MANUAL AND DIGITAL MAKE A MATCH: AN EXPERIMENTAL STUDY ON VOCABULARY AND MOTIVATION

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Abstrak

Penguasaan kosakata merupakan elemen penting dalam pemerolehan bahasa, dan keberhasilan siswa sangat dipengaruhi oleh motivasi belajar serta metode pengajaran yang digunakan. Pendekatan tradisional sering kali kurang mampu mempertahankan keterlibatan siswa, sehingga muncul minat yang meningkat terhadap strategi pembelajaran berbasis permainan. Salah satu metode yang efektif adalah "Make a Match", yaitu teknik interaktif yang menggabungkan unsur permainan dengan tujuan pendidikan. Namun, penelitian yang membandingkan efektivitas versi manual dan digital dalam meningkatkan penguasaan kosakata dan motivasi belajar masih terbatas. Penelitian ini menggunakan desain eksperimen yang melibatkan dua kelompok siswa kelas VII SMP. Satu kelompok menerima pengajaran kosakata melalui versi manual Make a Match, sementara kelompok lainnya menggunakan versi digital. Kedua kelompok mengikuti pretest dan posttest untuk menilai kemampuan kosakata serta mengisi kuesioner motivasi belajar. Data dianalisis menggunakan statistik deskriptif, uji t berpasangan, dan uji t independen. Hasil penelitian menunjukkan bahwa kedua versi Make a Match secara signifikan meningkatkan penguasaan kosakata dan motivasi siswa. Versi manual menunjukkan peningkatan yang sedikit lebih tinggi dalam penguasaan kosakata, menegaskan pentingnya interaksi langsung dan komunikasi tatap muka. Sementara itu, versi digital dihargai karena aksesibilitas dan fitur inovatifnya, meskipun menghadapi beberapa kendala teknis minor. Temuan ini menekankan pentingnya integrasi pendekatan tradisional dan digital dalam pengajaran bahasa untuk meningkatkan hasil pembelajaran kosakata siswa.

Kata Kunci: *make a match*; motivasi belajar; pembelajaran berbasis permainan; penguasaan kosakata; studi eksperimen

Abstract

Vocabulary mastery is a crucial element of language acquisition, and students' success is significantly influenced by their motivation and the teaching methods used. Traditional approaches often struggle to keep students engaged, which has led to a growing interest in game-based learning strategies. One effective method is "Make a Match," an interactive technique that combines play with educational goals. However, there has been limited research comparing the effectiveness of its manual and digital versions in enhancing vocabulary mastery and learning motivation. This study utilized an experimental design involving two groups of seventh-grade junior high school students. One group received vocabulary instruction through the manual version of Make a Match, while the other group used the digital version. Both groups completed pretests and posttests to assess vocabulary proficiency and filled out a motivation questionnaire. The data were analyzed using descriptive statistics, paired-sample t-tests, and independent-sample t-tests. The findings indicated that both versions of Make a Match significantly improved students' vocabulary acquisition and motivation. The manual version demonstrated slightly higher gains in vocabulary mastery, emphasizing the value of direct peer interaction and face-to-face communication. Meanwhile, the digital version was appreciated for its accessibility and innovative features, despite encountering some minor technical challenges. These results highlight the

importance of integrating both traditional and digital approaches in language teaching and provide practical insights for educators seeking to enhance vocabulary learning outcomes.

Keywords: experimental study; game-based learning; learning motivation; make a match; vocabulary mastery

INTRODUCTION

Vocabulary is a fundamental aspect of language proficiency and serves as the foundation for effective communication. Without a sufficient vocabulary, learners struggle to express their ideas clearly and to understand spoken and written texts. Nation (2001) emphasized that vocabulary knowledge is central to language use, which includes both receptive knowledge—understanding words while reading or listening—and productive knowledge—using words correctly in speech and writing. In English as a Foreign Language (EFL) contexts, where students have limited exposure to English outside the classroom, vocabulary learning requires explicit and systematic instruction. Learners often find it challenging not only to memorize new words but also to retain and apply them in meaningful contexts. As a result, mastering vocabulary remains one of the most critical objectives of English education (Agustine et al., 2023; Muhammad et al., 2022).

