

Wordwall as a Digital Assessment Instrument for Vocabulary Learning: Systematic Literature Review (SLR)

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Abstract. Innovating a digital assessment instrument is needed to support Indonesian vocabulary learning for elementary school students. Assessment instruments can stimulate and build students' enthusiasm and motivation to learn. This study aims to review the literature on using Wordwall as a digital literacy assessment instrument for Indonesian vocabulary learning for elementary school students. The research method used in this study is the SLR (Systematic Literature Review) method. Data collection techniques use documentation and article reviews related to the Wordwall application. The articles used in this study were 14 journal articles obtained from the Scopus and Google Scholar databases using the Publish and Perish applications. This study found that Wordwall can be used as a digital literacy assessment instrument for Indonesian vocabulary learning based on elementary school students.

Keywords: Wordwall, Digital Assessment Instrument, Indonesian Vocabulary.

1 Introduction

The Covid-19 pandemic has forced teachers and students to be able to adapt to digital technology to support the success of online learning. Many teachers flocked to digital literacy training activities to build quality learning, both in the process and learning outcomes, including digital teaching materials, digital media, and digital assessment instruments. This condition is a challenge for teachers. Teachers must create learning involving student enthusiasm regarding the teaching materials, media, and assessment instruments. Assessment refers to awards that include evidence and aspects of knowledge, understanding, skills, and attributes of students (Patricx and Nix, 1989).

Assessment instruments are essential in learning. Currently, many digital devices are used to assist learning activities. Innovations in educational technology and teaching methods provide powerful tools to improve digital literacy in early childhood (Kaynar, 2020). Educational applications, interactive software, and game-based learning approaches are some innovations that can make learning more interesting and relevant for children (Behnamnia, 2020). The UNESCO Institute in 2021 stated that the indicators of digital literacy competencies are operating software on digital devices, interacting through digital technology, collaborating through digital technology, problem-solving, and interpreting and manipulating data, information, and digital content for specific fields.

The instillation of activities oriented towards digital literacy is very important. Students' understanding of digital device use is expected to impact the learning process positively. UNESCO also stated that digital literacy is important for understanding technology, information, and communication devices. The use of digital devices requires good vocabulary mastery. Vocabulary plays an important role in language mastery because, without good vocabulary mastery, a person will have difficulty communicating or even be unable to communicate (Basri, 2014, p. 432).

Teachers can prepare interesting and innovative digital assessment instruments in vocabulary learning assessment activities. In Khong's (2024) study, he introduced vocabulary assessment literacy among language teachers and researchers, ensured the integrity of instrument development, and improved language learning and research. In this study, he described the development of vocabulary assessment instruments. Gamification in language learning motivates and inspires learners because it offers many challenges, goals to be achieved, and, ultimately, awards to be won (Prathyusha, 2020).

In the study, Pipuang and Yuttapongtada (2023) explained that the Wordwall activity is part of the literacy framework developed by Cunningham and Allington in 1999. Using Wordwall, it is hoped that students will improve their understanding of English vocabulary without always depending on the use of dictionaries or the meaning of words given by the teacher (Rohmatin, 2023). Regarding the existing problems, the author would like to discuss Wordwall as a digital assessment instrument for vocabulary learning.

2 Research Methods

The method used is SLR (Systematic Literature Review). According to Kitchenham (2007), SLR is a way to identify, evaluate, and interpret all available research with a particular research question, topic area, or phenomenon of interest. Qing Gu (2009) also explains that SLR is an evidence-based approach to finding studies relevant to several established research questions by selecting, assessing, and synthesizing findings to answer research questions. SLR is a research technique for analyzing the state of the art in a particular field of knowledge by formally defining the problem statement, sources of information, search strings, inclusion and exclusion criteria of papers found in the search, quantitative analysis to be performed (if necessary), and templates for finding information collected from papers (J. Nicolas and Toval, 2009).

SLR is a method to synthesize research results so that more comprehensive and balanced facts can be presented to policymakers (Siswanto, 2010). According to Wahono (2015), there are 3 (three) stages in compiling research using the SLR method: the planning, the conducting, and the reporting stages. Systematic literature review (SLR) is a systematic research method for collecting, critically evaluating, integrating, and presenting findings from various research studies on research questions or topics of interest. "Systematic" is because it adopts a consistent and widely accepted methodology (Pati & Lorusso, 2018).

