

IMPLEMENTATION OF WORDWALL AS AN EVALUATION TOOL FOR GEOGRAPHY TEACHERS AND STUDENTS IN THE DIGITAL LEARNING ERA AT SMAN 10 MAKASSAR

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Abstract: This activity aimed to implement Wordwall as an interactive formative assessment medium in Geography learning at SMAN 10 Makassar and to support teachers in developing technology-based assessment practices. The activity employed an integrated case study approach involving teacher mentoring, participatory observation, quiz implementation, and documentation of assessment results obtained from the Wordwall platform. The activity involved 34 students from class XII.11 and focused on the topic of Regional Development. The results showed that Geography teachers were able to develop various formative assessment activities using the Spin the Wheel, Open the Box, and Quiz templates. During the implementation, students demonstrated active participation and positive interaction in completing the game-based assessments. The Wordwall quiz results showed an average class score of 95, with 31 out of 34 students (91.2%) achieving the specified mastery criterion. The assessment duration was also reduced from approximately 60 minutes using conventional assessment to approximately 30 minutes using Wordwall. These findings indicate that Wordwall has potential to support formative assessment efficiency, encourage student engagement, and strengthen the integration of digital technology into Geography learning. Continued implementation through teacher mentoring and the development of a digital question bank is recommended to support the sustainable use of interactive assessment media in Geography education.

Introduction

The rapid development of technology in the Industry 4.0 era toward Society 5.0 necessitates that schools immediately adopt digital literacy so that learning, including formative assessment, remains relevant to students as digital natives. However, in many high schools, for example, in Geography lessons at SMAN 10 Makassar, evaluation methods are still conventional,

such as paper quizzes and question-and-answer, making conceptual material like Regional Development feel boring and reducing student engagement and retention. Therefore, the use of interactive digital quiz media becomes important to create a more engaging and meaningful learning environment. Integrating technology into learning has been proven to increase effectiveness and student engagement (Safitri, 2024). Additionally, digital literacy in education plays a crucial role in the transformation of modern learning, preparing students to meet the demands of the 21st century (Nurjanah et al., 2024).

To overcome these challenges, there is a need for innovative evaluation media that can combine assessment functions with elements of gamification. Wordwall, as a web-based platform, offers a variety of interactive quiz templates that can be customized to meet learning needs, while also making it easier for teachers to provide quick feedback and monitor student learning outcomes (Mulyati & Supardi, 2025). Its application in Geography learning at SMAN 10 Makassar aims to change students' perspectives on evaluation to make it more engaging and to help teachers develop formative assessments that are adaptable to the characteristics of the material and students (Zainiah & Putri, 2024).

The development of digital learning demands evaluation media that can increase student engagement and motivation, especially in subjects requiring conceptual understanding like Geography. The use of gamified quizzes has been proven to increase student attention, participation, and academic performance, as demonstrated by the study by Sánchez et al. (2020), which showed that interactive quizzes provide a more effective learning experience compared to traditional assessments. Additionally, a systematic review by Ananda et al. (2024) confirms that gamification in evaluation can foster a positive sense of competition and improve learning consistency. These findings provide a strong basis for the potential of platforms like Wordwall to be a more engaging and adaptive formative assessment solution for students in secondary school settings.

