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STUDENT PREFERENCES AND RATIONALES FOR FIVE WORDWALL GAME FORMATS IN ARABIC VOCABULARY LEARNING

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Abstract

This study investigates students' perceptions of the effectiveness, enjoyment, engagement, and preference in using Wordwall-based activities for learning Arabic vocabulary. Employing a sequential explanatory mixed-methods design, the research involved 38 Arabic language students at an Islamic university who had direct experience using five types of Wordwall-based games, including quiz-based, matching, and puzzle activities. A descriptive survey was first used to map student preferences across the four criteria. Subsequently, thematic analysis of open-ended responses was conducted to explain the quantitative trends. Each game was integrated into vocabulary learning sessions, after which participants completed a questionnaire consisting of four multiple-choice and four open-ended questions. Quantitative data were analyzed using descriptive statistics to determine the frequency and percentage of preferences, while qualitative data were analyzed thematically to explore underlying reasons and insights. Thematic analysis followed the key stages of familiarization, coding, theme identification, and interpretation, focusing on themes such as ease, challenge, reward systems, time, and visual displays. Results indicate that Gameshow Quiz is perceived as the most effective and preferred game, whereas Maze Chase and Find the Match stand out for their interactivity and visual appeal. Overall, the findings emphasize the pedagogical value of game-based learning in enhancing student engagement and vocabulary acquisition in Arabic language instruction.

***Keywords*:** *Arabic Vocabulary, Engagement, Enjoyment, Game-based Learning, Wordwall.*

Abstract

Penelitian ini mencoba menyelidiki persepsi siswa mengenai efektivitas, kesenangan, daya tarik, dan minat dalam menggunakan berbagai permainan *Wordwall* untuk pembelajaran kosakata bahasa Arab. Dengan menggunakan desain metode campuran eksplanatori berurutan (*sequential explanatory mixed-methods design*), penelitian ini

melibatkan 38 mahasiswa bahasa Arab di sebuah universitas Islam yang memiliki pengalaman langsung dengan lima jenis permainan *Wordwall*: Anagram, *Find the Match*, *Gameshow Quiz*, *Maze Chase*, dan *Open the Box*. Survei deskriptif pertama kali digunakan untuk memetakan preferensi siswa di seluruh empat kriteria. Selanjutnya, analisis tematik terhadap respons terbuka dilakukan untuk menjelaskan tren kuantitatif tersebut. Setiap permainan diintegrasikan ke dalam sesi pembelajaran kosakata, setelah itu peserta mengisi kuesioner yang terdiri dari empat pertanyaan pilihan ganda dan empat pertanyaan terbuka. Data kuantitatif dianalisis menggunakan statistik deskriptif untuk menentukan frekuensi dan persentase preferensi, sedangkan data kualitatif dianalisis secara tematik untuk mengeksplorasi alasan dan wawasan yang mendasarinya. Analisis tematik mengikuti tahapan kunci seperti familiarisasi, pengkodean, identifikasi tema, dan interpretasi, dengan fokus pada tema-tema seperti kemudahan, tantangan, sistem penghargaan, waktu, dan tampilan visual. Hasil penelitian menunjukkan bahwa *Gameshow Quiz* dipersepsikan sebagai permainan yang paling efektif dan paling disukai, sedangkan *Maze Chase* dan *Find the Match* menonjol karena interaktivitas dan daya tarik visualnya. Secara keseluruhan, temuan ini menekankan nilai pedagogis pembelajaran berbasis permainan dalam meningkatkan keterlibatan siswa dan pemerolehan kosakata dalam pengajaran bahasa Arab.

Kata Kunci: *Kosakata Bahasa Arab, Keterlibatan, Kesenangan, Pembelajaran Berbasis Permainan, Wordwall.*

INTRODUCTION

Learning Arabic vocabulary is often a significant challenge for students at the elementary, secondary, and tertiary levels.[1] [2] The main challenges faced by students include the mechanical nature of vocabulary memorization and low motivation to learn due to monotonous teaching methods.[3] [4] Most vocabulary learning models still rely on traditional approaches such as drilling, verbal repetition, or conventional memorization, which, in the long run, tend to be ineffective in maintaining students' memory of new vocabulary.[5] [6] [7] [8] This difficulty directly impacts students'

[1] Akhsan Akhsan and Ahmadi Muhammadiyah, "Analisis Terhadap Motivasi Belajar Siswa pada Pembelajaran Bahasa Arab di MTs-NU Al-Islamiyah Asembagus Menurut Teori Mc Clellad," *Lahjah Arabiyah: Jurnal Bahasa Arab Dan Pendidikan Bahasa Arab* 3, no. 2 (2022), https://doi.org/10.35316/lahjah.v3i2.132-138.