According to Lusiana and Suryani (2018), the SLR method is a term used to refer to a particular research methodology or research and development carried out to collect and evaluate research related to a particular topic focus. According to Traiandini (2019), the SLR method's benefits are identifying, reviewing, evaluating, and interpreting all available research with a topic focused on a particular phenomenon of interest. SLR is useful for researchers because it provides

clear motivation for new research and practitioners. After all, it provides comprehensive evidence to guide decision-making in their work (Al-Zubidy & Carver, 2019).

In this study, researchers collected scientific journal articles in the Scopus, Eric, and Google Scholar databases with the help of the Publish and Perish applications. The articles collected were articles published in the period from 2020 to 2024. Researchers collected data by searching for journal articles with Wordwall, instrument Assessment, or Assessment Digital for Vocabulary on the Scopus page. In the next step, researchers grouped articles related to Wordwall in learning Indonesian vocabulary and learning in general. The metadata of these articles is then tabulated in a table, including the title, author's name, year of publication, journal name, type of research, and research results. After that, researchers reviewed and analyzed the articles in depth, especially regarding the results and conclusions of the research. In the final section, researchers will compare the findings in these articles and conclude.

3 Findings and Discussion

3.1 Findings

The results and discussion in this study used an SLR review consisting of four steps, namely identification, screening, requirements, and feasibility of the results. In the initial activity, the researcher entered keywords into the database in the form of articles and research journals that studied the influence of Wordwall and digital assessment instruments. Then, the researcher applied other keywords in the form of Indonesian vocabulary learning. The databases used include Scopus, Eric, and Google Scholar. The determination of keywords is generated from a literature review search using the SLR method. In this step, 27 journals with the keyword Wordwall on the Scopus page, 4,192 journals with Digital Assessment Instrument, and 443 with Instrument Assessment Vocabulary. Furthermore, the researcher identified feasibility by setting criteria for the journal's publication year, topics that are not relevant to the research, and unvalidated sources, so 14 research journals were obtained.

Researchers eliminated journals with the same research title and authors from several databases and journals with incomplete methodology and data. In this step, 14 research results met the criteria. Inclusion and Exclusion Criteria are based on Wordwall as a digital assessment instrument. Inclusion Criteria in this study are national journals and international journals related to Wordwall, which have the following components: Wordwall as a digital assessment instrument, the influence of Wordwall as an instrument, and factors and impacts of digital assessment on vocabulary learning. Exclusion Criteria in this study include using Wordwall and implementing digital assessment on vocabulary learning. Researchers found 14 research journals from the search results using SLR. Of the 14 journals, one journal used a questionnaire data collection technique, one journal used a survey method, and 11 journals were development research or classroom action research.

Researchers reviewed 14 journals based on the results of research mapping related to keywords in the Scopus, Eric, and Google Scholar databases. The following are the results of the study.

Table 1. Selected Research Journals

No.	Title	Writer	Journal	Year	Indeks
1.	<i>The Effects of Wordwall Online Games (WOW) on English Language Vocabulary Learning Among Year 5 Pupils</i>	1. Syafiqah Hasram; 2. M. Khalid M. Nasir 3. Maslawi Mohammad; 4. Md. Yusoff Daud; 5. Mohd Jasmy Abd Rahman; dan 6. Wan Muna Ruzanna Wan Mohammad.	<i>Theory and Practice in Language studie</i>	2021	Q2
2.	<i>Creating the Conditions for Vocabulary Learning With Wordwall</i>	1. Benjamin Luke Moorhouse; dan 2. Lucas Kohnke.	<i>RELC Journal</i>	2024	Q1
3.	<i>Effectiveness of Learning English Words of Sanskrit Origin as Loanwords in Thai Thought Wordwall Gamification</i>	1. Kowit Pimpuang; dan 2. Methawee Yuttapongtada.	<i>Language Education and Acquisition Research Network (LEARN Journal)</i>	2023	Q1
4.	<i>Towards a New Sophistication in Vocabulary Assessment</i>	John Read	<i>Language Testing</i>	2023	Q3
5.	<i>Computer-based Vocabulary Assessment in Children Aged 8 to 11</i>	1. Jean Ecalle; 2. Nicolas Bailloud; 3. Emilie Dujardin; dan 4. Annie Magnan	<i>Canadian Journal of Learning and Technology</i>	2021	Q3
6.	<i>The Role of Digital-Game Based Language Learning in EFL Vocabulary Learning and Retention: A Case Study at a Higher</i>	1. Bachra Bouzaiane; dan 2. Alaa Youzbashi.	<i>Journal of Language Teaching and Research</i>	2024	Q2

