

**THE INFLUENCE OF PUZZLES CREATED USING PUZZLE MAKER
TOWARD STUDENTS' VOCABULARY MASTERY IN THE 7TH GRADE
OF MTSN 3 SOLOK SELATAN**

THESIS

*Submitted as a Partial Fulfillment of the Requirements to Obtain a Bachelor of
Education (B.Ed) in English Language Education*



Written by:

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ENGLISH LANGUAGE AND LITERATURE DEPARTMENT

FACULTY OF LANGUAGE AND ARTS

UNIVERSITAS NEGERI PADANG

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Toward Students' Vocabulary Mastery in the 7th Grade of
MTsN 3 Solok Selatan

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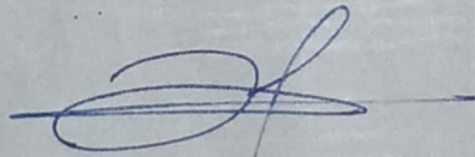
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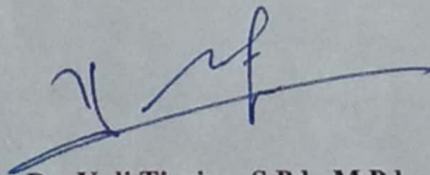
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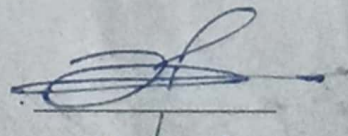
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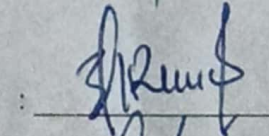
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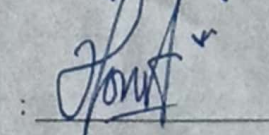
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ABSTRACT

Marta, R. N. 2025. The Influence of Puzzles Created Using Puzzle Maker toward Students' Vocabulary Mastery in the 7th Grade of MTsN 3 Solok Selatan.

Vocabulary mastery plays an important role in learning a foreign language, but students often face difficulties in achieving it without interesting and interactive learning media. This research investigates the use of puzzles created with Puzzle Maker to improve vocabulary mastery among seventh grade students at MTsN 3 Solok Selatan. The study used a quantitative method with a quasi-experimental design involving an experimental class and a control class. Both groups took vocabulary tests before and after the treatment. The main finding shows that students who practiced vocabulary using puzzles experienced a significant improvement in their post test scores compared to those who did not. In addition, word search, double puzzle, and hidden message puzzle were useful for training students in recognizing word form and meaning, but not for using the words in context. Only crossword puzzles supported the mastery of all three aspects: form, meaning, and use. These puzzles also made the classroom activities more enjoyable and engaging, encouraging greater student participation. In conclusion, puzzles created with Puzzle Maker can serve as a practical medium to help young learners improve their vocabulary mastery and classroom practice.

Keywords: *Vocabulary Mastery, Puzzles, Puzzle Maker*

ABSTRAK

Marta, R. N. 2025. Pengaruh Puzzle yang Dibuat Menggunakan Puzzle Maker terhadap Penguasaan Kosakata Siswa Kelas VII MTsN 3 Solok Selatan.

Penguasaan kosakata memainkan peran penting dalam pembelajaran bahasa asing, namun siswa sering menghadapi kesulitan dalam mencapainya tanpa media pembelajaran yang menarik dan interaktif. Penelitian ini mengkaji penggunaan puzzle yang dibuat dengan Puzzle Maker untuk meningkatkan penguasaan kosakata siswa kelas tujuh di MTsN 3 Solok Selatan. Penelitian ini menggunakan metode kuantitatif dengan desain kuasi eksperimen yang melibatkan kelas eksperimen dan kelas kontrol. Kedua kelompok diberikan tes kosakata sebelum dan sesudah perlakuan. Temuan utama menunjukkan bahwa siswa yang berlatih kosakata menggunakan puzzle mengalami peningkatan yang signifikan dalam skor post-test dibandingkan dengan siswa yang tidak menggunakannya. Selain itu, word search, double puzzle, dan hidden message puzzle bermanfaat dalam melatih pengenalan bentuk dan makna kata, tetapi tidak dalam penggunaan kata dalam konteks. Hanya crossword puzzle yang mendukung penguasaan ketiga aspek: bentuk, makna, dan penggunaan. Puzzle-puzzle ini juga membuat aktivitas kelas menjadi lebih menyenangkan dan menarik, sehingga mendorong partisipasi siswa yang lebih besar. Kesimpulannya, puzzle yang dibuat dengan Puzzle Maker dapat menjadi media praktis untuk membantu siswa dalam meningkatkan penguasaan kosakata dan aktivitas pembelajaran di kelas.

Keywords: *Penguasaan kosakata, Puzzle, Puzzle Maker*

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Padang, June 2025

Rahayu Nimas Marta

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CHAPTER 1

INTRODUCTION

A. Background of the Problem

Vocabulary is an essential part of language learning, forming the basis for four key skills such as listening, speaking, reading and writing (Richards & Renandya, 2002). It is well-recognized that having a well-developed vocabulary is essential for effective communication and comprehension in any language (Khan et al., 2018; Nation, 2001; Tiansoodeenon et al., 2023). Vocabulary plays a crucial role in language learning (Hafifah & Hanifa, 2024). Without it, students struggle to express ideas or comprehend reading and listening materials, making language learning difficult (Moeller et al., 2009; Naldi & Tiarina, 2024; Ratika et al., 2021; Schmitt, 2000). Therefore, building vocabulary should be a priority in language instruction, as it helps students communicate confidently and participate better in learning.

