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PROFICIENT IN ENGLISH WITH ADVANCED VOCABULARY USING GAME-BASED LEARNING: NARRATIVE CROSSWORD PUZZLE

Yulia Wahyuningsih[1], Carla Maretha[2]*
[1,2]English Literature, FKIP, Universitas Muhammadiyah Lampung, Indonesia

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*Correspondence:
carlamaretha@gmail.com

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ABSTRACT

This research investigates the effectiveness of using Narrative Crossword Puzzles for learning advanced English vocabulary in the Society 5.0 era and how this method can enhance students' mastery of advanced vocabulary. This study demonstrates that the Game-Based Learning: Narrative Crossword Puzzle strategy significantly improves advanced English vocabulary learning. This research applied qualitative methods and an experimental quasi-technique with a statistical approach to analyze the data. The rejection of the null hypothesis confirms a substantial difference between pre-test and post-test results, indicating that the student's learning outcomes increased notably after implementing this strategy. The findings support the effectiveness of game-based learning, particularly narrative crossword puzzles, in enhancing student engagement and making the learning process more enjoyable and effective in educational contexts.

Keywords: *game-based learning; Merdeka Belajar; narrative crossword puzzle; society 5.0*

ABSTRAK

Penelitian ini bertujuan untuk menyelidiki efektivitas penggunaan Teka-teki Silang Naratif untuk mempelajari kosakata bahasa Inggris tingkat lanjut di era Society 5.0 dan bagaimana metode ini dapat meningkatkan penguasaan kosakata tingkat lanjut oleh siswa. Penelitian ini menunjukkan bahwa strategi Pembelajaran Berbasis Permainan: Teka-teki Silang Naratif secara signifikan meningkatkan pembelajaran kosakata bahasa Inggris tingkat lanjut. Penelitian ini menggunakan metode kualitatif dengan teknik kuasi eksperimen yang pengolahan datanya menggunakan pendekatan statistik. Penolakan hipotesis nol menegaskan adanya perbedaan substansial antara hasil pra-tes dan pasca-tes, yang menunjukkan bahwa hasil belajar siswa meningkat secara signifikan setelah menerapkan strategi ini. Temuan penelitian ini mendukung efektivitas pembelajaran berbasis permainan, khususnya Teka-teki Silang Naratif, dalam meningkatkan keterlibatan siswa dan membuat proses pembelajaran lebih menyenangkan dan efektif dalam konteks pendidikan.

Kata Kunci: *game-based learning; Merdeka Belajar; narrative crossword puzzle; society 5.0*

INTRODUCTION

Merdeka Belajar is an educational initiative launched by the Indonesian Ministry of Education and Culture. It aims to provide academic institutions and educators with greater freedom and autonomy in developing curricula and learning methods that suit the needs of students (Arung, Murthado, & Boeriswati, 2023). One of its main focuses is using technology in the learning process to create a more dynamic and interactive learning environment (Ingtias, Ampera, Farihah, Amal, & Purba, 2022). This aligns with the challenges of the Society 5.0 era, where technology and digitalization play an

important role in everyday life (Fukuyama, 2018). Society 5.0 focuses not only on technological progress but also on integrating technology into all aspects of human life to improve the quality of life, education is required to adapt and make maximum use of technology (Tavares, Azevedo, & Marques, 2022). In this context, English language learning is one area that must develop following changing times.

Learning English has become a crucial skill in the era of globalization, serving as a key to success in numerous fields (Chen & Li, 2022). Mastery of English is essential for accessing diverse information, participating in international communication, and enhancing competitiveness in the global job market, particularly in acquiring advanced vocabulary (Zakaria, et al., 2022). Understanding and using complex vocabulary empowers individuals to engage effectively in academic, professional, and social contexts where English serves as a lingua franca.

Formal and informal English language education is integral to achieving this mastery. Structured programs from primary and higher education aim to build foundational skills and progressively develop proficiency. These formal avenues are complemented by informal learning methods such as self-study, language immersion, and online platforms, which offer opportunities for learners to enhance their vocabulary acquisition in flexible and personalized ways.