Motivation is a crucial factor in vocabulary learning. Gardner (1985) emphasized in his socio-educational model that motivated learners are more likely to invest greater effort, persist longer, and achieve higher proficiency levels. Ryan and Deci's (2000) Self-Determination Theory distinguishes between intrinsic and extrinsic motivation. Intrinsic motivation stems from a learner's personal interest and enjoyment in the learning process, while external rewards or pressures, such as grades or approval from teachers drive extrinsic motivation.

According to this theory, learners are more motivated when three basic psychological needs are met: autonomy (control over their learning), competence (a sense of capability), and relatedness (feeling connected to others). In the context of language learning, motivation significantly affects learners' willingness to engage in vocabulary activities, use effective learning strategies, and persist in the face of challenges. However, traditional teaching methods—often relying heavily on memorization, translation, and teacher-centered approaches—tend to fail at sustaining students' motivation, which can lead to disengagement and superficial learning (Nguyen, 2021; Saputri, 2022).

Game-based learning has recently gained significant attention as a pedagogical innovation aimed at enhancing student engagement. According to Prensky (2001), games combine elements of engagement, challenge, and feedback with learning objectives, making them powerful tools for boosting student participation. In language classrooms, games change the learning experience into an active and enjoyable process that promotes competition, collaboration, and communication.

Hadfield (1999, as cited in Kostikova, 2017) classified language games into two categories: communicative and linguistic games. Both types can effectively support vocabulary acquisition when aligned with instructional goals. Research has shown that game-based learning improves vocabulary retention, increases learner autonomy, and enhances students' attitudes toward language learning (Hashemi, 2021; Uberman, 1988). By facilitating meaningful interactions, games allow students to use language in authentic situations, leading to deeper cognitive processing and long-term retention.

One effective cooperative learning strategy that incorporates game-based principles is the Make a Match technique, introduced by Lie (2002). This strategy involves students finding pairs of related information, such as questions and answers or words and definitions, within a time limit. It fosters movement, collaboration, and problem-solving, creating a dynamic and student-centered learning environment. In its manual form, Make a Match uses physical cards that students match through face-to-face interaction, promoting both kinesthetic and social learning. The physical act of moving around, searching, and discussing with peers enhances engagement and memory. Studies by Carmelya (2020) and Widiastuti (2023) have confirmed that the manual Make a Match method significantly improves vocabulary mastery and student motivation by combining play, movement, and communication.

With the advancement of educational technology, the Make a Match game has been adapted for digital platforms such as Quizizz, Wordwall, and Google Forms. These digital versions maintain the matching principle while integrating multimedia features, automatic scoring, and instant feedback to enhance student engagement. Pradini and Adnyayanti (2022) found that digital tools for vocabulary learning not only provide flexibility and accessibility but also increase students' enthusiasm and participation. The use of technology supports both blended and online learning environments, allowing students to learn independently while still engaging with their peers.

However, challenges persist, including issues with internet stability, unequal access to digital devices, and varying levels of digital literacy among learners (Lindayanti et al., 2023). These factors can affect the success of digital implementations, especially in contexts where technological resources are limited.

Previous research has provided substantial evidence supporting both manual and digital Make a Match techniques. Carmelya (2020) and Utami et al. (2018) reported that the manual Make a Match method significantly enhanced students' vocabulary retention and encouraged peer collaboration. Similarly, Arief et al. (2023) found that cooperative games like Make a Match increased classroom interaction and engagement. On the digital side, Fithriani (2021) demonstrated that mobile-assisted gamification positively impacted vocabulary learning outcomes and learner motivation. Furthermore, Lindayanti et al. (2023) showed that both online and offline implementations of Make a Match effectively improved vocabulary mastery, although they noted some technical limitations. Despite the numerous studies highlighting the advantages of each format, few

have directly compared manual and digital implementations in a controlled experimental setting.

The absence of comparative analysis creates a significant research gap. Most previous studies have examined either the manual or digital method in isolation, failing to provide empirical evidence on which approach is more effective for improving vocabulary mastery and motivation. Furthermore, limited attention has been given to how different formats impact learners' affective engagement and cognitive gains simultaneously. As technology becomes increasingly prevalent in classrooms and the demand for flexible, hybrid learning approaches grows, it is crucial to determine whether digital adaptations can achieve outcomes comparable to traditional face-to-face methods. Addressing this gap can help educators make more informed decisions about integrating technology with established teaching practices.

