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Improving Student Learning Outcomes Through The Wordwall-Assisted Problem Based Learning Model on The Human Digestive Organs

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ABSTRACT

This study aims to improve student learning outcomes through the application of problem-based learning models assisted by wordwall media on the material of human digestive organs in grade V of SDN 2 Lemah Mekar. The method used is classroom action research (CAR) through two cycles. Each cycle consists of the stages of digestion, implementation, observation and reflection. The results of the study showed an increase in learning outcomes from the pre-cycle with a percentage of 31% increasing to 61.54% in cycle I and reaching 92.31% in cycle II. The problem-based learning model provides opportunities for students to be active in solving problems and discussing, while the wordwall media makes learning more interesting and interactive. Thus, the application of the problem-based learning model assisted by wordwall media is proven to be effective in improving student learning outcomes on the material of human digestive organs.

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INTRODUCTION

Education is inseparable from human life. A good education is crucial for the advancement of a nation. Education is a measure of a nation's progress because it produces a physically, mentally, and socially healthy young generation capable of driving and implementing development. Education is a process of intellectual and emotional development that is an effort to develop human qualities (Aiman Faiz, Nugraha Permana Putra, 2022:1). Continuous educational improvement is necessary to improve the quality of education. This has its own consequences, such as student boredom and other negative effects that impact student learning outcomes, particularly in the sciences subject, which is a fundamental subject that must be mastered.

Natural and Social Sciences (IPAS) is a type of learning that can be integrated with other subjects. The focus of Natural and Social Sciences (IPAS) learning in elementary schools is scientific concepts of the surrounding environment. IPS learning does not rely on memorization or listening to teachers explain concepts; instead, students must learn independently through experimentation, observation, and experimentation (Iffah et al., 2024). The goal of studying science in Indonesia is the ability to recall or recognize ideas or discoveries that have been experienced in a similar or previously encountered form (Rochmah et al., 2019:6).

However, science learning in elementary schools still faces many challenges, one of which is students' inability to understand what teachers teach. Science learning in elementary schools often encounters obstacles, particularly in terms of engagement and conceptual understanding. This results in low student learning outcomes (G. S. Rahman et al., 2024:2). Learning outcomes are defined as gains achieved through activities or processes that result in a person interacting with their environment (Marzuki M & Dodo Santo Boroneo, 2023:4). Learning outcomes are the process by which a person acquires something by changing their behavior as a result of their experiences (Rahman & Fuad, 2023:1).

Based on observations at SD Negeri 2 Lemah Mekar, student learning outcomes in Natural and Social Sciences (IPAS) are still lacking. This can be seen from the students' daily test scores. Of the 26 students, 8 students achieved a percentage of 31%, with scores above the Learning Objective Achievement Criteria (KKTP), while the other 17 students still scored below the KKTP. Learning Objective Achievement Criteria are criteria or measures used by education to determine the extent to which students have achieved the learning objectives set in a learning activity. Achievement criteria for learning objectives are considered successful if a score exceeds 70.

Learning outcomes are not optimal and are still below the planned benchmark, requiring improvement. According to research by Agusti, N.M. & Aslam, A., low student learning outcomes are caused by teachers' tendency to explain material without engaging and interactive learning innovations (Agusti & Aslam, 2022:2). Innovation in learning activities is determined by the creativity of a teacher, which is the main factor in the classroom (Rochmah et al., 2018:2). One effort to improve and enhance student learning outcomes is to implement a problem-based learning model assisted by wordwalls.

The problem-based learning model involves students in problem-solving (Noviati, 2022:2). In implementing the problem-based learning model, this research begins with the presentation of a problem, followed by problem identification, and students engage in discussions to align their perceptions. Next, students gather as much information as possible. With the problem-based learning model, students have the opportunity to interact with their peers. In addition to the learning model, learning media also plays a role in improving student learning outcomes. The most frequently used learning media today is technology-based learning media. Education in the digital era demands the integration of information and communication technology (Putra & Rustika, 2023:2). One medium that can help students improve their learning outcomes is the Wordwall educational game.

According to Kurnia, N. Permana, E.P & Permatasari, C, claimed that wordwall, an educational game, can improve student achievement in class. From 63% to 83%, there was a 20% increase, according to the report. The results show that student learning outcomes can be improved by using wordwall, an educational game. (Kurnia et al., 2023:7). According to the study, the educational game Wordwall significantly improved student learning outcomes. With

technological advances, the implementation of Wordwall educational games in science learning is expected to be an alternative to address this issue. Wordwall educational games are games that utilize websites combined with learning materials (Kurnia et al., 2023:3). The use of more interactive learning media, such as games, as part of educational learning, has been shown to improve student motivation and learning outcomes.