Based on observations at MTsN 3 Solok Selatan, the researcher found that the English teacher still relies heavily on memorization methods when teaching vocabulary. For example, students are usually asked to memorize lists of new words and repeat them in class. However, this method has not been effective in helping students' master vocabulary fully (Elmahdi & Hezam, 2020) . Many students can retain the words for a short time but struggle to use them correctly in sentences or daily conversations (Ganesan et al., 2025; Hafsari & Sartika, 2025).

This was proven by the vocabulary test scores in the previous semester, where more than 50% of the students scored below the minimum passing grade (KKM). The teacher also confirmed that students often forget the words soon after the test and rarely use them in context.

The problem with this method can be seen in how students use vocabulary. Simply committing words to memory through repetition does not guarantee that students can understand the meaning and apply the words in real communication (Maming & Patintingan, 2023; McKeown, 2019; Wang, 2023). The main goal of learning English is not just to retain vocabulary, but also to pronounce, understand, and use it properly (Kim, 2023). Previous studies suggest that learning media are more effective than recall alone improving vocabulary, as they not only help students remember new words but also enhance their ability to use and understand vocabulary while increasing their interest in learning (Fathoni et al., 2024; Muabidah & Setiawan, 2024; Wicaksono & Kuswardani, 2021). Based on these findings, it can be seen that memorizing alone is not sufficient. Students need learning media that are more engaging and interactive, so they can not only remember new vocabulary but also apply it confidently in real-life contexts.

In the contemporary educational landscape, the use of creative and engaging learning media plays a vital role in helping students build their vocabulary (Alomari et al., 2023; Pasternak, 2020; Van et al., 2017). This shows that learning media have an important part in supporting both teaching and learning processes.

Moreover, when well-designed, learning media can significantly help achieve learning goals more efficiently.

One of the most effective kinds of learning media for teaching vocabulary is the use of puzzles (Prayoga, 2022). Puzzles have proven to be a valuable educational tool that not only support vocabulary development for elementary school students but also help sharpen critical thinking skills among junior and senior high school learners (Cruz et al., 2023; Megawati, 2019; Suprayogi et al., 2022). Puzzles have been widely applied in various subjects, including biology, mathematics, social sciences, and physics (Azizah et al., 2023; Nurhalifah et al., 2020; Pahma et al., 2023; Pangesti & Astono, 2018; Valentina et al., 2024). In language learning, puzzles play an important role in improving students' vocabulary mastery, spelling, and reading comprehension (Rahmi et al., 2021).

The popularity of puzzles as a learning media has led many teachers to incorporate them into language learning. However, manually creating effective puzzles is time-consuming, and relying on a single puzzle type may reduce students' interest over time (Alghani, 2017; Kurniasih & Isroah, 2018). To address this, platforms like Puzzle Maker provide a practical solution by enabling teachers to create diverse and engaging puzzles efficiently. Puzzle Maker is a tool designed for teachers, students, and parents to generate puzzles. It allows users to create and print personalized word searches, criss-cross puzzles, math challenges, and more using their word lists (Discovery Education, 2025). There are 10 different types of puzzles available in Puzzle Maker; however, only 4 types are effective

for language learning: Word Search Puzzle, Criss-Cross Puzzle (Crossword Puzzle), Double Puzzle, and Hidden Message Puzzle.

Numerous studies explore several key aspects related to the use of puzzles, focusing on how puzzles contribute toward students' motivation in vocabulary learning (Anjaleka, 2021; Rahmatunnisa et al., 2023; Sri et al., 2024). Additionally, Marfilinda and Akhiyar (2024) examines the effectiveness of puzzles in supporting various learning styles. Puzzles also demonstrate the potential to strengthen collaborative learning by fostering teamwork and communication among students (Cahyaningtyas et al., 2024; Sintia et al., 2021). Furthermore, Oktaviani and Elmojahed (2023) evaluates the impact of puzzles on learning outcomes and analyzes the extent to which puzzles directly contribute to effective vocabulary acquisition.

Research has examined the application of puzzles in language learning highlighting various types of puzzles and different areas of focus, such as word search puzzles (Al-Furqon, 2017), criss-cross puzzles (crossword puzzles) (Hasriani, 2015), double puzzles (Putra et al., 2022), and hidden message puzzles (Ningtyas, 2023). Al-Furqon (2017) examined word search puzzles to enhance vocabulary retention and word recall. Hasriani (2015) investigated crossword puzzles to enhance students' vocabulary mastery and create an engaging learning environment.

Putra et al. (2022) explored double puzzles, a combination of crossword and word search puzzles, to promote deeper engagement with vocabulary and

grammar. Lastly, Ningtyas (2023) analyzed hidden message puzzles to assess their effectiveness in fostering critical thinking, comprehension skills, and overall language proficiency. These studies have highlighted how different puzzles contribute to vocabulary retention, spelling, critical thinking, and comprehension skills. However, there is a lack of research exploring the utilization of multiple puzzle types created with a tool like Puzzle Maker in a single study.

In this study, the researcher investigated the impact of puzzles, such as Word Search Puzzles, Criss-Cross Puzzles (Crossword Puzzles), Double Puzzles, and Hidden Message Puzzles on students' vocabulary mastery. Previous studies have primarily focused on a single type of puzzle, which, if created manually, can be time-consuming for teachers. While using one type of puzzle can help students improve their vocabulary, repetitive use of the same puzzle format may lead to decreased engagement and motivation over time. To address these issues, this study uses Puzzle Maker, a digital tool that allows teachers to generate four different types of puzzles efficiently. By utilizing multiple puzzle types, this study seeks to explore their combined effect on students' vocabulary mastery and engagement, providing a more diverse and interactive learning experience at MTsN 3 Solok Selatan.

B. Identification of the Problems

Based on the discussion above, the researcher has identified several key aspects that can be explored regarding the implementation of puzzles in language

learning. These include the impact of puzzles on student motivation, their role in supporting different learning styles, their potential in fostering collaborative learning, their effect on learning outcomes, and their contribution to students' vocabulary mastery. This study explored students' vocabulary mastery.