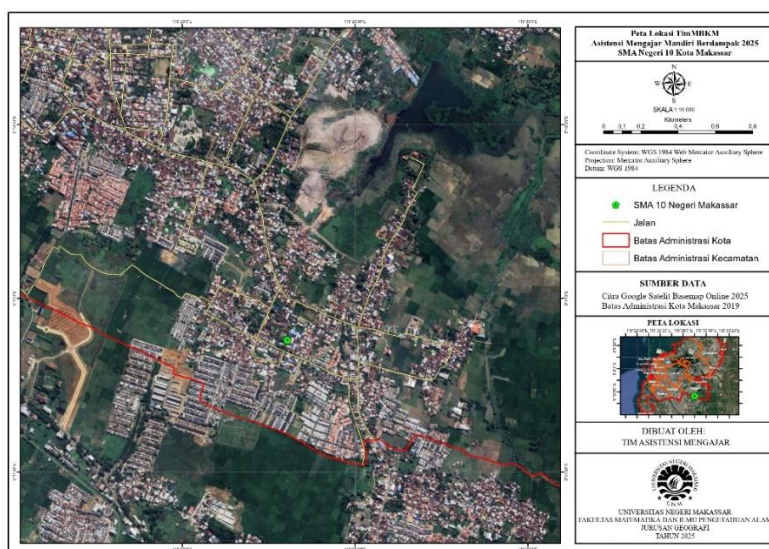
In Geography learning, the use of ICT has proven to help students understand abstract spatial concepts. Research by Wijaya et al. (2023) indicates that using Web-GIS can significantly improve students' spatial thinking abilities. Another finding by Jaeger (2024) confirms that geospatial technologies like Google Earth can enhance spatial literacy and facilitate the analysis of geographical phenomena. Therefore, implementing Wordwall as an interactive quiz medium at SMAN 10 Makassar can support more engaging evaluations while also strengthening students' spatial understanding.

Most Wordwall studies focus on the direct impact on students, rather than the role of teachers as the main actors in the transformation of evaluation. The main adoption challenge lies in the readiness and competence of teachers to design digital materials aligned with the platform, thus formal training is needed for optimal integration in high schools. There are not many specific service articles that place teachers at the center of Wordwall for Geography materials such as "Regional Development." This service fills the gap through implementation at SMAN 10 Makassar, enhancing teacher capacity and the relevance of the material (Sitinjak et al. 2024).

Based on this activity, the aim is to improve the ability of Geography teachers at SMAN 10 Makassar to utilize Wordwall as an effective and efficient interactive quiz medium. The program also provides relevant evaluation models for 21st-century competency demands, such as critical thinking thru the gamification of high school Geography materials. The novelty contribution emphasizes the role of teachers as catalysts for school evaluation transformation, making Wordwall a digital literacy strategy aligned with Industry 4.0 and Society 5.0. Unlike previous studies that focused on students, this approach centers on the teacher in Wordwall innovation as a flexible interactive tool (Zulkriansyah et al. 2025). The implementation of Wordwall bridges the gap between technology and conventional evaluation, resulting in active, fun, and competitive Geography learning. Similar implementations improve student learning outcomes and engagement in high school thru this medium.

Research Methods

This service activity was carried out at SMAN 10 Makassar, located at Jl. Tamangapa Raya 5 No.12, Tamangapa, Manggala District, Makassar City, with geographical coordinates $5^{\circ} 11' 7.49''$ S, $119^{\circ} 29' 17.96''$ E. The following is an image of the research location: Figure 1.1 Map of Sman 10 Makassar Research Location :



Data Source: Author's Data Processing Results (2025)

This activity was carried out as an effort to address the current need at Sman 10 Makassar to adopt digital technology in learning, as well as the minimal use of interactive evaluation media that can increase student motivation and engagement. To meet this need, the proposed solution is the implementation of Wordwall-based digital media as an interactive quiz in Geography lessons. This solution was chosen because it can provide a more engaging learning experience, encourage student activity, and make it easier for teachers to manage learning evaluations. This implementation also leverages the program implementer's direct access during their Teaching Assistantship at SMAN 10 Makassar, allowing the activities to be applied optimally and in accordance with the school context.

This program is implemented thru a direct mentoring approach, field observation, and documentation to ensure that the use of the Wordwall platform aligns with the needs of teachers and students. The mentoring was conducted by providing technical guidance to teachers and students on how to create, manage, and implement interactive quizzes in Geography lessons on the topic of Regional Development in class XII.II. During this process, both teachers and students were actively involved, allowing the implementation of Wordwall to proceed gradually and purposefully according to classroom conditions. The program's implementation was strengthened thru direct observation during lessons to record student responses, engagement levels, and the effectiveness of teachers in utilizing digital quizzes. This process was supported by documentation in the form of activity photos, field notes, and quiz results recorded on the Wordwall platform.