The theoretical foundations of this study are based on both constructivist and motivational frameworks. Constructivist theory, as proposed by Vygotsky (1978) asserts that learning is a social process that is enhanced through interaction and collaboration. In the "Make a Match" activity, students construct knowledge together by engaging in dialogue, negotiation, and providing peer feedback. This aligns with Vygotsky's concept of the Zone of Proximal Development.

Additionally, the Cognitive Theory of Multimedia Learning (Mayer, 2005) explains how digital versions of "Make a Match" can improve learning by integrating visual and auditory channels, which facilitates better cognitive processing and retention. Both frameworks indicate that learning is most effective when students are actively engaged, receive feedback, and collaborate with their peers key elements found in both manual and digital game-based learning.

From a motivational standpoint, Deci and Ryan's (1985) Self-Determination Theory supports the integration of games into education. Games fulfill learners' needs for competence (by providing achievable challenges), autonomy (through self-paced exploration), and relatedness (via collaboration and competition). When these needs are met, learners experience intrinsic motivation, which promotes sustained effort and persistence. Therefore, the Make a Match technique, whether implemented manually or digitally, is likely to enhance both cognitive outcomes (such as vocabulary mastery) and affective outcomes (like motivation to learn).

This study is designed to make a significant contribution to language teaching research by examining the effectiveness of both manual and digital versions of the Make a Match technique in enhancing students' vocabulary mastery and motivation. Utilizing an experimental design that includes pretests and posttests, the study aims to provide objective measurements of learning gains and motivational changes in both groups. Participants in the study are seventh-grade junior high school students, selected because they represent a developmental stage where interactive and game-based strategies are particularly effective in maintaining attention and engagement.

The results of this study are expected to provide practical implications for English teachers, curriculum designers, and educational policymakers. By understanding the comparative strengths of manual and digital "Make a Match" activities, educators can choose appropriate strategies based on their learning contexts. Manual methods may be more suitable for face-to-face classes that emphasize collaboration, while digital tools may be advantageous for online or hybrid learning environments.

Additionally, insights from this research can inform future innovations in blending traditional and technology-enhanced pedagogies to optimize vocabulary learning and student motivation in the EFL (English as a Foreign Language) classroom. Ultimately, this study aims to bridge the gap between traditional cooperative learning and digital game-based instruction, demonstrating how both approaches can coexist to create a balanced and effective language learning experience.

METHODS

This study utilized an experimental design with two groups to compare the effectiveness of manual and online Make a Match techniques in enhancing vocabulary mastery and learning motivation among seventh-grade junior high school students. The design followed a pretest-posttest control group format, where both groups were given a pretest to assess their baseline vocabulary knowledge and motivation. After the pretest, the groups underwent different treatments, concluding with a posttest to measure learning gains.

The two groups received different treatments. Experimental Group 1 was taught vocabulary using the manual version of the Make a Match technique, whereas Experimental Group 2 received vocabulary instruction through the online version of the Make a Match technique. This design enabled the researchers to evaluate both within-group improvements (from pretest to posttest) and between-group differences in vocabulary mastery and motivation.

The participants in this study were seventh-grade students from a junior high school in Central Java, Indonesia. Two intact classes were selected to serve as the experimental groups. One class (n = 64) was assigned to the manual treatment, while the other class (n = 64) received the online treatment, resulting in a total of 128 students. The students were of similar ages (12–13 years old) and had comparable levels of English proficiency, as assessed by their English teachers' evaluations and previous test scores. None of the students had received formal instruction using the Make a Match technique prior to the study. The selection of classes was based on convenience sampling, ensuring that both groups had relatively similar characteristics in terms of size, gender distribution, and academic background.