As discussed earlier, while puzzles have been widely used in language learning, previous research has mainly focused on individual puzzle types, limiting the exploration of their combined effects on vocabulary mastery. Additionally, manually creating puzzles can be time-consuming for teachers.

C. Limitations of the Research Problem

Based on the identification of the problem above, the researcher limits the study to the effect of puzzles created by Puzzle Maker on students' vocabulary mastery in the 7th grade of MTsN 3 Solok Selatan.

D. Formulation of the Problems

This research investigates the significant influence of puzzles created using Puzzle Maker on students' vocabulary mastery in the 7th grade at MTsN 3 Solok Selatan.

E. Researcher Question

Based on the problem formulation, the research question is, “does the use of puzzles created using Puzzle Maker have a significant effect on the vocabulary mastery of 7th-grade students at MTsN 3 Solok Selatan?”

F. Purpose of the Research

This research aims to examine whether the use of puzzles created using Puzzle Maker has a significant effect on vocabulary mastery of 7th-grade students at MTsN 3 Solok Selatan.

G. Significance of the Research

The contributions that this study intends to offer upon completion are known as its research significance, which consists of two categories: theoretical and practical.

1) Theoretical Significance

It expands the understanding of how puzzles support vocabulary acquisition, linking it to cognitive theories of active learning. The study shows that engaging students with puzzles can improve memory retention and vocabulary mastery, contributing to the broader research on interactive teaching methods.

2) Practical Significance

Practically, this research provides teachers with a fun, effective tool for teaching vocabulary. Puzzles offer an engaging alternative to traditional memorization, making learning more enjoyable. Tools like Puzzle Maker allow educators to create customized puzzles that fit their students' levels, improving their vocabulary retention in a stress-free way. This approach has the potential to enhance classroom engagement and help students build stronger language skills.

H. Definition of the Key Term

1) Influence

The effect of the puzzles toward the level of mastery of English vocabulary indicated by the pre-test and post-test score differences.

2) Puzzles

Puzzles are learning media through word games, such as word searches, crosswords, double puzzles, and hidden message puzzles, which challenges students solve problems while enjoying them and improving their vocabulary mastery.

3) Puzzle Maker

An online platform that enables teachers to create customized puzzles, such as word search, crossword, double puzzles, and hidden message puzzles, to enhance vocabulary learning and save preparation time.

4) Vocabulary Mastery

Vocabulary mastery is the set of words that students understand and use to demonstrate their English language skills, including reading, writing, listening, and speaking, after practice using puzzles.

CHAPTER V

CONCLUSION AND SUGGESTION

A. Conclusion

Considering the results in this study, it can be inferred that applying puzzles has a positive and significant effect on students' vocabulary mastery. The statistical tests revealed that the post-test scores of the experimental group were notably higher than those of the control group. This result proves that using puzzles as a learning strategy is not only effective but also makes a meaningful difference in students' vocabulary acquisition. Since the results are statistically significant, it means that puzzles can indeed be applied and recommended as a vocabulary learning strategy. The significant impact found in this study indicates that puzzles are not just an alternative but can be used as a practical and reliable method to support vocabulary learning in the classroom.

In this study, the use of various types of puzzles—such as word search, crossword, double puzzle, and hidden message puzzles—helped students remember vocabulary more easily. These puzzle activities made the learning process more interesting, enjoyable, and interactive. Students became more engaged, more motivated, and more active in participating during the lesson. The students also showed greater enthusiasm and less anxiety when solving puzzles, which contributed to their vocabulary improvement.

Furthermore, using puzzles is effective in improving students' vocabulary mastery, mainly in the aspects of form (recognizing the word and its spelling) and meaning (understanding the word's meaning). The puzzles used in this study, such as word search, double puzzle, and hidden message puzzle, made the learning process more interesting and helped students reinforce their memory of new words. However, the puzzle activities did not fully help students strengthen their ability to use the words in sentences (use) because most of the puzzle types focused on word recognition and meaning only.

Overall, this research concludes that puzzles can be used effectively to support vocabulary mastery for seventh-grade students at MTsN 3 Solok Selatan. Puzzles can serve as a useful teaching tool that not only helps students achieve better learning outcomes but also creates a fun, challenging, and supportive learning environment. To maximize results, teachers are encouraged to combine puzzles with additional activities that help students practice using new words in real contexts.

B. Suggestion

Based on the outcomes of this research, the following offers are provided for teachers, students, and future researchers.

1. For Teachers

Based on these conclusions, teachers who want to use puzzles in vocabulary learning are encouraged to combine puzzles with other activities that help students apply the words in context, such as making simple sentences, doing role-play, or practicing speaking. Future researchers are recommended to focus more on using crossword puzzles or designing puzzles with sentence-based clues to strengthen students' ability to use the words they learn in real communication. This way, puzzle-based learning can not only help students recognize and understand new words but also encourage them to use the words confidently in their daily conversations.

Teachers are advised to implement puzzles as an approach to support vocabulary instruction. Using puzzles can make lessons more interesting and enhance students' ability to remember new vocabulary. Including puzzles in vocabulary teaching can help foster a livelier and participative classroom setting. Teachers are also advised to vary the types of puzzles they use to keep students interested and to use online puzzle generators to simplify the preparation process. Most importantly, teachers should ensure that the puzzles are appropriate for the students' proficiency levels and learning objectives.

2. For Students

Students are advised to actively participate in puzzle-based learning activities because puzzles are proven to improve vocabulary mastery in a fun and engaging way. Students should not only depend on their teacher but also take the initiative to solve or even create puzzles independently to strengthen their vocabulary skills. By engaging in puzzle activities, students can also improve their creativity, critical thinking, and problem-solving abilities, which will be beneficial for their overall English learning.

