

RESEARCH ARTICLE

## ANALYSIS OF THE APPLICATION OF PROJECT-BASED LEARNING MODEL BASED ON WORDWALL MEDIA IN GRADE 3 IPAS LEARNING

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### ABSTRACT

*This study analyzes the implementation of a project-based learning (PjBL) model using Wordwall media in Grade 3 IPAS (Science) learning, focusing on data reduction, data presentation, and drawing conclusions. A descriptive qualitative approach was used at Fatimah Az Zahro Plus Elementary School, Buduran, Sidoarjo, with data collected through interviews, observations, and documentation. The findings revealed that: 1) Teachers in elementary schools are required to use various learning models, including PjBL; 2) The PjBL model in IPAS learning involves three stages: preparation of teaching modules, application of the PjBL model for processing natural resources material, and the evaluation stage; 3) The use of Wordwall media in the evaluation process enhances student engagement and creativity, making learning more interactive and enjoyable. Overall, the application of PjBL with Wordwall media promotes active student participation and reduces boredom in the learning process.*

**Keywords:** PjBL, Wordwall media, IPAS learning

### INTRODUCTION

Education plays the most important role in improving the quality of human resources to support national growth in a country (Susilowatiningsih et al., 2023). Education is one of the important factors in the development of a country. The National Education System Law Number 20 of 2003 emphasizes "Education is a conscious and planned effort to create a learning and learning environment for students who are active so that the potential in themselves can develop to choose religious spiritual strength, personality control, intelligence, noble character and skills that the community, nation and state need it" (Kistian, 2019). Education is a process of implementing knowledge to students so that it becomes a hope for students to develop the potential that exists in themselves. (Averina & Widagda, 2021). Education is carried out through learning activities anywhere including at school. Student learning activities can actively develop

the potential that exists in students. Currently, learning is in the 21st century era where students try to achieve the ability to master 21st century skills. There are various skills that must be developed in 21st century learning such as: collaboration, communication, critical thinking, problem solving, innovative and creative. (Basic, 2020). In active learning, students can make meaningful experiences so that students can interpret their abilities through learner-centered learning by integrating Strengthening Character Education (PPK), 4C Skills, Literacy, and HOTS (High Order Thinking Skill). (Setiawan et al., 2022).

A learning model is a factual framework that provides a methodical learning approach that can help learners to obtain the expected learning objectives. Before the teacher designs a learning model, the teacher must use the concept (Hadzami & Maknun, 2022).. In another opinion, it is said that the learning model is a learning technique

used by the teacher in teaching a particular material and in selecting a model must be adjusted in advance with the subject matter to be studied. (MUJIBURRAHMAN et al., 2023).. There are so many learning models that teachers apply including, cooperative learning models, project-based learning models to inquiry learning models. The Project Based Learning (PjBL) learning model is a project-based learning model. The PjBL model is a learning model that prioritizes the activities of students in their learning activities so that during the learning process students do not feel bored. In the application of the PjBL learning model, students during the learning process can use one of their five senses. Teachers can provide stimulus to students so that they can be responded to by their sensory organs properly. Likewise, students are easier to accept, process, and retain in their memories. The PjBL learning model makes learners to expand their skills and knowledge so that learning activities become much more meaningful and more interesting. Developing the character of critical, creative, and innovative learners can also be developed through the application of the PjBL learning model. So that students have the ability to adapt and face the challenges of everyday life by increasing scientific attitudes, the ability to communicate, collaborate to argue. (Noviati & Belajar, 2022).

The rapid development of technology that occurred in the 21st century. In this case, technological developments can affect various aspects of life, including business, culture, art, and education. We cannot avoid technological developments in this life. Scientific advances go hand in hand with technological advances. Technology provides a wide range of tools and resources that can enrich the learning experience and impact teachers in terms of how to teach and learn. (Hasanah & Sutiah, 2023). By incorporating a technology into education is very important for education itself and so that teachers can always adapt to current technological developments. Teachers can utilize technology as a tool to support the learning process. In addition, students can further explore knowledge and carry out a different learning process. Learning innovation can be more fun and interesting in the classroom.

One of the innovations that exist and can be used as a learning tool in the classroom is wordwall. Wordwall is a web-based application that is applied to create learning evaluations. The features in wordwall such as matching, pairing, word search, spin, and so on. (Setyorini et al., 2024). The application of Wordwall can be used by learners and teachers through their devices. Teachers can manage the time given to learners through the time limit feature. This feature can help learners to manage time effectively and improve their skills to complete evaluation tasks in a timely manner. In addition, Wordwall provides a dashboard feature that provides useful information to teachers. on the dashboard, a list of names of learners who took the test and the scores obtained can be displayed.

