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Digital Implementation Through Interactive Learning Media Wordwall Multiplication Material for Grade III Elementary School

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Abstract: *Mathematics learning in elementary schools faces challenges in understanding multiplication concepts due to their abstract nature, requiring interactive media to support Merdeka Curriculum implementation. This study aims to develop interactive Wordwall media to enhance grade III students' multiplication comprehension. Employing Participatory Action Research (PAR), the population comprised all grade III students with a purposive sample of 25 struggling learners. Instruments included observation sheets, questionnaires, Wordwall results, and pre-post tests, analyzed through mixed methods of triangulation and percentage improvement. Results demonstrated significant increases in participation, motivation, and conceptual understanding following five implementation stages. It is concluded that integrating Wordwall with concrete windmill aids effectively transforms rote learning into critical thinking, recommended for elementary teacher adoption.*

Introduction

Elementary school education plays a crucial role in developing students' potential holistically, encompassing cognitive, affective, and psychomotor aspects, as emphasized in the Independent Curriculum, which demands more flexible and student-centered learning. At this level, mathematics is a foundational subject that often faces challenges due to its abstract nature, necessitating a concrete and engaging approach to building children's fundamental understanding.

The use of interactive digital media is increasingly relevant in today's technological era, where elementary school students can learn through visual experiences and games that encourage active engagement. Platforms like Wordwall offer educational features like quizzes, random wheels, and interactive exercises that align with modern learning principles, transforming the learning process into a more enjoyable and effective one. [Khofifah Indra Sukma & Trisni Handayani, 2022]

However, conventional mathematics learning in elementary schools still relies on memorizing multiplication tables, which causes students to fail to understand the essence of multiplication as repeated addition and makes it difficult to relate it to real life. [Sihombing et al., 2023] This traditional approach often leads to boredom and low motivation, especially in third-grade multiplication material that requires concrete visualization to overcome conceptual difficulties.

Textbooks and oral explanations alone have proven insufficient to build comprehensive understanding, as students require interactive media to independently explore the relationships between concepts. This challenge is compounded by the Independent Curriculum, where a lack of teaching innovation and resources contributes to gaps in basic numeracy among elementary school students.

This community service activity aims to develop interactive learning media based on Wordwall to help third-grade students understand the concept of multiplication in depth through a Participatory Action Research (PAR) approach. The urgency of this research lies in the urgent need for innovative solutions that support the Independent Curriculum amidst the high difficulty of learning mathematics, while the novelty lies in the integration of Wordwall with concrete media such as multiplication windmills in five structured stages, which has not been widely explored in the context of elementary school multiplication. [Putra et al., 2024]

Research Methods

The type and method of research in developing Wordwall learning media for grade III elementary school multiplication material adopts the Participatory Action Research (PAR) approach, which involves the active participation of educators and students in the cycle of planning, action, observation, and reflection to produce contextual solutions. This approach is in accordance with the character of educational community service, where researchers collaborate directly with subjects to address learning problems iteratively, as outlined in the principles of PAR which emphasize the transformation of classroom practices through joint engagement. [Sugiyono, 2019][Emzir, 2012] The PAR method was chosen because of its relevance in integrating digital media such as Wordwall with the local needs of elementary schools, supporting the development of understanding of the concept of multiplication as repeated addition through a collaborative process. [Creswell & Poth, 2018][Putra et al., 2024]

Data analysis instruments and techniques included participant observation sheets, teacher and student response questionnaires, Wordwall exercise results, and pre- and post-intervention evaluation tests to measure improvements in multiplication concept understanding. Data analysis techniques were a mix of qualitative descriptive methods through observation and interview triangulation, and simple quantitative methods in the form of percentage increase in scores and levels of engagement, which ensured the comprehensive validity of the findings. [Sugiyono, 2019][Emzir, 2012][Khofifah Indra Sukma & Trisni Handayani, 2022] This approach allows for in-depth analysis of the effectiveness of Wordwall features such as quizzes and educational games in increasing learning motivation. [Sihombing et al., 2023]