[2] Vered Vaknin-Nusbaum and Bahaa' Makhoul, "Inflectional Morphology and Reading Comprehension in Low SES Arabic-Speaking Second Graders," *First Language* 45, no. 1 (February 2025): 3–23, https://doi.org/10.1177/01427237241272523.

[3] Jamilah Al-Harbi and Engku Haliza Engku Ibrahim, "Vocabulary Learning Strategies of Saudi English Major Students: Strategy Use and Gender," *International Journal of Engineering & Technology* 7, no. 3.25 (August 14, 2018): 21, https://doi.org/10.14419/ijet.v7i3.25.17464.

[4] R Umi Baroroh and Aisyam Mardliyyah, "Pengembangan Media Permainan Ular Tangga Dalam Pembelajaran Bahasa Arab," *Ijaz Arabi Journal of Arabic Learning* 2, no. 1 (2019): 64–76, https://doi.org/10.18860/ijazarabi.v2i1.5445.

[5] Nashar, A Nurhasanah, and R Fauzan, "The Effectiveness of Critical Thinking Ability on the Basis of Quizizz Application Viewed from Problem Based Learning Model in History Learning of Senior High School," *IOP Conference Series: Earth and Environmental Science* 747, no. 1 (May 1, 2021): 012046, https://doi.org/10.1088/1755-1315/747/1/012046.

language skills in general because vocabulary mastery is the basic foundation for other language skills, such as reading, writing, speaking, and listening.[9] [10] [11] [12] [13] In an effort to overcome these challenges, educators are continually seeking innovative and effective methods to enhance students' engagement and memory retention in learning Arabic vocabulary. One approach that has gained considerable attention is game-based learning, which is considered capable of creating a more interactive, fun, and motivating learning environment.

Game-based learning has emerged as an innovative pedagogical approach, proven to enhance learning outcomes through enjoyable, interactive, and contextual experiences.[14] [15] In this context, platforms like Wordwall are widely utilized to create educational games, particularly for vocabulary acquisition. Research indicates that Wordwall games significantly improve student motivation, engagement, and long-term memory retention by incorporating fun, competitive, and visual elements.[16] [17] [18] Furthermore, studies have demonstrated its effectiveness in helping students better

[6] Pushpa Nagini Sripada, Abirami Kanagarajan, and S Subha, "AI-Driven Pedagogical Word Recommendation Systems Transforming English as a Second Language Vocabulary Learning Effectiveness," in *2025 International Conference on Machine Learning and Autonomous Systems (ICMLAS)* (IEEE, 2025), 1012–17, https://doi.org/10.1109/ICMLAS64557.2025.10967884.

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[9] Anas Almuhammadi, "Needs Analysis to Develop Effective Vocabulary Instruction for Saudi EFL Context," *International Journal of English Language Education* 8, no. 1 (March 6, 2020): 79, https://doi.org/10.5296/ijele.v8i1.16619.

[10] Musa Nimani and Fojkar Dagarin, "Correlation between Students' English Listening Skills, Vocabulary Skills and Out-of-School Listening Exposure," *The New Educational Review* 55, no. 1 (March 31, 2019): 42–53, https://doi.org/10.15804/tner.2019.55.1.03.

[11] Jennifer Paetsch and Sebastian Kempert, "Längsschnittliche Zusammen-hänge von Wortschatz, Grammatik Und Leseverständnis Mit Mathematischen Fähigkeiten Bei Grundschulkindern Mit Nicht-Deutscher Familiensprache," *Zeitschrift Für Pädagogische Psychologie* 38, no. 4 (August 2024): 261–78, https://doi.org/10.1024/1010-0652/a000342.