3. For Future Researchers

Researchers in the future are encouraged to expand this line of inquiry by investigating the effectiveness of puzzles for enhancing other areas of English proficiency, like reading, speaking, or writing. They are also recommended to explore the use of puzzles in different educational levels, including high schools, vocational schools, and higher education, to assess their effectiveness in diverse learning environments. In addition, future studies could examine whether using puzzles contributes to long-term retention of vocabulary, helping students retain new words for longer periods.

REFERENCES

- Al-Furqon, A. S. (2017). The Effect of Word Search Puzzle Game in Teaching Vocabulary to The First Grade Students of SMPN 3 Proppo. *Jurnal Pemikiran, Penelitian Pendidikan Dan Sains*.
<https://ojs.ual.es/ojs/index.php/EJREP/article/view/1574>
- Alghani, B. (2017). The Use of Crossword Puzzle Game and Clustering Technique on Extrovert and Introvert Students' Vocabulary Size. In *Digital Respository Unila*. <http://digilib.unila.ac.id/25625/>
- Ali, S., Ali, S., Kalajahi, R., & Pourshahian, B. (2012). Vocabulary Learning Strategies and Vocabulary Size of ELT Students at EMU in Vocabulary Learning Strategies and Vocabulary Size of ELT Students at EMU in Northern Cyprus. *English Language Teaching* , 5(April 2015).
<https://doi.org/10.5539/elt.v5n4p138>
- Alomari, M. A., Alqudah, R. A., Abu Al Rub, M. O., Alqsaireen, E. M., & Khasawneh, M. A. (2023). The Role of Media in Educational Social Construction of Children with Special Needs. *Information Sciences Letters*, 12(7), 2933–2940. <https://doi.org/10.18576/isl/120720>
- Anjaleka, K. (2021). Penggunaan Puzzle Untuk Meningkatkan Motivasi Belajar Siswa Kelas 4 Sd Pada Mata Pelajaran Pai. *Elementary: Jurnal Inovasi Pendidikan Dasar*, 1(4), 114–119.
<https://doi.org/10.51878/elementary.v1i4.574>
- Ardi, H. (2015). *Pengantar penerjemahan (Introduction to translation)*. Sukabina Press. <https://doi.org/10.31227/osf.io/mwz2q>
- Arinta, S. R., & Pusparini, R. (2015). Teaching Adjective and Noun Vocabularies in the Descriptive Text Through Word Puzzle Game To the Fifth Graders of Sd Al Fatah Surabaya. *RETAIN: Journal of Research in English Language Teaching*,.
- Azizah, S. A., Priantari, I., Kurniawati, E., Irma S, S., & Rif'an Fauzi, M. A. (2023). Peningkatan Hasil Belajar Biologi Menggunakan Model Problem Based Learning Berbantu Puzzle Kelas X A di SMAM 2 Wuluhan. *Jurnal Biologi*, 1(4). <https://doi.org/10.47134/biology.v1i4.1992>
- Brown, G. T. L. (2024). Insights in assessment, testing, and applied measurement: 2022. *Frontiers in Education*, 9. <https://doi.org/10.3389/educ.2024.1488012>
- Brown, H. D. (2004). *Language Assessment - Principle and Classroom Practices*. Longman.
- Cahyaningtyas, I., Habiby, W. N., & Arfianto, A. (2024). Media Puzzle Untuk

- Meningkatkan Kerjasama Dan Hasil Belajar Dalam Pelajaran Bahasa Indonesia. *Journal on Education*, 06(03), 17956–17964.
- Campbell, D. T., & Stanley, J. C. (1963). Experimental and Quasi-Experimental Designs for Research. In *Houghton Mifflin* (Vol. 14, Issue 1). Houghton Mifflin. <https://doi.org/10.2307/3119055>
- Cohen, L., Manion, L., & Morrison, K. (2007). Research Methods in Education. In *Research Methods in Physical Activity and Health*. Taylor & Francis e-Library. <https://doi.org/10.4324/9781315158501-17>
- Creswell, J. W. (2012). *Educational Research: Planning, Conducting, and Evaluating Quantitative and Qualitative Research*. Pearson.
- Cruz, O. S. Da, Sahan, A., & Abi, B. K. (2023). Implementation of Crossword puzzle Games to Improve SMA S tudents '. *Indonesian Educational Research Journal*, 1(2). <https://journal.id-sre.org/index.php/ierj/index>
- Deci, E. L., & Ryan, R. M. (1985). *Intrinsic Motivation and Self-Determination in Human Behavior*. Plenum Press.
- Diamond, L., & Gutlohn, L. (2019). Teaching vocabulary. *Reading for Life*. <https://doi.org/10.4324/9780429490767-27>
- Discovery Education. (2025). *Puzzle Maker*. <https://puzzlemaker.discoveryeducation.com/>
- Elmahdi, O. E. H., & Hezam, A. M. M. (2020). Challenges for Methods of Teaching English Vocabulary to Non-native Students. *Advances in Social Sciences Research Journal*, 7(5), 556–575.
- Fadhillah, Nafis, B., Julia, P., Zuhra, C. M., & Ananda, R. (2024). Analysis of Interactive Educational Puzzle Media to Improve Elementary School Students' English Language Skills. *International Journal of Current Science Research and Review*, 07(09), 6960–6968. <https://doi.org/10.47191/ijcsrr/v7-i9-15>
- Fathoni, A., S, L. A., & Sumaryati, S. (2024). The Utilization of Interactive Multimedia in Improving Vocabulary Knowledge of High School Students. *Jurnal Teknologi Pendidikan*, 26(August).
- Field, A. (2017). *Discovering Statistic Using IBM SPSS Statistic 5th*. Sage Edge.
- Ganesan, P., Binti, A., Aziz, A., & Hanim, H. (2025). Comparing Rote Memorization and Contextual Learning in Vocabulary Acquisition among Upper Primary ESL Students. *International Journal of Academic Research in Progressive Education & Development*, 14(2), 489–502. <https://doi.org/10.6007/IJARPED/v14-i2/25165>