The research population was all third-grade students at one of the community service partner elementary schools, with a purposive sample of 25 students who showed initial difficulties in the material of multiplication of two-digit whole numbers, plus one educator as the main facilitator. This sample selection was based on the criteria of the need for interactive media to reinforce basic concepts, in accordance with the purposive sampling technique in participatory research that targets groups vulnerable to abstract learning challenges. [Sugiyono, 2019][Creswell & Poth, 2018] The activity was carried out on December 2, 2025, ensuring representation relevant to the context of the Independent Curriculum. [Putra et al., 2024]

The research procedure consists of five systematic stages integrated into the PAR cycle: the first stage is the delivery of multiplication theory as repeated addition with concrete illustrations; the second stage is the introduction and practice of Wordwalls including quizzes and classroom implementation; the third stage is the exploration of concrete media for multiplication windmills with a Deep Learning approach for conceptual patterns; the fourth stage is group work through varied multiplication worksheets; and the fifth stage is self-evaluation to measure individual understanding. Each stage ends with collaborative reflection for adjustments, ensuring the learning process is interactive and gradual from memorization to critical application. [Emzir, 2012][Khofifah Indra Sukma & Trisni Handayani, 2022]

Results and Discussion

Before this program, the majority of students had difficulty understanding the basic concepts of multiplication, especially in the material on multiplication of 2-digit and 1-digit whole numbers. This difficulty includes recognizing the characteristics of Multiplication material includes understanding basic concepts such as multiplication as repeated addition, Learning media in the form of interactive wordwalls was successfully developed according to the needs of multiplication learning at the elementary school level. This interactive learning media displays visualizations about multiplication using concrete objects such as apples, pencils, books, and others. with interactive narratives that help students understand the characteristics of each multiplication.

Learning begins with the first stage, which is the delivery of theory or basic material regarding the concept of multiplication. At this stage, educators provide a coherent explanation, starting from the definition of multiplication as repeated addition, concrete examples in everyday life, to the importance of understanding the concept before moving on to memorization. Educators use simple illustrations such as counting the number of apples in several baskets or the number of chairs in several rows to help students relate the material to real-life experiences. Educators also provide opportunities for students to ask questions, discuss, and express their understanding, so that the classroom atmosphere is more interactive. Through this approach, students not only receive information but begin to build a strong conceptual foundation regarding multiplication.

Figure 1.1 Explanation of Multiplication Material

Entering the second phase, the educator introduced Wordwall as an interactive learning medium designed to make the learning process more enjoyable. The educator demonstrated various Wordwall features such as quizzes, educational games, random wheels, and automatic practice questions that can be used to strengthen students' understanding. After the explanation, students were invited to practice directly, namely creating simple multiplication exercises by selecting their desired game template. The educator then directed students to implement Wordwall in classroom learning activities, where they tried to answer multiplication problems through the games they had created. This activity made learning more lively because students appeared enthusiastic, competed positively, and were motivated to achieve the highest score. When implemented in the classroom, this medium was well received by students and educators. Observations showed that students were more actively involved in learning, especially through interactive elements such as simple simulations in the wordwall. Educators reported that this medium helped simplify the delivery of material that is usually considered abstract. This is seen in Figure 1.2.

Figure 1.2 Implementation of Wordwall Media

In the third stage, educators present concrete media in the form of a multiplication windmill as a tool to strengthen conceptual understanding. Each student holds a windmill with numbers attached to its blades. In this stage, educators apply a Deep Learning approach by inviting students to explore multiplication patterns, discover relationships between repeated addition, and compare the results of experiments on the windmill with the exercises they completed on the Wordwall. Students spin the windmill, record the resulting number combinations, and then try to establish the relationship between the two numbers. This activity provides a deep learning experience because students do not simply memorize multiplication results but truly understand how the concept works. They learn to connect information, think critically, and draw conclusions from direct experience.