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[14] Jewoong Moon and Fengfeng Ke, "In-Game Actions to Promote Game-Based Math Learning Engagement," *Journal of Educational Computing Research* 58, no. 4 (July 27, 2020): 863–85, https://doi.org/10.1177/0735633119878611.

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[16] Lina Anisah, "Utilizing "Wordwalls' as an Assessment Tool for Indonesian Junior High School Students," *English Review: Journal of English Education* 10, no. 3 (October 30, 2022): 831–42, https://doi.org/10.25134/erjee.v10i3.6472.

[17] Abdul Aziz Fakhruddin, Mochammad Firdaus, and Lailatul Mauludiyah, "Wordwall Application as a Media to Improve Arabic Vocabulary Mastery of Junior High School Students," *Arabiyatuna : Jurnal Bahasa Arab* 5, no. 2 (2021): 217, https://doi.org/10.29240/jba.v5i2.2773.

understand and recall foreign language concepts compared to conventional methods. [19] [20] However, while existing research affirms the general benefits of Wordwall, there remains a lack of specific exploration into the distinct pedagogical affordances and student perceptions of its diverse game formats, which are designed for text- and language-based learning.

Although many studies examine the effectiveness of games in foreign language learning, there remains a gap in research on the use of various game types within the Wordwall platform for Arabic vocabulary learning.[21] [22] [23] [24] Existing studies often focus on only one type of game or examine Wordwall in general, without distinguishing the variety of game mechanics available. In fact, every kind of game has different characteristics and levels of engagement, which are likely to have different impacts on student learning outcomes.[25] [26] [27] [28] [29] [30] For example, the Find the Match game may be more effective in building associations between words and meanings, while Whack-a-Mole may be better at accelerating reflexive vocabulary recognition. Therefore, there is a need for

[18] Syafiqah Hasram et al., "The Effects of Wordwall Online Games (Wow) on English Language Vocabulary Learning among Year 5 Pupils," *Theory and Practice in Language Studies* 11, no. 9 (September 1, 2021): 1059–66, https://doi.org/10.17507/tpls.1109.11.

[19] Iqbal Arifin and Darman Manda, "The Effectiveness of Wordwall in Increasing Student Engagement in Elementary Social Studies Education Course at West Sulawesi University," *Pinisi Journal of Social Science* 2, no. 3 (January 25, 2024): 119, https://doi.org/10.26858/pjss.v2i3.62298.

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[21] Mohammad Taufiq Abdul Ghani et al., "Providing a Digital Game-Based Learning for Non-Native Arabic Speakers: A Need Analysis Study for the Development of Mobile Application Digital Game," *International Journal of Academic Research in Business and Social Sciences* 9, no. 6 (June 20, 2019), https://doi.org/10.6007/IJARBSS/v9-i6/5917.

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[23] Muhammad Nur Kholis et al., "Can Wordwall Application Improve Students' Arabic Mastery?," *Al-Ta'rib : Jurnal Ilmiah Program Studi Pendidikan Bahasa Arab IAIN Palangka Raya* 10, no. 2 (October 20, 2022): 159–70, https://doi.org/10.23971/altarib.v10i2.4388.

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[27] Khe Foon Hew et al., "Engaging Asian Students through Game Mechanics: Findings from Two Experiment Studies," *Computers & Education* 92–93 (January 2016): 221–36, https://doi.org/10.1016/j.compedu.2015.10.010.

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[29] Amogh Joshi, "Optional Learning in Games," in *Extended Abstracts of the 2020 Annual Symposium on Computer-Human Interaction in Play* (New York, NY, USA: ACM, 2020), 24–26, https://doi.org/10.1145/3383668.3419950.

[30] Fahmi Yahya et al., "Wordwall : A Digital Game Application to Increase the Interest of Rabbaanii Junior High School ' s Students i n Learning Arabic Vocabulary," in *The 4th Proceeding International Conference on Arabic Language and Literature (ICALL)*, vol. 1, 2021.

research that systematically evaluates the effectiveness of various Wordwall game types in Arabic vocabulary learning.