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| 7. | Development of an instrument for measuring Spanish vocabulary knowledge | 1. How Keat Khong;
2. Muhammad Kamarul Kabilan | Porta Linguarum | 2024 | Q1 |
| 8. | Pengaruh Penggunaan <i>Assessment Wordwall</i> terhadap Hasil Belajar Siswa SMA | 1. Ernasari; dan
2. Ike Lusi Meilina. | Jurnal Pembelajaran Fisika | 2024 | S5 |
| 9. | Pemanfaatan Game Edukasi <i>Wordwall</i> untuk meningkatkan hasil belajar bahasa Indonesia siswa kelas v sekolah dasar | 1. Erly Kusumawati; dan
2. Mu'jizatin Fadiana. | Jurnal Basicedu | 2024 | S5 |
| 10. | Penggunaan Game Edukasi Berbasis <i>Wordwall</i> untuk Meningkatkan Kemampuan Vocabulary Siswa Pembelajaran Bahasa Inggris | Rohmatin | Edutech | 2023 | S2 |
| 11. | Pengembangan Alat Evaluasi Pembelajaran Bahasa Indonesia Berbasis <i>Web Wordwall</i> untuk Peserta Didik Kelas II SDN Beji 01 Jenu Tuban | 1. Tarista Nadya Meisavitri;
2. Syamsul Ghufro; dan
3. Akhwani; dan
4. Rudi Umar Susanto. | Edu-Kata | 2023 | S6 |
| 12. | Pengembangan Alat Evaluasi Pembelajaran menggunakan <i>Platform Wordwall.Net</i> | 1. Umi Latifah; dan
2. Maryam Isnaini Damayanti. | JPGSD | 2022 | S4 |

	untuk Siswa Kelas II Sekolah Dasar				
13.	Pengembangan Evaluasi Berbasis Digital Melalui <i>Web Wordwall</i> pada Peserta Kelas V Sekolah Dasar	1. Ida Muza Kirotul Umah; 2. Indhira Asih Vivi Yandari; dan 3. Zerry Rahman Hakim.	Jurnal Pendidikan Dasar Perkhasa	2023	S4
14.	Pengembangan Materi Evaluasi Pembelajaran Berbasis <i>Wordwall</i> untuk Siswa Sekolah Dasar	1. Nurhandayani Hasanah; dan 2. Sutiah.	SITTAH: Journal of Primary Education	2023	S4

Table 1 shows several selected studies related to Wordwall as a digital assessment instrument and a digital assessment instrument for vocabulary learning. The table also includes the title of the study, author's name, journal name, and year of publication. Most of the selected studies were found in 2023. The oldest study was found in 2021.

Figure 1 shows a pie chart of the percentage of countries that are case studies in the Selected research.

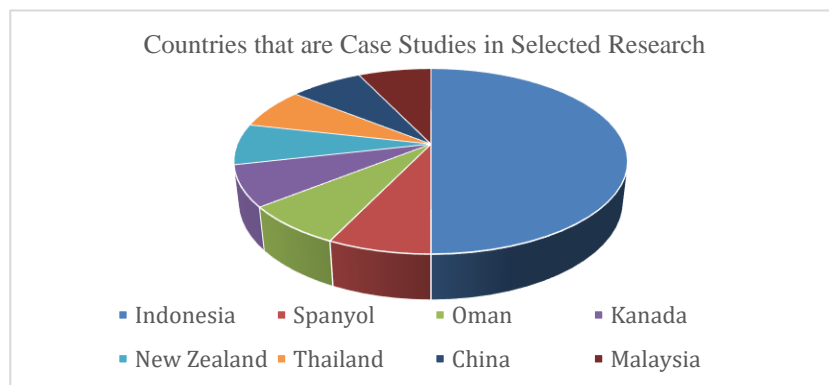


Figure 1. Country Diagrams that are Case Studies of Selected Research

The data presented in Figure 1 shows that the selected research case studies are primarily found in Indonesia.