In the interconnected world today, where English is often the medium of international collaboration and technological advancement, developing proficiency in this language is not merely a tool for communication but a necessity for global participation. Thus, fostering English language skills, especially at advanced levels, remains a vital goal for individuals and educational institutions.

English language learning at each level of education generally focuses on linguistic elements such as phonetics, lexical, and grammatical elements (DiCerbo, et al., 2014). These elements influence the quality of language proficiency. Mastery of these three linguistic elements contributes to four language skills: listening, writing, reading, and speaking. Thus, mastery of linguistic elements and language skills is the goal of learning English, so overall mastery must be studied well so that communication messages in English can be received and understood.

Lexical elements, which are fundamentally tied to vocabulary, play a critical role in developing English language proficiency, as vocabulary serves as the foundation for constructing meaning in language (Schmitt & Schmitt, 2020). Vocabulary acquisition aims to enable learners to master a wide range of words, facilitating effective oral and written communication. Proficient lexical skills are essential for conveying thoughts, understanding others, and engaging in meaningful interactions.

The importance of vocabulary size in language mastery. They note that understanding 300 English words marks a significant milestone in vocabulary acquisition while mastering 200 words can account for approximately 80% of academic and personal communication needs (Siregar, 2023). This demonstrates that even a relatively small but targeted vocabulary can have a substantial impact on comprehension and expression.

Students must continuously expand their vocabulary to align with their educational level and language goals. Enriching lexical knowledge allows them to engage more effectively in academic discussions, interpret complex texts, and participate in global communication. Therefore, vocabulary development should remain a primary focus in English language education, as it directly influences proficiency and ability to adapt to various linguistic contexts.

In the Common European Framework of Reference (CEFR), English language proficiency is ranked into seven levels: foundation, elementary, pre-intermediate, intermediate, upper intermediate, advanced, and proficiency (British Council, 2021). This level is based on mastery of vocabulary applied in the four language skills. Language proficiency, especially for students in higher education units, is expected to reach an advanced level, meaning students can communicate fluently, flexibly, and effectively in social, academic, and professional environments. In reality, learning vocabulary for students is a challenge. The different arrangements of letters and sound systems as well as the meaning of words that must be understood and remembered make students try hard to master English vocabulary, especially advanced English vocabulary, which is still difficult for students at higher education levels to reach (Aminatun & Oktaviani, 2019).

The challenges in mastering English closely relate to its status as a foreign language in many regions. Students often hesitate to use English daily, perceiving it as a language reserved for specific formal or academic settings (Chemir & Kitila, 2022). This limited use reinforces that English is only necessary for contexts, reducing its integration into broader communication habits.

For students in higher education, however, English proficiency must align with advanced-level qualifications that match the demands of their academic and professional goals (Modjanggo, 2020). This expectation poses a significant challenge, as many students struggle to meet these standards. The difficulty often leads to frustration, fatigue, and motivation to achieve fluency.

Compounding this issue is the prevalence of uninspiring and repetitive teaching methods that fail to engage students (Rostina, 2022). Minimal interaction and monotonous learning activities contribute to boredom and passivity in the classroom, further hindering language acquisition. To address these obstacles, innovative teaching strategies and interactive learning environments are essential to boost motivation and promote active participation. Without such changes, the gap between required proficiency levels and students' actual skills will persist, limiting their ability to thrive in global contexts.

To bridge these demands and gaps, it is necessary to make solution efforts, including modifying learning methods with an interactive and student-centered approach as well as training literacy skills in the Society 5.0 era, which emphasizes the humanist side of problem-solving efforts by uniting virtual and reality. This is implemented in the spirit of *Merdeka Belajar* (Tabroni, et al., 2022). With this learning approach, it is hoped that students will be able to hone the 4C life skills (Creativity, Critical Thinking, Communication, Collaboration). One of the various methods for improving English language proficiency is game-based learning, which can stimulate cognitive abilities, thus impacting the level of understanding, motivating students to learn effectively, and increasing positive responses during learning. Game-based learning can be adapted to needs, learning objectives, and learning outcomes, becoming an open learning method so that opportunities for modification are possible. Crossword puzzles

are a popular game-based learning tool used to improve English language proficiency (Rahini, et al., 2024). This game helps train the brain by connecting letters to form words, thus enhancing thinking skills and enriching vocabulary.