- Gee, J. P. (2003). *What Video Games to Teach Us About*. Palgrave Macmillan.
- George, D., & Mallery, P. (2016). IBM SPSS Statistics 23 Step by Step. In *Routledge*. <https://doi.org/10.4324/9781315545899>
- Ghasemi, A., & Zahediasl, S. (2012). Normality tests for statistical analysis: A guide for non-statisticians. *International Journal of Endocrinology and Metabolism*, 10(2). <https://doi.org/10.5812/ijem.3505>
- Gravetter, F. J., & Wallnau, L. B. (2020). Essentials of Statistics for the Behavioral Sciences 10th. In *Essentials of Statistics for the Behavioral Sciences*.
- Gumay, Q. H., Marlina, L., & History, A. (2024). The Effect of Using Digital Children ' s Literature on Storynory . com to EFL College Students ' Vocabularies at English. *Journal Of English Language Teaching*, 13(1). <https://doi.org/10.24036/jelt.v13i1.127196>
- Hafifah, A., & Hanifa, R. (2024). Senior High School S tudents ' Perception of Using Wordwall Toward Their Motivation in Learning Vocabulary. *Journal of English Language Teaching*, 13(3). <https://doi.org/10.24036/jelt.v13i3.129630>
- Hafizhah, R., & Widi, B. (2022). The effectiveness of using crossword puzzle games to improve vocabulary mastery of the 7th grade students of SMP Muhammadiyah 2 Kalasan. *Teaching English as a Foreign Language Journal*, 1(1), 1–12.
- Hafsari, R., & Sartika, D. (2025). Effectiveness of Using Memorisation Technique to Expand Students ' English Vocabulary. *Scientific Studies on Science, Religion and Culture*, 22(01), 262–275.
- Hardani, Auliya, N. H., Andriani, H., Fardani, R. A., Ustiawaty, J., Utami, E. F., Sukmana, D. J., & Istiqomah, R. R. (2020). Metode Penelitian Kualitatif & Kuantitatif. In *Revista Brasileira de Linguística Aplicada* (Vol. 5, Issue 1). Pustaka Ilmu.
- Hasriani. (2015). Penggunaan Media Pembelajaran Puzzle Dalam Meningkatkan Hasil Belajar Tematik Siswa Kelas V Sdn 72 Lamurukung Kecamatan Tellu Siattinge Kabupaten Bone. *IJoLE: International Journal of Language Education UNM*, 1–12.
- Hatch, E., & Brown, C. (2001). *Vocabulary, Semantics and Language Education*. Combridge University Press.
- Heryani, I., Susilo, J., & Darihastining, S. (2024). The Effectiveness of Drill Method in Improving Language Students' Listening Skills of News at the

- Islamic-Affiliated Middle Schools. *Journal of Language and Literature Studies*, 4(1), 35–48. <https://doi.org/10.36312/jolls.v4i1.1746>
- Illeris, K. (2018). Contemporary Theories of Learning. In *Taylor & Francis e-Library*. Routledge. <https://doi.org/10.4324/9781315147277-3>
- Illiyin, Z. (2023). The Effectiveness of Crossword Puzzle in Teaching Vocabulary of Fourth Grade Elementary Students. *ELITE Journal*, 5(2). <https://www.elitejournal.org/index.php/ELITE>
- Joseph, N. (2021). Empowering Students through Problem-Solving Learning : A Pathway to Heightened Participation and Engagement. *International Collaboartion Book Chapter*, 9, 1–14.
- Kasri, H., & Ardi, H. (2013). Using Crazy Story Game in Teaching Speaking To Junior. *Journal of English Language Teaching*.
- Khaewratana, W. (2022). Word Games for Education: Investigating the Effectiveness of Adding Elaboration Tasks to Crosswords for Learning Technical Vocabulary. *Cognitive Science and Human Factors*.
- Khan, R. M. I., Radzuam, N. R. M., Shahbaz, M., Ibrahim, A. H., & Mustafa, G. (2018). The Role of Vocabulary Knowledge in Speaking Development of Saudi EFL Learners. *Arab World English Journal*, 9(1). <https://doi.org/10.24093/awej/vol9no1.28>
- Kim, T. P. (2023). Reviewing the Significance of Practice in Learning English As a Second Language: Challanges, Impacts, and Strategies. *Journal of Knowledge Learning and Science Technology*, 2(2), 62–67. <https://doi.org/10.60087/jklst.vol2.n2.p.67>
- Kirschner, P. A., Sweller, J., & Clark, R. E. (2006). Why minimal guidance during instruction does not work: An analysis of the failure of constructivist, discovery, problem-based, experiential, and inquiry-based teaching. *Educational Psychologist*, 41(2), 75–86. https://doi.org/10.1207/s15326985ep4102_1
- Kurniasih, R., & Isroah. (2018). Pengembangan Media Pembelajaran Crossword Puzzle berbasis Android pada Mata Pelajaran Dasar Perbankan untuk Kelas X Akuntansi Smk Ypkk 1 Sleman Tahun Ajaran 2017/2018. *Jurnal Pendidikan Akuntansi*.
- Laufer, B., & Hulstijn, J. (2001). Incidental vocabulary acquisition in a second language: The construct of task-induced involvement. *Applied Linguistics*, 22(1). <https://doi.org/10.1093/applin/22.1.1>
- Maming, K., & Patintingan, A. (2023). Familiarizing Students with a Friendly

Learning Activity in Enriching English Vocabulary: Memorization Technique. *ELS Journal on Interdisciplinary Studies in Humanities*, 6(2), 201–210.