Figure 2 shows a mapping diagram of selected research journals based on publications in the last 5 years.

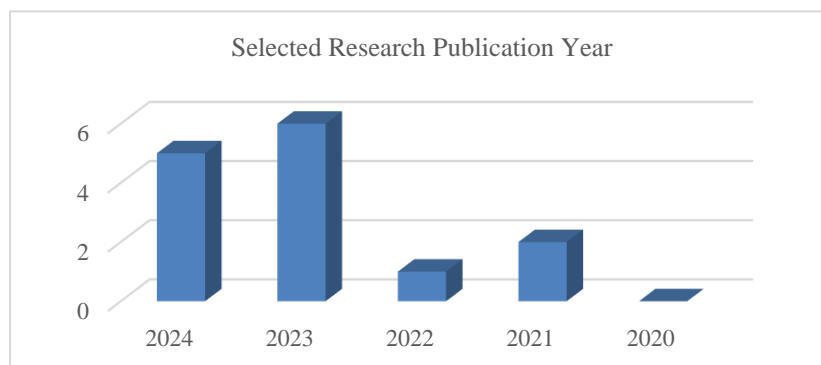


Figure 2. Diagram of Selected Research Publication Years

The data presented in Figure 2 shows the publication year of the selected research. The diagram above shows an increase in selected research from 2022 to 2023 and a decrease from 2023 to 2024. From 2021 to 2022, research on Wordwall as a digital assessment instrument for vocabulary learning did not decrease. From 2022 to 2023, research on Wordwall as a digital assessment instrument for vocabulary learning experienced a significant increase. From 2023 to 2024, research on Wordwall as a digital assessment instrument for vocabulary learning decreased again.

Figure 3 below shows a diagram of the criteria for the selected research publication index.

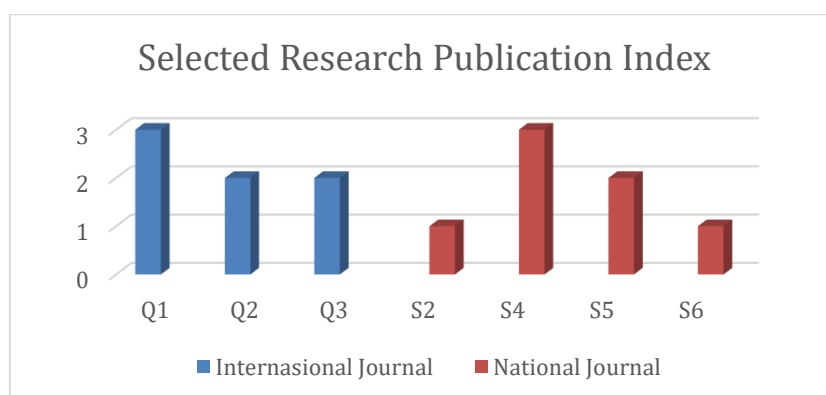


Figure 3. Diagram of the criteria for the publication index of selected research.

The data presented in Figure 3 shows the publication index of the last five years in selected research, indicating that research on Wordwall as a digital assessment instrument is urgent for vocabulary learning. The Index criteria in Figure 3 are in the Q1 and S4 indexes.

The following is Figure 4, which shows a diagram of the data collection techniques used in the selected research.

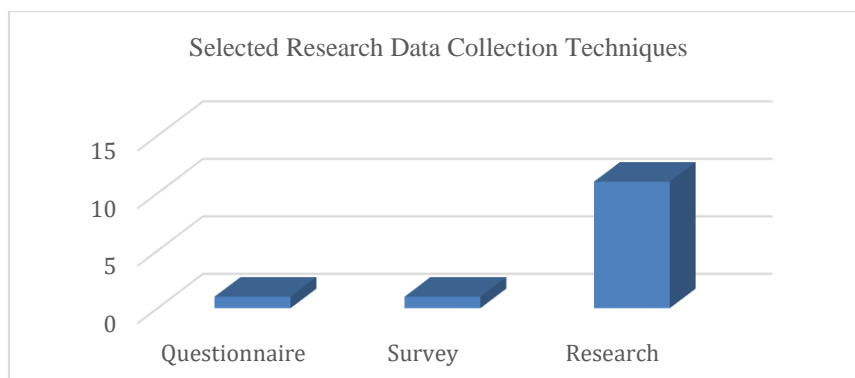


Figure 4. Selected Research Data Collection Techniques Diagram

The data presented in Figure 4 shows the methods and techniques of data collection in selected studies. From the data, 11 selected studies were found to use development research methods or classroom action research.

