

**THE EFFECTIVENESS OF
JIGSAW LEARNING METHOD TO
ENHANCE VOCABULARY BUILDING AT
SMK MUHAMMADIYAH 2 AJIBARANG
BY FLASHCARD**

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Abstract

This study provides practical insights for educators to implement cooperative learning methods support by engage media to enhance English vocabulary learning. This study aims to investigate the effectiveness of the jigsaw learning method combine with flashcards in enhance English vocabulary building for eleventh-grade students at SMK Muhammadiyah 2 Ajibarang. The research a quasi-

experimental design involves an experimental group that received treatment use the jigsaw method and flashcards, and a control group that experienced conventional teaching methods. The instruments use to collect data are pre-tests and post-tests consisting of 15 multiple-choice questions based on explanation text materials. Data are analysed use SPSS 25, includes normality and homogeneity tests, followed by hypothesis testing with an independent t-test. The results revealed a significant improvement in the experimental group's vocabulary mastery, with an average post- test score of 76.62 compared to 68.84 in the control group. The hypothesis test showed a significance value of 0.026, which is less than 0.05, indicating that the null hypothesis is rejects and the alternative hypothesis accepted. Therefore, it can be concluded that the jigsaw learning method use flashcards is effective in enhance students' vocabulary mastery on explanation text materials in the eleventh grade at SMK Muhammadiyah 2 Ajibarang in the 2025/2026 academic year.

Keywords: *The Effectiveness, Jigsaw, Vocabulary, Flashcard, Quasi-Experimental*

A. Introduction

English is an important language to learn, studying English, especially vocabulary, is necessary for mastering the English language development terms. A strong vocabulary serves as the foundation for building all other English listening, speaking, writing, and reading skills. Additionally, a rich vocabulary empowers to engage in meaningful conversations, understand diverse perspectives, and access the wealth of information and knowledge available in English.

Learning English vocabulary requires learning activities that attract students' attention so that learning does not seem monotonous. Usually, vocabulary

learning focuses on rote memorization so that students who are not used to English can be a challenge for them in learning new English vocabulary.

Based on the observation in interview the teacher of eleventh grade of SMK Muhammadiyah 2 Ajibarang namely class of Teknik Permesinan and Rekayasa Perangkat Lunak, the writers got several information in study English such as, still students who have low interest in learning English which makes them not fully understand English learning.

The other things are the technique of teaching and media while teaching English. The use of learning methods and media can influence learning activities. Thus, learning methods and media are necessary to support English learning, particularly vocabulary.

Jigsaw learning method is a cooperative method where students are divided into several groups to find solutions in a material. The use flashcard to support learning which is media in the form of cards made of paper and containing an image and writing. Flashcards are portable media cards that usually have a picture, word, number, or image on one side and related information.

Students of SMK Muhammadiyah 2 Ajibarang study learning material and understand several types of text such as explanation text, narrative text. To learn and understand the text clearly, students need to understand the vocabulary contains in the text.

Based on the information above this research study about The Effectiveness of Jigsaw Learning Method to Enhance Vocabulary Building at SMK Muhammadiyah 2 Ajibarang by Flashcard in eleventh grade students especially in class Teknik Pemesinan and Rekayasa Perangkat Lunak. In this study, the

writers used text material for English language learning.

B. Literature Review

According to Hatch & Brown (1995:218), Vocabulary classify base on functional categories which include noun, verbs, adjective and adverbs. In addition to these major classes there are pronoun, preposition, conjunction and interjection. In this study, choose class of vocabulary such as noun, verbs, adjective, adverbs and pronoun to students identify in the text explanation. The explanation of these classify will be explains on the below based on Hatch & Brown (1995:218):

1. Noun

Noun is word that explain about the things such as person, and place. The example: we, you, garden, laptop, book, pencil.

2. Verbs

Verbs is class that explains that word denote from action. The example: go, eat, drink, watch, play, cook, write.

3. Adjectives

Adjectives is class that explains words of noun, it describes and highlight the typically of noun. The example: happy, diligent, smart, pretty.

4. Adverbs

Adverbs have similarities to adjectives and verbs so adverbs it is words that explain continue about adjective or verbs in a sentence or text. The example, unfortunately and diligently.