## METHOD

This research uses qualitative methods . This method is a research method that aims to describe or explain phenomena or situations systematically, actual, and accurate. (Salsabila, 2024). The data collection techniques used are observation and documentation techniques. Data analysis in this study is qualitative. In analyzing the data, researchers took several steps, namely:

1) Data reduction means summarizing, identifying directions, looking for themes and patterns. At this stage, the researcher summarizes all information obtained from the field and focuses on basic things to find themes and patterns through group activities and filtering information.

2) Presentation of data is carried out in the form of narrative text arranged in the form of brief descriptions to facilitate understanding of existing symptoms and preparation of further actions to be taken based on what has been understood.

3) Draw conclusions and verify. The researcher collects information that researchers have obtained from action activities and researcher observations of students in class 3 in applying the Project Based Learning (PjBL) learning model based on Wordwall learning media at SD Plus Fatimah Az Zahro then the researcher describes and draws conclusions from these activities.

This research was conducted at SD Plus Fatimah Az Zahro. The subjects taken in this study were all 3rd grade students of SD Plus Fatimah Az Zahro. With the number of students 23 people with details of the number of men as many as 11 people and the number of women as many as 12 people. The object of the research is to analyze the application of the Project Base Learning (PjBL) learning model based on wordwall media in IPAS learning.

## RESULTS

### *Project Based Learning Model (PjBL)*

The PjBL learning model is a learning model that adheres to constructivism where students can construct their own knowledge by experimenting, designing, and constructing research projects as a problem-solving process by applying the scientific method. (Komarudin et al., 2020).

This learning model uses projects or activities as media. These projects give students the opportunity to use their thinking critically, creatively, and innovatively in solving a problem given by the teacher. From the results of the researcher's interview with Mrs. Ema as a 3rd grade teacher that has never implemented the PjBL learning model in IPAS learning. This makes researchers carry out the learning process as a teaching practice in class 3, namely by applying the PjBL learning model to IPAS chapter 3 learning, namely on natural resource processing material in accordance with the steps of the PjBL learning model. The following steps are taken in applying the PjBL learning model, namely: determining fundamental questions, creating project designs, scheduling, monitoring project progress, assessing results, and evaluating experiences. In fact, the PjBL learning model is collaborative, so that it can be seen that groups of students who can finally get used to planning, constructing concepts, managing various sources, being active and critical in finding information, to being creative in understanding concepts collaboratively will be built.

The analysis of the application of the PjBL learning model shows that, in the early stages before starting learning activities, the teacher must

first prepare the teaching module as an initial preparatory step for learning by determining the PjBL learning model that will be applied to the learning content in grade 3 in chapter 3 science lessons related to natural resource processing. In the first stage, the learning implementation activities in the teaching module using the PjBL learning model are preliminary activities that begin with a prayer led by one of the students who leads the prayer by coming forward, then the teacher asks a trigger question while explaining the learning objectives to be achieved in the learning to be carried out at that time. This can be seen in Figure 1, namely praying activities at the beginning of learning.



**Figure 1.** Prayer activities at the beginning of learning

The next stage is the stage of implementing core activities that apply the PjBL learning model in learning IPAS chapter 3 on the subject of natural resource processing. In this core activity, students are divided into 5 groups, consisting of 5-6 people. Each group is given LKPD. Each group is given the task of setting projects, designing, scheduling and creating mind mapping type projects on natural resource processing material. Furthermore, each learner discusses the form of mind mapping that will be done as a project. this can be seen in figure 2, namely the activity of dividing groups and setting project tasks.



**Figure 2.** Activity of dividing groups and assigning project tasks

This final result is categorized as making a project in the form of mind mapping. Making mind mapping aims to strengthen and increase the activity and creativity of students in understanding and mastering the learning material about processing natural resources. Each group is obliged to present the results of their work. Then responded with questions and answers so as to create a dialog between students. Then the teacher and students conclude together regarding today's learning. This can be seen in Figure 3, namely the presentation of project results. This can be seen in Figure 3, which is the presentation of mind mapping work.



**Figure 3.** Presentation of the work

In the closing activity, the teacher and students conducted an evaluation. Learning evaluation is carried out through quizzes using wordwall media. So that the learning evaluation is more interesting and seen in the classroom active learners during the learning evaluation process. This can be seen

in Figure 4, namely learning evaluation activities using wordwall media.