Based on research conducted by Aprilianti & Afandi entitled "Improving Student Learning Outcomes on Human Digestive Organs Material Using the Problem Based Learning Model in Grade V", it is proven that the Problem Based Learning method is able to improve student learning outcomes. This is indicated by an increase in the average student learning outcomes between cycles of 11.37 percentage points, from 63.18 to 74.55. The proportion of students who meet or exceed the KKM standard of 70 for completion also increased by 54.55%. (Aprilianti & Afandi, 2023:11)

The purpose of this study was to determine the application of a problem-based learning model assisted by word walls to the human digestive system and to determine the improvement in student learning outcomes through the application of the problem-based learning model assisted by word walls to the human digestive system in fifth-grade students at SDN 2 Lemah Mekar. Based on the above background, the researchers were interested in conducting a study entitled "Improving Student Learning Outcomes Through a Problem-Based Learning Model Assisted by Word Walls on the Human Digestive System."

METHODS

This research design uses classroom action research. The research was conducted during the learning process. This classroom action research was conducted in the second semester of the 2024/2025 academic year in class V of SDN 2 Lemah Mekar. The subjects in this study were 26 students of class V of SDN 2 Lemah Mekar. The procedures in this classroom action research include planning, implementation, observation, and reflection in each cycle. The design of this classroom action research is based on the theory of Kemmis and McTaggart which focuses on improving the quality of learning. This classroom action research consists of two cycles. This theory emphasizes the importance of active participation from teachers and students in research, collaboration between the two to improve learning. The procedures for this classroom action research are as follows:

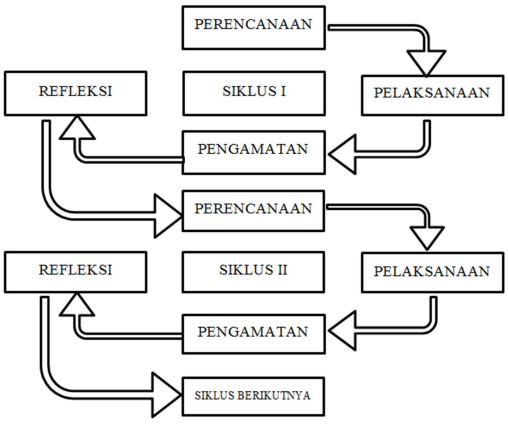

Figure 1. Kemmis and McTaggart's Classroom Action Research Flow

The data collection techniques in this study were observation, interviews, and student learning outcome tests in each cycle. Data analysis techniques used were qualitative and quantitative. The observation technique used in this study was used by researchers to observe students' learning interests by observing their behavior and responses during the learning process.

RESULTS AND DISCUSSION

Results

The results of the first and second cycles of research were implemented using previously designed teaching module guidelines. The learning process was implemented using a problem-based learning model with the aid of word walls for the science subject. The research conducted in fifth-grade students at SDN 2 Lemah Mekar showed a significant improvement in learning outcomes. The improvement in learning outcomes was obtained from the results of the research implementation in the first and second cycles based on the results of student learning tests administered in each cycle with a KKTP requirement of 70. For more details, the following are student learning outcomes in the fifth-grade science subject at SDN 2 Lemah Mekar during the pre-cycle, first cycle, and second cycle.

1. Pre-Cycle Learning Outcomes

Students' learning outcomes in the pre-research science lessons, based on the results of tests conducted in grade V, showed that 31% of students achieved mastery with scores above the minimum competency criteria (KKTP), or 8 students. Meanwhile, 17 students, or 71%, did not meet the learning objective achievement criteria (KKTP). For further clarification, the following are the pre-research learning outcomes in grade V of SDN 2 Lemah Mekar.

Table 1. Pre-Cycle Student Learning Outcomes

No	Data yang dianalisis	Pra siklus
1.	Jumlah seluruh pesera didik	26
2.	Jumlah peserta didik yang mengikuti tes	26
3.	Jumlah peserta didik yang tuntas	8
4.	Jumlah peserta didik yang tidak tuntas	17
5.	Nilai tertinggi	95
6.	Nilai terendah	25
7.	Jumlah nilai yang diperoleh	1.320
8.	Nilai rata-rata	50,77
9.	Kriteria ketuntasan ketercapaian tujuan pembelajaran	31%
Keterangan		**Belum tuntas**

Before the researcher implemented the problem-based learning model with the aid of word walls, based on learning outcomes, there were still several students who had not achieved the KKTP score. The results showed that 8 students (31% of the total) had completed the course, and 17 students (65% of the total) had not completed the course in science. This was due to the students' inability to understand the concept of the digestive system due to the inadequate use of learning media. Considering the low learning outcomes in fifth grade, the researcher plans to use a problem-based learning model with the aid of word walls to determine whether the learning outcomes of fifth grade students can improve.

