remains a gap between its potential and its effective utilization in improving Mandarin vocabulary mastery. Many students have not fully leveraged these digital resources, either due to lack of awareness, limited access, or uncertainty about how to effectively integrate them into their learning routines. Moreover, the effectiveness of various learning applications and content in the specific context of Prima Indonesia University students has not been thoroughly researched.

Given the importance of Mandarin vocabulary mastery and the challenges faced by students, this research aims to explore solutions that can bridge this gap. The main focus is to analyze how innovative learning content and the use of vocabulary learning applications can be optimized to overcome the limitations of traditional methods. This study will investigate the impact of integrating technology and diverse content on improving Mandarin vocabulary skills among students at Prima Indonesia University.

By identifying effective strategies in utilizing digital resources for Mandarin vocabulary learning, this research is expected to provide valuable insights for curriculum development, learning application design, and more effective teaching strategies. The results of this study will not only benefit students at Prima Indonesia University but also make a significant contribution to the development of better Mandarin vocabulary learning methods in the digital age.

## LITERATURE REVIEW

### Previous Related Study

According to Usman (2018), vocabulary is defined as a collection of words used by individuals to express thoughts, perceptions, and responses, both as speakers, listeners, writers, and readers. Mandarin Chinese vocabulary has a unique structure that distinguishes it from many other languages. This vocabulary is unique because it is based on Han characters (汉字 *hànzì*). Mandarin vocabulary generally consists of one or two-syllable words. Nurgiyantoro (2014) emphasizes that the level of vocabulary mastery directly correlates with one's ability to use language effectively. Furthermore, Nurgiyantoro (2017) argues that a rich vocabulary allows individuals to process and convey more complex and extensive information. Mastery of Mandarin vocabulary is influenced by internal factors such as interest, motivation, aptitude, and intelligence, as well as external factors such as facilities/infrastructure, teacher quality, and learning methods.

Oktaviani (2022) explains content as a framework for identifying and measuring various formats and flows of information that add value to media. This content comes in various forms, including text, images, audio, video, and other formats. Meanwhile, Putri (2022) expresses a broader perspective on content. They define it as information available across various media, which is the result of human thought and observation. This information can be skills and knowledge conveyed both orally and in writing, reflecting the complexity and diversity of content forms in the digital era.

### Mandarin Chinese Vocabulary

Vocabulary is a crucial element in language mastery. According to Usman (2018), vocabulary is defined as a collection of words used by individuals to express thoughts, perceptions, and responses, both as speakers, listeners, writers, and readers. Mandarin Chinese vocabulary has a unique structure that distinguishes it from many other languages. This vocabulary is unique because it is based on Han characters (汉字 *hànzì*). Mandarin vocabulary generally consists of one or two-syllable words. Nurgiyantoro (2014) emphasizes that the level of vocabulary mastery directly correlates with one's ability to use language effectively. Furthermore, Nurgiyantoro (2017) argues that a rich vocabulary allows individuals to process and convey more complex and extensive information. Mastery of Mandarin vocabulary is influenced by internal factors such as interest, motivation, aptitude, and intelligence, as well as external factors such as facilities/infrastructure, teacher quality, and learning methods.

### Mandarin Chinese Content

Mandarin Chinese content refers to various forms of information and materials that use Mandarin as their medium. This encompasses various forms such as written

texts, oral expressions, and digital media. Mandarin content not only involves the structure and use of the language itself but also includes knowledge about Chinese culture, history, philosophy, and contemporary society. This content can be educational materials, such as textbooks and learning applications; entertainment content, such as literary works, films, and music; as well as forms of everyday communication like news reports and social media posts. The richness and diversity of Mandarin content reflect the depth of Chinese civilization and its modern developments, providing a vast space for exploration for learners and users.

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### **Mandarin Chinese Learning Applications**

Learning applications are software tools that utilize digital technology to promote education and learning. These applications are typically installed on smartphones, tablets, or computers, providing users with an interactive and personalized learning experience. The advantage of learning applications lies in their ability to make learning more flexible and convenient, allowing users to access knowledge and improve skills flexibly. There are many highly effective and popular learning applications in this era, such as Hello Chinese, Du Chinese, ChineseSkill, Super Chinese, Pleco, etc., which can be used to improve Mandarin vocabulary. According to research by Darmanto in 2019, the use of applications can help improve overall Mandarin language proficiency, covering aspects of listening, speaking, reading, and writing. Meanwhile, a study conducted by Handoko in the same year found that the ChineseSkill application offers an effective learning method, particularly in training vocabulary mastery. Furthermore, Baja (2019) revealed that the Du Chinese application can serve as a highly helpful and effective learning tool to improve students' ability in composing Mandarin dialogues.

