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The Application of Wordwall-Based Digital Media Through the Problem-Based Learning Model to Improve Learning Outcomes in the Pancasila Education Course for Third Grade Students

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Abstract: The poor levels of student engagement and learning accomplishment among third-grade students at SDN Banjarsawah 2 in Probolinggo in the topic of Pancasila, which were brought on by the employment of dull lecture-based approaches, served as the impetus for this two stage classroom action research (CAR). The minimal accomplishment level (CCC), which is 75, had not yet been attained by many students. The goal of this study was to employ the digital tool Wordwall in the context of problem-based learning (PBL) to enhance student engagement and learning outcomes in the "following rules" curriculum. Fifteen students served as the study's subjects. Tests, documentation, and observation were used to gather data, which were then subjected to quantitative, qualitative, and descriptive analysis. The analysis's findings indicated a notable rise at every level. Just 20% of pupils in the pre-cycle demonstrated mastery of the standard curriculum (3 individuals). Following the intervention, the proportion rose to 60% (9 students) in the first cycle and 86.67% (13 students) in the second. As a result, student learning activities increased from the first cycle's "adequate" category (63.3%) to the second cycle's "very good" category (100%). In conclusion, third-grade elementary school students' engagement and learning outcomes have improved when the Wordwall digital media is used in conjunction with problem-based learning (PBL).

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1. Introduction

In order to mould Pancasila students in the digital era, Pancasila Education is a process of character development and national identity construction that incorporates spiritual, social, and critical components through a holistic approach. Instilling in pupils the virtues of faith, teamwork, and critical thinking is the main goal of this subject's growth. In order to promote discipline, this curriculum uses the third-grade "Obeying the Rules" unit to assist children comprehend and carry out their rights and obligations both at home and at school.

But in the current digital era, difficulties have surfaced. Students in Generation Z have learning habits that are more drawn to interactive media and need customisation to keep them from becoming rapidly disinterested. In order to stay focused, they are usually more motivated by game-based learning exercises. Observations from the real world show a gap. The primary barrier to Pancasila education, according to observations and interviews conducted at

SDN Banjarsawah 2 in Probolinggo, is the employment of boring and uninteractive teaching techniques that don't adjust to the kids' developmental traits.

This poor quality of education is caused by a passive, one-way (teacher-centered) method of learning that is seen to be out of step with the needs of the twenty-first century and does not foster students' creativity and critical thinking abilities. Due to this circumstance, many third-graders have not yet reached the minimal fundamental proficiency criterion (SKD) of 75, which has resulted in low motivation to learn.

An inventive and creative learning strategy is necessary to address the pressing requirement for active and practical approaches. Researchers recommend using the Wordwall digital platform to assist problem-based learning (PBL). The PBL model is a student-centered approach to education that promotes self-directed learning, critical thinking, and problem-solving abilities. A range of entertaining educational games, including sorting, tile flipping, random wheels, and quizzes, are available on the interactive web platform Wordwall, all of which are designed with primary school pupils in mind. By integrating PBL with Wordwall, the learning process which is in line with the Pancasila educational model aims to go beyond simple theoretical memorisation to in-depth, purposeful, game-based learning activities that might improve students' academic performance.

2. Literature Review

Teaching Pancasila Education in Elementary School

The main basis for forming pupils' morality, character, and sense of national identity at a young age is pancasila education. In order to create a profile of the "Pancasila Student" that is pertinent to the digital era, this course integrates spiritual and social elements together with critical thinking abilities. The curriculum at the primary school level, especially in the third grade, emphasises contextual subjects that are directly relevant to students' everyday life. One such subject is "Obeying Rules." Students should be able to: (1) comprehend their rights and obligations in a balanced way at home and at school, (2) adhere to these guidelines in order to gain self-control; and (3) foster the virtues of faith, teamwork, and critical thinking abilities. However, in order to keep Generation Z students from becoming bored, the content must be presented in a personalised and visually appealing manner. Because they render students inactive and impede the optimisation of their learning results, traditional approaches like teacher-centered, one-way lectures are no longer seen as relevant.

Pembelajaran Problem Based Learning Model (PBL)

A student-centered learning approach called problem-based learning (PBL) uses real-world issues as a starting point to foster critical thinking and problem-solving abilities. According to this approach, the teacher's function changes to that of a facilitator who encourages student autonomy, teamwork, and communication.