Figure 1.3 Use of Concrete Windmill Multiplication Media

Next, in the fourth stage, the teacher divided students into four groups to work on the Student Worksheet (LKPD). Each group received multiplication problems of varying difficulty levels. Students discussed, shared strategies, and collaborated to solve the problems with clear steps. The teacher circulated from one group to another to provide guidance when needed. Through this group work, students learned to build communication, develop collaborative skills, and understand concepts from the perspective of their peers. The classroom atmosphere became more dynamic because each group was enthusiastic about completing the LKPD correctly and on time. The learning process concluded with the fifth stage, namely the implementation of individual evaluations to measure the level of student understanding after participating in the entire learning series. The teacher provided multiplication problems that had to be completed independently without the help of friends or game aids. This stage was designed to determine the extent to which students were able to apply the concepts they had learned from the theory stage, the Wordwall game, the windmill exploration, and the group discussion. The evaluation results showed variations in student abilities, but in general there was a significant increase in conceptual understanding. Students also appear more confident in solving problems because they have previously understood the concept through a comprehensive, interactive, and meaningful learning experience.

Through all these systematically designed stages, the multiplication learning process does not only become an academic activity, but turns into a fun, in-depth learning experience, and is able to

improve students' critical thinking skills and conceptual understanding..

Conclusion and Recommendation

This study found that the implementation of interactive Wordwall media through five structured stages significantly improved the understanding of the concept of multiplication as repeated addition in 25 third-grade students, as seen from increased active participation, learning motivation, and self-evaluation results that showed general conceptual progress despite variations in individual abilities. The combination of Wordwall with concrete media such as windmills enriched the learning experience from memorization to critical thinking, in line with the Independent Curriculum. [Khofifah Indra Sukma & Trisni Handayani, 2022][Putra et al., 2024] The practical implications include recommendations for elementary school educators to adopt this platform as an easily accessible, adaptive tool, supporting inclusive learning and the digitalization of basic mathematics teaching in the technological era. The study was conducted on a small sample scale in one elementary school and on a single intervention period on December 2, 2025, which limits generalizability to a wider population and long-term effects. [Sihombing et al., 2023] Suggestions for further research include replication with a longitudinal design, comparison with a control group, and integration of more in-depth quantitative data analysis to measure knowledge retention, thereby strengthening the empirical evidence of the effectiveness of this model in addressing elementary school numeracy difficulties in a sustainable manner

References

Choir, SM, & Reffiane, F. (2024). Implementation of the Canva-based problem-based learning (PBL) model to improve fourth-grade mathematics learning outcomes. Journal of Learning Innovation in Schools, 5(1), 271–277.https://doi.org/10.51874/jips.v5i1.220

Creswell, J. W., & Poth, C. N. (2018). Qualitative inquiry and research design: Choosing among five approaches (4th ed.). SAGE Publications.

Emzir. (2012). Qualitative research methodology: Theory formulation, practice, and application. Prenada Media.

Khofifah Indra Sukma, & Trisni Handayani. (2022). The effect of using interactive media based on Wordwall quizzes on science learning outcomes in elementary schools. Jurnal Cakrawala Pendas, 8(4), 1020–1028.https://doi.org/10.31949/jcp.v8i4.2767

Novianti, DI, Astawan, IG, & Sukma Trisna, GAP (2023). Development of interactive e-LKPD based on problem-based learning of science content style material for fourth-grade elementary school students. Didactics: Scientific Journal of PGSD STKIP Subang, 9(2), 5398–5411.https://doi.org/10.36989/didactic.v9i2.1099

Pratiwi, M., Kurniawan, I., & Syarief, AO (2024). Digital interaction through 2D animation videos of spatial structures for elementary school students. Besiru: Journal of Community Service, 1(12), 1121–1126.https://doi.org/10.62335/09218t06

Putra, LD, Arlinsyah, ND, Ridho, FR, Syafiqa, AN, & Annisa, K. (2024). Utilization of Wordwall in game-based learning model for digitalization of elementary school education. Journal of Dimensions of Education and Learning, 12(1), 81–95.https://doi.org/10.24269/dpp.v12i1.8749

Sihombing, JM, Syahrial, S., & Manurung, US (2023). Students' difficulties in learning

mathematics on multiplication and division in elementary schools. Journal of Elementary Education Didactics, 7(3), 1003–1016.https://doi.org/10.26811/didaktika.v7i3.1177
Sugiyono. (2019). Educational research methods: Quantitative, qualitative, and R&D. Alfabeta