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THE ROLE OF MOTIVATION AND DIGITAL TECHNOLOGY IN ENHANCING MANDARIN LANGUAGE PROFICIENCY AMONG STUDENTS OF THE MANDARIN LANGUAGE FOR BUSINESS AND PROFESSIONAL COMMUNICATION PROGRAM AT UNPRI

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ABSTRACT

The aim of this study is to examine the extent to which motivation and digital technology influence the improvement of Mandarin language proficiency among students in the Mandarin Language for Business and Professional Communication Study Program at Universitas Prima Indonesia. Specifically, this research analyzes the effect of motivation on language mastery, the role of technology in the learning process, and the combined impact of both factors on learning outcomes. A quantitative descriptive approach was employed, with data collected through a questionnaire as the main instrument, completed by 37 respondents. The findings indicate that motivation has a significant impact on Mandarin language proficiency (significance value < 0.05; t-value = 4.390 > t-table = 2.032). In contrast, the individual use of digital technology does not have a significant effect (significance = 0.983 > 0.05). However, the integration of motivation and technology demonstrates a significant simultaneous effect (significance < 0.05; F-value = 76.279 > F-table = 3.27). These findings emphasize the importance of motivation in language learning and highlight the potential of technology when appropriately applied. Therefore, educational institutions are encouraged to develop learning approaches that combine these two aspects to enhance Mandarin language mastery.

Keywords: Motivation, Digital Technology, Mandarin Language Proficiency

ABSTRAK

Tujuan dari penelitian ini adalah untuk mengkaji sejauh mana motivasi dan teknologi digital mempengaruhi peningkatan kemampuan bahasa Mandarin mahasiswa Program Studi Bahasa Mandarin untuk Komunikasi Bisnis dan Profesional di Universitas Prima Indonesia. Secara khusus, penelitian ini menganalisis pengaruh motivasi terhadap penguasaan bahasa, peranan teknologi dalam proses belajar, serta kombinasi keduanya terhadap hasil belajar. Penelitian ini menerapkan pendekatan deskriptif kuantitatif, dengan data diperoleh melalui penyebaran kuesioner sebagai instrumen utama pengumpulan informasi yang diisi oleh 37 responden. Temuan hasil analisis mengindikasikan bahwa motivasi memiliki pengaruh yang signifikan terhadap kemampuan berbahasa Mandarin (nilai signifikansi < 0,05; t-hitung = 4,390 > t-tabel = 2,032). Sebaliknya, penggunaan teknologi digital secara individu tidak memberikan pengaruh signifikan (signifikansi = 0,983 > 0,05). Namun, integrasi antara motivasi dan teknologi menunjukkan pengaruh yang signifikan secara simultan (signifikansi < 0,05; F-hitung = 76,279 > F-tabel = 3,27). Temuan ini menekankan pentingnya motivasi dalam pembelajaran bahasa, serta potensi teknologi jika diterapkan secara tepat. Oleh karena itu, institusi pendidikan dianjurkan mengembangkan pendekatan pembelajaran yang mengombinasikan kedua aspek tersebut guna meningkatkan kualitas penguasaan bahasa Mandarin.

Kata Kunci: Motivasi, Teknologi Digital, Kemampuan Berbahasa Mandarin

INTRODUCTION

In the context of globalization, Mandarin has evolved into a crucial means of communication, particularly due to China's expanding economic influence, including in Indonesia. As the official language of the People's Republic of China, Mandarin is not only a cultural language but also a primary medium in economic activities such as trade and investment (Liu & Zhao, 2020).

In recent years, the rise of Chinese investment in Indonesia has created a significant demand for a workforce proficient in Mandarin (Setiawan, 2022). According to the Indonesian Investment Coordinating Board (BKPM) (2023), China ranks among the top investors in Indonesia, with a consistently increasing investment value. In 2023, the Chinese government committed to investing IDR 3,445.77 trillion in various sectors, including e-commerce, energy, agriculture, and technology (Aisyah Abdul Aziz, 2022). This presents major opportunities for Indonesian workers to participate in multinational projects, yet Mandarin language proficiency often remains a major obstacle (Ma Chung University, 2023).

In addition to motivation, advances in digital technology have significantly transformed Mandarin language learning. The availability of various digital media—such as apps, websites, and video platforms—has made Mandarin learning more accessible. Digital media usage in Mandarin learning has proven to be efficient and effective, fostering language development among students. The digital era offers vast opportunities for Mandarin language learning through a wide array of online content (Nike Ardila Nduru & Rudiansyah, 2022). For example, platforms like Duolingo, HelloChinese, and YouTube provide interactive and engaging learning materials that enhance students' interest and motivation.