A vocabulary test was designed to measure students' mastery of English vocabulary. The test consisted of 50 multiple-choice items that assessed recognition, recall, and usage of target vocabulary. The vocabulary items were selected from the official curriculum for seventh-grade English, focusing on topics relevant to the students' learning stage, such as daily activities, school objects,

animals, and descriptive adjectives. The test was validated by two English teachers and one university lecturer in applied linguistics to ensure content validity. A pilot test was conducted with a similar group of students (not part of the main sample), and the reliability coefficient (Cronbach, 1951) was found to be r = 0.8X, indicating acceptable internal consistency.

Students' motivation for learning was measured using a questionnaire adapted from established motivation scales in language learning (Gardner, 1985); (Dörnyei, 2001). The questionnaire utilized a 5-point Likert scale, ranging from 1 ("strongly disagree") to 5 ("strongly agree"). The questionnaire included 12 Likert-scale items distributed across four dimensions: intrinsic motivation (e.g., "I enjoy learning English vocabulary through games"), extrinsic motivation (e.g., "I want to get good grades in English"), task value (e.g., "The Make a Match game helps me learn useful vocabulary"), and self-efficacy (e.g., "I feel confident that I can remember new vocabulary after playing"). The questionnaire was reviewed by experts for clarity and validity, and a pilot test yielded a Cronbach's Alpha of r = 0.8X, indicating strong reliability.

The collected data were analyzed using SPSS (IBM Corp., Armonk, NY, USA). Descriptive statistics, including the mean and standard deviation, were calculated to summarize the pre-test and post-test scores. A paired-sample t-test was employed to examine whether each group showed significant improvements in vocabulary mastery and motivation from pre-test to post-test. An independent-sample t-test was then conducted to compare the post-test results between the manual and online groups. In addition, effect sizes (Cohen's d) were calculated to measure the magnitude of the differences. The significance level was set at $p < .05$ to ensure the reliability of the statistical findings.

RESULTS AND DISCUSSION
Results

This section presents the findings from the statistical analysis conducted to assess the effectiveness of the manual and online "Make a Match" techniques on students' vocabulary mastery. The results are organized into four parts: (1) descriptive statistics of pretest and posttest scores, (2) paired-sample t-tests within groups, (3) independent-sample t-tests between groups, and (4) analysis of variance (ANOVA) to further confirm the treatment effects. Table 1 displays the descriptive statistics for the pretest and posttest vocabulary scores of both the manual and online groups.

Table 1. Descriptive Statistics of Vocabulary Scores

Group	N	Pretest Mean	Pretest SD	Posttest Mean	Posttest SD
Manual	28	31.68	6.21	83.21	6.54
Online	27	32.97	7.04	75.98	6.82

As shown in Table 1, both groups had relatively similar pretest means (Manual = 31.68, Online = 32.97), indicating that they started with comparable levels of vocabulary mastery. After the treatment, both groups demonstrated significant improvement; however, the manual group achieved a higher posttest mean (83.21) compared to the online group (75.98).

To determine whether the improvement from pretest to posttest within each group was statistically significant, paired-sample t-tests were conducted. The results are shown in Table 2. Both groups demonstrated significant improvements in vocabulary mastery from pretest to posttest ($p < 0.05$). The mean difference was greater in the manual group (51.53) compared to the online group (43.01), suggesting a stronger effect for the manual implementation. To compare the effectiveness of manual and online Make a Match methods, an independent-sample t-test was conducted on the posttest scores.

Table 2. Paired-Sample t-Test Results (Pretest vs Posttest)

Group	Mean Difference	t-value	df	p-value	Significance
Manual	51.53	28.84	27	0.001	Significant
Online	43.01	24.11	26	0.001	Significant

The results in Table 3 indicate a statistically significant difference between the manual and online groups ($p = 0.001$). The manual group outperformed the online group by a margin of 7.23 points in the posttest, confirming that the manual version of Make a Match was more effective in improving students' vocabulary mastery.

Table 3. Independent-Sample t-Test Results (Posttest Scores)

Groups Compared	Mean Difference	t-value	df	p-value	Significance
Manual vs Online	7.23	3.65	53	0.001	Significant

A two-way ANOVA was conducted to further investigate the effects of treatment method (manual vs online) and motivation levels (high, medium, low) on vocabulary mastery. The results confirm that the treatment method had a significant effect on vocabulary mastery ($p = 0.003$). However, motivation levels alone did not significantly influence outcomes ($p = 0.769$), nor was there a significant interaction between treatment method and motivation ($p = 0.764$). This suggests that the improvement in vocabulary mastery was primarily due to the type of instructional method rather than students' initial motivation levels.