Based on this background and research gap, this study aims to evaluate students' effectiveness, attractiveness, enjoyment, and interest in five types of Wordwall games for learning Arabic vocabulary. The five types of games studied include Anagram, Find the Match, Group Sort, Missing Word, and Whack-a-Mole, selected for their popularity and the diversity of cognitive strategies required in each. This study will not only measure increases in vocabulary mastery but also examine the extent to which students experience emotional and cognitive engagement in the learning process using this media. Dimensions such as intrinsic motivation, enjoyment of play, ease of navigation, and game visualization will be evaluated to provide a comprehensive picture of participants' learning experience.

This research is expected to provide theoretical and practical contributions to the development of innovative and effective Arabic language learning models. Theoretically, this study enriches research on the use of game-based learning in Arabic, especially in vocabulary instruction. Meanwhile, in practice, the results of this study can be used by Arabic teachers or lecturers to design more engaging and enjoyable learning experiences without sacrificing the effectiveness of the material. Furthermore, the results of this study can also help in identifying the types of Wordwall games that are most suitable for the characteristics of specific vocabulary material, as well as mapping the factors that influence the effectiveness of these game media, both from the game design side and from the preferences and characteristics of the learners. Thus, the Arabic language-learning approach can be adapted to reflect better the times and the needs of today's digital learning generation.

METHOD

This study utilized a sequential explanatory mixed-methods design.[31] The primary quantitative phase employed a descriptive survey to map student preferences across four criteria. This was followed by a qualitative phase involving thematic analysis of open-ended responses to explain the quantitative trends. This design was chosen because assessing educational games requires understanding both prevalence of choice (quantifiable) and the subjective rationale behind it (qualitative), ensuring a comprehensive evaluation.[32]

[31] J.W. Creswell and V. L. Plano Clark, *Designing and Conducting Mixed Methods Research*, *Organizational Research Methods*, 2018.

[32] Eric Zhi Feng Liu and Chun Hung Lin, "Developing Evaluative Indicators for Educational Computer Games," *British Journal of Educational Technology* 40, no. 1 (January 23, 2009): 174–78, https://doi.org/10.1111/j.1467-8535.2008.00852.x.

Participants in this study were 38 students from UIN Raden Mas Said Surakarta studying Arabic. The main criterion for selecting participants was practical experience with the five games on the Wordwall platform that are the focus of the research: Anagram, Find The Match, Gameshow Quiz, Maze Chase, and Open the Box. Experience using all types of these games is a prerequisite to ensure that participants can provide valid assessments and feedback based on their direct experience. Participants are students who have been involved in Arabic vocabulary (mufrodat) learning sessions that integrate these five games.

The research procedure was carried out through several sequential stages. First, all participants were involved in Arabic vocabulary (mufrodat) learning activities by directly utilizing the five types of Wordwall games that had been determined. Each type of game was used in a learning context designed to introduce or practice mastery of new vocabulary. After completing the learning session using all the games, participants were asked to fill out a questionnaire. The questionnaire consists of two main parts: Part One contains four multiple-choice questions that ask participants to choose one type of game they think is: Most Effective, Most Enjoyable, Most Attractive, and Most Interested in learning mufrodat. Each question presents the option of the five types of games; Part Two: Consists of four open-ended essay questions, each asking participants to explain in detail the reasons they chose a particular game for each criterion. The questionnaire was completed in full by all 38 participants.

Data analysis was carried out separately for quantitative and qualitative data, then integrated in the interpretation. For Quantitative Data, descriptive statistical techniques were used. The frequency of selection for each game type across the four criteria was calculated. Furthermore, this frequency is converted into a percentage value of the total respondents to provide a clearer picture of the distribution of student preferences. The results are presented in frequency and percentage distribution tables. For Qualitative Data, a Thematic Analysis was performed. The stages include: Familiarization: Repeatedly reading all responses to understand the overall data; Generating Initial Codes: Giving codes (coding) to pieces of data that are relevant to the research focus; Searching for Themes: Grouping codes that have conceptual similarities into potential themes; Reviewing Themes: Checking the suitability of the theme with the overall data and improving the theme; Defining and Naming Themes: Providing clear definitions and accurate names for each theme; Producing the Report: Presenting the results of the analysis. Based on participant responses and research objectives, the main themes that serve as initial guidance (a priori) in the analysis are: Ease (simplicity of use, clarity of instructions, low task complexity, and procedural simplicity), Challenge, Reward System, Time, and Visual Display. New themes can also emerge inductively

(emergent themes) during the analysis process. The results of the thematic analysis are used to explain in depth the preference patterns seen in the quantitative data.