Marfilinda, R., & Akhiyar, M. (2024). Studi Pustaka Penerapan Media Puzzle pada Pembelajaran di Sekolah Dasar. *Indo-MathEdu Intellectuals Journal*, 5(4), 4763–4776. <https://doi.org/10.54373/imeij.v5i4.1692>

McKeown, M. G. (2019). Effective Vocabulary Instruction Fosters Knowing Words, Using Words, and Understanding How Words Work. *Language, Speech, and Hearing Services in Schools*, 50(October), 466–476.

Megawati, D. R. (2019). The Effect of Word Search Puzzle Game in Teaching Vocabulary To the Sixth Grade Students of Sdn Kolpajung Ii. *The Ellite of Unira*, 2(1). http://36.88.105.228/index.php/jurnal_elitte/article/view/746

Melasari, M., Ismawati, K., & Nanda, D. S. (2019). The Effect of Using Crossword Puzzle Towards Students' Vocabulary Mastery in the Eleventh Grade Students of SMA Muhammadiyah 2 Bandar Lampung in Academic Year 2017-2018. *Journal of English Education Studies*, 2(1). <https://doi.org/10.30653/005.201921.37>

Moeller, A. K., Ketsman, O., & Masmaliyeva, L. (2009). The Essentials of Vocabulary Teaching: From Theory to Practice. *DigitalCommons@University of Nebraska-Lincoln*. <http://digitalcommons.unl.edu/teachlearnfacpub/171>

Moursund, D. (2007). *Introduction to Using Games in Education: A Guide for Teachers and Parents* (Vol. 06). Oregon.

Muabidah, U., & Setiawan, A. A. (2024). Effectiveness of Interactive Learning Media (ILM) on English Vocabulary Mastery of Indonesian Students: A Meta-Analysis Study. *Jurnal Pendidikan Progresif*, 14(02). <https://doi.org/10.23960/jpp.v14.i2.20248>

Mustika, Y., & Dashela, T. (2023). The Use of Word Search Puzzles to Improve Students' Vocabulary. *Jurnal Ilmiah STBA*, 9(1).

Naldi, I. F. P., & Tiarina, Y. (2024). Students' Perception on Use of The PC Game: "Big City Adventure Sydney Australia" At MAN 2 Bukittinggi English Club Extracurricular to Improve Vocabulary Mastery. *Journal of English Language Teaching*, 13(1). <https://doi.org/10.24036/jelt.v13i1.127215>

Nation, P. (2001). *Leraning Vocabulary in Another Language*. Cambridge University Press.

- Ningtyas, D. N. (2023). The Effect of Hidden Word Puzzle Game on Students' Vocabulary Mastery. *Uinjkt*.
<https://doi.org/https://repository.uinjkt.ac.id/dspace/handle/123456789/72575>
- Nugroho, W., & Suprpto. (2017). The Effectiveness of Picture Crossword Puzzle Game in Teaching Vocabulary. *Journal of English Language Teaching*, 6(1).
<https://journal.unnes.ac.id/sju/elt/article/view/20701>
- Nurhalifah, N., Lestari, N., & Yusuf, S. M. (2020). Efektifitas Media Pembelajaran Word Search Puzzle dalam Meningkatkan Daya Ingat Siswa pada Materi Ekosistem Kelas VII di SMP Muhammadiyah Kupang Tahun Ajaran 2018/2019. *Jurnal Biosains Dan Edukasi*, 2(1).
<https://doi.org/10.59098/biosed.v2i1.337>
- Nurkolis. (2022). The Different Effect of Active Learning on Student Learning Outcomes in Intervention and Control Schools. *International Journal of Active Learning*, 7(1).
- Nuryadi, Astuti, T. D., Utami, E. S., & Budiantara, M. (2017). Buku Ajar Dasar-dasar Statistik Penelitian. In *Sibuku Media*.
- Oktaviani, A., & Elmojahed, A. (2023). The Use of Puzzle Learning Media to Improve Student Learning Outcomes in Science Subjects for Class IV. *Tekno-Pedagogi : Jurnal Teknologi Pendidikan*, 13(2).
<https://doi.org/10.22437/teknopedagogi.v13i1.38459>
- Orawiwatnakul, W. (2013). Crossword puzzles as a learning tool for vocabulary development. *Electronic Journal of Research in Educational Psychology*, 11(2), 413–428. <https://doi.org/10.14204/ejrep.30.12186>
- Pahma, I., Artayasa, I. P., & Bahri, S. (2023). Efektivitas Media Biocapuz (Biology Card Puzzle) Terhadap Hasil Belajar Siswa Kelas XI IPA MA Dakwah Islamiyah Putri Kediri. *Jurnal Ilmiah Profesi Pendidikan*, 8(1b).
<https://doi.org/10.29303/jipp.v8i1b.1309>
- Pangesti, R. Y., & Astono, J. (2018). Pengembangan Media Pembelajaran Puzzle Fisika Untuk Meningkatkan Penguasaan Materi Dan Minat Belajar Fisika Peserta Didik Sma. *Journal Universitas Negeri Yogyakarta*.
- Pasternak, D. L. (2020). Teaching and Learning With Technology. *International Journal Of Innovations in Engineering Research and Technology [IJIERT]*.
<https://doi.org/10.4324/9780429433689-2>
- Pavlu, B. I. (2009). *Testing Vocabulary*. Brno.
- Piaget, J. (1952). *The Origins of Intelligence in Children*. International Universities Press. <https://doi.org/10.1037/h0051916>