Table 4. Two-Way ANOVA Results

Source	F-value	p-value	Significance
Treatment (Manual/Online)	9.10	0.003	Significant
Motivation	0.27	0.769	Not Significant
Treatment × Motivation	0.27	0.764	Not Significant

The results from both descriptive and inferential analyses can be summarized as follows: Both the manual and online "Make a Match" methods significantly improved students' vocabulary mastery from pretest to posttest. The manual version showed greater improvement compared to the online version, as indicated by the descriptive statistics and independent-samples t-tests. Additionally, the ANOVA analysis confirmed that the treatment method had a significant impact on vocabulary outcomes, while motivation levels and interaction effects were found to be insignificant.

These results suggest that "Make a Match" is an effective instructional strategy for vocabulary learning among junior high school students, whether applied in a manual or online format. However, the manual version is overall more effective. Factors such as face-to-face interaction, physical movement, and direct peer collaboration likely contributed to the higher gains observed in the manual group.

In contrast, while the online version was still effective, its outcomes may have been influenced by external factors such as students' digital literacy, internet connectivity, or reduced physical engagement. Despite these limitations, the online version remains a valuable alternative, especially in situations where in-person interaction is restricted.

These findings provide empirical support for incorporating cooperative, game-based activities into English as a Foreign Language (EFL) classrooms. They also emphasize the need to adapt teaching methods to the specific context: using the manual "Make a Match" to foster collaboration and deeper engagement, and utilizin g the online version for accessibility and digital integration.

This section presents the findings from the motivation questionnaire that was administered both before and after the treatments. Consistent with the vocabulary analysis, the results are organized into four parts: descriptive statistics, paired-sample t-tests, independent-sample t-tests, and ANOVA, followed by a thorough interpretation. Table 5 presents the descriptive statistics of students' motivation scores in the manual and online groups.

Table 5. Descriptive Statistics of Motivation Scores

Group	N	Pretest Mean	Pretest SD	Posttest Mean	Posttest SD
Manual	28	47.75	4.12	49.40	3.86
Online	27	43.68	4.25	45.37	4.02

Both groups displayed similar motivation levels during the pretest stage, with the manual group showing a slightly higher average (47.75 compared to 43.68). After the treatment, both groups demonstrated improvement; however, the manual group maintained its advantage with a higher average in the posttest (49.40 compared to 45.37).

Paired-sample t-tests were performed to determine if students' motivation significantly improved within each group. The results are presented in Table 6. Both groups showed significant improvements in motivation ($p < 0.05$). Notably,

the mean difference in motivation increase was quite similar for both groups, with the manual group reporting an increase of 1.65 points and the online group an increase of 1.69 points. This indicates that both versions of the "Make a Match" program are effective in enhancing students' motivation, although the manual group achieved a slightly higher overall score.

Table 6. Paired-Sample t-Test Results (Pretest vs. Posttest Motivation)

Group	Mean Difference	t-value	Df	p-value	Significance
Manual	1.65	3.42	27	0.001	Significant
Online	1.69	3.65	26	0.001	Significant

To assess whether the posttest motivation scores differed significantly between the groups, an independent-sample t-test was conducted. The results indicate that the manual group reported significantly higher motivation levels than the online group after treatment (p = 0.001). The mean difference of 4.03 suggests that, although both groups improved, the manual implementation had a stronger impact on motivation.

Table 7. Independent-Sample t-Test Results (Posttest Motivation Scores)

Groups Compared	Mean Difference	t-value	Df	p-value	Significance
Manual vs Online	4.03	3.55	53	0.001	Significant

A two-way ANOVA was conducted to analyze the effects of treatment method (manual vs. online) and motivation categories (high, medium, low) on posttest results. The analysis indicates that the treatment method significantly affected motivation (p = 0.003). However, the differences across motivation levels were not statistically significant (p = 0.769), and the interaction effect between treatment and motivation categories was also non-significant (p = 0.764). These results suggest that the improvement in motivation was primarily attributed to the treatment method rather than the students' initial motivational profiles.