Based on the information, vocabulary is a collection of words that have complex meanings such as the part of vocabulary are noun, verbs, adjectives, adverbs and pronoun. In this study the vocabulary is

the focus on the teaching class of eleventh grade of SMK Muhammadiyah 2 Ajibarang

Semantic features are part of the synonym and antonym. It is a set of words that share similarities in vocabulary, features that help students find other vocabulary in a text or sentence.

1. Synonym

Synonym are the words that have similarities if other words. So, it is a word that can find in another word which have the same meaning. The example: child-young, old-age, smart-clever.

2. Antonym

Antonym are the words that have opposite meaning on the other words. So, it is a word that can find in other words that have opposite of the words. The example: old-young, boy-girl, big-small.

Based on the information above, synonym and antonym have differences in a meaning. But they have relation each other to help find the similarities and opposites in the vocabulary.

According to Arronson (2018:27), Jigsaw learning method is a group learning method where students are divides into several groups and in this group of students can explore learning material from the teacher. This method is a relevant method for learning because students can play an active role in communicates and exchange ideas with other students.

Besides, jigsaw cooperative learning has advantages and disadvantages. Some advantages and disadvantages of jigsaw method as state by (Ibrahim in Tarida 2024:49):

1. Each students give personal responsibility for each group so students can learn to be responsible and better understand the boundaries discusses

2. Teach students for creative and responsive, students active in learning can establish good cooperation between other students. Because students are faced
3. The time required is relatively large
4. In each group division students generally tend to be noisy and the class will be noisy

According to Arsyad (2014:15) Flashcard media is a small card containing images, text, or symbols that remind or guide students to something related to the image. Moreover, flashcard is learning media that easy to understand as learning media in class, flashcard fill with various types of learning according to the needs of each lesson.

According to Susilana and Riyana (2008:95), Flashcard as learning media also has the advantages and disadvantages in teaching and learning.

1. Easy to carry, with a small size flash cards can be stored in a bag or even in a pocket, so they do not require a lot of space, can be used anywhere, in class or outside the classroom
2. Practical, seen from the way they are made and used, flash card media is very practical in using this media teachers do not need to have special skills, this media also does not need electricity
3. Easy to remember, the characteristics of flash card media are presenting short messages on each card present
4. The appreciation of the material is less than perfect, because the media only displays the perception of the sense of sight which is not strong enough to move the entire human personality, so that the material to be discussed is less than perfect
5. If the flashcard intersperses without a game, it is not interesting.

Flashcard is a media that uses in learning activity and give contribute encourage student

motivation in learning. Besides the advantages and disadvantages of flashcard, teaching with flashcard strategically and combine with method in learning can balance of disadvantages and advantages.

C. Method of Investigation

The writers used quasi experiment design according to Sugiyono (2017:114), Quasi-experimental is a design that has a control group that functions to control variables but not fully control other variables. So, quasi experiment was compared the two group consist experiment group and control group. They group were experiment and control group to find out the result of the study. In this study, the writers took two classes of grade XI SMK Muhammadiyah 2 Ajibarang. They are XI Teknik Pemesinan and XI Rekayasa Perangkat Lunak.

According to Sugiyono (2017:119), Sampling technique is a sampling technique to determine the sample to be used in the study. In this study, the writers used purposive sampling technique. Thus, the writers used eleventh grade of SMK Muhammadiyah 2 Ajibarang especially class of Teknik Pemesinan as the experimental class consist 24 students and XI Rekayasa Perangkat Lunak as control class consist 9 students, the total of the sample was 33 students.

According to Sugiyono (2017:60), Variable is a characteristic of an object that have variations between the objects, so a variable is a characteristic of each object that have different variations from each object. Independent variable in this study is jigsaw learning method by flashcard. Where this variable is the cooperative jigsaw learning model, which is supported by flashcards during the learning process, is use in this

variable, which is a task or approach that is assigned to pupils. Variable Dependent In this study, the writers use enhance vocabulary building students. This variable is the outcome or impact that is generated by the use of the teaching method, namely the degree to which the students' language ability improves following their involvement in the jigsaw and flashcard methods of instruction.

D. Findings and Discussion

In collecting data, the writers present data statistic obtained from experiment class and control class grade XI SMK Muhammadiyah 2 Ajibarang. Each class namely, class of Teknik Pemesinan and class of Rekayasa Perangkat Lunak, the class divided as the experiment class and control class.