Result and Discussion

A. Analysis of Teacher Needs and Readiness for Wordwall Integration

Wordwall integration is highly relevant to teachers' need to conduct efficient, interactive, and varied formative assessments. This platform not only facilitates teachers' design of game-based assessments but also increases student motivation through an engaging and accessible interface. Teachers' willingness to adopt digital platforms like Wordwall is key to creating adaptive learning in the Society 5.0 era.

Figure I. Collection of Wordwall-Based Learning Activities



Data Source: Author's Data Processing Results (2025)

Figure I. presents a Wordwall dashboard display demonstrating the successful design of an interactive quiz by a Geography teacher assisted by the Teaching Assistance Team. Three formative evaluation models are available for use in Regional Development materials: Regional Development Principles (Spin the Wheel), Regional Development Objectives (Open the Box), and Regional Development Theory (Quiz). The availability of these various templates demonstrates that teachers are able to apply the principle of varied evaluation without having to create different content. This demonstrates that the ease of use and scripting of Wordwall templates are crucial for increasing teacher efficiency and creativity in developing assessment instruments in the digital age. The implementation of Wordwall demonstrates that Geography teacher mentoring at SMAN 10 Makassar has utilized three variations of evaluation instruments: Spin the Wheel, Open the Box, and Quiz, to examine Regional Development concepts more comprehensively. These three activities are based on the same material but

presented in different formats, eliminating the need for data re-entry and allowing teachers to directly modify the templates to suit their learning needs.

Teacher participation as partners was particularly prominent at this stage. Geography teachers actively participated in identifying digital evaluation needs, learning how to use Wordwall, designing template-based instruments, and adapting them to the core competencies of Regional Development. This implementation platform indicates that Wordwall offers high expectations for teachers in creating creative formative assessments that align with the principle of varied evaluation, as Wordwall is known as an interactive, varied learning medium that can increase student motivation (Gandasari & Pramudiani, 2021). Furthermore, Wordwall is a web-based digital application that provides various features such as quizzes, crossword puzzles, and random cards, supporting teachers in delivering material in a more engaging and adaptive manner (Aryani et al., 2021). This is a crucial foundation for the success of community service programs, as digital media integration requires teacher readiness and openness to innovation.

The use of various forms of evaluation also helps reduce student boredom and provides opportunities for teachers to assess understanding from various perspectives. This situation indicates that digital teacher competency, particularly in utilizing interactive platforms like Wordwall, has evolved in line with the demands of educator professionalism in the Industry 4.0 era. Professional teachers are required not only to master technology but also to develop innovative learning strategies and integrate moral and ethical values into the learning process as part of the transformation of education in the digital age (Hasrin & Sidik, 2025). The implications of these findings suggest that improving digital teacher competency can be further developed through continued mentoring activities. The use of Wordwall can be the beginning of broader integration with various digital evaluation platforms. By increasing teacher readiness, schools have the potential to build a learning culture that adapts to technological developments. A follow-up action that can be taken is to develop collaboration between teachers to create a Wordwall-based digital question bank that can be used continuously.

B. Wordwall Implementation and Increased Student Engagement

The direct implementation of a Wordwall in Geography class demonstrated a significant impact on the evaluation atmosphere, from a passive one to a highly active and competitive one. This increase in student engagement was clearly visible during the quizzes. Direct observations conducted in class XII.II of SMAN 10 Makassar showed that the implementation of a Wordwall-based interactive quiz stimulated direct interaction and a more dynamic learning atmosphere among 34 students.