Previous studies have consistently demonstrated that crossword puzzles are an effective learning medium for enhancing English vocabulary. Researchers have reported that this approach not only increases students' enthusiasm for learning but also improves vocabulary mastery and fosters problem-solving skills (Umroh & Tamaji, 2022).

This research aims to be different from previous studies by focusing on advanced English vocabulary and modified crossword puzzles combined with narrative text presented in the form of flashcards. The use of technology and game modifications is intended to improve students' English language skills and increase literacy.

This research aims to investigate the effectiveness of using Narrative Crossword Puzzles as a learning tool for mastering advanced English vocabulary in the context of the Society 5.0 era. With increasing demands for innovative and engaging educational approaches, this study explores how this method can facilitate students' acquisition of advanced vocabulary more effectively. Narrative Crossword Puzzles combine storytelling and problem-solving elements, offering an interactive learning experience that enhances vocabulary retention and application.

The findings of this research are expected to contribute significantly to the development of English language teaching methods in Indonesia. By aligning with the principles of *Merdeka Belajar* (Freedom to Learn), this approach seeks to empower learners with greater autonomy, creativity, and critical thinking skills. The study emphasizes the importance of integrating interactive and contextually relevant tools into English language education, aiming to make vocabulary learning more accessible and enjoyable for students.

This research aspires to improve the quality of English language education in Indonesia, supporting students in achieving advanced proficiency to meet the challenges of global communication and competition. The integration of innovative methodologies like Narrative Crossword Puzzles aligns with the broader vision of transforming education to foster lifelong learning and adaptability in a rapidly evolving world.

METHOD

This study uses a quantitative method with a quasi-experimental approach based on the consideration that the study can take place naturally, students do not feel like they are being tested, and it can contribute to the validity. This study uses a one-group time series research design. This design only uses 1 group, namely the experimental group without a control group (Sugiono, 2010). This design is applied by determining the group used as the experimental group. This design does not use a control group. The experimental group is given a pre-test, and treatment, after which a post-test is given. The post-test results are calculated to determine the difference and obtain the gain value. This study took samples in the form of classes, the researcher chose 1 class, namely Class A, totaling 20 people. Validity testing is carried out to determine whether the test instrument used in this study can or cannot measure the level of test accuracy. Validity testing is associated with the Product Moment statistical test criteria. After testing the validity, the test instrument is then tested for significance. The t-count value is compared with the t-table value at a real level of 0.05 with n - 2, if t-count> t-table then the correlation is significant. An instrument is reliable if it is consistent in the measurement results. This study

conducted a reliability test using Cronbach Alpha. The values for the reliability test came from valid question scores. Invalid questions were not included in the reliability test. The instrument has a high level of reliability if the coefficient value obtained is >0.601. This study used an objective multiple-choice learning outcome test to determine the learning outcomes of students' cognitive segments in applying concepts before and after treatment in the form of a pre-test and post-test. The test instrument was limited to the aspects of knowledge (C1), understanding (C2), and application (C3). The objective test instrument consisted of 15 questions with 4 alternative answers. The instrument was first assessed by an expert (lecturer of the Reading for Specific Purposes and Academic Reading courses). The instrument was then tested on a group that was not the subject of the study to determine the validity, reliability, level of difficulty, and distinguishing power of the instrument so that it was suitable for use. This study used the Shapiro-Wilk normality test to assess whether the data distribution was normally distributed. This study used the paired t-test to test the hypothesis with the provision that the data analyzed was normally distributed. Testing was carried out with the help of the GraphPad Software data processing program by Dotmatics.

