



Teachers' Strategies for Optimising the Wordwall Platform for Character Education in Elementary

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ABSTRACT

The rapid advancement of digital technology has created opportunities to integrate interactive learning media into character education in elementary schools. However, the effectiveness of digital platforms depends largely on teachers' pedagogical strategies rather than technological features alone. This study aims to identify teachers' strategies in utilising the Wordwall digital learning platform for character education and to examine the supporting and inhibiting factors affecting its implementation at SD Negeri 03 Petanjungan, Pemalang Regency, Indonesia. The study employed a descriptive qualitative approach, involving one principal and three classroom teachers from Grades IV, V, and VI selected through purposive sampling. Data were collected through semi-structured interviews, classroom observations, and document analysis, and analysed using the Miles, Huberman, and Saldaña interactive model with source and method triangulation to ensure credibility. The findings identified four key strategies: point-based reinforcement and rewards, character-oriented game rules, post-learning reflection, and integration of character values into Wordwall activities. Supporting factors included adequate technological facilities, principal leadership, teacher competence, student enthusiasm, and parental support, while barriers included unstable internet connectivity, unequal access to technology, limited instructional time, and the need for continuous content updates. The study concludes that Wordwall effectively supports character education when implemented through intentional pedagogical design, highlighting the importance of continuous teacher professional development in digital pedagogy and character-based learning.

Keywords: teacher strategies; Wordwall; digital learning media; character education; elementary school

INTRODUCTION

The rapid advancement of information and communication technology has significantly transformed educational practices across the world. In the era of the Fourth Industrial Revolution and Society 5.0, digital technology is no longer considered merely an additional instructional tool but has become an essential component of teaching and learning processes. Educational institutions are expected to prepare students not only with academic competencies but also with digital literacy, critical thinking, collaboration, creativity, communication skills, and strong moral character. Consequently, teachers are challenged to integrate digital technology into learning activities while maintaining the educational goal of developing students' cognitive, affective, and psychomotor competencies simultaneously. Indonesia has responded to these global educational changes through various educational reforms, particularly by promoting the integration of technology into classroom instruction. The Ministry of Education, Culture, Research, and Technology emphasizes that technology-based learning should not only improve students' academic achievement but also strengthen the implementation of character education in elementary schools. Character education remains one of the national priorities because elementary school represents a critical stage during which children's attitudes, values, habits, and social behaviors begin to develop systematically. Therefore, integrating character values into digital learning environments has become an important educational agenda in Indonesia.

Character education refers to a systematic effort to cultivate ethical values, moral reasoning, positive habits, and responsible behavior through formal educational processes. According to Lickona (1991), effective character education encompasses three interconnected dimensions: moral knowing, moral feeling, and moral action. Students should not only understand moral values cognitively but also internalize these values emotionally and demonstrate them through daily behavior. In elementary education, teachers play a crucial role in facilitating this process by creating learning environments that consistently encourage discipline, honesty, cooperation, empathy, responsibility, and respect for others.

The growing use of digital learning media has created both opportunities and challenges for implementing character education. On one hand, digital platforms offer interactive learning experiences capable of increasing students' motivation, engagement, and participation. Gamification elements such as points, badges, leaderboards, and instant feedback encourage students to become actively involved in classroom activities. Previous studies have consistently

reported that interactive digital media can improve students' learning motivation, classroom participation, and academic achievement because digital games provide immediate reinforcement and enjoyable learning experiences (Munifah & Prasetya, 2020; Raharjo et al., 2022).

On the other hand, excessive reliance on digital technology without adequate pedagogical planning may reduce social interaction, weaken students' emotional development, and encourage individualistic learning behaviors. Several researchers argue that technology itself does not guarantee meaningful learning outcomes because educational effectiveness depends primarily on teachers' instructional design rather than technological sophistication (Fitriani, 2023). Therefore, digital learning media should be viewed as pedagogical tools whose effectiveness depends on teachers' competencies in designing instructional activities that integrate cognitive learning with character development.

Among various educational technologies currently available, Wordwall has become one of the most popular digital learning platforms used by elementary school teachers. Wordwall enables teachers to create interactive educational games such as quizzes, matching exercises, random wheels, crossword puzzles, maze activities, and group competitions. The platform provides immediate feedback, automatic scoring systems, and visually attractive interfaces that stimulate students' engagement during classroom learning. Unlike traditional worksheets, Wordwall encourages active participation through game-based learning, allowing students to experience enjoyable and meaningful educational activities.