(1) Orienting students to the problem, which entails presenting a real-world issue or scenario (such as a rule violation) to promote students' critical reasoning, is one of the five key phases of the PBL paradigm. (2) Putting students in small, diverse groups to study the issue. (3) Leading individual or group research projects where students gather data and conduct study in order to develop ideas for solving problems. (4) Developing and presenting the final product, where students compile the results of their group discussions and present them to the class. (5) Analyzing and evaluating the problem-solving process—that is, engaging in a collective reflection on the process and outcomes of the problem-solving activities that have been studied.

Media Digital Wordwall dalam Pembelajaran

Wordwall is an interactive, web-based digital platform that offers a variety of educational game templates, such as Group Sort, Flip Tiles, Random Wheel, and Quiz. This platform is highly effective in meeting the learning needs of elementary school students who enjoy game-based learning.

In the context of teaching Pancasila Education, Wordwall's features make specific contributions to each learning syntax:

Fitur Group Sort & Flip Tiles

This feature is like playing a card-matching game or flipping picture cards on the screen. The idea is that instead of just having children read books about what rules are allowed and what aren't, they can directly drag and group images/text on Wordwall. This engages their eyes and hands, helping them understand more quickly which behaviors are appropriate and which are not.

Random Wheel Feature (Random Wheel)

This feature is like a spinning raffle wheel seen on TV or in apps. Its purpose is that when it's time for a presentation, the teacher doesn't have to call on students directly which can make them nervous. Simply spin this digital wheel in front of the class. Because it's like a raffle, students actually feel curious and challenged, keeping the classroom atmosphere cheerful and fair.

Quiz Feature

This feature is like a brain-teaser game or an interactive multiple-choice quiz. Once students finish answering, their scores or results appear immediately (instant feedback). This allows students to see their mistakes right away. Because the format is game-like, they view their scores not as a scary threat, but as a challenge to achieve a higher score (which motivates them).Lewat Wordwall, pelajaran Pancasila yang biasanya dianggap penuh hafalan teori berubah total. Siswa tidak lagi merasa dipaksa belajar, melainkan merasa sedang bermain sambil belajar (playing and learning) yang membuat materi pelajaran lebih membekas di ingatan mereka.

Student Activities and Learning Outcomes

Learning outcomes, which include cognitive, affective, and psychomotor aspects, are markers of the accomplishment of learning objectives. Achieving cognitive learning outcomes at the primary school level should preferably surpass the Minimum Passing Criteria (KKM) or the institution's basic eligibility criteria, which is 75. The effectiveness of instructional interventions is measured not only by numerical (quantitative) learning results but also by student involvement or engagement during in-person sessions. The following elements of student activity were noted: (1) students' focus on the problem orientation that was provided; (2) the level of collaboration and role allocation within diverse groups; and (3) proactiveness in using digital media to undertake investigations. (4) Self-assurance when presenting discussion outcomes to the class. (5) Completing self-evaluations thoroughly. (6) An improvement in learning activity shifting positively from the "adequate" category to "very good" is directly and linearly correlated with an increase in the classical mastery of students' cognitive learning outcomes

Analysis of Previous Studies

The application of the Problem-Based Learning (PBL) paradigm combined with interactive digital media continuously shows efficacy in raising the calibre of instruction and learning results in Pancasila Education, according to a review of several prior research. Andri Nurbiyati and Erwin Putera Permana's (2024) research showsHowever, studies by Repi Putri Prasetyana et al. (2023) and Namira Shifa Chaerunnisa et al. (2024) that used the Pancasila Smart Board as a teaching tool successfully raised student performance to the "very good" category and achieved a 100% mastery rate, supporting the applicability of the PBL model for third-grade elementary school students. Overall, an empirical review of various previous studies confirms that a PBL approach focused on solving real-world problems, when combined with the interactive game features of Wordwall, serves as a highly relevant solution for stimulating students' active engagement and helping them meet the school's established Minimum Competency Criteria (KKM) of 75.

Research Gaps

First, contextual and demographic gaps. The majority of previous studies have focused on schools located in urban or suburban areas with well-established access to digital facilities. There is still very little research that specifically examines the effectiveness of this Wordwall-assisted PBL model when applied to elementary school students in areas with specific local characteristics, such as at SDN Banjarsawah 2 in Probolinggo. The students' sociocultural

characteristics and their adaptation to digital devices in formal learning in that area present different challenges and implementation dynamics compared to urban schools.