FINDINGS

Pre Test

Table 1. The Result of Pre Test

No.	Respondent	Pre-test 1	Pre-test 2	Pre-test 3	$\bar{x}$
1	R1	65	65	58	63
2	R2	65	65	51	60
3	R3	65	65	65	65
4	R4	44	51	51	49
5	R5	72	72	65	70
6	R6	44	51	51	49
7	R7	58	58	72	63
8	R8	58	58	65	60
9	R9	58	65	58	60
10	R10	65	58	58	60
11	R11	58	58	58	58
12	R12	51	51	58	53
13	R13	65	65	65	65
14	R14	65	65	65	65
15	R15	58	58	58	58
16	R16	58	65	65	63
17	R17	51	65	58	58
18	R18	51	65	58	58
19	R19	51	58	65	58
20	R20	58	65	58	60

In the first section, data for respondents R1 through R11 is presented. Each row corresponds to a different respondent and includes their scores for Pre-test 1, Pre-test 2, and Pre-test 3, followed by their average score, denoted as $\bar{x}$. For example, respondent R1 scored 65 on the first pre-test, 58 on the second, and 65 on the third, resulting in an average score of 63. The scores in this section range from 44 to 72 across the three pre-tests, and the average scores range from 49 to 63.

The second section provides data for respondents R12 through R20. Similar to the first section, each row lists the scores for the three pre-tests and the average score for each respondent. For instance, respondent R12 scored 51 on the first pre-test, 51 on the second, and 58 on the third, with an average score of 53. The scores in this section range from 51 to 65, and the average scores range from 53 to 65.

Highlighted within the table are three respondents: R12, R13, and R14. Respondent R12 has an average score of 53, while respondent R13 has the highest possible average score of 65, and respondent R14 has an average score of 60. The data presented in this table provides a detailed overview of the performance of each respondent across the three pre-tests and their respective average scores.

Post Test

Table 2. The Result of Post Test

No.	Respondent	Pre-test 1	Pre-test 2	Pre-test 3	$\bar{x}$
1	R1	79	79	65	74
2	R2	72	72	100	81
3	R3	72	86	72	77
4	R4	65	79	100	81
5	R5	79	79	79	79
6	R6	58	100	65	74
7	R7	72	72	86	77
8	R8	79	72	79	77
9	R9	72	86	79	79
10	R10	79	79	79	79
11	R11	79	65	79	74
12	R12	58	72	79	70
13	R13	86	86	72	81
14	R14	72	79	93	81
15	R15	79	86	86	84
16	R16	86	79	93	86
17	R17	72	93	93	86
18	R18	72	100	93	88
19	R19	79	100	72	84
20	R20	79	93	86	86

In this table, each row corresponds to a different respondent and includes their scores for Post-test 1, Post-test 2, and Post-test 3, followed by their average score, denoted as $\bar{x}$. For example, respondent R1 scored 79 on the first post-test, 79 on the second, and 65 on the third, resulting in an average score of 74. The scores in this section range from 58 to 100 across the three post-tests, and the average scores range from 65 to 86.

Highlighted within the table are three respondents: R10, R11, and R12. Respondent R10 has consistent scores of 79 across all three post-tests, leading to an average score of 79. Respondent R11 also has consistent scores of 79, resulting in the same average score of 79. Respondent R12 has scores of 72, 79, and 58, resulting in an average score of 70.

The data presented in this table provides a detailed overview of the performance of each respondent across the three post-tests and their respective average scores. This allows for a comparison of individual progress and performance after the pre-test phase.