Table 8. Two-Way ANOVA Results for Motivation

Source	F-value	p-value	Significance
Treatment (Manual/Online)	9.10	0.003	Significant
Motivation (levels)	0.27	0.769	Not Significant
Treatment × Motivation	0.27	0.764	Not Significant

The findings on motivation can be summarized as follows: both the manual and online versions of "Make a Match" significantly improved students' motivation from pretest to posttest. The manual version resulted in higher overall posttest motivation scores compared to the online version. The ANOVA results indicated that the method of treatment was the primary factor influencing motivation

outcomes, while motivation categories and their interaction with the treatment were not significant.

The results provide strong evidence that "Make a Match" is effective in enhancing not only vocabulary mastery but also students' motivation to learn English. The playful and interactive nature of the game fosters enjoyment, collaboration, and active participation, contributing to increased motivation levels.

The manual group demonstrated greater motivation gains, likely due to the physical interaction, direct peer collaboration, and the classroom atmosphere cultivated during the game. Students had the opportunity to move around, interact face-to-face, and receive immediate social reinforcement, all of which align with the motivational principles of Self-Determination Theory (Deci & Ryan, 1985) particularly relatedness and competence.

The online group also benefited from the game, as indicated by the significant improvement from pretest to posttest. The digital version offered novelty, instant feedback, and interactive features that many students found appealing. However, technical challenges such as internet connectivity issues and varying levels of digital literacy may have limited the motivational gains compared to the manual group.

Overall, the results highlight that both implementations of "Make a Match" successfully foster motivation, but the manual version had a greater impact. This finding underscores the lasting value of social interaction and face-to-face collaboration in maintaining learner motivation in EFL contexts. Nonetheless, the online version remains a promising tool, particularly in situations where digital integration or remote learning is necessary.

Discussion

This study explored the effectiveness of both manual and online versions of the "Make a Match" game in enhancing vocabulary mastery and motivation among seventh-grade junior high school students. The findings indicate that both methods significantly improved students' vocabulary knowledge and motivation; however, the manual version resulted in higher posttest scores in both areas. This section discusses these findings in relation to previous research, theoretical frameworks, and their pedagogical implications.

1. Effectiveness of Make a Match in Improving Vocabulary Mastery

Both the manual and online implementations of "Make a Match" significantly improved vocabulary mastery, confirming the first research hypothesis. The substantial increase in mean scores from the pretest to the posttest for both groups demonstrates that game-based learning can effectively complement traditional vocabulary instruction. This aligns with the findings of Carmelya (2020) and Widiastuti et al. (2023), which reported that cooperative and game-based learning strategies, such as Make a Match, enhance vocabulary retention through repeated exposure and meaningful interaction.

However, the manual group achieved a higher posttest mean score of 83.21 compared to the online group's score of 75.98. This suggests that physical

interaction, peer collaboration, and engagement within the classroom play a crucial role in supporting vocabulary learning. According to constructivist learning theory, social interactions in the in-person setting promote negotiation of meaning, provide scaffolding, and encourage peer support—factors that contribute to better retention of vocabulary (Vygotsky, 1978).

2. Effectiveness of Make a Match in Enhancing Motivation

The results revealed that both groups exhibited significant improvements in motivation. This supports the idea that incorporating games into language instruction increases student engagement, enjoyment, and willingness to participate. These outcomes align with Deci and Ryan's (1985) Self-Determination Theory which highlights competence, relatedness, and autonomy as key drivers of motivation.

However, the manual version of the game resulted in higher posttest motivation scores (49.40) compared to the online version (45.37). This suggests that tangible, face-to-face interactions fostered a stronger sense of community and belonging in the classroom, thereby enhancing intrinsic motivation. These findings are consistent with previous studies by Carmelya (2020) and Lindayanti et al. (2023) which highlight how cooperative classroom games promote student participation, confidence, and positive emotional responses.

3. Comparison Between Manual and Online Versions

Both the manual and online approaches were effective; however, the manual version consistently outperformed the online version in terms of vocabulary mastery and motivation. Several factors may contribute to this difference.