**Figure 4.** Learning evaluation activity

Based on the results of researchers applied in class 3, researchers invite students to hone students' creative skills by applying the PjBL learning model by working on mind mapping projects. Learners can follow the lesson by using this model which is applied in accordance with the learning steps:

Phase/Stage	Teacher Activity
Phase 1 Defining the fundamental question	The teacher explains the learning objectives, asks questions. Learners engage in discussion to answer basic questions.
Phase 2 Create a project design	The teacher divides the learners into 5 groups and distributes the LKPD to each group. The teacher helps the learners to prepare the tools and materials and helps in designing the mind mapping project.
Phase 3 Develop scheduling	The teacher guides learners in making an agreement on the time to complete the project. The teacher monitors the learners' activities in completing the work project.
Phase 4 Assessing results	The teacher guides each group in

	presenting their project in front of their peers and the teacher provides feedback.
Phase 5 Evaluate the experience	The teacher and students summarize all the learning activities that have been carried out.

By applying the PjBL learning model using mind mapping projects, students are involved in the learning process starting from the introduction, core, reflection, and conclusion. The PjBL learning model itself is considered very suitable for IPAS learning in elementary schools which means that students have the opportunity to socialize with their peers, develop social attitudes such as responsibility, cooperation, discipline, confidence, and courtesy, and play the role of active learners and find solutions to the challenges presented. The use of PjBL learning model in the classroom can encourage students to work in groups and share knowledge ideas. Project-based learning involves asking students to create a work on a specific topic according to their own creativity, and combining this with students' learning experiences allows students to create original works and actions, learners will be able to take the initiative to find alternatives in problem solving.

The following advantages in the application of the PjBL learning model are: it can motivate students by involving them in learning, help students develop communication skills, help students develop critical and creative thinking, help students develop problem-solving skills, help students develop collaboration skills, and can help students develop a sense of responsibility. According to (Epifania et al., 2020) the learning model has several advantages including: increasing students' learning motivation, increasing students' skills and activeness, making the learning atmosphere more enjoyable, increasing collaboration or cooperation, increasing students' communication, and the level of understanding of children is faster.

The PjBL learning model also has several disadvantages such as: Requires competent and passionate teachers, Requires adequate facilities, equipment and materials, Difficult to mobilize all students to participate in group work, Requires a lot of time to complete the project, Students who are not used to analyzing problems are often reluctant to do so. Students may be less active in group activities.

Not all learning materials can be applied to this model. This is in accordance with (Fuadiyah et al., 2024) The PjBL learning model has several weaknesses, namely: requires a lot of time, is quite expensive and during the learning process students are afraid to communicate with peers in group classes because some students have a shy attitude, so it requires special attention from the teacher and the division of fair and reasonable groups so that all students can work together well.

Learning assessment using the PjBL learning model must be carried out comprehensively both in terms of attitudes, knowledge and skills acquired by students during the learning process. Project evaluation is an activity to evaluate a task that must be completed within a certain period of time. This assignment is an investigation that begins with planning, collecting data, organizing, processing, and presenting data. Project assessment can be used to determine the level of understanding, application, investigation, and the ability to provide clear information to students on certain topics.

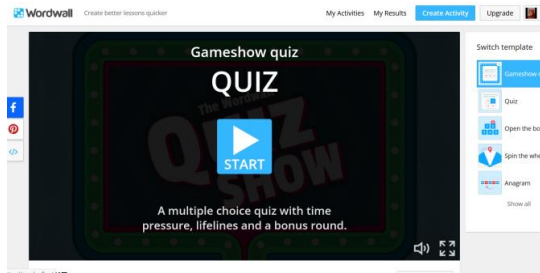
#### *Wordwall Media*

Wordwall is a web application that can be used to create interactive learning evaluation materials, such as quizzes, crosswords, flashcard games, and more. This application can be used by teachers in various subjects and education levels, from elementary to high school. Wordwall is an application that can be used as a learning support tool, learning resource and assessment for teachers and students. Wordwall application is an application that is used as a learning support tool with the aim of being an assessment tool by teachers against students. (Mujahidin et al., 2012).

In this wordwall application, teachers can present material and questions that are packaged in the form of games and done by students. Teachers can use wordwall as a creative assessment evaluation method. Teachers can design and review assessments in learning.

The results of the researcher's interview with the homeroom teacher 3 that the class has never used wordwall media as a learning evaluation. Therefore, the researcher as a teacher in the class used wordwall media as a form of evaluating the learning of grade 3 students in IPAS learning with natural resource processing material.