Hypothesis Testing

Tabel 3.The Scores of Pre-Tests and Post-Tests

Test	Mean Score ($\bar{x}$)	Standard Deviation (SD)	Standard Error (SE)
Pre-Test 1	58.4	5.61	1.25
Pre-Test 2	60.1	6.35	1.42
Pre-Test 3	60.1	5.61	1.25
Post-Test 1	74.2	8.72	1.95
Post-Test 2	81.1	9.83	2.20
Post-Test 3	82.5	10.53	2.35

Table 3 summarizes the scores from three pre-tests and three post-tests for the participants. On average, there was a significant improvement in vocabulary mastery following the intervention.The paired t-test results indicated a significant difference between the pre-test and post-test scores ($p < 0.0001$). The 95% confidence interval for the mean difference ranged from -28.38 to -16.42, confirming a substantial improvement in vocabulary proficiency.

Based on the Paired t Test output above, it is known that the Sig. (2-tailed) value is $0.0001 < 0.05$, so Ho is rejected and Ha is accepted. There is an average difference between the pre-test and post-test learning outcomes, which means that there is an influence of the use of the Game-Based Learning: Narrative Crossword Puzzle learning strategy on learning advanced English vocabulary.

The results of the statistical analysis show a significant difference between the scores of Pre-Test 3 and Post-Test 3, with a two-tailed P-value of less than 0.0001. This indicates that the difference observed is highly statistically significant, meeting conventional thresholds for significance. Such a small P-value strongly suggests that the observed changes are unlikely to be due to chance, highlighting the effectiveness of the intervention or change applied between the two tests.

The mean difference between Pre-Test 3 and Post-Test 3 is calculated to be -22.40, with Post-Test 3 scores being higher. A 95% confidence interval for this difference ranges from -28.38 to -16.42, providing strong evidence that the true mean difference lies within this range. Since the entire confidence interval is negative, it further confirms the consistent improvement in scores from the pre-test to the post-test.

The intermediate values used in the calculations support these findings. A t-statistic of 7.8466, based on 19 degrees of freedom, indicates a large effect size. The standard error of the difference is relatively small (2.855), suggesting low variability in the observed differences between the two test scores.

Descriptive statistics reveal that the mean score for Pre-Test 3 was 60.10, with a standard deviation (SD) of 5.61, while the mean score for Post-Test 3 was 82.50, with a higher SD of 10.53. The standard error of the mean (SEM) for Pre-Test 3 and Post-Test 3 were 1.25 and 2.35, respectively, based on a sample size of 20 for each group. These values indicate a substantial and consistent improvement in scores following the intervention.

The results demonstrate a statistically significant improvement in performance from Pre-Test 3 to Post-Test 3. The increase of 22.40 points on average, supported by the

low P-value, high t-statistic, and narrow confidence interval, underscores the effectiveness of the intervention or process that occurred between the two tests.

Students with higher initial scores demonstrated a pattern of steady improvement throughout the study, achieving near-perfect results in the post-tests. These strong performers were able to build on their existing proficiency, leveraging the narrative-based crossword puzzles to refine their advanced vocabulary further. Their consistent progress highlights the effectiveness of the intervention for learners who already possess a solid foundational understanding of English vocabulary.

For students with lower pre-test scores, the initial stages of the intervention proved more challenging. These learners exhibited slower progress initially, likely due to gaps in their foundational vocabulary and a lack of familiarity with the narrative-based approach. However, by the final post-test, significant gains were evident, showcasing their ability to adapt and benefit from the intervention over time. This finding underscores the potential of narrative-based crossword puzzles to support diverse learner needs, though additional scaffolding may be required to maximize outcomes for those starting at a lower proficiency level.

Observational data and student feedback revealed heightened engagement and enthusiasm during sessions involving narrative-based crossword puzzles. The interactive and gamified nature of the learning tool appeared to captivate students, fostering active participation and sustained interest. Many students reported that the puzzles made the learning process enjoyable and stimulating, which likely contributed to their overall performance improvements. This increase in engagement is a critical factor, as it directly impacts students' willingness to invest effort and maintain focus during learning activities.