Based on the pre-test and post-test results for the experimental and control classes above, the table shows that students in the control class have average scores of 46.63 (pre-test) and 68.84 (post-test). The test gives to the control class aims to determine the difference between before and after the treatment. In the control class, the treatment different from the experimental class. The control class used only conventional learning methods, without the jigsaw and flashcard methods.

The pre-test and post-test results for the experimental class in the table, where students have average scores of 52.74 (pre-test) and 76.62 (post-test). The test given to the experimental class aims to determine whether there were differences before and after the treatment. In the experimental class, the treatment uses the jigsaw and flashcard methods as vocabulary learning media.

From the two achievement scores, it can be concluded that there is a difference between the two

classes, namely the control class and the experimental class. According to Sugiyono (2017:241), it is a process of testing data obtain to determine whether or not data is normal before testing a hypothesis. Basically, normality test is important because it ensures that the data obtained is valid. The result Chi-Square value is compared with the critical value from the Chi-Square table based on the degrees of freedom (df) and the significance level used to determine whether the results are significant or not. The result of the Chi-square test show that the value of each class distributes normal based on calculation of chi-square test. In the chi-square test show each class the data normal of the pre-test and post-test.

According to Sugiyono (2017:279), It is a test conducted to determine the value of the two sample where the value is tested to find similarities in value. Basically, the homogeneity test is used to determine the similarity of two samples being studied, then the results can be implemented and described statistically and clearly. There are several formulas used for homogeneity testing, one of which is proposed by Sugiyono (2017:279), where the F test formula is used to determine whether two samples are related or not. In other words, the homogeneity test needs to be used because it is used to calculate and determine whether the samples are related to each other or not. In this study the writers used SPSS 25 to calculate the data of post-test of each class. The result of the test in in below:

		Levene's Test for Equality of Variances					Independent Samples Test				
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference		
									Lower	Upper	
hasil	Equal variances assumed	3.613	.067	2.334	31	.026	8.05139	3.44954	1.01600	15.08678	
	Equal variances not assumed			2.993	23.717	.008	8.05139	2.79303	2.30386	13.79892	

Figure 1. Independent Sample Test

The table above explains that the post-test results for the experimental and control classes were 0.067. The significance level for homogeneity is 0.05. If the sig value is > 0.05 , the pre-test and post-test data have the same homogenous variance. Conversely, if the sig value is < 0.05 , the post-test data do not have the same homogenous variance. The table above shows that a sig value of $0.067 > 0.05$ indicates that the post-test scores for the experimental and control classes have the same variance (homogeneous).

It is a test conducted to determine the hypothesis use to find the data results from the sample whether they have the same average or not. Basically, hypothesis testing is carried out to determine or conclude a sample from a study, then the results can provide conclusions and can be described clearly. The result of data post-test which experiment class and control class are compare using independent sample t test with SPSS 25. The result of the test hypothesis explains in the result of calculation with SPSS 25 below:

		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	
hasd	Equal variances assumed	3.813	.067	2.334	31	.026	8.05139	3.44954	1.01600	15.08678	
	Equal variances not assumed			2.893	23.717	.008	8.05139	2.79303	2.30386	13.79892	

Figure 2. Independent Sample Test

In the hypothesis assessment formula, the significance level is 0.05. The results of the independent post-test for the experimental and control classes aim to determine the difference between the post-test scores. Based on the calculated results in the independent t-test table for the experimental and control classes, the two-tailed sig value is 0.026. Therefore, the two-tailed sig value of $0.026 < 0.05$ is in accordance with the hypothesis formula. If the two-

tailed sig value is >0.05 , H_a is rejected. Conversely, if the two-tailed sig value is <0.05 , H_0 is rejected, and H_a is accepted. Thus, based on the result of the hypothesis sig 2- tailed $0.026 < 0.05$ H_0 is rejected and H_a is accepted.

The mean post-test score for the experimental class is 76.62 and the mean score for the control class is 68.57. This indicates that the post-test score for the experimental class is better than the control class, with scores of 76.62 and 68.84, respectively, $76.62 > 68.84$. These scores indicate an improvement in the treated and untreated classes, in this case, the experimental and control classes. Thus, it can conclude that the Jigsaw method and Flashcard as media are effective for vocabulary learning because there is a significant difference in achievement scores between the experimental class and the control class.