The Applied Mandarin Language Education Program for Business and Professional Sectors at Universitas Prima Indonesia is designed to produce graduates proficient in Mandarin and Chinese business communication (Situmeang, 2024). The curriculum includes linguistics, culture, digital marketing strategies, and oral translation. The integration of learning technologies—such as WeChat, Chinese TikTok (Douyin), and e-learning platforms—into the curriculum provides a competitive advantage.

In today's digital era, technology plays a crucial role in supporting effective learning and mastering Mandarin. The availability of various digital tools—language learning apps, video platforms, and AI-based translation tools—makes it easier for students to access learning materials in a flexible and interactive way. Apps like Duolingo, HelloChinese, and Pleco help not only in vocabulary and grammar acquisition but also in listening and speaking through audio and video features. Moreover, digital platforms such as Zoom and Microsoft Teams allow students to interact directly with native speakers or instructors from China, enhancing their oral communication skills.

Technology integration is also reflected in courses such as Digital Marketing in Mandarin, where students learn to use platforms like WeChat, Weibo, and Douyin (Chinese TikTok) for marketing strategies. This not only broadens students' understanding of using Mandarin in digital business contexts but also equips them with essential skills for entering a workforce that is constantly evolving due to technological advancements. Thus, technology is not just a supplement but an integral element of the learning process, driving students to be more competitive in the global market.

Referring to the aforementioned explanation, this study focuses on analyzing the contribution of motivation and the use of digital technology to the improvement of Mandarin language proficiency among students in the Applied Mandarin Language Education Program for Business and Professional Sectors at Universitas Prima Indonesia (UNPRI).

RESEARCH METHODS

Type of Research

This study adopts a descriptive research method aimed at understanding the relationship between the examined variables. This method was selected because it allows for numerical measurement and objective analysis of the collected data (Sugiyono, 2020).

Research Site

The research was conducted among students in the Applied Mandarin Language for Business and Professional Communication undergraduate program at Universitas Prima Indonesia. Data collection was carried out through structured questionnaires accessed via Google Forms.

Population and Sample

The population in this study comprises a group of subjects with specific characteristics and is the target of generalization (Sugiyono, 2022). The population consisted of 37 students enrolled in the Applied Mandarin Language for Business and Professional Communication program at Universitas Prima Indonesia. The inclusion criteria were:

- Active students of the Applied Mandarin Language for Business and Professional Communication program at Universitas Prima Indonesia
- Having motivation to learn Mandarin
- Using digital technology in learning

Data Analysis Techniques

Descriptive Statistical Analysis

Descriptive statistics aim to describe the characteristics of the collected data. According to Sugiyono (2019), this method presents values such as mean, maximum, minimum, and standard deviation.

Validity Test

Validity refers to the degree to which an instrument accurately measures what it is intended to measure. An instrument is valid if it yields data that are relevant and appropriate for the research object (Sugiyono, 2020).

Reliability Test

According to Sugiyono (2020), reliability refers to the consistency of an instrument. An instrument is considered reliable if it produces stable results when used repeatedly under the same conditions.

Classical Assumption Tests

Normality Test

Sujarweni (2015:225) states that the normality test functions to assess the conformity of the regression data distribution to a normal distribution, with the significance value serving as the main indicator, which must be greater than 0.05.

Multicollinearity Test

Multicollinearity occurs when independent variables in a regression model are highly correlated. According to Sujarweni (2015:158), this test is used to detect potential relationships among independent variables that may affect the accuracy of the regression analysis results.

Heteroscedasticity Test

This test aims to identify whether the residual variance is constant. Sujarweni (2015:159) states that heteroscedasticity can interfere with estimation efficiency if not properly addressed.

Coefficient of Determination (R^2)

According to Sujarweni (2015:158), the coefficient of determination (R^2) is used to measure the extent to which the proportion of variation in the dependent variable can be explained by the independent variables in the regression model. The R^2 value ranges from 0 to 1, where a value closer to 1 indicates a greater contribution of the independent variables to the dependent variable.