Second, methodological gaps in meeting proficiency standards. Although the literature notes an increase in graduation rates, most studies do not analyze in detail the transition process or the extreme leaps students experience from very low proficiency levels at the beginning of the cycle to meeting high Minimum Proficiency Criteria (KKM) targets, such as the 75 KKM standard. Previous research has tended to be general in reporting final scores without examining how specific Wordwall features (such as the Random Wheel or Group Sort) can, from a psychological and cognitive perspective, help students who initially struggled with severe learning difficulties to surpass the KKM 75 threshold.

Third, a gap in subject matter. Previous studies have often applied PBL-Wordwall to Pancasila Education material, which is generally rote-based. There remains a gap in the literature regarding the effectiveness of this combination when specifically applied to practical affective and psychomotor domain material, such as the "Obeying Rules" unit for third-grade elementary school students. Changing students' behavior to comply with rules requires an emotional approach and more complex problem-solving than simply understanding theoretical concepts, and this is where the effectiveness of Wordwall as a gamification tool needs to be tested in visualizing real-world rule conflicts.

Therefore, this study aims to address these gaps. The study

Novelty study

The contextualization of the affective-behavioral material "Obeying the Rules", which is interwoven with the sociocultural traits of students at SDN Banjarsawah 2 in Probolinggo, is what makes this study innovative. Prior studies using Wordwall have mostly concentrated on rote memorisation or cognitive domain content assessment. By analysing how this digital platform may mimic real-world social norms and conventions in a rural primary school classroom, this study presents an innovation that will alter kids' actual behaviour to become more rule-abiding. Therefore, this article's uniqueness adds fresh theoretical and practical insights to the literature on primary school pedagogy, especially with regard to how digital-based problem-solving has demonstrated the ability to produce significant, quantifiable, and dramatic improvements in learning outcomes for Pancasila Education.

3. Proposed Method

This study employs a classroom action research approach to improve the learning process and outcomes in the classroom. This approach is reflective and collaborative. The study follows the Kemmis and McTaggart action research cycle model, which consists of four stages: planning, implementation, observation, and reflection. The sequence of the action cycle is illustrated in:

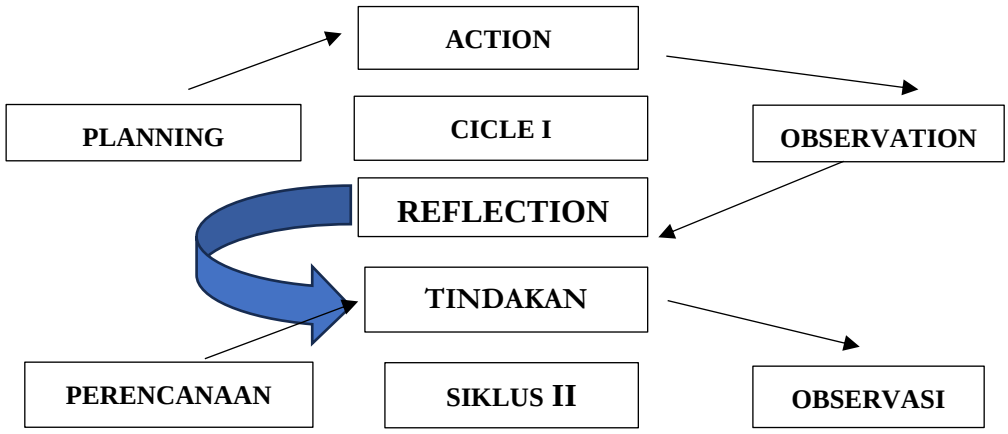

Figure 1. bagan Siklus Penelitian Tindakan Kelas Kemmis dan Mc taggart 1988

This research examined "compliance with rules" in the context of Pancasila education and included fifteen third-grade students from SDN Banjarsawah 2 in Probolinggo. According to the phases of classroom action research (CAR)—planning, execution, observation, and reflection—the study was carried out in two cycles. The intervention concentrated on the following fundamental PBL activities: (1) using context-related issues as a learning catalyst; (2)

analysing problems in groups; (3) creating strategies for problem-solving through discussion and information gathering; (4) creating and presenting work results; and (5) reflecting on and assessing the learning process and outcomes. These phases correspond with the features of problem-based learning, which stresses problem-oriented, real-world learning to improve students' critical thinking and problem-solving abilities (Yulianto et al., 2024).