RESULT AND DISCUSSION

Results

Data analysis reveals a consistent pattern of preferences among 38 students in evaluating five types of Wordwall games for learning Arabic vocabulary (*mufrodāt*). Gameshow Quiz emerges as a striking dominator, securing the top position in three out of four evaluation criteria. A total of 17 respondents rated it as the most effective game, while 19 participants declared it as the most appealing. Its attractiveness is also reflected in the enjoyment aspect, where 14 students chose it as the most enjoyable experience. Only in the "most attractive" category does Gameshow Quiz share the top position with Find the Match.

Table 1 of Game Preference Distribution Based on Evaluation Criteria

Criteria	Gameshow Quiz	Find the Match	Maze Chase	Open the Box	Anagram
The Most Effective	17 (44.7%)	13 (34.2%)	0 (0%)	6 (15.8%)	2 (5.3%)
The Most Enjoyable	14 (36.8%)	6 (15.8%)	10 (26.3%)	4 (10.5%)	4 (10.5%)
The Most Engaging	11 (28.9%)	11 (28.9%)	9 (23.7%)	4 (10.5%)	3 (7.9%)
The Most Preferred	19 (50.0%)	10 (26.3%)	2 (5.3%)	4 (10.5%)	3 (7.9%)

The qualitative findings clarify the reasons for this dominance through participant narratives that repeatedly highlight time efficiency and the reward system as determining factors. One student explained: "This game rewards efficiency: there's no long loading time, bonus points are felt immediately, and even if you answer incorrectly, there are still backup lives." Another response emphasized the game's dynamics: "It's nerve-wracking because of the tight time, the brain is forced to remember vocabulary while chasing the +200 bonus quickly." This combination of measured time pressure and point incentives creates a flow experience that is cognitively productive for most users.

Meanwhile, Maze Chase shows an interesting polarization. Although it ranks second among the most enjoyable games, only 2 respondents are interested in it for routine learning. An analysis of open responses reveals an intrinsic dilemma: "It's really fun to play Maze Chase like an arcade game, but the focus is more on the strategy of running from ghosts than remembering the

vocabulary." Its visual appeal is acknowledged ("The design like Pacman is nostalgic", P14), but the strong game elements actually shift the focus from the learning objectives.

Find the Match is an interesting exception in the landscape of preferences. This game ranked second in effectiveness but was less successful at triggering emotional engagement. Qualitative responses suggest a significant weakness: "The answers are definite and do not change, but there is no sensation of challenge or bonuses that make it exciting." Although considered practical ("Immediately know the correct/incorrect answer", P21), the lack of dynamics makes it less competitive with Gameshow Quiz in terms of sustained interest.

On the other hand, Anagram and Open the Box are consistently minority choices. Only three participants expressed interest in Anagram, citing specific cognitive reasons: "It trains us to think twice: find the meaning and arrange the letters." However, 89% of the criticisms highlight practical obstacles: "Arranging letters takes a long time, especially if it's wrong. It's not practical for everyday learning." A similar pattern is seen in Open the Box, where visual appeal ("Mystery boxes are intriguing", P27) fails to compensate for functional weaknesses: "The process of opening the box slows down the learning rhythm."

A direct comparison between games reveals a trade-off between fun and effectiveness. Maze Chase excels in terms of entertainment ("Feels like playing a console game", P6), but fails to transfer learning benefits. Conversely, Find the Match is considered functional but less dynamic. Gameshow Quiz emerges as an exception that successfully synergizes both, as explained by a participant: "The right combination: there's time pressure that makes you focus, motivating bonus points, plus a simple interface that doesn't take time."