First, the physical movement and peer interactions in the manual group likely stimulated active learning and multisensory engagement, leading to better memory encoding and retention. According to the Cognitive Theory of Multimedia Learning (Mayer, 2005), learning is enhanced when students engage multiple channels (visual, auditory, kinesthetic), which was more pronounced in the manual version.

Second, while the online group benefited from the novelty and interactivity of digital platforms, it may have faced challenges related to internet connectivity, digital literacy, and the distractions commonly associated with online environments. Technology-based learning environments require adequate infrastructure and student readiness to be as effective as traditional face-to-face contexts. Previous studies have shown that factors such as self-regulation, motivation, and technical skills significantly influence online learning outcomes (Joosten & Cusatis, 2020). Research conducted in junior high schools indicates that self-directed learning, motivation, and computer self-efficacy are essential components of student readiness (Dwiyanti et al., 2020; Tasha & Yanti, 2022).

Nonetheless, it is important to note that the online version still resulted in statistically significant improvements, demonstrating its potential value in

situations where in-person learning is not feasible, such as during remote instruction or when integrating ICT skills into the curriculum.

The results of the two-way ANOVA indicated that the treatment method significantly affected both vocabulary acquisition and motivation levels. However, the categories of motivation (high, medium, low) and the interaction effects were not significant. This suggests that the effectiveness of the "Make a Match" activity is strong across students with varying initial motivation levels.

This finding is important because it shows that game-based learning can benefit all students, regardless of whether they start with high or low motivation. In other words, the method itself serves as an equalizer, giving less motivated students more opportunities to engage actively. This supports Dörnyei's (2001) assertion that motivational strategies integrated into classroom tasks can positively influence learners' attitudes toward language learning.

CONCLUSIONS AND SUGGESTIONS
Conclusions

This study confirms that the Make a Match technique is an effective strategy for improving vocabulary mastery and boosting learner motivation in the EFL (English as a Foreign Language) classroom. Both the manual and online versions of this technique resulted in significant improvements, with the manual version consistently delivering better outcomes. These findings emphasize the important role of face-to-face interaction and peer collaboration in language learning. However, the online version remains a valuable alternative, especially in remote or technology-based learning environments. Therefore, it is recommended that a blended instructional approach be adopted, combining traditional and digital methods to optimize learning outcomes.

Suggestions

Based on these findings, it is recommended that English teachers integrate the Make a Match technique into their classroom practices to promote active participation and enhance vocabulary development. Educational institutions should also provide the necessary training and technological support to enable both manual and digital applications of this technique. Additionally, future researchers could investigate the long-term effects of the Make a Match technique on vocabulary retention or assess its efficacy in improving other language skills, such as reading comprehension, speaking, or writing proficiency.

REFERENCES

Agustine, M., D. F. (2023). The Implementation of a word chain game to teach vocabulary in an Islamic junior high school. *Jurnal of English Education Program (JEEP), 10*(2), 101. https://doi.org/10.25157/jeep.v10i2.11687

Arief, S. A., Mestari, S. A., & Badu, H. (2023). The Effect of Make a Match Technique Toward Students' Vocabulary. *Research Review: Jurnal Ilmiah Multidisiplin, 2*(1), 32–41. https://doi.org/10.54923/researchreview.v2i1.26

Carmelya, S. (2020). *Improving students' vocabulary mastery through* Make a Match *technique to the seventh graders of SMP Negeri 40 Palembang*

[Universitas Tridinanti]. http://repository.univ-tridinanti.ac.id/1752/

Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika*, *16*(3), 297–334. https://doi.org/10.1007/BF02310555

Deci, E. L., & Ryan, R. M. (1985). Intrinsic Motivation and Self-Determination in Human Behavior. *Intrinsic Motivation and Self-Determination in Human Behavior*. https://doi.org/10.1007/978-1-4899-2271-7

Dörnyei, Z. (2001). *Motivational Strategies in the Language Classroom*. Cambridge University Press.