The stages of PBL implementation are as follows: (1) presenting context-relevant issues to stimulate learning; (2) group work to analyse the issues; (3) developing solutions through discussion and information gathering; (4) developing and presenting the work's results; and (5) reflecting on and assessing the learning process and outcomes. These phases are strongly associated with the features of problem-based learning, which emphasises instruction centred on real-world scenarios to improve students' capacity for critical thought and problem-solving. These actions are all in line with the problem-based learning tenets, which place an emphasis on reality and problem-solving. Developing pupils' critical thinking and problem-solving skills is the aim. Teachers operate as facilitators throughout the learning process, encouraging pupils to learn independently via interaction and teamwork. We collect data through learning outcome assessments, observations of student activities, interviews, and documentation. This approach allows us to gain a comprehensive understanding of both the learning process and outcomes. The success of these steps is measured by various indicators, including improved academic performance, increased student participation, and positive changes in attitudes toward learning mathematics. Each cycle concludes with a reflection phase where challenges are identified

4. Results and Discussion

Research Findings

Data Sources (Dataset) and Evaluation Instruments

The data for this study were collected directly from the natural setting of third-grade classrooms at SDN Banjarsawah 2, Tegal Siwalan Subdistrict, Probolinggo Regency, during the second semester of the 2025/2026 school year. The dataset in this classroom action research (PTK) was sourced from the research subjects, consisting of 15 third-grade students (8 boys and 7 girls).

To evaluate the effectiveness of the intervention, this study used two primary mathematics assessment parameters: Class Average Score and Percentage of Students Meeting the Standard. The evaluations were calculated using the following standard formulas:

$$\boldsymbol{M = \frac{\sum FX}{N}}$$

a. Average Score

Notes:

Mx = The mean to be calculated

∑x = The sum of the scores obtained by all students

N = The number of students in the class

b. Learning Achievement

$$\boldsymbol{P = \frac{F}{N} X 100\%}$$

P = Percentage

F = Frequency for which the percentage is being calculated

N= Total number of individuals

Initial Data Analysis (Pre-Cycle)

The researcher gathered preliminary data (pre-test) and observed the beginning circumstances of Pancasila education teaching in third grade at SDN Banjarsawah 2 prior to delivering classroom interventions utilising the Problem-Based Learning (PBL) model supported by Wordwall. In order to map students' baseline skills and pinpoint the underlying reasons for poor learning results on the subject of "Obeying the Rules".

A quantitative analysis of the initial (pre-cycle) test confirms this finding. Of the 15 students, only 3 met the minimum proficiency threshold, while the remaining 12 were deemed not to have met it.

Table 1. Initial Data Analysis (Pre-Cycle)

Evaluation Indicators	Pre-Cycle Results
Class Average Score	60.0
Number of Students Who Met the Proficiency Standard	12 student
Proficiency Rate	20%
Percentage of Students Who Did Not Meet the Proficiency Standard	80%

According to Table 1, the percentage of students achieving mastery in the traditional classroom setting was only 20%, with an average class score of 60. This figure falls far below the expected passing threshold, indicating that tactical pedagogical interventions are urgently needed.

Results of Implementation

Cycle I

The interventions in Cycle I were carried out over two sessions using the Problem-Based Learning (PBL) model integrated with the Wordwall digital media platform. The subject matter covered in this cycle was Pancasila Education, with the sub-theme of identifying "Obeying the Rules" behavior in the school environment. The researcher prepared a contextual problem map closely related to students' daily lives, such as visualizations of the consequences of neglecting classroom duty or arriving late to school. Additionally, the researcher designed interactive visuals on the Wordwall platform in the form of "Group Sort" and "Match Up" quiz templates to categorize various types of school rules and norms. The researcher also provided collaborators (fellow teachers) with a Student Learning Activity Observation Sheet containing six indicators of classroom behavior. Based on the results of reflection and evaluation in Cycle I, the Pancasila Education learning process on the topic "Obeying Rules," which utilized the "Problem-Based Learning" (PBL) model supported by the "Wordwall" platform in third grade at SDN Banjarsawah 2, has not yet achieved optimal results. Although students began to show active participation in group investigations, the implementation of the lesson was still hampered by technical issues and classroom management challenges in the field; consequently, students' overall learning activities only reached the "sufficient" category, with a percentage of 63.3%. Out of a total of 15 students, only 9 students successfully met the minimum competency standard (KKM) of 75, while 6 students

Results of Cycle II

The evaluation results for Cycle II show that the percentage of students meeting the classical learning mastery standard rose dramatically to 86.67%. Most students have now successfully exceeded the minimum passing grade (KKM) of 75 set by the school. With the achievement of satisfactory classical success indicators and an improvement in the quality of student learning activities, this classroom action research was deemed successful and concluded in Cycle II.