Figure 2. Observation of the Implementation of a Wordwall Quiz in Geography Learning in Class XII.II of SMAN 10 Makassar



Source: Researcher Documentation

Figure 2. shows the atmosphere of a Wordwall-based interactive quiz in class XII.II of Geography. The Teaching Assistance Team is guiding students who are actively engaged in answering questions displayed on a SmartTV, while other students interact with their personal devices. This implementation successfully created a collaborative and competitive learning atmosphere. The visual elements, leaderboard, and timer of the Wordwall successfully captured the attention of digital native students, proving that the gamification approach is effective in breaking up boredom in Geography conceptual material and directly contributing to increased student motivation and participation.

During the implementation phase, students demonstrated highly active participation. They engaged in answering questions using their devices, providing quick responses to the leaderboard, and discussing with their peers if there were differing answers. The use of digital media such as Wordwalls in learning has been proven to create a more active, enjoyable, and meaningful learning experience for students. Wordwalls function not only as an evaluation tool but also as an interactive medium that presents visual elements, challenges, and game dynamics that align with the characteristics of digital native students. This aligns with the view of Bacon & Kearney (2020), who assert that when students engage in an effective learning process, they can develop important competencies that positively impact both short-term and long-term development.

The use of Wordwalls can help shape students' disciplined character through positive habits, such as following game rules, managing time, and consistently participating in class activities (Sinaga & Soesanto 2022). These findings are supported by Nafi'ah et al. (2021), who demonstrated that integrating a Wordwall-based learning model can improve student activity and learning outcomes, particularly in classes that previously tended to be monotonous and textbook-centered. This situation demonstrates the importance of implementing creative media amidst rapid technological developments, given that teachers play a strategic role as learning facilitators who require collaborative support from parents, schools, and the community (Puspitasari & Ningsih, 2024). Students who are typically passive in traditional assessments appear more enthusiastic when the evaluation mechanism is presented interactively through Wordwall. In addition to the model implementation, the use of Wordwall media is also an important factor in supporting active, enjoyable, and engaging learning, potentially improving student learning outcomes. Sinaga & Soesanto (2022) explain that Wordwall is a web platform that provides various types of educational games to create an interactive and engaging learning environment. Through features such as quizzes, Open the Box, Spin the Wheel, and Flip Tiles, teachers can design varied learning activities and encourage direct student engagement.

The effectiveness of using Wordwalls in enhancing student interaction has been demonstrated, increasing attention, participation, and the quality of communication during learning (Herta et al. 2023). Therefore, implementing Wordwalls in Geography learning is not only pedagogically relevant but also consistent with various studies that confirm their role as a medium capable of enhancing student engagement, motivation, character, and learning outcomes. The impact of this implementation is evident in increased student attention and participation in material previously considered abstract. Through the use of gamification-based activities, the evaluation process is no longer viewed as boring, but rather as an opportunity to demonstrate understanding in a fun way. Implementing this platform is expected to potentially increase learning motivation in subsequent sessions, especially when students are convinced that the evaluation process can be conducted in a more interactive manner. The program can be further developed by involving students in creating Wordwall questions as a form of collaborative learning.

C. Results and Impact of Wordwalls on Formative Evaluation

The results of implementing Wordwalls demonstrate a clear contribution to improving learning outcomes and saving teachers time compared to traditional evaluation methods. Comparative effectiveness data between Traditional Quizzes and Wordwall-based Quizzes are summarized in the following table:

Table I. Comparison of the Effectiveness of Traditional Quizzes and Wordwall-Based Quizzes

Assessment Aspects	Traditional Quiz	Wordwall Quiz
Number of Participants	34 students	34 students
Number of Completions	25–28 students	31 students
Average Score	$\pm$ 85–88 (estimated based on 95 context)	
Lowest Score	$\pm$ 70–75	85
Duration of Implementation	1 hour	$\pm$ 30 minutes
Implementation Model	Students work conventionally, tend to be passive	One by one, students come to the SmartTV to answer questions, while others answer via their devices.
Learning Environment	Lack of interaction, low motivation	More competitive and collaborative (leaderboard, timer, engaging visuals)

Table I. presents a comparison of the effectiveness and efficiency of formative evaluation of Regional Development material involving 34 students in grade XII.II. The data shows a significant improvement in student learning outcomes, with the number of students completing the course increasing to 31 (from 25-28) and the average class score reaching 95. This improvement was accompanied by a reduction in quiz duration from 1 hour to 30 minutes, as well as fundamental changes in the learning

model and atmosphere, making it more competitive and interactive.