Multiple Linear Regression

Multiple linear regression is used to evaluate the simultaneous relationship between one dependent variable and several independent variables. As explained by Sujarweni (2015:160), this approach is useful for testing hypotheses that involve more than one predictor variable.

$$\mathbf{Y = a + b_1X_1 + b_2X_2 + e}$$

where:
Y = Mandarin language proficiency
X_1 = Motivation
X_2 = Digital technology
a = Constant
b = Regression coefficient
e = Error term

Partial Hypothesis Test (t-test)

Within the framework of the research model, the t-test functions to evaluate the extent to which each independent variable contributes to the dependent variable. If the t-calculated value exceeds the t-table value, it indicates that the effect of that variable is significant.

Simultaneous Hypothesis Test (F-test)

According to Sujarweni (2015:228), the F-test is used to examine the extent to which the independent variables simultaneously influence the dependent variable in a regression model. A regression model is considered significant if the significance value is below 0.05. The testing criteria are as follows:

1. Ha is accepted: if the F-calculated value > F-table (there is a simultaneous effect)
2. Ho is accepted: if the F-calculated value < F-table (there is no simultaneous effect)

RESEARCH RESULTS AND DISCUSSION

Descriptive Statistical Analysis

Tabel 3.1. Statistik Deskriptif Variabel Motivasi (X1), Teknologi Digital (X2), dan Kemampuan Berbahasa Mandarin (Y)

	N	Minimum	Maximum	Mean	Std. Deviation
X1	37	33	55	45.38	**6.487**
X2	37	59	100	82.62	**11.026**
Y	37	32	50	40.73	**5.383**
Valid N (listwise)	**37**				

Data from 37 students in the Mandarin Language for Business and Professional Program were analyzed based on three main variables:

1. Motivation (X1): With a sample of 37, the minimum value was 33, the maximum was 55, the mean was 45.38, and the standard deviation was 6.487.
2. Digital Technology (X2): With a sample of 37, the minimum value was 59, the maximum was 100, the mean was 82.62, and the standard deviation was 11.026.
3. Mandarin Language Proficiency (Y): With a sample of 37, the minimum value was 32, the maximum was 50, the mean was 40.73, and the standard deviation was 5.383.

Validity Test Results

Tabel 3.2 Hasil Uji Validitas Berdasarkan Korelasi Antar Variabel X1, X2, dan Y

		X1	X2	Y
X1	Pearson Correlation	1	.935**	**.904****
	Sig. (2-tailed)		.000	**.000**
	N	37	37	**37**
X2	Pearson Correlation	.935**	1	**.845****
	Sig. (2-tailed)	.000		**.000**
	N	37	37	**37**
Y	Pearson Correlation	.904**	.845**	**1**
	Sig. (2-tailed)	.000	.000	
	N	**37**	**37**	**37**

The analysis in this study used a 5% significance level, with the testing criterion being that if the r-table value is less than the r-calculated value, the instrument is considered valid. With a degree of freedom (df) of 35 and an r-table value of 0.3246, all r-calculated values for each variable exceeded the r-table value, indicating that the instrument met the validity criteria.

Reliability Test Results

Tabel 3.3 Statistik reliabilitas

Cronbach's Alpha	N of Items
.910	**3**

The reliability of the instrument was measured using the Cronbach's Alpha value, which is considered acceptable if it exceeds 0.60. The test results showed a value of 0.910, indicating a very high level of internal consistency of the instrument.

Classical Assumption Tests

NormalityTest

Data can be categorized as normally distributed if the obtained significance value is greater than 0.05. However, if the significance value is below 0.05, the data is considered not normally distributed.

Tabel 3.4 One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residual
N		**37**
Normal Parameters[a,b]	Mean	**.0000000**
	Std. Deviation	**2.29818068**
Most Extreme Differences	Absolute	**.105**
	Positive	**.105**
	Negative	**-.089**
Test Statistic		**.105**
Asymp. Sig. (2-tailed)		**.200[c,d]**

a. Test distribution is Normal.

b. Calculated from data.

c. Lilliefors Significance Correction.

d. This is a lower bound of the true significance.

The obtained significance value was 0.200, which is greater than 0.05, indicating that the data can be considered normally distributed.