Summary of Results

Table 2. To provide a comprehensive comparison of each stage of the study, a summary of improvements in learning outcomes is presented in Table 2 below.

Evaluation Components	Pre-Cycle	Cycle I	Cycle II
Number of Students	15	15	15
Class Average Score	20,0%	76,4	100%
Students Who Met the Proficiency Standard	20% (3 student)	60% (9 student)	100% (15 student)
Students Who Did Not Meet the Proficiency Standard	80% (12 student)	40% (6 student)	0

The results of the second-cycle students' interest in learning are shown in the table above. There was an increase in the average level of student learning achievement through the PBL model. Information regarding the "Obeying Class Rules" curriculum for third-grade students at SDN Banjarsawah II.

Discussion

Analysis of the Implementation Process of PBL Supported by Wordwall

The implementation of the Problem-Based Learning (PBL) model integrated with the interactive digital platform Wordwall in third-grade classes at SDN Banjarsawah 2 Probolinggo was carried out systematically through two action cycles, during which this collaboration proved capable of transforming the classroom atmosphere—which had previously been passive due to monotonous lecture-based methods—into a student-centered learning ecosystem. In Cycle I, the implementation focused on introducing the PBL framework combined with Wordwall's basic quiz features to visualize cases of school rule violations during the problem-orientation phase; although students' active engagement began to be visible on the projector screen, group effectiveness was uneven due to the dominance of group leaders and students' unfamiliarity with the digital transition. To address these challenges, Cycle II implemented more structured improvement measures through group differentiation strategies and the use of more complex Wordwall features. The learning flow was updated by utilizing the "Group Sort" feature during the Problem Orientation Phase to trigger cognitive conflict regarding rule classification; during the Investigation Guidance Phase, it served as an independent visual resource for completing worksheets; the "Random Wheel" feature in the Work Development Phase to ensure fairness in presentation turns, and the Evaluation Phase, which is structured around competitive "Quiz" or "Match Up" games integrated with a leaderboard to

4. Reconstruction of Student Learning Outcomes

In the affective domain, indicators of success are reflected in the internalization of attitudes such as discipline, responsibility, and cooperation. The characteristics of third-grade students, who tend to be egocentric, are gradually reconstructed to become more collaborative through PBL group work. Gamification elements in Wordwall, such as the leaderboard, foster a climate of healthy competition. Students' affective development progresses from merely accepting rules out of fear of punishment to a moral awareness—including moral feelings and moral actions—that adhering to classroom rules is a shared necessity for the comfort and

order of the learning ecosystem. Student discipline improved dramatically, as evidenced by 100% active participation in Cycle II.

Table 3. Matriks Perbandingan Temuan Kualitatif dalam Proses Pembelajaran

Observation Aspect	Initial Condition (Pre-Cycle)	Cycle I (Transitional)	Cycle II (Reconciled)
Student Engagement and Focus on the Issue	Students tend to be passive and bored because the teacher relies on a monotonous, one-way lecture method	Most students begin to focus their attention on the images or videos of rule-related issues displayed on the projector screen. Excellent	All students are focused, enthusiastic, and actively respond to the visuals of real-world issues with confidence.
Group Work Dynamics (Collaboration).	No group division; student interaction for problem-solving lacks a structured approach.	Task distribution within the group is uneven and dominated solely by the group leader.Good.	Group cooperation appears more solid and organized, with roles distributed evenly among all members.
Exploration of Information and Media Interaction.	Students previously received information passively, lacking support from interactive digital media.	Students became highly enthusiastic and active upon interacting with games on the Wordwall digital platform.	Excellent: Student interaction reached a peak level, and students showed great enthusiasm due to the variety of new features (such as Random Wheel and Group Sort).
Completion of Student Worksheets (LKPD)	Students were not presented with group tasks based on real-world contextual problems.	Collaboration in recording discussion results on the worksheets began to show consistency..	Excellent. All group members were actively involved in completing the worksheets thoroughly and neatly, successfully overcoming the shortcomings of Cycle I.
Confidence and Presentation.	Students are not given the opportunity to present ideas or solutions to the class.	Group representatives appear hesitant, and their voices lack volume when speaking in front of the class	Good. Student confidence has improved dramatically, voices are loud and clear, and the inter-group Q&A session is active.
Final Reflection and Evaluation	There was no student participation in summarizing the material because the	Student participation in responding to other groups' presentations remained low.	Excellent. There was full participation from students and the teacher in a final reflection session that was both