The increasing popularity of Wordwall is closely related to the broader implementation of gamification in education. Gamification refers to the application of game design elements in non-game contexts to increase learners' motivation, engagement, and persistence. Educational researchers have demonstrated that gamified learning environments improve students' intrinsic motivation because they provide opportunities for challenge, achievement, competition, collaboration, and immediate feedback. In elementary schools, gamification also creates emotionally positive learning environments that reduce learning anxiety while increasing students' willingness to participate in classroom activities.

Despite these advantages, the implementation of Wordwall in elementary schools often remains limited to improving cognitive learning outcomes. Many teachers primarily utilize Wordwall as an assessment tool, a classroom game, or a supplementary activity designed to increase students' interest in learning. Relatively few teachers intentionally integrate character

values into Wordwall activities through pedagogical strategies such as establishing ethical game rules, encouraging reflective discussions, promoting cooperation, or designing learning tasks that explicitly incorporate moral values. Consequently, the potential of Wordwall as a medium for character education has not been fully optimized.

Teachers play a decisive role in determining whether digital learning media contribute to character development. According to constructivist learning theory, meaningful learning occurs when students actively construct knowledge through interaction, reflection, and authentic experiences. Therefore, teachers must carefully design learning environments that encourage students not only to answer questions correctly but also to demonstrate responsible, honest, disciplined, and respectful behaviors throughout the learning process. Positive classroom management strategies, appropriate reinforcement, collaborative learning activities, and guided reflection become essential components of effective digital pedagogy.

Behaviorist learning theory also provides important insights into the implementation of game-based digital learning. Positive reinforcement through rewards, praise, and recognition encourages students to repeat desirable behaviors. In the context of Wordwall, teachers may utilize points, badges, verbal appreciation, and classroom recognition to reinforce discipline, responsibility, honesty, and perseverance. However, reinforcement alone is insufficient for developing sustainable character unless accompanied by opportunities for reflection and value internalization. Therefore, combining behaviorist principles with reflective pedagogical practices allows students to connect their gaming experiences with broader moral values.

Several previous studies have investigated the educational benefits of Wordwall. Munifah and Prasetya (2020) reported that Wordwall significantly increased elementary school students' learning motivation because of its interactive features and engaging activities. Raharjo et al. (2022) found that Wordwall positively influenced students' cognitive achievement and classroom participation. Fitriyani and Ramadhan (2020) emphasized that Wordwall effectively supports interactive learning environments, while Nugroho et al. (2023) highlighted the importance of teachers' digital competencies in maximizing technology-based instruction. However, these studies mainly focused on cognitive achievement, motivation, or technological implementation rather than examining teachers' pedagogical strategies for integrating character education into digital learning activities.

Furthermore, studies investigating supporting and inhibiting factors affecting the implementation of Wordwall remain relatively limited, particularly in Indonesian elementary

schools located outside major urban areas. Previous research generally discusses technological infrastructure, teacher competence, or student motivation separately without comprehensively analyzing how these factors interact with teachers' instructional strategies to influence character education outcomes. Consequently, there remains a significant research gap concerning how teachers intentionally utilize Wordwall to foster students' character while simultaneously addressing contextual challenges encountered during implementation.

This study attempts to address these gaps by focusing on teachers' pedagogical strategies in optimizing Wordwall as a medium for character education. Unlike previous studies emphasizing technological effectiveness or learning achievement, this research examines how teachers intentionally design classroom rules, reward systems, reflection activities, and learning content to facilitate students' moral development. Additionally, the study provides a comprehensive analysis of institutional, technological, pedagogical, and social factors supporting or hindering the implementation of Wordwall in elementary education.

Therefore, this study aims to answer two research questions: (1) What pedagogical strategies do teachers develop to optimize Wordwall for character education in elementary schools? and (2) What supporting and inhibiting factors influence the implementation of Wordwall-based character education at SD Negeri 03 Petanjungan? The findings are expected to contribute theoretically to the literature on digital pedagogy and character education while providing practical recommendations for teachers, school leaders, and educational policymakers seeking to develop meaningful technology-integrated learning environments that promote both academic excellence and positive character development.