2. Student Learning Outcomes in Cycle I

To determine whether student learning outcomes had improved, students were given an individual test. This test was administered after the actions taken in Cycle I using the problem-

based learning model with the aid of word walls at the end of the lesson. The results of the Cycle I study showed that after using the problem-based learning model with the aid of word walls, student learning outcomes improved, as seen from the test results, with an average score of 61.54. Based on the test results, there is still There needs to be improvement in the problems that occurred in cycle I to obtain a score above the KKTP, namely a score of 70. This can be seen in table 2.

Table 2. Student Learning Outcomes in Cycle I

No	Data yang dianalisis	Siklus I
1.	Jumlah seluruh pesera didik	26
2.	Jumlah peserta didik yang mengikuti tes	26
3.	Jumlah peserta didik yang tuntas	16
4.	Jumlah peserta didik yang tidak tuntas	10
5.	Nilai tertinggi	95
6.	Nilai terendah	40
7.	Jumlah nilai yang diperoleh	1.818
8.	Nilai rata-rata	69,92
9.	Kriteria ketuntasan ketercapaian tujuan pembelajaran	61,54%
Keterangan		**Belum tuntas**

Based on table 2, the learning outcomes of students in grade V in cycle I of the Natural Sciences subject on the human digestive organs by applying the problem-based learning model assisted by wordwall media, out of 26 students, 16 students completed the course by getting a score above the KKTP and there were 10 students who had not completed it and still got a score below the KKTP. For more details, it will be presented in the following table:

3. Student Learning Outcomes in Cycle II

Student learning outcomes in Cycle II showed improvement compared to Cycle I. The main difference in Cycle II was the discussion of material covering issues related to the human digestive system. Students were more enthusiastic and understood the learning material more easily. For more details, see Table 3.

Table 3. Student Learning Outcomes in Cycle II

No	Data yang dianalisis	Siklus II
1.	Jumlah seluruh pesera didik	26
2.	Jumlah peserta didik yang mengikuti tes	26
3.	Jumlah peserta didik yan tuntas	24
4.	Jumlah peserta didik yang tidak tuntas	2
5.	Nilai tertinggi	100
6.	Nilai terendah	45
7.	Jumlah nilai yang diperoleh	2.094
8.	Nilai rata-rata	80,5
9.	Kriteria ketuntasan ketercapaian tujuan pembelajaran	92,31%
Keterangan		Tuntas

The learning outcomes of fifth grade students in cycle II of the Natural Sciences subject on the human digestive organs by applying the problem based learning model assisted by wordwall media were 26 students, 24 of whom got scores above the KKTP and 2 other students still got scores below the KKTP. The factors that caused 2 students not to get scores above the KKTP were because they had characteristics that did not want to stay still and had difficulty understanding the learning material. Based on the learning outcomes in cycle II, this increased and had reached the criteria for achieving learning objectives, namely 92.31% so that this study was sufficient to cycle II. If presented in graphical form, it will be seen in figure 3.

In this research in cycle I and cycle II, both cycles have shown an increase in student learning outcomes, based on the results of the research showing that in cycle I there were several weaknesses in the learning process in the classroom so that improvements were still needed in cycle II. In cycle II, the same research was conducted as in cycle I, namely by using planning, action, completion and reflection. Student learning outcomes in cycle II showed an increase with an average value of 92.31 and of the 26 students, 24 students completed by getting a score above the KKTP, 2 other students had not yet achieved a score above the KKTP. After the research had been going on for two cycles, this research was stopped only until cycle II because the data obtained had shown an increase in student learning outcomes in cycle II. For more details, see table 4.

Kategori	Presentase		
Nilai tes belajar peserta didik pelajaran ipas kelas V	Pra siklus	Siklus I	Siklus II
	31%	61,54%	92,31%

Discussion

This research is a classroom action research model based on the Kemmis-McTaggart model. Its application uses a problem-based learning model assisted by word walls. There are

several stages in this research, including planning, acting, observing, and reflecting. This classroom action research uses a problem-based learning model assisted by wordwall media, which consists of two cycles. Students carry out learning activities using the five syntaxes of the problem-based learning model: problem orientation, organizing students, guiding students in solving problems, presenting their work, and finally, evaluating the learning process. The researcher prepared this research starting from compiling teaching modules, conditioning students to prepare themselves to be able to participate in the learning process.