E. Conclusion

Based on the results of the use of the jigsaw learning method using flashcards on eleventh-grade students of SMK Muhammadiyah 2 Ajibarang, a conclusion that there is a significant difference between the experimental class and the control class, each getting an average score on the post-test of 76.62 and 68.84. and the results of the statistical test show a significance value (sig. 2- tailed) of $0.026 < 0.05$ which rejects the null hypothesis. Thus, the jigsaw method with flashcards is effective in enhance students' vocabulary mastery on explanation text material in class XI SMK Muhammadiyah 2 Ajibarang in the academic year. 2025/2026.

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Bibliography

- Acfira, L. G., & Ichsan, H. (n.d.). *Students' Perceptions and Learning Needs: A Fundamental Aspect in Designing English Flashcards for Accountants*. 2(2), 24–33. <https://doi.org/10.33830/ijelp.v2i2.9916>
- Alhanifa, Rolyta. (2024). *The Effectiveness Of Using Vocabulary Self- Collection Strategy Toward Students' Vocabulary Masteryat 11th Grade Of Man Kaur, Bengkulu At The Second Semester In The Academic Year Of 2023/2024*. Lampung.
- Al-Mubireek, S. (2021). *The Effects of Cooperative Learning versus Traditional Teaching on Students' Achievement: A Case Study*. TESOL International Journal, 16(2), 31–55. Article, O. (2022). Bahareh Hashempour 1*, & Fariba Mobini 1 *. November, 73–88.
- Asrofi, A. (2023). *Modified Idea Listing Technique with Flash Card to Increase Students' Writing Ability towards EFL Learners*. International Journal Corner of Educational Research, 2(3), 133–139. <https://doi.org/10.54012/ijcer.v2i3.243>
- Azhar Arsyad. 2014. *Media Pembelajaran*. PT. Raja Grafindo Persada.

- Chamidah, A. N. (2024). *International Journal of Multicultural and Multireligious Understanding: The Use of Flashcards in Learning to Read Braille for Students with Visual Impairments*. 405–413.
- Cohen, Louis, Lawrence Manion and Keith Morrison. 2007. *Research Methods In Education*. USA and Canada: Routledge.
- Dadana, C. H., & Pongoh, E. (2023). *Development of Flashcard Media with Model Group Investigation on Solar System Material at SMP Negeri 2 Tomohon.1*.
- Education, E., Program, S., Ulama, N., Education, E., Program, S., Ulama, N., Zumrudiana, A., Education, E., Program, S., & Ulama, N. (2024). *The Use of Jigsaw Technique to Improve Student's Reading Comprehension of Narrative Texts Via Wattpad Application* Uzlifatul Imamah. 01(03), 24–31. <https://doi.org/10.32665/intens.v1i02.2251>
- Elfrieda H Hiebert & Micahel L Kamil. *Teaching and Learning Vocabulary Bringing Research to Practice*. 2005. New Jersey: Lawrence Erlbaum Associates. <http://www.erlbaum>.
- Matrutry, E., & Que, S. R. (2021). *Using Flashcard as A Media in Teaching Vocabulary for the Eighth Grade Students of Junior High School*. MATAI: International Journal of Language Education, 2(1), 25–34. <https://doi.org/10.30598/matail.v2i1.5490>

- Novitasari, E. D., & Putera, A. A. (2024). *The Effectiveness of Duolingo Application in Vocabulary Mastery for English for Young Learners in MIN 1 Malang*. *In English Edu: Journal of English Teaching and Learning* (Vol. 3, Issue 1). <https://doi.org/10.18860/jetl.v3i1.7021>
- Nurafifah, S., Nurjanah, R. L., & Waluyo, U. N. (2024). *The Use of Flashcards to Learn English Vocabulary to Seventh Grade Students*. 3(1), 20–22.
- Nalle, F. W. (2019). *Analisis Faktor-Faktor Yang Mempengaruhi Tingkat Kemiskinan Di Kecamatan Insana Kabupaten Timor Tengah Utara (Ttu)*. In *Jurnal Dinamika Ekonomi Pembangunan* (Vol. 1, Issue 3, p. 35). <https://doi.org/10.14710/jdep.1.3.35-45>
- Nuryadi, Astuti, T. D., Utami, E. S., & Budiantara, M. (2017). *Buku Ajar Dasar-dasar Statistik Penelitian*. In Sibuku Media.
- Podoliak, M. (2021). *Unconscious Memory in Acquiring New Vocabulary Using Flashcards*. *East European Journal of Psycholinguistics*, 8(2), 213–222. <https://doi.org/10.29038/EEJPL.2021.8.2.POD>
- Rahman, M. A., Faisal, R. R., & Tho, C. (2023). *The Effectiveness of Augmented Reality Using Flash Card in Education to Learn Simple English Words as a Secondary Language*. *Procedia Computer*