METHODS

This study employed a descriptive qualitative research design to explore teachers' pedagogical strategies in utilizing the Wordwall digital learning platform for character education and to identify the factors supporting and inhibiting its implementation. A qualitative approach was considered appropriate because the study sought to obtain an in-depth understanding of teachers' experiences, instructional practices, and perceptions within their natural educational setting rather than measuring variables quantitatively (Sugiyono, 2023). The research focused on describing how teachers intentionally integrated character values into digital learning activities and how contextual conditions influenced the effectiveness of those practices.

The research was conducted at SD Negeri 03 Petanjungan, located in Petarukan District, Pemalang Regency, Central Java, Indonesia. The school was selected purposively because it had consistently implemented digital learning using the Wordwall platform in upper elementary classrooms. Furthermore, the school actively encouraged teachers to integrate educational technology into classroom instruction as part of its efforts to improve learning quality and strengthen character education. Data collection took place from September to October 2025, allowing researchers to observe several learning sessions and conduct in-depth interviews with research participants.

The participants were selected using purposive sampling, which enables researchers to choose individuals with relevant knowledge and practical experience related to the research topic (Creswell & Poth, 2018). Four primary participants were involved: the school principal and three classroom teachers responsible for Grades IV, V, and VI. The teachers were selected because they had routinely used Wordwall in classroom instruction for at least one academic semester and had experience integrating digital learning media into various subjects. To enrich the findings and validate teachers' statements, several students from Grades IV–VI also participated informally during classroom observations and follow-up conversations regarding their learning experiences.

Three complementary techniques were employed to collect the research data.

The first technique was semi-structured interviews, which served as the primary source of qualitative information. Interview guidelines were developed based on the research objectives while allowing participants to elaborate freely on their experiences. Interviews explored teachers' strategies for integrating character values into Wordwall activities, classroom management during digital learning, perceptions of student behaviour, supporting school policies, technological readiness, challenges encountered during implementation, and recommendations for future improvement. Each interview lasted approximately 45–60 minutes and was audio-recorded with participants' consent, then transcribed verbatim for analysis.

The second technique involved non-participant classroom observation. The researcher observed several Wordwall-based learning sessions without directly participating in classroom activities. Observation focused on teachers' instructional behaviours, classroom interactions, students' responses to digital learning activities, implementation of classroom rules, reinforcement strategies, collaborative learning processes, and reflective discussions conducted after game completion. The researcher wrote field notes immediately after each observation to

document significant events, classroom dynamics, and contextual information that supported interview findings.

The third technique consisted of document analysis. Various school documents were examined to complement observational and interview data, including lesson plans, teaching modules, Wordwall learning activities, assessment materials, school regulations regarding character education, teacher training certificates, workshop documentation, and institutional policies concerning digital learning implementation. These documents helped verify the consistency between teachers' stated instructional strategies and their actual planning practices.

The collected data were analysed using the interactive model of Miles, Huberman, and Saldaña (2020), consisting of three interconnected stages: data reduction, data display, and conclusion drawing with verification. During the data reduction stage, I carefully reviewed, coded, and organised interview transcripts, observation notes, and documentary evidence into meaningful categories. Similar statements were grouped into broader themes representing teachers' pedagogical strategies and implementation factors.

Subsequently, the categorised data were displayed using thematic matrices and descriptive narratives to facilitate interpretation and comparison across participants. This process enabled researchers to identify recurring instructional patterns, similarities and differences among teachers, and relationships between pedagogical strategies and contextual conditions influencing implementation.

Finally, researchers continuously developed and verified conclusions throughout the analytical process by comparing findings across data sources until theoretical saturation was achieved. The study repeatedly checked emerging themes against raw data to ensure interpretations accurately represented participants' experiences and classroom realities.

To ensure the trustworthiness of the findings, the study employed several credibility strategies. The study conducted source triangulation by comparing information from teachers, the school principal, and students. The study achieved method triangulation by integrating interviews, classroom observations, and documentary analysis. The researcher also conducted member checking by asking participants to review summaries of interview interpretations to ensure accuracy. In addition, prolonged engagement in the research setting allowed the researcher to obtain a comprehensive understanding of classroom practices and minimise researcher bias during interpretation.