	instruction was entirely teacher-centered.	competitive and enjoyable.

Comparison

To provide a measurable overview of the research contribution, the study's findings are juxtaposed with digital learning theory and relevant prior research on the effectiveness of gamification-based Problem-Based Learning (PBL) models. The significant rise in the class mastery rate—from 20% in Cycle I to 86.67% in Cycle II at SDN Banjarsawah 2—aligns with the characteristics of children in the concrete operational stage, who require interactive visual media to grasp abstract concepts such as norms and rules. When compared with previous studies on the integration of Wordwall, these findings reinforce the evidence that features like "Group Sort" and "Flip Tiles" are not merely game aids but cognitive instruments capable of transforming the typically lengthy PBL process into a far more efficient and focused experience. Furthermore, the use of healthy competition via leaderboards proved effective in maintaining students' sustained attention—consistently surpassing the Minimum Mastery Criterion (KKM) of 75—while confirming that the integration of structured PBL syntax with interactive digital media fosters a sustainable, student-centered learning ecosystem.

Table 4. Comparison of the Proposed Method

Author / Year	Method / Intervention	Measurable Results / Achievements	Focus Area
Andri Nurbiyati & Erwin Putera Permana (2024)	The PBL model supported by Wordwall media	Enhancing thinking skills	Improving the motivation, engagement, and learning outcomes of Grade VI students.
Sari Bunga, Sri Endang Rahayu Maspa, Andi Quraisy, & Rafida (2024)	The PBL model supported by Wordwall media	Effective instruction	Gradually and effectively improves elementary school students' learning outcomes, surpassing mastery standards..
Dhea Rahma Dheni, Effendi Nawawi, & David S (2024)	The PBL model is combined with the interactive medium Wordwall	to enhance thinking skills	overcome various learning obstacles, and boost the motivation, active participation, and learning outcomes in Pancasila Education for Grade V-B students at SDN 241 Palembang.
Repi Putri Prasetyana, Sardulo Gembong, & Albertus Prakoso Lelono (2023)	Model PBL didukung media Papan Cerdas Pancasila.	Instruction is more structured.	The initiative addresses low Civics (PKn) learning outcomes among third-grade students at SDN Tambakmas 2 Magetan

			through student-centered learning innovation.
Namira Shifa Chaerunnisa, Yesa Angelina Maharani, Nilam Cahya Sholikah, & Deni Zein Tarsidi (2024)	The PBL model is supported by the "Pancasila Smart Board" (*Papan Cerdas Pancasila*) learning aid.	Students are more active in their learning.	Optimizing the engagement and learning outcomes of Grade III students at SDN Tambakmas 2 Magetan through the use of smart board media visualization.

The implementation of the Problem-Based Learning (PBL) model, supported by Wordwall or similar interactive media, has consistently proven effective in boosting class mastery in Pancasila Education from the low category to the very high category.

Conclusion

The implementation of the Problem-Based Learning (PBL) model, utilizing the Kemmis & McTaggart cycle design (planning, implementation, observation, and reflection), has been proven to significantly improve learning outcomes in Pancasila Education specifically the topic "Obeying Rules" for third-grade students at SDN Banjarsawah 2. Through a "learning-while-playing" approach, students became more active and grasped the material more easily by progressing through structured stages: identifying problems via Wordwall images, collaborating in groups, presenting using a "Random Wheel" feature, and completing interactive quizzes. The method's success is clearly reflected in the improvement of learning outcomes from Cycle 1 to Cycle 2; the students' aggregate score rose from 1,146 to 1,230, and the class mastery rate surged from 60% to a perfect 100% (based on a Minimum Mastery Criterion/KKM of 75). Thus, it can be concluded that implementing the PBL model consistently yields tangible positive effects by preventing student boredom and boosting overall academic achievement.

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