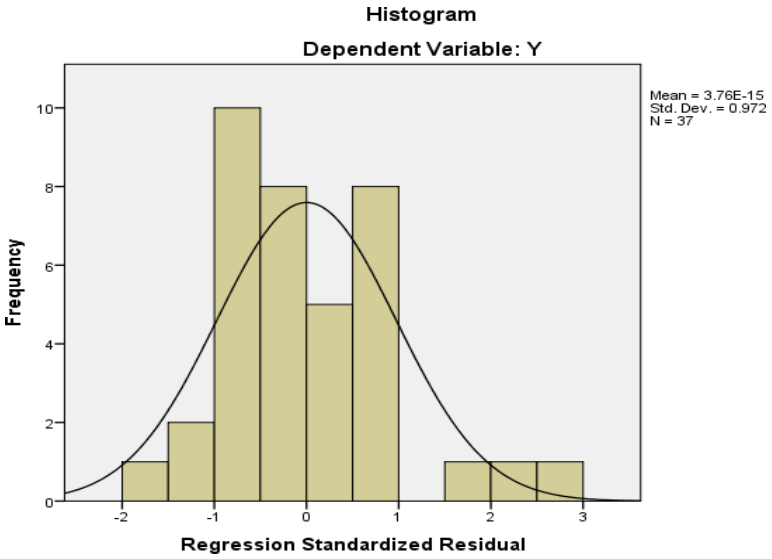

Figure 3.1 Histogram of Variable Y

The curve in the figure shows a symmetrical slope resembling the shape of the letter U, confirming that the data is normally distributed.

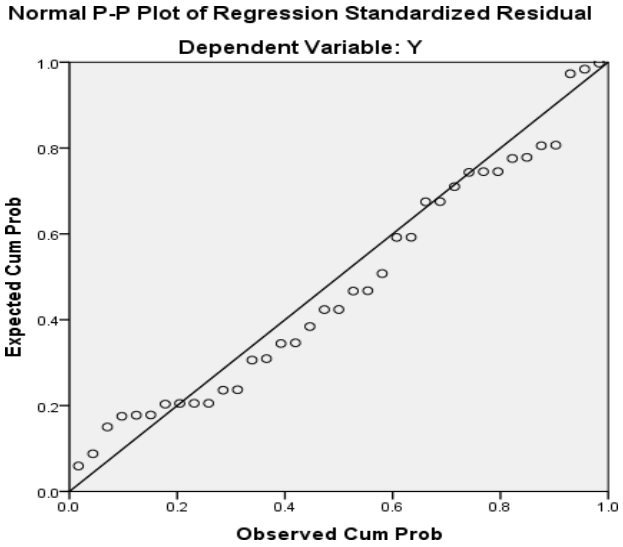

Figure 3.2 Standard Residual of Variable Y

The distribution of points forming a diagonal line in the figure indicates that the data follows a normal distribution.

Multicollinearity Test

Multicollinearity detection was conducted through the analysis of Variance Inflation Factor (VIF) values. If the VIF value does not exceed 10 and the tolerance value is greater than 0.1, then the regression model is considered free from multicollinearity issues.

Table 3.5 Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	6.696	2.979		2.248	.031		
	X1	.754	.172	.909	4.390	.000	.125	**7.992**
	X2	**-.002**	**.101**	**-.005**	**-.022**	**.983**	**.125**	**7.992**

a. Dependent Variable: Y

There is no multicollinearity, as the VIF value is less than 10 and the tolerance value is greater than 0.1.

Heteroscedasticity Test

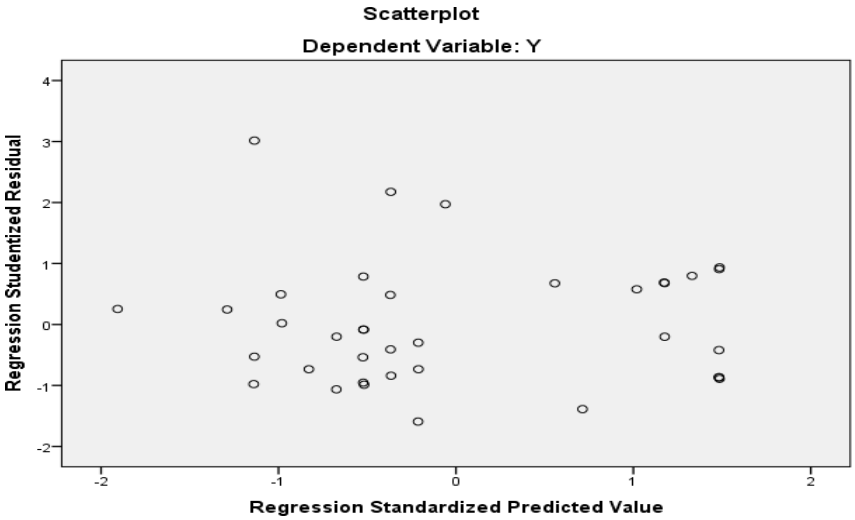

Figure 3.3 Scatterplot of Variable Y

The scatterplot method is used as a tool to identify the presence or absence of heteroscedasticity. A regression model is considered free from heteroscedasticity if the data points are randomly dispersed around the horizontal line on the Y-axis at zero, without forming any specific pattern. The scatterplot observation in this study shows a random and unstructured distribution of points, leading to the conclusion that there is no indication of heteroscedasticity in the model.