The study followed ethical principles throughout. Before data collection, the researcher obtained permission from the school principal. All participants voluntarily agreed to participate after receiving explanations regarding the study's objectives, procedures, confidentiality, and their right to withdraw at any time. Participants' identities were anonymised using professional titles rather than personal names to maintain confidentiality while preserving the authenticity of the findings.

RESULTS AND DISCUSSION

The thematic analysis of interviews, classroom observations, and documentary evidence identified two major categories of findings. The first category concerns the pedagogical strategies teachers used to integrate character education into Wordwall-based learning. The second category focuses on contextual factors that either supported or inhibited the implementation of the digital learning platform in elementary school classrooms.

Teachers' Strategies for Character Development through Wordwall

Qualitative data analysis revealed that teachers did not merely use Wordwall as an assessment tool or educational game. Instead, they intentionally designed learning activities to promote character development through four interconnected pedagogical strategies.

Point-Based Reinforcement and Reward Strategy

The first strategy involved providing positive reinforcement through points, verbal praise, certificates, and classroom recognition. Teachers emphasised that the purpose of rewards was not solely to recognise academic achievement but also to appreciate positive learning behaviours such as punctuality, honesty, persistence, discipline, and responsibility during digital learning activities.

Classroom observations demonstrated that teachers consistently congratulated students who completed Wordwall activities independently, followed classroom rules, and respected their peers regardless of their final scores. Small rewards, including stickers, applause, or opportunities to become classroom leaders, were frequently given to reinforce desirable behaviours.

One teacher explained that students became increasingly motivated to complete learning tasks responsibly because recognition was based on both achievement and behaviour rather than

speed alone. Consequently, students gradually understood that responsible conduct was equally important as obtaining high scores.

These findings are consistent with behaviourist learning theory, which emphasises that positive reinforcement increases the likelihood of desirable behaviours being repeated. However, teachers deliberately balanced competition with appreciation to ensure that rewards promoted intrinsic responsibility rather than excessive rivalry among students.

Establishing Character-Based Learning Rules

The second strategy involved establishing explicit classroom rules before each Wordwall activity. Teachers considered classroom norms essential because digital games could easily create excessive competition without clear behavioural expectations.

Before students began each activity, teachers reminded them to complete tasks independently, avoid disturbing classmates, respect different learning speeds, accept success and failure gracefully, and remain honest throughout the activity. These rules transformed Wordwall from a simple educational game into an opportunity to practice ethical behaviour.

Observation data indicated that students gradually became accustomed to waiting patiently for their classmates to finish, avoiding inappropriate competition, and showing appreciation for peers' achievements. Teachers immediately addressed behaviours inconsistent with classroom values through constructive discussions rather than punitive measures.

These findings demonstrate that classroom management plays an essential role in transforming digital technology into a medium for character education. Digital platforms themselves cannot cultivate positive values unless teachers intentionally establish ethical norms guiding student behaviour throughout learning activities.

Reflection after Digital Learning Activities

The third strategy identified was to conduct structured reflection sessions after each Wordwall activity. Rather than ending instruction immediately after students completed the game, teachers facilitated short discussions encouraging students to evaluate both their academic performance and personal behaviour.

Teachers asked reflective questions such as:

"What positive attitude did you demonstrate today?"

"How did you respond when your answer was incorrect?"

"What should you improve during the next activity?"

Students frequently mentioned values such as patience, honesty, cooperation, discipline, confidence, and responsibility during these discussions. Teachers subsequently linked students' responses with broader character values emphasised in the national curriculum and the Pancasila Student Profile.

Observation showed that reflective discussions helped students recognise that classroom success extended beyond obtaining high scores. Students increasingly associated digital learning experiences with personal growth, emotional regulation, and responsible behaviour.

This strategy shows the importance of reflection in linking enjoyable learning experiences to meaningful moral understanding, enabling students to internalise values beyond the immediate gaming context.

Integrating Character Values into Learning Content

The fourth strategy involved deliberately embedding character education in Wordwall activity content. Teachers designed quiz questions, matching exercises, and interactive games that included examples of responsible citizenship, environmental awareness, cooperation, discipline, honesty, and Pancasila values.