3.2 Discussion

Wordwall is a gamification application found in a digital platform to create engaging learning. The application can be accessed for free by teachers through a website connected to the internet. Premium-level templates are not provided for free. However, they can reach a wider network and be accessed for a long duration. Teachers can choose the form of the instrument in the available template according to their needs and assessment goals. Wordwall has instruments such as match up, open box, true or false, anagram, random card, matching pairs, and find the match. (Jasmine and Schiesl, 2009: 302) stated that Wordwall is a bulletin board that displays a collection of high-frequency or theme-related words, and supports activities that include games that focus on learning vocabulary.

Harmer (2007: 223) stated that vocabulary understanding is needed to provide students with knowledge in the learning process. Wordwall is the most suitable game platform for practicing vocabulary (Janke & Hume, 2015). Using Wordwall, it is hoped that students will improve their understanding of English vocabulary without always having to depend on the use of a dictionary or the meaning of words given by the teacher (Rohmatin, 2023). Wordwall introduces easy-to-learn words, and students can see important words they might need to use when writing or spelling (Boonlue, 2018).

Colorful images accompany Wordwall to help maintain player attention, associate words with images, strengthen spelling memory and support direct and indirect understanding of word meanings (Cuesta, 2020). Wordwall activities are part of the digital literacy framework. Wordwall, a digital assessment instrument, makes learning interesting and helps teachers create innovative vocabulary assessment instruments. Umah's research (2023) found that the product of developing digital-based learning evaluations through the Web Wordwall is very feasible and excellent to use as support in the learning process.

In Latifah's research (2022), the results showed that the assessment instrument using Wordwall was declared valid, practical, and effective for use in Indonesian language learning. Hasanah's research (2023) found that the Wordwall-based assessment instrument had good practicality, validity, and effectiveness. Widoyoko (2018: 5) argues that assessment can be interpreted as

interpreting or using data from a measurement based on specific criteria, standards, or rules. Assessment is determining a value or measuring something according to the rules and using tools in the form of tests or non-tests carried out in an internal context. Assessment is also a series of decision-making processes to determine something of a certain size based on criteria, and it is qualitative.

In addition to increasing students' sensitivity to digital products, Wordwall provides a positive learning experience, various types of games, scores, and challenges (Harsyam: 2021). Wordwall also has limitations and shortcomings. Pimpuanng (2023) explains that Wordwall does not have an 'import' feature and does not allow hundreds of questions to be entered from one sheet of paper. In this regard, teachers must copy and paste the content into the question-and-answer template. Teachers can also type the questions directly into the template. Other limitations include the multiple-choice quiz format and the bold, italic, and underlined 'font' features cannot be applied in the Wordwall application.

In line with other studies on Wordwall as an assessment instrument, Khong's (2024) study introduced vocabulary assessment literacy among language teachers and researchers. It ensured the integrity of instrument development and improved language learning and research. In the study, it describes the development of vocabulary assessment instruments. Gamification in language learning motivates and inspires learners because it offers many challenges, goals to be achieved, and awards to be won (Prathyusha, 2020). Bouzaiane's (2024) study recommends using digital games to improve vocabulary learning and retention, thus producing a more engaging language education environment.

Cronsberry (2004) stated that Wordwall can encourage active student participation. Ernasari (2024) stated that Wordwall is designed as a game to reduce students' fear of answering questions and increase their self-confidence. Kusumawati (2024) explained that with the Wordwall educational game, students can directly answer the teacher's evaluation questions and find out the scores or grades they get directly after completing the evaluation. Wordwall is an application that is considered suitable to be applied as a digital assessment instrument for vocabulary learning.

4 Conclusion

Based on the analysis results of 14 selected research journals, Wordwall as a digital assessment instrument makes learning interesting and helps teachers create digital assessment instruments for innovative vocabulary learning. The limitations of Wordwall in importing test items into templates can be overcome by typing or manually rearranging them in the available templates. The many game features in Wordwall make it easier for teachers to choose the appropriate form of instrument in vocabulary learning.

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