Multiple Linear Regression and Coefficient of Determination

Regression equation:

Tabel Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	6.696	2.979		2.248	**.031**
	X1	.754	.172	.909	4.390	**.000**
	X2	**-.002**	**.101**	**-.005**	**-.022**	**.983**

a. Dependent Variable: Y

From the table, it can be seen that the constant value is 6.696, with the coefficient for the content variable being 0.754 and the coefficient for the learning application variable being -0.002. Using these coefficient values, the multiple linear regression equation can be formulated as follows:

Explanation: **Y = 6,696 + 0,754 X 1 - 0,002 X 2 + e**

1. The constant value of 6.696 indicates that when both Motivation (X1) and Technology (X2) variables are zero, the predicted value of Mandarin Vocabulary (Y) is 6.696.

2. The motivation coefficient (X1) of 0.754 indicates a positive relationship, meaning that for every one-unit increase in X1, the Mandarin Vocabulary score increases by 0.754. Conversely, a one-unit decrease in X1 would result in a 0.754 decrease in Mandarin language proficiency.

3. The technology coefficient (X2) of -0.002 indicates a negative relationship, where every one-unit increase in X2 leads to a 0.002 decrease in Mandarin Vocabulary. Likewise, a one-unit decrease in the technology variable would lead to a 0.002 decrease in Mandarin language proficiency.

Coefficient of Determination

Table 3.7 Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	**.904[a]**	**.818**	**.807**	**2.365**

a. Predictors: (Constant), X2, X1

b. Dependent Variable: Y

As shown in the table above, the R Square value is 0.818 (81.8%), indicating that 81.8% of the variation in variable Y can be explained jointly by variables X1 and X2, while the remaining 18.2% is attributed to other factors.

Hypothesis Testing

t-Test Results:

Table 3.8 Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	6.696	2.979		2.248	**.031**
	X1	.754	.172	.909	4.390	**.000**
	X2	**-.002**	**.101**	**-.005**	**-.022**	**.983**

a. Dependent Variable: Y

Based on the table above, the following conclusions can be drawn:

1. It is known that the significance value is 0 < 0.05 and the t-value is 4.390 > 2.032, thus H1 is accepted, which means that variable X1 (Motivation) has an effect on variable Y (Mandarin Language Proficiency).

2. It is known that the significance value is 0.983 > 0.05 and the t-value is -0.022 < 2.032. Therefore, H2 is rejected, which means that X2 (Technology) does not have an effect on variable Y (Mandarin Language Proficiency).

In conclusion, the Motivation variable (X1) has a significant effect on Mandarin Language Proficiency (Y), whereas the Technology variable (X2) does not have a significant effect.

F-Test Results:

Tabel 3.9 ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	853.158	2	426.579	76.279	**.000[b]**
	Residual	190.139	34	5.592		
	Total	**1043.297**	**36**			

a. Dependent Variable: Y

b. Predictors: (Constant), X2, X1

From the table, it is shown that the significance value is below 0.05 and the F-value is 76.279, which exceeds the F-table value of 3.27. Therefore, it can be concluded that hypothesis H3 is accepted, indicating that the variables Motivation (X1) and Technology (X2) have a simultaneous effect on Mandarin Language Proficiency (Y).

Discussion

Motivation plays a significant role in improving Mandarin skills. This aligns with studies by Liu & Huang (2020) and Deci & Ryan (2017), which show that intrinsic/extrinsic motivation positively affects language learning outcomes.

Technology, used alone, does not significantly impact proficiency. This supports studies that stress the importance of user engagement and strategic use (Wang & Wang, 2021; Zhang et al., 2022).

Motivation and Technology combined show significant positive impact. Research by Lin et al. (2023) and Chen & Xu (2020) confirm that motivated students benefit more from technological tools, making learning more effective.