Science, 227, 753–761.
<https://doi.org/10.1016/j.procs.2023.10.58>

Rahmatunnisa, S., Andika Sari, D., Damayanti, A., & Namia, I. (2023). *Increasing Learning Motivation in English Vocabulary Through Jigsaw Puzzle*. May, 19–29.
[https://jurnal.umj.ac.id/index.php/ISJR/-](https://jurnal.umj.ac.id/index.php/ISJR/)

Rahmawati, J., & Liskinasih, A. (2022). *Enhancing EFL Learners' Vocabulary Acquisition with Socrative Digital Flashcards: An Experimental Study*. International Journal of Social Sciences & Educational Studies, 9(1), 269–280.
<https://doi.org/10.23918/ijsses.v9i1p269>

Samsul Ulum, M., Yafie, E., Putri Wahyuningtyas, D., & Rofiki, I. (2021). *Improving Linguistic Intelligence through Graphic Introduction with Flashcard Media for Early Childhood*. International Journal of Computational Intelligence in Control Copyrights @Muk Publications, 13(2), 79–87.

Rudi Susilana. Cepi Riyana. 2008. *Media Pembelajaran*. Bandung: CV Wacana Prima.

Rukminingsih, Adnan, G., & Latief, M. A. 2020. *Metode Penelitian Pendidikan, Penelitian Kuantitatif, Penelitian Kualitatif, Penelitian Tindakan Kelas*. In *Journal of Chemical Information and Modeling* (Vol. 53, Issue 9).

- Sudjana, Nana and Ibrahim. 2014. *Penelitian dan Penilaian Pendidikan*. Bandung: Penerbit Sinar Baru Bandung.
- Saputra, Nanda. 2021. *Metodologi Penelitian Kuantitatif*. Aceh: Yayasan Penerbit Muhammad Zaini.
- Sihombing, Lisbet Novianti. 2024. *Metode Pembelajaran Kooperatif*. Cipedes Tasikmalaya: Perkumpulan Rumah Cemerlang Indonesia.
- Sugiyono, D. 2010. *Metode penelitian kuantitatif kualitatif dan R&D*. In Penerbit Alfabeta.
- Sugiyono. 2017. *Metode Penelitian Kuantitatif Kualitatif dan R&D*. Bandung: Penerbit Alfabeta Bandung.
- Sukmawati, Fatma. 2022. *Metodologi Penelitian Kuantitatif*. Sukoharjo: Pradina Pustaka.
- Tarigan, M. S. B., Manurung, H. S., Salim, C., & Putri, A. M. (2021). *The effect of jigsaw strategy on students' reading comprehension at SMK Swasta Yapim Medan*. *International Journal of Multi Science*, 1(11), 7–16.
- Uyuni, Y. R., & Farida, I. (2023). *Development of Puzzle Learning Media in Vocabulary Teaching Based on Quantum Learning*. *International Journal of Academic Research in Progressive Education and Development*, 12(1).
<https://doi.org/10.6007/ijarped/v12-i1/16810>

Van den Broek, G. S. E., Wesseling, E., Huijssen, L., Lettink, M., & van Gog, T. (2022). *Vocabulary Learning During Reading: Benefits of Contextual Inferences Versus Retrieval Opportunities*. *Cognitive Science*, 46(4), 1–28. <https://doi.org/10.1111/cogs.13135>

Xodabande, I., Iravi, Y., Mansouri, B., & Matinparsa, H. (2022). *Teaching Academic Words With Digital Flashcards: Investigating the Effectiveness of Mobile-Assisted Vocabulary Learning for University Students*. *Frontiers in Psychology*, 13(June). <https://doi.org/10.3389/fpsyg.2022.893821>