Another striking finding is the difference in perception regarding cognitive challenge. Students who chose Anagram appreciated its complexity as a tool for memory reinforcement: "Here we are required to think in two layers: translate the meaning first, then arrange the letters." However, the majority considered this mechanism counterproductive: "In theory, it's good for long-term memory, but in practice, we need a quick medium for daily exam preparation." This perspective explains why games with high complexity are less in demand, despite having pedagogical potential. The visual display factor also influences preference, although it is not decisive. Maze Chase and Open the Box received praise for aesthetics ("Open the Box looks fresh with its colors," P27). Still, Gameshow Quiz proved that functionality can outweigh visual appeal: "The display is ordinary, but what's important is that it's responsive and doesn't lag." This suggests that, in the context of game-based learning, utility is valued more than sophisticated graphics.

Overall, the research results reveal a dissonance between engagement and effectiveness. Maze Chase successfully creates a fun experience ("Fun like a regular game," P9), but minimizes

knowledge transfer. Gameshow Quiz, on the other hand, successfully bridges this gap through a cognitively relevant design: "The bonus points are not just entertainment, but force us to remember quickly before time runs out." This finding highlights that in educational games, game elements must be organically integrated with learning mechanisms.

Finally, an in-depth analysis of open responses reveals three game design principles that students expect: 1) Time efficiency ("Fast, straight to the point without complicated procedures", P29), 2) Instant feedback ("Know immediately if it's right/wrong, plus there's a bonus if it's fast", P31), 3) Calibrated challenge ("Enough time to think but not too much", P18). These principles are optimally embodied in Gameshow Quiz, which explains its multidimensional dominance across all aspects of evaluation. As one participant concluded: “Complete package: entertainment and learning in one without sacrificing effectiveness.” In a broader context, this research underscores the importance of student-centered game-based learning design. By considering students’ cognitive preferences and functional expectations, educators can optimize Wordwall's use as an effective and engaging vocabulary learning tool.

Discussion

This study explores the effectiveness and student perceptions of five types of Wordwall games in learning Arabic vocabulary. Quantitative findings indicate a strong preference for Gameshow Quiz, which was rated as the most effective, enjoyable, engaging, and desirable.[33] This is supported by qualitative data highlighting the appeal of the point bonus system, time efficiency, and time limit challenges in Gameshow Quiz. Meanwhile, Maze Chase and Find the Match offer high interactivity and visual appeal.[34] However, Anagram and Open the Box are less desirable due to practicality issues and slow learning rhythm.[35]

These results confirm that student-centered game-based learning design is crucial in enhancing learning engagement and effectiveness. Gameshow Quiz successfully integrates game elements with learning mechanisms through its point bonus system and time challenges, which compel students to recall information quickly.[36] [37] [38] In contrast, Maze Chase, which focuses on

[33] Utami et al., “Penggunaan Media Pembelajaran Aplikasi Wordwall,” 63.

[34] Damar Isti Pratiwi and Ubaedillah Ubaedillah, “Digital Vocabulary Class In English For Railway Mechanical Technology,” *Teaching English With Technology* 21, no. 3 (2021): 67–88.

[35] Suliswaningsih Suliswaningsih et al., “Pelatihan Membuat Game Menggunakan Software Construct 2 Untuk Meningkatkan Motivasi Belajar Pada Siswa SMK,” *SEMAR (Jurnal Ilmu Pengetahuan, Teknologi, Dan Seni Bagi Masyarakat)* 10, no. 1 (March 31, 2021): 1, https://doi.org/10.20961/semar.v10i1.44463.

[36] Anna Maria Gianni and Nikolaos Antoniadis, “A Novel Gamification Application for High School Student Examination and Assessment to Assist Student Engagement and to Stimulate Interest,” *Information* 14, no. 9 (September 10, 2023): 498, https://doi.org/10.3390/info14090498.

entertainment, is less effective in transferring knowledge. These findings are consistent with previous research showing that educational games like Quizizz can increase student interest and learning achievement.[39] [40] [41] Furthermore, the integration of technology in learning, including the use of e-learning platforms, mobile applications, multimedia, and social media, has expanded accessibility to Islamic religious resources and increased student engagement in the learning process.[42] [43] [44] Therefore, the use of Wordwall as an interactive learning medium can aid the learning process.[45] [46] [47] [48] [49]

However, this study also highlights the challenges in adopting technology in Arabic language education, including digital readiness and curriculum integration.[50] To address these challenges, educators need to consider a balanced approach between technological innovation and maintaining

[37] Maria Erica Istyasiwi, Yetty Aulianty, and Dudung Amir Sholeh, "Pengembangan Media Digital Kartu Domino Rantai Makanan (Dorama) pada Pembelajaran IPA di Sekolah Dasar," *Prima Magistra: Jurnal Ilmiah Kependidikan* 2, no. 2 (September 2, 2021): 254–63, https://doi.org/10.37478/jpm.v2i2.1115.