For example, rather than asking students to identify factual information, teachers presented situational questions that required students to select behaviours reflecting honesty, mutual respect, or responsibility in everyday school life.

Document analysis confirmed that lesson plans explicitly included character education objectives alongside cognitive learning outcomes. As a result, digital instruction addressed cognitive achievement and affective development simultaneously.

This finding indicates that meaningful character education depends on careful instructional planning, not simply introducing digital technology into classroom practice.

Supporting Factors for Implementation

The analysis identified five major supporting factors.

First, adequate technological facilities significantly facilitated implementation. Classrooms were equipped with projectors, internet access, laptops, and smartphones, enabling teachers to conduct interactive Wordwall activities efficiently.

Second, strong principal leadership encouraged teachers to adopt educational technology through continuous supervision, provision of learning facilities, and opportunities to participate in professional development programs.

Third, high student enthusiasm substantially contributed to implementation success. Students demonstrated strong motivation during Wordwall sessions, actively participated in classroom discussions, and expressed positive attitudes toward interactive digital learning.

Fourth, teachers' digital competence, developed through workshops and independent learning, enabled them to design increasingly engaging instructional activities. Teachers reported greater confidence in creating interactive quizzes, integrating multimedia resources, and managing digital classrooms effectively.

Finally, parental support strengthened learning continuity beyond school hours. Parents generally responded positively to digital learning because they observed increased motivation among their children and helped them access learning activities at home when necessary.

Inhibiting Factors for Implementation

Despite these positive conditions, several challenges continued to influence implementation.

The most frequently reported obstacle was unstable internet connectivity, which occasionally interrupted learning activities and delayed students' access to Wordwall exercises.

A second challenge involved unequal access to digital devices among students, particularly those from economically disadvantaged families. Although students could generally complete classroom activities at school, home-based learning was sometimes difficult because some students lacked stable internet connections or personal devices.

Another limitation concerned restricted instructional time. Teachers explained that integrating digital games, classroom discussion, and reflection within a single lesson required careful time management. Teachers sometimes shortened reflection activities because they also needed to meet curriculum targets.

Finally, teachers emphasised the importance of continually renewing content. Students quickly became familiar with repeated question formats, requiring teachers to invest additional time in developing new Wordwall activities to maintain motivation and learning effectiveness.

Summary of Findings

Overall, the findings indicate that Wordwall's effectiveness for character education does not primarily depend on technological sophistication. Instead, successful implementation results from the interaction between teachers' pedagogical competence, institutional support, technological readiness, student engagement, and family involvement. Conversely, technological limitations and unequal digital access remain significant challenges requiring continuous attention from schools and educational policymakers.

CONCLUSION

This study explored teachers' pedagogical strategies and the determining factors influencing the implementation of the Wordwall digital learning platform for character education at SD Negeri 03 Petanjungan, Pemalang Regency. The findings show that Wordwall's effectiveness in promoting character education depends primarily on teachers' pedagogical design rather than the platform's technological features. The study identified four major strategies: providing point-based reinforcement and rewards to encourage positive behaviour, establishing character-oriented game rules, conducting reflective discussions after learning activities, and integrating character values into Wordwall learning content. These strategies enabled teachers to combine cognitive learning with the development of essential character values, including discipline, honesty, responsibility, cooperation, and respect.

The study also found that several interconnected factors supported successful implementation, including adequate technological infrastructure, strong leadership from the school principal, teachers' digital competence, students' enthusiasm for game-based learning, and active parental support. Nevertheless, the implementation continued to face several challenges, particularly unstable internet connectivity, unequal access to digital devices among students, limited instructional time, and the continuous need to develop engaging learning content. These findings indicate that the successful integration of digital learning media depends on the interaction between pedagogical competence, institutional support, technological readiness, and students' learning environments.

Theoretically, this study contributes to the growing literature on digital pedagogy by showing that game-based learning platforms such as Wordwall can serve as effective tools for character education when supported by intentional instructional design. Practically, the findings suggest that schools and educational authorities should prioritise continuous professional development programs that strengthen teachers' ability to integrate character values into digital learning activities. Future studies should involve more schools, use mixed-methods or longitudinal research designs, and examine the long-term impact of Wordwall-based character education on students' behavioural development and learning outcomes.

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