### **METHOD**

This study employed a quantitative research design. The target population consisted of students enrolled in the Applied Bachelor's Degree in Mandarin Chinese for Business and Professional Communication at Prima Indonesia University in Medan. The sample size for this investigation comprised 36 students from the aforementioned program. The target population consisted of students enrolled in the Applied Bachelor's Degree in Mandarin Chinese for Business and Professional Communication at Prima Indonesia University in Medan. To gather data, the researchers utilized an online survey method, distributing questionnaires via the

Google Form (G-Form) platform. This digital approach was chosen for its efficiency in collecting structured data from the intended participants. The sample size for this investigation comprised 36 students from the aforementioned program.

## RESULT AND DISCUSSION

### 1) Descriptive Statistic Analysis

To obtain data, questionnaires were distributed to 36 students. The following are the results of descriptive statistical analysis of the collected data. In discussion part, the author should relate the finding with the previous study. Besides that, the author should explain some factor that support the result of the research. If in this part the author needs presenting table, the format should follow the following format:

*Table 1 Descriptive Statistics*

	N	Minimum	Maximum	Mean	Std. Deviation
Konten	36	12	24	20.92	3.065
Aplikasi Belajar	36	14	28	23.44	3.909
Kosakata Bahasa Mandarin	36	14	28	22.00	3.906
Valid N (listwise)	36				

Content (X1) with a sample of 36 with a min value of 12, and a max value of 24 and a mean value of 20.92 with a standard deviation of 3.065. Learning application (X2) with a sample of 36 with a min value of 14, and a max value of 28 and a mean value of 23.44 with a standard deviation of 3.909. Content (Y) with a sample of 36 with a min value of 14, and a max value of 28 and a mean value of 22 with a standard deviation of 3.906.

### Validity Test

The analysis in the study used a significance of 5% with the test provisions if the value of  $r_{table} < r_{count}$  then declared valid. Based on a sample of 36 respondents and the calculation of  $df = n-2$ , the  $df$  is 34. Using  $\alpha = 0.05$ , the  $r_{table}$  value is 0.2907.

*Tabel 2 Validity Test*

Variable	Statement	P Correlation
Content Learning (X1)	X1.1	0.787
	X1.2	0.836
	X1.3	0.897
	X1.4	0.762
	X1.5	0.780

	X1.6	0.882
Learning Apps (X2)	X2.1	0.764
	X2.2	0.847
	X2.3	0.907
	X2.4	0.824
	X2.5	0.859
	X2.6	0.871
	X2.7	0.784
Chinese Vocabulary (Y)	Y.1	0.745
	Y.2	0.661
	Y.3	0.781
	Y.4	0.867
	Y.5	0.876
	Y.6	0.858
	Y.7	0.742

The table shows that each variable is valid where  $r_{count} > r_{table}$  with a significance of 0.05.

### Reliability Test

Sujarweni (2015: 110) the item value is considered reliable if the  $\alpha > 0.6$  number.

*Table 3 Reliability Statistics*

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.792	.799	3

The table above explains that there are three variables with a Cronbach's Alpha number of 0.792 which is higher than the minimum standard of 0.6. This shows that all variables are declared valid so that they are suitable as measuring instruments for further research.

### Normality Test

Sujarweni (2015: 225) normality testing is carried out in the form of a normal distribution regression model to examine the independent variable with the dependent variable. Variables with significance that exceed 0.05 are considered to have normal distribution, while those  $< 0.05$  are declared not normally distributed.

Table 4 One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residual
N		36
Normal Parameters <sup>a,b</sup>	Mean	0E-7
	Std. Deviation	3.22399210
	Most Extreme Differences	
	Absolute	.112
	Positive	.112
	Negative	-.107
Kolmogorov-Smirnov Z		.673
Asymp. Sig. (2-tailed)		.756

- a. Test distribution is Normal.
- b. Calculated from data.

From this table, it can be concluded that the variables are normally distributed, where the significance value is  $0.756 > 0.05$  significance.

### Multicollinearity Test

Using the tolerance number and variance inflation factor (VIF), which is characterized by a tolerance value  $> 0.1$  and  $VIF < 10$ .