In this section, partner participation is evident through the teacher's role in analyzing the Wordwall results report that appears automatically. The teacher uses the report to identify students who need additional support, evaluate the effectiveness of the questions, and design further learning strategies. Meanwhile, the students use their scores for reflection. They can see their respective positions on the leaderboard and understand which parts of the material still need to be learned. This activity creates more transparency in formative evaluation and encourages students to improve their understanding. Learning in the current digital era requires teachers to actively guide students, train problem-solving skills, and guide them to utilize technology appropriately and responsibly as part of digital literacy (Hasrin & Sidik, 2025). Teachers are challenged to implement learning that enhances information literacy, learning and innovation skills, and mastery of media and technology.

In this context, the use of online-based applications is growing rapidly as a learning aid, including during online learning. One effective medium is Wordwall, an interactive application that provides various forms of educational games such as images, diagrams, and quizzes that can be tailored to teaching materials and assessment needs. Aisyah (2019) emphasized that Wordwall provides easy access for students and can increase motivation and learning outcomes through attractive and interactive displays. The use of interactive media and e-learning applications is essential for creating effective reciprocal relationships while fostering student learning independence (Fitra & Maksum, 2021).

The results of implementing Wordwall in formative evaluations show a significant impact on material mastery and learning time efficiency. Data from class XII.11 shows that the average student score reached 95, with the lowest score being 85. This achievement also increased the number of students completing the course from 25–28 to 31. This achievement reflects the success of instant feedback, gamification, and Wordwall activity design in ensuring equitable conceptual understanding. In terms of time, the evaluation duration, which previously required one hour under traditional methods, is now reduced by more than 50%, with Wordwall requiring only approximately 30 minutes, eliminating the need for manual correction. The more interactive and competitive implementation model demonstrates that Wordwall integration aligns with the learning demands of the Society 5.0 era, while also reinforcing Aisyah's (2019) findings that this medium can improve motivation and learning outcomes.

The impact of Wordwall implementation is seen in increased evaluation efficiency, both in terms of time and assessment accuracy. The reduction in quiz duration from one hour to thirty minutes demonstrates that digital media can save teachers time and energy. Furthermore, the increase in average scores indicates that the interactive evaluation model helps students better understand the material. A follow-up implication of this activity is the need for continued implementation of Wordwalls as part of the school assessment system. The program can be developed by integrating Wordwalls into teachers' lesson plans, expanding their application to other materials, and creating user guides for new teachers.

Conclusion and Recommendation

The implementation of the Wordwall Platform as an Interactive Quiz Media is very effective and relevant to support Geography learning, especially Regional Development material, at SMAN 10 Makassar in the digital transformation era. This conclusion is supported by the finding that Wordwall successfully improves teacher efficiency in designing and managing formative assessments, because a set of materials can be transformed into various interactive evaluation models (Spin the Wheel, Open the

Box, Quiz) without requiring data re-entry, in line with the demands of educators' professional competencies in the Society 5.0 era. From the student aspect, the implementation of Wordwall resulted in a significant increase in learning engagement, where the evaluation atmosphere in class XII.II changed to be more active, competitive, and collaborative, in line with the characteristics of students as digital natives. Quantitatively, the effectiveness of Wordwall was proven optimal: the average class score reached 95 and the completion rate jumped to 91.2% (31 out of 34 students), while reducing the duration of the quiz by more than 50% compared to traditional methods. Thus, Wordwall not only serves as an evaluation tool, but also as an effective pedagogical strategy in fostering motivation and ensuring equitable mastery of concepts, making Geography learning more adaptive and aligned with 21st-century digital skills.

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