DISCUSSION

The findings of this study confirm that the Game-Based Learning: Narrative Crossword Puzzle strategy significantly enhances students' advanced English vocabulary. The statistical significance of the results (Sig. 2-tailed = 0.0001) indicates that the observed improvement is highly unlikely to have occurred by chance, underscoring the robustness of the intervention. Beyond vocabulary acquisition, this approach has demonstrated its ability to foster critical thinking and literacy skills, aligning with the competencies emphasized in modern educational frameworks like *Merdeka Belajar*. Students exhibited not only improved retention of complex vocabulary but also increased engagement and motivation during the learning process, a critical factor for sustainable academic growth.

The findings corroborate prior research on the educational benefits of crossword puzzles, as reported by (Profita, 2012). These studies consistently highlight the positive impact of crossword puzzles on vocabulary mastery and student enthusiasm. However, this study extends the scope of existing literature by focusing specifically on advanced vocabulary acquisition—a domain less frequently explored.

Moreover, the incorporation of narrative elements and technology sets this study apart. While earlier research often employed traditional crossword puzzles, the integration of narrative-based learning and digital tools enhances contextual understanding and accessibility. This aligns with assertion that vocabulary acquisition is more effective when words are embedded within meaningful contexts (Puspita, 2017). Additionally, the use of interactive flashcards and erasable pens represents a novel contribution, addressing usability and engagement challenges noted in prior studies.

The findings of this study carry significant implications for pedagogical practices. The use of gamified and narrative-based tools in language curricula, particularly for advanced learners, represents a transformative approach to education. These tools not only facilitate vocabulary acquisition but also enhance critical thinking and problem-solving abilities. By engaging students in interactive and meaningful activities, educators can foster deeper cognitive and emotional connections to the material, ultimately improving learning outcomes. This approach aligns with modern educational objectives, emphasizing active participation and contextual understanding over rote memorization (Ratnawati & Bindarti, 2013).

From a policy and curriculum development perspective, the outcomes resonate strongly with the objectives of *Merdeka Belajar*. This initiative seeks to modernize education through flexible and innovative teaching methodologies. By demonstrating the effectiveness of technology-driven strategies, the findings provide a compelling case for policymakers to support the adoption of game-based learning. Investments in digital infrastructure, teacher training, and resource development are essential to enable the widespread implementation of such strategies (Ernati, 2018). Policymakers and curriculum designers should consider integrating narrative-based crossword puzzles and similar tools into national education frameworks to enhance learning outcomes across various contexts.

Digital literacy is another critical implication highlighted by this study, particularly within the framework of Society 5.0 (Spante, Hashemi, Lundin, & Algers, 2018). In this era, where technology is deeply embedded in everyday life, the ability to effectively use digital tools is as important as traditional literacy skills. The findings suggest that interactive, gamified learning approaches can help bridge linguistic and technological gaps. By integrating digital tools into language education, students are not only equipped with the vocabulary necessary for global engagement but also gain the technological fluency required to thrive in a digital-first world. This dual benefit positions game-based learning as an indispensable component of 21st-century education.

This study highlights the critical role of student engagement in successful language learning, particularly at advanced levels. Traditional methods of instruction often struggle to maintain student motivation and active participation, which are essential for effective learning. These challenges are especially pronounced in advanced-level vocabulary acquisition, where the content can become dense and less relatable. Narrative-based crossword puzzles offer a solution by introducing an enjoyable and interactive element to the learning process, breaking the monotony of conventional teaching methods. The fun and creativity inherent in game-based learning help to dismantle motivational barriers that often impede progress. By integrating narratives into crossword puzzles, the strategy provides context and relevance, making the material more engaging and meaningful for students. This approach encourages sustained effort, active participation, and collaboration, fostering a more dynamic and positive learning environment (Rostina, 2022).

Heightened engagement achieved through game-based learning is not just about immediate participation; it has long-term benefits. When students are actively involved and find joy in the process, they are more likely to retain knowledge, develop critical thinking skills, and cultivate a lasting interest in the subject matter (Kilag, et al., 2023). This combination of enjoyment and active involvement is crucial for achieving broader educational goals, ensuring that learning is both effective and enduring. Narrative-based crossword puzzles, therefore, represent a powerful tool for enhancing engagement and optimizing language learning outcomes (Hamilton, et al., 2021). While this study provides

valuable insights into the effectiveness of narrative-based crossword puzzles for advanced vocabulary learning, several limitations must be acknowledged.