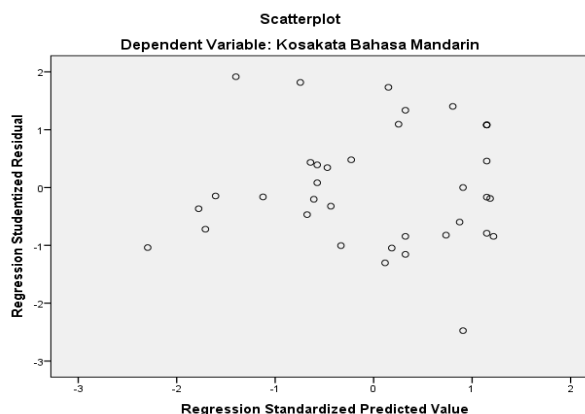
Table 5  
Coefficients<sup>a</sup>

Model		Collinearity Statistics	
		Tolerance	VIF
1	Konten	.438	2.283
	Aplikasi Belajar	.438	2.283

- a. Dependent Variable: Kosakata Bahasa Mandarin

Therefore, in the table above, with a tolerance value  $> 0.1$  and  $VIF < 10$ , multicollinearity does not occur.

### Heteroscedasticity test



**Picture 1**

The scatterplot method is used to detect heteroscedasticity. The absence of a clear pattern of dots spreading above and below 0 on the Y-axis is an indication of no heteroscedasticity. Analysis of the scatterplot shown shows that there is no heteroscedasticity problem.

**Multiple Linear Regression Analysis**

The use of multiple regression methods is applied which aims to test the hypothesis and measure the impact of the contribution of all independent variables on the dependent variable.

Table 6  
Coefficients<sup>a</sup>

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	9.347	3.942		2.371	.024
	Konten	-.076	.277	-.059	-.273	.786
	Aplikasi Belajar	.607	.217	.608	2.799	.008

a. Dependent Variable: Kosakata Bahasa Mandarin

Referring to the table above, it is obtained that the constant value is 9.347 with a content coefficient of -0.076 and a learning application coefficient of 0.607. Based on these coefficients, the multiple linear regression equation is formulated as follows:

$$Y = 9,347 - 0,076X_1 + 0,607X_2 + e$$

Based on the picture above then, The constant value of Chinese Vocabulary (Y) is 9.347. This indicates that if the variables Content (X1) and Learning Application (X2) are zero, then Chinese Vocabulary is worth 9.347. Content (X1) has a coefficient of -0.076, this indicates an inverse relationship, where every 1% increase in X1 is related to a decrease of 0.076 (7.6%) in Chinese Vocabulary. Conversely, a 1% decrease corresponds to a 7.6% increase in Chinese Vocabulary. Learning Application (X2) of 0.607 indicates a positive relationship. Every 1% increase in X2 correlates with a 0.607 (60.7%) increase in Chinese Vocabulary. Conversely, a 1% decrease in X2 corresponds to a 60.7% decrease in Chinese Vocabulary.



**Coefficient of Determination***Table 7 Model Summary<sup>b</sup>*

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.565 <sup>a</sup>	.319	.277	3.320

a. Predictors: (Constant), Aplikasi Belajar, Konten

b. Dependent Variable: Kosakata Bahasa Mandarin

As shown in the table, the R value is 0.565 or 56.5%, so the influence exerted by the dependent variable (Learning Content and Application) on the independent variable (Chinese Vocabulary) is quite large. The result of the value of Adjusted R Square is 0.277 or 27.7%. This is because in this study, the dependent variable (Content and Learning Applications) has an effect of 27.7% on the independent variable (Chinese vocabulary) while the remaining 72.3% is caused by other variables.

**The t test**

Sujarweni (2015: 229) The t test shows how the independent variable affects the interpretation of the dependent variable. By using the t table value:  $t = (α; n-k) = (0.05; 36-3) = (0.05; 33) = 1.692$ .

*Table 8  
Coefficients<sup>a</sup>*

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	9.347	3.942		2.371	.024
	Konten	-.076	.277	-.059	-.273	.786
	Aplikasi Belajar	.607	.217	.608	2.799	.008

a. Dependent Variable: Kosakata Bahasa Mandarin

Based on the table above, it can be concluded that,

1. The t-test analysis revealed that Variable X1 (Content) has no effect on Variable Y (Chinese vocabulary). This is indicated by the t count (-0.273) < t table (1.692).
2. The t-test for X2 (The learning application) shows t count > t table (2.799 > 1.692) with a significance of  $0.008 < 0.05$ , indicating a significant effect on Variable Y (Chinese vocabulary) acquisition.