- Teachers compile learning tools in the form of teaching modules, LKPD, and evaluation questions developed using wordwall learning media.
- The teacher prepares the required facilities and infrastructure.
- The teacher explains the material to the learners first.
- After the learning will end, the teacher gives evaluation questions in the form of a wordwall.



**Figure 5.** Wordwall learning media

- Learners take turns going to the front of the class to answer questions



**Figure 6.** Activity of students answering questions

The teacher assesses the students' answers when working on the questions. If there are still many mistakes in doing it, you can retry by clicking start again.

The use of wordwall learning media is very cheap and easy to use. Teachers can present materials and questions using many alternative options presented on wordwall media. So that teachers can use other alternative options as another variation in packaging other subject matter. Learning with the wordwall application can be used if supported by an adequate internet connection. Learning media is the same as the learning model, which has advantages and disadvantages. The advantages of wordwall applications such as: Wordwall media is flexible and can be used easily by various school levels, Not monotonous and interesting to play, Utilization of Game Applications, Merdia wordwall is creative, Increase students' interest in learning, Can be an evaluation tool, Quizzes can be printed and distributed to students. While the shortcomings of the wordwall application such as: In its use it is prone to cheating and the size of the letters cannot be changed, In making it takes longer, Can only be seen because of visual media.

From the results of observing researchers in class 3 when applying wordwall application media, researchers can conclude that the advantages of applying this wordwall media are: 1) Learning becomes more fun and not boring; 2) Learners better understand and understand what material is taught; 3) Learners become more focused and interested in learning; 4) Students are more active in learning; 5) Students become more active in participating in learning. The shortcomings of wordwall learning media include: 1) Lack of supporting facilities; 2) There are still students who have difficulty in the material; 3) lack of time used.

From the results of the study, there are several challenges from teachers in general that are found, namely: the selection of learning models that are in accordance with the characteristics of the material, so far the teacher is less varied in applying learning models, incorporating learning methods in learning models to support the achievement of learning objectives in accordance

with the material being taught, teachers have not become role models for students, and limited facilities and infrastructure in schools including unstable school internet. Students also have several challenges that are found, namely: the readiness of students in the learning process, the ability of students to understand the material presented, and the activeness of students in learning is still low.

### DISCUSSION

Based on the results of observations and interviews conducted by researchers with grade 3 teachers at SD Plus Fatimah Az Zahro, the problem was found that teaching and learning activities in the class were still teacher-centered. The learning model uses lectures and question and answer models. The learning evaluation has not been optimized by the teacher, namely without involving technological developments so that students feel bored. Students have not received innovative and creative learning evaluations during the learning process in class. Teachers still utilize student books as learning evaluations used in the classroom.

In learning IPAS in elementary schools, teachers are required to use a variety of learning models. The use of the PjBL model is one of the right ways to make learning more varied. In the PjBL learning model, students' creativity can be supported and students can deepen the material while working on projects. So that learning activities are different from usual and also centered on students. In addition to the learning model, learning evaluation must also be considered by the teacher. Although learning evaluations are usually carried out at the end of learning, teachers must be able to provide a variety of evaluations to make learning more enjoyable. Therefore, this research takes the title "Analysis of the Application of the Wordwall Media-Based Project Based Learning Model in Grade 3 IPAS Learning".

In research, of course, previous research is absolutely necessary as a reference in the hope that previous research can produce better research. The following are related studies based on the title

of the researcher, namely research conducted by (Peterongan, 2023) entitled "Improving Learning Outcomes Through the Project Based Learning Model Assisted by Wordwall Media for Class V Students of SDN Peterongan". The type of research used is Classroom Action (PTK). The research subjects in this study were fifth grade students at SDN Peterongan Semarang in the 2023/2024 academic year, the number of which was 26 students as recipients of action and researchers and fifth grade teachers who provided action. Data collection techniques used observation techniques, interviews, tests for each cycle, and documentation. The data analysis used includes quantitative and qualitative data analysis. This study found that cognitive learning outcomes increased from the pre-cycle stage which was 38.5% (Needs Guidance), then after being carried out in cycle I it could increase to 84.6% (good) and increased again in cycle II with classical completeness of 96.2% (good).

Other research conducted by (Karater et al., 2024) with the title "Application of PjBL Model Based on Wordwall Media in Building Cooperative Character in Elementary School Students". This study examines the effectiveness of the project-based learning (PjBL) model of Wordwall media in building collaborative character in 5th grade elementary school students with the material "Norms and Life". This research was conducted through two PTK cycles. The first cycle includes planning, action, observation and reflection. Learning activities include role-playing activities related to living standards supported by Wordwall media. The results of the first cycle showed adequate cooperation capacity but there was also an imbalance in the division of roles and communication. The second cycle was implemented with improvements based on the first cycle reflection. Observations showed a significant increase in student collaboration, especially in discussions, group dynamics, and responsibility. The results showed that Wordwall-based PjBL successfully improved student collaboration. This research shows that this model can be an effective learning method to develop collaboration skills in elementary school students.