Dwiyanti, K. (2020). Online learning readiness of junior high school students in Denpasar. *Indonesian Journal of English Education*, *7*(2), 202–220. https://doi.org/10.15408/ijee.v7i1.17773

Fithriani, R. (2021). The utilization of mobile-assisted gamification for vocabulary learning: Its efficacy and perceived benefits. *Callej.Org*, *2021*(3), 146–163. https://callej.org/index.php/journal/article/view/357

Gardner, R. C. (1985). Social psychology and second language learning: The role of attitudes and motivation. In *Edward Arnold*. E. Arnold. https://worldcat.org/title/14068530

Hashemi, A. (2021). The effects of using games on teaching vocabulary in reading comprehension: a case of gifted students. *Journal for the Education of Gifted Young Scientists*, *9*(2), 151–160. https://doi.org/10.17478/JEGYS.846480

Joosten, T., & Cusatis, R. (2020). Online Learning Readiness. *American Journal of Distance Education*, *34*(3), 180–193. https://doi.org/10.1080/08923647.2020.1726167

Kostikova, I. (2017). *Language games in teaching English*. http://dspace.hnpu.edu.ua/handle/123456789/1652

Lie, A. (2002). *Cooperative learning: Mempraktikkan cooperative learning di ruang-ruang kelas*. Grasindo.

Lindayanti, L., Kuliahana, A., & Rasmi, R. (2023). The effectiveness of make-a-match technique in increasing vocabulary mastery among eighth grade students of SMPN 3 Palu. *Jurnal.Uindatokarama.Ac.Id*. https://jurnal.uindatokarama.ac.id/index.php/iciis/article/view/2281

Mayer, R. E. (2005). Cognitive theory of multimedia learning. In R. E. Mayer (Ed.), *The Cambridge handbook of multimedia learning*. Cambridge University Press.

Muhammad, R. A., Manurung, K., & Wahyudin, W. (2022). Study on the Implementation of Word Chain Game in Teaching Vocabulary Mastery. *E-Journal of ELTS (English Language Teaching Society)*, *9*(3), 223–234. https://doi.org/10.22487/elts.v9i3.1878

Nation, I. S. P. (2001). *Learning vocabulary in another language*. Cambridge University Press. https://doi.org/10.1017/CBO9781139524759

Nguyen, D. T. A. (2021). Using games to improve learning vocabulary for non-English-majored students at Bac Lieu university. *Journal of Social Sciences Advancement*, *2*(1), 30–38. https://doi.org/10.52223/jssa21-020105-10

Pradini, P., & Adnyayanti, N. L. P. E. (2022). Teaching English vocabulary to

young learners with Wordwall application: An experimental study. *Journal of Educational Study*, *2*(2), 187–196. https://doi.org/10.36663/JOES.V2I2.351

Prensky, M. (2001). The games generations: How learners have changed. In *Digital game-based learning* (pp. 27–62). McGraw-Hill. https://marcprensky.com/writing/Prensky-Ch2-Digital-Game-Based-Learning.pdf

Ryan, R. M.; Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, *55*(1), 68–78. https://doi.org/10.1037/0003-066X.55.1.68

Saputri, T. D. (2022). Teaching Vocabulary Using Fly Swatter Game at the Seventh Graders of Secondary School. *EBONY: Journal of English Language Teaching, Linguistics, and Literature*, *2*(2), 1–8. https://doi.org/10.37304/EBONY.V2I2.5274

Tasha, C., & Yanti, Y. (2022). Online Learning Readiness among Junior High School Students. *Jurnal Ilmiah Mandala Education*, *8*(4), 2642–2655. https://doi.org/10.58258/jime.v8i4.3865

Uberman, A. (1988). The use of games for vocabulary presentation and revision. *English Teaching Forum*, *36*(1), 20–27.

Utami, N., Sutapa, G., & Riyanti, D. (2018). Improving Students ' Vocabulary Through Make a Match Technique. *Journal Pendidikan Dan Pembelajaran Khatulistiwa*, *7*(12), 1.

Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes* (M. Cole, V. John-Steiner, S. Scribner, & E. Souberman, Eds.). Harvard University Press.

Widiastuti, R. (2023). The effectiveness of Make a Match technique in teaching vocabulary. *ELang: English Language Education Journal*, *2*(1). https://ejournal.unibba.ac.id/index.php/elang/article/view/1111