The researcher used image learning media for cycle I and video in cycle II. This media is useful for answering questions that will be given to students in the form of games through wordwalls. The researcher chose this media to help students more easily understand the material. Through this media, the researcher encouraged students to participate actively by asking feedback questions based on the problems contained in the images and videos displayed by the teacher. After providing problems through learning media and providing game-based tests through wordwall media, the next stage is to form students into The teacher then divides the students into groups and provides worksheets (LKPD) to each group. During this stage, the teacher helps guide the students in their investigations. After students complete the worksheets, they present their results to the class. The next step is to evaluate their work and provide understanding to the students. At the end of the lesson, the teacher gives each individual a test to assess student learning outcomes. Meanwhile, in the research conducted by Octaviana et al entitled "Implementation of Problem Based Learning (PBL) Model Assisted by Wordwall Media", Wordwall Media combined with the Problem Based Learning model. This research differs from other studies because it only uses Wordwall media at the end of the learning process. The materials and classrooms used in this study also vary in other ways (Octaviana et al., 2023:4).

To determine whether the problem-based learning model was successfully implemented, observations were conducted on teacher activities during the learning process. Based on the observation data, teacher activities in Cycle I were categorized as adequate because there were still several aspects that were not yet implemented. In Cycle II, teachers were able to implement all the actions previously outlined in the Science teaching module on the human digestive system. The increase in the number of teacher activities categorized as good demonstrates this progress. Performance is the final stage after the previous stages. At this stage, one indicator of the success of the learning process is seen, demonstrating the success of the problem-based learning model with the aid of word walls. Observations were then conducted on teacher activities during the learning process. The results showed that teacher activities in Cycle I were categorized as good, but not yet considered successful because there were still several aspects that were not implemented. Then, in Cycle II, success was demonstrated by the increase in the number of teacher activities categorized as very good.

Student learning outcome data was obtained from pre-study scores, as well as from Cycles I and II of this study. Student learning outcomes improved with each cycle. Then, using a problem-based learning model assisted by word walls, the researcher made improvements from Cycle I to Cycle II. To determine student learning outcomes, the researcher conducted classroom action research in two cycles. After the two cycles concluded, the research was discontinued because the data obtained from both cycles had shown improvements in learning outcomes.

Cycle I of the science lessons on the human digestive system had several weaknesses. These weaknesses included the teacher's suboptimal problem-solving process, which resulted in low student affective and cognitive outcomes, low student response to learning activities, and

student learning outcomes that remained below the minimum competency standard (KKTP). Based on these weaknesses, student learning outcomes in the science lesson on the human digestive system using the problem-based learning model assisted by word walls only showed a 61.54% improvement. After reflecting on Cycle I, the researcher attempted to address the shortcomings of Cycle I by enhancing learning activities to improve student focus and active participation. This, in turn, improved student learning outcomes.

The researcher strengthened the cycle to compensate for its shortcomings after reflecting on cycle I. Planning, implementation, reflection, and observation are the same steps used in cycle II as in cycle I. During cycle II, students experienced an increase of 92.31% in classroom learning activities. This is indicated by an increase in student responses to the learning process, student activities became more lively and students were more enthusiastic in following the learning and student learning outcomes increased with 24 students getting an average score above the KKTP and 2 other students getting an average score below the KKTP. The learning outcomes show that students experienced an increase in learning outcomes in the subject of science on the material of human digestive organs.

The research by Salsabila et al., entitled "Implementation of a Problem-Based Learning Model Assisted by Matchup Wordwalls to Improve Student Learning Outcomes," states that using a problem-based learning model assisted by wordwalls can improve student learning outcomes. This is evidenced by the increase in student learning outcomes, with the percentage of student learning outcomes in Cycle I reaching 73.91%, or 17 students completing the course. In Cycle II, this achievement increased to 91.30%, or approximately 21 students completing the course. These achievements can be considered to have achieved the target set by the researchers, which was 85%. Similarities in Salsabila et al.'s research include the use of a classroom action research method and the use of a problem-based learning model assisted by wordwalls as learning media. Differences The difference in this study is the use of matchup wordwalls as learning media (Salsabila et al., 2024:9).

CONCLUSION

This study shows that the application of problem-based learning model assisted by wordwall media can improve the learning outcomes of students in grade V of SDN 2 Lemah Mekar on the material of human digestive organs. Before the action was taken, only 31% of students achieved learning mastery. After the action was taken in cycle I there was an increase to 61.54% and in cycle II it increased significantly to 91.31%. This increase occurred because the problem-based learning model encourages students to be active in solving problems, discussing and learning independently, while the wordwall media provides a more interesting and interactive learning atmosphere. Thus, innovative and technology-based learning models are very effective in improving student learning outcomes, and are able to foster higher interest and motivation in learning.

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