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[42] E. F. Fahyuni et al., "Integrating Islamic Values and Science for Millennial Students' Learning on Using Seamless Mobile Media," *Jurnal Pendidikan IPA Indonesia* 9, no. 2 (June 30, 2020): 231–40, https://doi.org/10.15294/jpii.v9i2.23209.

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the essence of authentic and valid religious education.[51] The research results indicate that students' perceptions of the use of Kahoot! media in Indonesian language learning are positive.[52] This can be seen from the questionnaire results, which show that most students feel happy and motivated by the use of Kahoot! as a learning medium.[53] In addition, this study provides insights into effective game-based learning design.

This research implies that educators should consider students' cognitive preferences and functional expectations when designing game-based learning. Time efficiency, instant feedback, and calibrated challenges are design principles that can enhance the effectiveness of Wordwall games as vocabulary learning tools. Games that are considered boring by students require a more innovative approach, such as incorporating Computational Thinking learning methods into multimedia like games.[54] Furthermore, this study also highlights the importance of considering social and cultural aspects in the use of technology in Arabic language learning, as each community has unique norms and values that can influence how technology is used in the context of religious education.[55] By considering these factors, educators can optimize the use of Wordwall as an effective and engaging learning tool, which can ultimately improve students' mastery of Arabic vocabulary.

This research has several limitations. First, the relatively small sample size may limit the generalization of the findings. Second, this study only focuses on five types of Wordwall games, thus not covering all potential game variations available. In the future, further research with a larger sample and more game variations is needed to confirm these findings. Furthermore, further research is needed to explore the long-term impact of game-based learning on memory retention and student learning motivation.

CONCLUSION

This research aims to evaluate students' effectiveness, appeal, enjoyment, and interest in five types of Wordwall games for learning Arabic vocabulary (*mufrodāt*). The results indicate that

[51] Idiat Oluranti Adebule, "The Effective Use of Educational Technology for Religious Education Teaching," *The International Journal of Learning: Annual Review* 15, no. 12 (2009): 141–46, https://doi.org/10.18848/1447-9494/CGP/v15i12/46041.

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Gameshow Quiz is the most effective and desirable type of game for students, as it offers a good balance of entertainment and learning through a point-based bonus system and time-based challenges. Meanwhile, other types of games such as Maze Chase and Find the Match are attractive due to their interactivity and appealing visuals, although they are less effective in knowledge transfer. These findings underscore the importance of student-centered game-based learning design, which considers students' cognitive preferences and functional expectations. Educators can use design principles such as time efficiency, instant feedback, and calibrated challenges to optimize Wordwall's use as an effective and engaging vocabulary learning tool. Wordwall has proven capable of motivating students in the vocabulary learning process, providing positive effects and helping them always enjoy and look forward to playing. Using Wordwall media can increase students' motivation and learning outcomes in science subjects.

This research contributes to understanding how technology can enhance Arabic language learning. By adopting an interdisciplinary approach, educational institutions can achieve better student engagement and overall satisfaction. The findings also provide practical implications for educators and educational game developers in designing and implementing more effective and engaging Wordwall games for learning Arabic vocabulary and other subjects. In addition, Wordwall-based learning media have proven highly effective as interactive learning tools that support the learning process at the elementary school level.

This research is still limited to five Wordwall game types, which do not cover all available variations. In the future, further research can be conducted with a larger sample and more game variations to strengthen the research findings. Additional research can delve deeper into the factors that influence students' preferences for different types of Wordwall games, including learning styles, Arabic proficiency levels, and cultural backgrounds. In conclusion, this research provides valuable insights into the potential of Wordwall games in enhancing Arabic vocabulary learning. By understanding students' preferences and applying appropriate design principles, educators and educational game developers can create a more effective, engaging, and enjoyable learning experience.

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