First, the sample size was relatively small, comprising only 20 participants. This limited sample may restrict the generalizability of the findings to broader populations (Smith, 2018). Future research should involve larger and more diverse cohorts, encompassing various demographics, proficiency levels, and educational contexts to address this limitation. Such an expansion would enable a more comprehensive understanding of the effective intervention across different learner groups. Second, the duration of the intervention was relatively short. While the study demonstrated significant improvements in vocabulary acquisition within the given timeframe, it did not explore the long-term retention or applicability of the learned vocabulary (Schuetze, 2015). A longitudinal study could provide deeper insights into how sustained exposure to narrative-based crossword puzzles influences vocabulary retention and overall language proficiency. By examining long-term effects, researchers could better evaluate the lasting impact of this gamified learning approach.

Another limitation lies in the absence of a control group. The study employed a quasi-experimental design, focusing solely on an experimental group without a comparative baseline. While the observed improvements are significant, the lack of a control group makes it difficult to attribute these gains solely to the intervention. Future research should incorporate a control group to establish a clearer causal relationship between the narrative-based crossword puzzle strategy and the observed outcomes. This addition would strengthen the study's validity and provide more robust evidence of its effectiveness (Gottfredson, et al., 2015).

The study relied on specific technological tools, including crossword puzzle applications and erasable pens, which may not be universally accessible. Variations in technology availability and access to such tools could impact the replicability of the study in different educational settings (O'Doherty, et al., 2018). Future research should consider exploring alternative technologies or low-cost options to ensure that the intervention can be adapted to diverse learning environments. By addressing these limitations, subsequent studies can build on the findings of this research and contribute to the development of more inclusive and scalable educational strategies. The findings of this study highlight several avenues for future exploration, offering opportunities to deepen and expand our understanding of narrative-based crossword puzzles as a learning tool. One promising direction involves conducting longitudinal studies to investigate the long-term impacts of this approach on vocabulary retention and overall language proficiency (Collier & Thomas, 2017). While the current study demonstrated significant short-term gains, understanding how these benefits endure over time would provide more comprehensive insights into the method's effectiveness and sustainability.

Another area for further research is expanding the focus beyond vocabulary learning to examine the effectiveness of narrative-based crossword puzzles across different language skills. For example, investigating their impact on listening, speaking, and even writing could reveal whether this approach fosters a holistic improvement in language education. This expanded scope would offer educators a clearer understanding of how gamified tools can support broader linguistic competencies. Cultural adaptations are a vital aspect of educational research, particularly when evaluating the applicability of innovative strategies like narrative-based crossword puzzles across diverse contexts (Foxman, 2015). Future studies could investigate how these tools can be adapted to various cultural and linguistic settings, assessing their universal relevance and effectiveness. While narratives serve as an engaging and meaningful way to present

content, they are often deeply rooted in specific cultural frameworks. This cultural specificity might limit their resonance or relatability for learners from different backgrounds, potentially affecting the strategy's overall impact. Understanding how to create culturally relevant puzzles is essential for maximizing their educational benefits (Herrera, 2016). For instance, integrating familiar themes, symbols, or storytelling traditions can help learners connect with the material more deeply, thereby enhancing both engagement and comprehension. Conversely, ignoring cultural differences might lead to a disconnect between the learners and the content, reducing the effectiveness of the teaching strategy.