### The F Test

Sujarweni (2015: 228) test is done by looking at the comparison of the fcount value with the ftable. The ftable value is calculated using the formula:  $f(k-1; n-k)$ , k: number of variables and n: number of samples. Thus, the calculation becomes  $(3-1; 36-3)$ , namely  $(2; 33)$ , which results in an F table value of 3.28.

Table 9  
ANOVA<sup>a</sup>

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	170.206	2	85.103	7.720	.002 <sup>b</sup>
Residual	363.794	33	11.024		
Total	534.000	35			

a. Dependent Variable: Kosakata Bahasa Mandarin

b. Predictors: (Constant), Aplikasi Belajar, Konten

The analysis results in the table above show, the value of f count (7.72) > f table (3.28) with a significance value of 0.002 < 0.05. This condition indicates that the dependent variable, namely Learning Content and Application, has a significant simultaneous effect on the dependent variable, namely Chinese Vocabulary.

Content does not have an influence on Mandarin vocabulary skills. Content does not appear to have a significant influence on Mandarin vocabulary skills. This finding challenges the common assumption that exposure to various types of content automatically enhances language acquisition, particularly in terms of vocabulary growth. It suggests that merely consuming Mandarin-language content, whether through reading, listening, or viewing, may not be sufficient to substantially improve one's Mandarin vocabulary. This lack of impact could be due to various factors, such as passive engagement with the content, lack of contextual understanding, or insufficient repetition of new words. It implies that more active and structured approaches to vocabulary learning might be necessary for effective Mandarin language acquisition, rather than relying solely on content exposure. This insight could have important implications for language learning strategies and curriculum design in Mandarin education. This finding supports the results of Adinda's (2022) research, which used a survey method and concluded that although social media provides a positive contribution in educational aspects, its impact on vocabulary improvement is not significant. However, this result contradicts Fiya's (2023) study, which used an ex-post facto approach and found a strong relationship between the use of YouTube and English vocabulary recognition in children aged 5-6 years.

Learning applications have an influence on Mandarin vocabulary skills. This condition is similar to the research findings of Handoko (2023), who discovered that the use of the Chinese Skill application effectively improves learning strategies and Mandarin vocabulary mastery. Learning applications have become highly influential tools in improving Mandarin vocabulary for learners. By leveraging modern technology, these apps offer interactive, flexible, and efficient learning methods. They typically combine various features such as digital flashcards, pronunciation exercises, quizzes, and educational games that help users remember and use new vocabulary more effectively. One of the main advantages of learning applications is their ability to adapt materials to the user's proficiency level, ensuring that learning remains challenging but not overly difficult. Additionally, many apps use spaced repetition systems, which help users retain vocabulary in the long term by reviewing words at optimal intervals based on learning theory.

Content and learning applications play a crucial role in enhancing users vocabulary. By presenting interactive and diverse learning materials, these digital platforms effectively stimulate the process of acquiring new vocabulary. Users can encounter new words in meaningful contexts, such as articles, short stories, or simulated conversations, which aid in comprehension and long-term memory retention. Features like quizzes, word games, and pronunciation exercises provided by learning applications also encourage users to actively use newly learned vocabulary, reinforcing their retention. Furthermore, content and learning applications often employ spaced repetition methods and adaptive learning systems. This allows users to review vocabulary at optimal intervals to maximize memory retention, as well as adjust the difficulty level of materials according to individual progress. Another advantage of these digital platforms is their ability to provide quick access to definitions, usage examples, and additional information about new words, enriching users' understanding of the nuances and contexts in which the vocabulary is used.

## CONCLUSION

This study examines the impact of using learning content and applications in improving Chinese vocabulary acquisition among university students involving 36 participants by distributing questionnaires using quantitative methods. Based on the data processing and analysis conducted, it was concluded that the t-test showed that the content variable had no effect on the Chinese vocabulary variable while the learning application variable had an effect on the Chinese vocabulary variable. The f test shows that the content and learning application variables simultaneously affect the Chinese vocabulary variable. The result of the value of Adjusted R Square is 0.277 or 27.7%. This is because in this study, the dependent variable (content and learning applications) has an effect of 27.7% on the independent variable (Chinese vocabulary) while 72.3% is caused by other factors.

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