- Prayoga, G. H. A. (2022). Enhancing Vocabulary Skills for Young Learners Using Crossword Puzzle Mobile Game. *Exposure : Jurnal Pendidikan Bahasa Inggris*, 11(1), 142–149.
<https://doi.org/10.26618/exposure.v11i1.7018>
- Prensky, M. (2001). The Digital Game-Based Learning Revolution. In *Digital Game-Based Learning (McGraw-Hill, 2001)* (Vol. 1, Issue 1, p. 15).
<https://doi.org/10.1016/j.iheduc.2004.12.001>
- Purba, F. R. S., Aryuadi, & Fakhruzi. (2023). The Effect of Using Matching Word Game Towards Students' Vocabulary Mastery at SMP Negeri 4 Ujungbatu. *Detikproperti*, 1(4), 119–121.
- Putra, H., Mujiyanto, J., Astuti, P., & Syafri, F. (2022). Pengaruh Scrambled Word Terhadap Kemampuan Penguasaan Kosakata Bahasa Inggris Siswa Kelas 7 pada Pelajaran Bahasa Inggris di SMP Juara Pekanbaru Tahun Akademik 2022 / 2023. *Prosiding Seminar Nasional Pascasarjana Universitas Negeri Semarang*. <http://pps.unnes.ac.id/pps2/prodi/prosiding-pascasarjana-unnes>
- Putra, W. W. (2020). The Effect of Using Picture Media Towards Students' Vocabulary Mastery at The Eighth Grade Students of Islamic Junior High School Students of Mathla'ul Anwar Dahu Bojong in Academic Year 2018/2019. *Journal of English Education Studies*, 3(2), 77–86.
<https://doi.org/10.30653/005.202032.62>
- Rahmatunnisa, S., Andika Sari, D., Damayanti, A., & Namia, I. (2023). Increasing Learning Motivation in English Vocabulary Through Jigsaw Puzzle. *Jurnal Universitas Muhammadiyah Jakarta*, May, 19–29.
<https://jurnal.umj.ac.id/index.php/ISJR/->
- Rahmi, Y., Perdana, I., & Supiani. (2021). The students perception of using crossword puzzle in learning vocabulary at the secondary school. *EPrints UNSIKA*, 2. <http://eprints.uniska-bjm.ac.id/5058/>
- Ramadhania, S., & Adnan, H. (2022). Crossword Puzzle Learning Media to Improve Indonesian Vocabulary Mastery for Grade 2 Elementary School Students. *Journal of Innovation and Research in Primary Education*, 1(2).
<https://doi.org/10.56916/jirpe.v1i2.177>
- Ratika, A., Isma, A., & Nawir, M. S. (2021). Students' Perception on the Use of Puzzle in Teaching Vocabulary Mastery. *English Language, Linguistics, and Culture International Journal*, 1(1), 43. <https://doi.org/10.24252/elstic-ij.v1i1.22002>
- Read, J. (2000). Assessing vocabulary. In *Teaching Literacy Effectively in the Modern Classroom for Ages 5–8*. Cambridge University Press.

<https://doi.org/10.4324/9781003130758-11>

- Richards, J. C., & Renandya, W. A. (2002). *Methodology in Language Teaching*. United States of America by Cambridge University Press, New York.
- Richards, J. C., & Schmidt, R. W. (2002). Longman Dictionary of Language Teaching and Applied Linguistics. *Longman Dictionary of Language Teaching and Applied Linguistics*, 504.
<https://doi.org/10.4324/9781315833835>
- Rigopouli, K., Kotsifakos, D., & Psaromiligkos, Y. (2025). Vygotsky ' s Creativity Options and Ideas in 21st-Century Technology-Enhanced Learning Design. *Education Sciences*.
- Rodriguez, M. C. (2005). Three Options are Pptimal for Multiple-Choice Items: A Meta-Analysis of 80 Years of Research. *Educational Measurement: Issues and Practice*, 24(2). <https://doi.org/10.1111/j.1745-3992.2005.00006.x>
- Romdhon, J., Masrifah, M., Meena, N., & Suharyati, H. (2024). Applying Constructivist Learning Theory to Enhance Student Learning Outcomes in Elementary Schools. *International Journal of Sustainable Development & Future Society*, 2(November).
- Rusmiati, Jannah, A. M., & Wahyuningsih, S. K. (2025). Enhancing Vocabulary Acquisition : A Study on the Impact of Crossword Puzzle Learning Media in an EFL Context. *Dirundeng International Journal of English and Education*, 1(1), 1–11.
- Ryan, R. M., & Deci, E. L. (2000). Self-determination theory. *Routledge Handbook of Adapted Physical Education*, 55(1), 296–312.
<https://doi.org/10.4324/9780429052675-23>
- Sabanari, V. W., Rombepajung, P., & Kumayas, T. (2022). Using Pictures To Improve Students' English Vocabulary At Seventh Garde of Smp Negeri 1 Siau Timur Selatan. *JoTELL Journal of Teaching English*, 1(3), 417–430.
- Schmitt, N. (2000). Vocabulary in Language Teaching (Cambridge Language Education). In *Canadian Journal of Applied Linguistics* (Vol. 5). Cambridge University Press. <http://www.lex tutor.ca/cv/Schmitt.htm>
- Schmitt, N. (2008). Review article: Instructed second language vocabulary learning. *Language Teaching Research*, 12(3).
<https://doi.org/10.1177/1362168808089921>
- Schunk, D. H. (1991). The Global Geospace Science Program and its investigations. In *Space Science Reviews* (Vol. 71, Issues 1–4). Pearson.
<https://doi.org/10.1007/BF00751323>