Future research should focus on identifying best practices for designing adaptable narrative-based puzzles that can transcend cultural boundaries. This could involve collaboration with educators and learners from diverse regions to co-create culturally sensitive materials. By doing so, narrative-based crossword puzzles could be developed as a globally applicable tool, capable of addressing the diverse needs of learners in multilingual and multicultural environments. Such research would not only contribute to the advancement of game-based learning strategies but also support the broader goal of creating inclusive and equitable educational practices that embrace global diversity. Comparative studies could also provide valuable insights by analyzing the efficacy of narrative-based crossword puzzles relative to other game-based learning tools, such as role-playing games or virtual reality simulations (Lingwati, 2016). Such research would help determine which methods are most effective for specific learning objectives and contexts, offering educators a range of options to tailor their teaching strategies.

The integration of emerging technologies is another important avenue for exploration. Future studies could evaluate the role of artificial intelligence and adaptive learning platforms in enhancing the functionality and personalization of narrative-based crossword puzzles. These technologies have the potential to provide tailored feedback, adjust difficulty levels dynamically, and create more engaging and individualized learning experiences (Xie, et al., 2019). Future research should investigate how educators can be effectively equipped to implement this strategy. Professional development programs focusing on teacher training and instructional design are essential for ensuring that educators have the skills and confidence to use narrative-based crossword puzzles effectively. By examining best practices for training and support, future studies can help bridge the gap between innovative teaching tools and practical classroom application. Exploring these areas will not only build on the findings of this study but also contribute to the broader development of game-based learning methodologies, enhancing their utility and accessibility in diverse educational settings.

CONCLUSION

This study demonstrates that the implementation of the Game-Based Learning: Narrative Crossword Puzzle strategy has a substantial positive impact on learning advanced English vocabulary. The findings highlight the effectiveness of this innovative teaching method, making it a valuable tool for educators aiming to enhance students' vocabulary acquisition. By rejecting the null hypothesis (H_o), the study provides strong statistical evidence of a significant average difference between pre-test and post-test learning outcomes. This indicates that students achieved considerably better results after the introduction of the Game-Based Learning: Narrative Crossword Puzzle strategy compared to their performance before its application. The observed improvement in learning outcomes underscores the strategy's ability to address common challenges in vocabulary learning. Specifically, it helps students not only understand but also master

complex and advanced vocabulary effectively. The significant difference in performance before and after the intervention confirms the strategy's role as a powerful instructional approach that improves students' engagement and comprehension. This increase in learning outcomes further validates the potential of game-based learning as a means to enhance educational experiences and outcomes, particularly in language learning contexts.

One of the key strengths of the Narrative Crossword Puzzle strategy lies in its ability to make learning both enjoyable and effective. By integrating game elements and storytelling, this approach transforms what is often considered a monotonous process into an engaging and interactive experience. The study's results suggest that students are more motivated and actively involved in their learning when this strategy is used, which contributes to improved focus and retention. This aligns with the broader educational goals of promoting student-centered and activity-based learning, where learners take an active role in their education. Furthermore, the findings support the application of game-based learning in teaching advanced English vocabulary. This teaching method combines cognitive, linguistic, and interactive components, fostering a deeper understanding of vocabulary and its contextual usage. Students are encouraged to think critically and solve problems while engaging with the content, which enhances both their cognitive skills and their language proficiency. The Narrative Crossword Puzzle strategy leverages these benefits by providing a structured yet flexible learning environment, where students can explore language in a creative and meaningful way. Given the positive impact of this approach, educators are encouraged to adopt and adapt the Narrative Crossword Puzzle strategy more widely in various educational settings. Its ability to significantly improve learning outcomes, while simultaneously increasing student motivation and engagement, makes it a promising solution for overcoming challenges in teaching advanced vocabulary. The findings of this study contribute to the growing body of research supporting the integration of game-based learning methods into educational practice, particularly in the context of English language learning. In conclusion, this study reinforces the value of innovative teaching strategies such as the Narrative Crossword Puzzle in enhancing students' mastery of advanced English vocabulary. By providing a dynamic and enjoyable learning experience, this method improves educational outcomes and prepares students for success in their academic and professional pursuits. Its effectiveness in fostering engagement and understanding makes it a compelling option for educators seeking to transform language learning into a more impactful and rewarding experience.

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