Conclusion

Based on the results of the analysis and discussion conducted, the following conclusions can be drawn:

1. The acceptance of the first hypothesis (H1) indicates that motivation significantly influences Mandarin language proficiency. An increase in both intrinsic and extrinsic motivation correlates with improved mastery of Mandarin. This affirms that motivation serves as a psychological foundation and a primary driving force in the process of foreign language learning.
2. The second hypothesis (H2) is rejected, meaning that technology, when used individually without the support of other factors, does not have a significant effect on Mandarin language proficiency. In other words, technology acts as a facilitator rather than a key determinant of success.
3. The third hypothesis (H3) is accepted, showing that motivation and technology simultaneously have a significant influence on Mandarin language proficiency. These findings indicate that the integration of learning enthusiasm and appropriate use of technology can create a synergy

that enhances learning effectiveness. When high motivation is combined with the right technological strategies, the learning process becomes more optimal and sustainable.

Overall, effective Mandarin language learning in the digital era is not solely determined by the availability of technological tools, but also by strong motivation, relevant learning strategies, and the active engagement of the learners themselves.

REFERENCES

Chen, L., & Xu, Y. 2020. "The Role of Technology in Language Learning: A Systematic Review." *Journal of Educational Technology Research*, 35(4): 412–430.

Deci, E. L., & Ryan, R. M. 2017. *Self-Determination Theory: Basic Psychological Needs in Motivation, Development, and Wellness.* New York: Guilford Publications.

Godwin-Jones, R. 2011. "Emerging Technologies: Mobile Apps for Language Learning." *Language Learning & Technology*, 15(2): 2–11.

Herzberg, F. 1959. *The Motivation to Work.* New York: John Wiley & Sons.

Lin, H., Chen, X., & Zhao, M. 2023. "Integrating Motivation and Technology in Language Learning: A Case Study." *International Journal of Language Learning and Technology*, 28(1): 55–72.

Liu, Y., & Huang, X. 2020. "The Impact of Motivation on Second Language Acquisition." *Applied Linguistics Research*, 45(2): 98–112.

Locke, E. A. 1968. "Toward a Theory of Task Motivation and Incentives." *Organizational Behavior and Human Performance*, 3(2): 157–189.

Mutmainnah, S., Rahman, A., & Suryani, I. 2021. "Faktor-Faktor yang Mempengaruhi Motivasi Belajar Bahasa Asing pada Mahasiswa." *Jurnal Pendidikan Bahasa dan Sastra*, 12(2): 78–92.

Nduru, Nike Ardila & Rudiansyah. 2022. "Pemanfaatan Media Digital dalam Pembelajaran Bahasa Mandarin." *Jurnal Teknologi Pendidikan*, 10(1): 112–125.

Richards, J. C., & Rodgers, T. S. 2014. *Approaches and Methods in Language Teaching.* 3rd ed. Cambridge: Cambridge University Press.

Situmeang, R. 2024. *Kurikulum Program Studi Bahasa Mandarin Bisnis dan Profesional: Tantangan dan Peluang.* Medan: Universitas Prima Indonesia Press.

Stockwell, G. 2013. *Technology and Motivation in English-Language Teaching and Learning.* London: Routledge.

Sugiyono. 2019. *Statistika untuk Penelitian.* Bandung: Alfabeta.

Sugiyono. 2020. *Metode Penelitian Kuantitatif, Kualitatif, dan R&D.* Bandung: Alfabeta.

Sugiyono. 2022. *Metode Penelitian Pendidikan: Pendekatan Kuantitatif, Kualitatif, dan R&D.* Bandung: Alfabeta.

Sujarweni, V. Wiratna. 2015. *Metodologi Penelitian: Lengkap, Praktis, dan Mudah Dipahami.* Yogyakarta: Pustaka Baru Press.

Usman, M., & Burhanuddin, A. 2021. "Pengaruh Lingkungan Belajar terhadap Motivasi Mahasiswa dalam Mempelajari Bahasa Asing." *Jurnal Psikologi Pendidikan*, 8(3): 45–58.

Vroom, V. H. 1964. *Work and Motivation.* New York: Wiley.

Wang, R., & Wang, L. 2021. "Digital Tools in Language Learning: Opportunities and Challenges." *Technology in Language Education*, 19(3): 220–235.

Wen, X. 2011. "Chinese Language Learning Motivation: A Comparative Study of Heritage and Non-Heritage Learners." *Heritage Language Journal*, 8(3): 41–66.

Zhang, S., Li, J., & Peng, W. 2022. "The Effectiveness of AI-assisted Language Learning: A Meta-analysis." *Journal of Computer-assisted Language Learning*, 30(2): 145–165.