- Sintia, Hayati, F., & Oktariana, R. (2021). Pengembangan Alat Permainan Puzzle Untuk Menstimulasi Kecerdasan Interpersonal Anak Kelompok B Di Tk Alam Pelangi Banda Aceh. *Jurnal Ilmiah Mahasiswa*, 2(2), 9–10.
<https://jim.bbg.ac.id/pendidikan/article/view/636/294>
- Soleimani, H. (2009). *NON-Parametric Statistics for Applied Linguistics Reserach An Introduction*. Rannama Press.
- Sri, M., Puspasari, D., & Rahmadani, N. (2024). Improving Students ' English Vocabulary Mastery Using Crossword Puzzles for VII Grade Students at SMP Negeri 3 Palu. *Journal of English Language Education, Linguistics, and Literature*, 1(1), 9–15.
<https://doi.org/00.00000/lx00000000.2024.v1.i1.pp09-15>
- Sugiyono. (2007). Statitsika Untuk Penelitian. In *Alfabeta Bandung* (Vol. 12, p. 4).
- Sugiyono. (2013). *Metodologi Penelitian Kuantitatif, Kualitatif dan R & D*. Alfabeta.
- Suprayogi, K., Rozak, R. R., & Ermawati, S. (2022). Improving Vocabulary of Tenth Grade at SMA Wasilatul Huda by Crossword Puzzle. *Repository IKIP PGRI Bojonegoro*.
- Suseno, I. (2017). Komparasi Karakteristik Butir Tes Pilihan Ganda Ditinjau Dari Teori Tes Klasik. *Jurnal Ilmiah Kependidikan*, 4(1).
- Tambaritji, V. N., & Atmawidjaja, N. S. (2020). Improving Students' vocabulary Mastery Using Crossword Puzzle. *Professional Journal of English Education*, 3(5).
- Thiri, Y., Oo, M. T., Ko, A. N., Ta, N., Lar, M., & Guirguis, J. M. (2024). Hands-on Learning Impact to Learning Engagement. *International Scholars Conferences, 2024*.
- Thornbury, S. (2002). *How to teach vocabulary*. Pearson Education Limited.
- Tiansoodeenon, M., Meeporm, B., Kaewrattanapat, N., & Tarapond, S. (2023). Enhancing Vocabulary Acquisition through Progressive Word Increments in English Language Learning. *Journal of Liberal Arts RMUTT*, 4(2).
<https://doi.org/10.60101/jla.2023.4.2.3172>
- Turner, J. L. (2014). *Using Statistic in Small-Scale Language Education Reserach*. Routledge.
- Ulicsak, M. (2010). Games in Education: Serious Games. In *EAI Endorsed Transactions on Game-Based Learning* (Vol. 2, Issue 6).
www.futurelabs.org.uk. <https://doi.org/10.4108/eai.5-11-2015.150614>

- Ur, P. (1996). A Course in Language Teaching: Practice and Theory. In *IOSR Journal of Humanities and Social Science* (Vol. 19, Issue 6). Combridge University Press. <https://doi.org/10.9790/0837-19664456>
- Valentina, A. A., Hartini, W., & Tijan. (2024). Permainan Puzzle sebagai Metode Peningkatan Kemampuan Kerjasama Siswa dalam Pembelajaran IPS. *Prosiding Webinar Penguatan Calon Guru Profesional*.
- Van, P., Strömbäck, J., Aalberg, T., Esser, F., de Vreese, C., Matthes, J., Hopmann, D., Salgado, S., Hubé, N., Stępińska, A., Papathanassopoulos, S., Berganza, R., Legnante, G., Reinemann, C., Sheafer, T., & Stanyer, J. (2017). Political communication in a high-choice media environment: a challenge for democracy? *Annals of the International Communication Association*, 41(1). <https://doi.org/10.1080/23808985.2017.1288551>
- Vossoughi, H., & Zargar, M. (2009). Using Word-Search-puzzle Games for Improving Vocabulary. *Journal of Teaching English as a Foreign Language and Literature of Islamic Azad University of Iran*, 1(1). <https://www.sid.ir/paper/325706/fa>
- Vygotsky, L. (1978). *Mind in Society: The Development of Higher Psychological Processes*. Harvard University Press.
- Wang, Q. (2023). Memorization Strategy and Foreign Language Learning : A Narrative Literature Review. *Front. Psychology*, September, 1–9. <https://doi.org/10.3389/fpsyg.2023.1261220>
- Webb, S., & Nation, P. (2017). *How Vocabulary Is Learned*. Oxford Handbooks for Language Teachers.
- Wefi, A., Dzulfikri, & Elfiyanto, S. (2023). The Effect of Crossword Puzzles on Learners' Vocabulary Development in EFL Context. *Journal of Education and Technology*, 7(November). <https://doi.org/10.29062/edu.v7i1.715>
- Wiantara, I. G. N. O., Astawan, I. G., & Renda, N. T. (2020). Brain Based Learning Using Media Crossword Puzzle Enhances Students Understanding of Concepts and Thinking Skills. *Jurnal Pendidikan Dan Pengajaran*, 53(May), 156–167.
- Wicaksono, S. N., & Kuswardani, R. (2021). Developing LeVo Game as Media Vocabulary Learning for Junior High School Students. *Research on English Language Teaching in Indonesia*, 09(03), 139–144.
- Zheng, B., Warschauer, M., Lin, C. H., & Chang, C. (2016). Learning in One-to-One Laptop Environments: A Meta-Analysis and Research Synthesis. *Review of Educational Research*, 86(4), 1052–1084. <https://doi.org/10.3102/0034654316628645>

Zultin, S. F., & Hanifa, R. (2023). The Effect of Using English Crossword Puzzle Application on Students's Vocabulary Mastery in SMAS Adabiah Padang. *Journal of English Language Teaching*, 12(3).
<https://doi.org/10.24036/jelt.v13i3.129781>