Other research was also conducted by (Dan et al., 2024) with the title "Development of IPAS Teaching Materials Assisted by Wordwall Game Using the PjBL Model to Improve Literacy and Numeracy Skills in Elementary School Students". This research is a research of developing (R&D) using the Dick and Carey model. The sample amounted to 25 people. Data collection was carried out using a questionnaire to test the validity and practicality, as well as a multiple choice test to assess the effectiveness of educational materials. Data analysis conducted in this study used the N-Gain test and paired t-test with the results showing that students' literacy (14.84 points) and numeracy (19.80 points) skills increased significantly after using this educational material. The improvement was supported by the significance value of the t-test ( $p < 0.05$ ). This study shows that innovative teaching materials and learning methods such as the use of Wordwall games and PjBL can have an increased positive impact on the literacy and numeracy skills of students in elementary schools.

Although there are many studies conducted related to the application of PjBL through wordwall. However, the research study conducted by this researcher has differences. This difference is in the place of research conducted at SD Plus Fatimah Az Zahro and also different in learning materials, namely taking IPAS learning. In addition, differences also exist in the research methods carried out by researchers. In this study, it can be explored more deeply related to the analysis of the use of the PjBL learning model with the activity of making mind mapping activities on natural resource processing material and learning evaluation activities using wordwall in class 3 at SD Plus Fatimah Az Zahro. This study aims to describe the application of the PjBL learning model with activities to create mind mapping activities and also describe the use of wordwall as an evaluation of student learning in grade 3 so that it can be useful for providing more interesting and memorable learning for grade 3 students at SD Plus Fatimah Az Zahro by collaborating with technological developments through wordwall as an evaluation at the end of learning.

## CONCLUSION

Based on the results of the research that has been conducted, researchers can conclude that the PjBL learning model itself is considered quite appropriate in learning IPAS in elementary school. By applying Project-based learning (PjBL) models and methods with mind mapping type, students are enthusiastic in participating in the learning process. This is because students have the opportunity to develop social attitudes such as interaction with friends, responsibility, cooperation, discipline, confidence, courtesy and students can act as active learners who seek solutions to the challenges given. Learning assessment using the PjBL learning model must be carried out thoroughly on the attitudes, knowledge and skills acquired by students during learning. Wordwall is an application that can be used as learning media, learning resources, and assessment tools for teachers and students. Teachers can use wordwall as a creative assessment evaluation method and can also be used to design and review assessments in learning. However, there are still many challenges faced by teachers and students during classroom learning.

## ACKNOWLEDGEMENT

Alhamdulillah, all praise and gratitude to the author to Allah SWT for all His grace and blessings so that the research entitled "Analysis of the Application of Project Based Learning Model Based on Wordwall Media in Grade 3 IPAS Learning" can be completed properly. Shalawat and salam may be poured out to the lord of the Prophet Muhammad SAW and his family and friends. In connection with the completion of this research then please allow the author to express his gratitude to the following Honorable:

1. Dr. Septi Budi Sartika, M.Pd, as the Dean of the Faculty of Psychology and Education,
2. Dr. Machful Indra Kurniawan, M.Pd, as the supervisor who took the time to guide, motivate, and share knowledge during this process,



3. Masrifatul Mahmudah, S.Pd, as the principal of SD Plus Fatimah Az Zahro who has allowed me to conduct research at the school,

4. Nazmah Zahiroh, S.Pd, as the 3rd grade homeroom teacher who has allowed to conduct research in class 3 and has guided during the research process in class 3.

#### (DECLARATION OF POTENTIAL CONFLICT OF INTEREST

Hereby explaining the author by name Rona Nabilatur Rofifah from the University of Muhammadiyah Sidoarjo. The title of the research that I researched was "Analysis of the Application of the Project Based Learning Model Based on Wordwall Media in Grade 3 IPAS Learning". Hereby declare that have no affiliation or involvement in any organization or entity with any financial interest (such as honoraria, educational grants, participation in speaker's bureaus, membership, employment, consulting, stock ownership, or other equity interests and expert testimony or patent licensing arrangements), or non-financial interests such as personal or professional relationships, affiliations, knowledge or beliefs in the subject matter or material discussed in this manuscript.

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