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THE EFFECT OF THE PROJECT BASED LEARNING MODEL WITH POSTER MEDIA AND ICE BREAKING ON IPAS' INTEREST IN LEARNING

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ABSTRACT

The low learning interest of elementary school students toward Natural and Social Sciences (IPAS) is a challenge that needs to be addressed through innovative teaching approaches. This study aims to examine the effect of the Project Based Learning (PjBL) model supported by poster media and ice breaking activities on the IPAS learning interest of fourth-grade students at SD Nurul Muttahid. Employing a one-group pretest-posttest experimental design, the study involved 20 students selected through simple random sampling from a population of 134. Data were collected using a 20-item multiple-choice test and observation sheets, and analyzed through descriptive and inferential statistics, including the Paired Samples T-Test. Results revealed a significant increase in mean learning interest scores from 77.25 (pretest) to 98.25 (posttest), with a t-value of 13.591 exceeding the critical t-table value of 2.093 ($p < 0.05$). The findings confirm that the integration of PjBL with poster media and ice breaking activities significantly enhances students' learning interest in IPAS.

1. INTRODUCTION

The development of education in the modern era requires a learning approach that is able to foster students' interest and active involvement. In the context of basic education, especially in the subject of Natural and Social Sciences (IPAS), the challenge of maintaining students' interest in learning becomes increasingly complex considering the nature of the material which is often considered abstract and requires a deep conceptual understanding. The Independent Curriculum implemented in Indonesia emphasizes the importance of student-centered learning, so teachers are required to present teaching strategies that are not only effective in delivering material, but also able to arouse students' intrinsic motivation to continue learning and exploring new knowledge.

The Project Based Learning (PjBL) learning model is present as one of the promising alternative approaches in answering these challenges. Conceptually, a learning model can be understood as a basic

framework that describes a systematic procedure in organizing the learning experience of students Hendracita, N. (2021). In this perspective, PjBL is not just a teaching method, but a comprehensive approach that integrates various high-level thinking, collaboration, and problem-solving skills in a single project activity. Yulianah. (2019) emphasizing that the learning model has unlimited potential if implemented appropriately and adjusted to the characteristics of students and the learning context they face.

The advantages of PjBL have been proven through various empirical studies. Thomas, J. W. (2000) in its comprehensive review of various studies on PjBL shows that this model is able to significantly increase students' motivation to learn. In line with that, Bell, S. (2010) argues that PjBL is highly relevant to the demands of 21st century education because it trains students to think critically, collaborate, and develop the communication skills necessary in real life. In the context of primary education, this model is becoming increasingly relevant considering the stage of cognitive development of elementary school students who still need concrete and meaningful learning experiences.

The appropriate use of learning media is an important factor that complements the effectiveness of the PjBL model. Poster media, as a type of two-dimensional visual media, has a strategic role in helping students visualize abstract concepts into more understandable representations. According to Arsyad, A. (2011), learning media functions as an intermediary that bridges the educational communication process between teachers and students, so that learning messages can be conveyed more clearly and interestingly. A well-designed poster not only contains information in a concise manner but also displays visual elements that are able to attract attention and facilitate the process of assimilating knowledge.

In addition to learning media, the classroom atmosphere also plays an important role in determining the success of the teaching and learning process. Ice breaking activities, which are short activities carried out at the beginning or in the middle of learning to refresh the mind and reduce boredom, have been proven to be able to create a conducive classroom climate. Anisca. (2018) stating that a positive and pleasant classroom atmosphere contributes directly to improving the effectiveness of learning in elementary schools. Through ice breaking, students get the opportunity to release tension, build social interaction with classmates, and mentally prepare themselves to receive learning materials with more focus and enthusiasm.

Several previous studies have shown the effectiveness of PjBL in various educational contexts. Fitriani. (2021) in his research at the junior high school education level, it proves that the application of the PjBL model has a positive effect on students' learning interests and learning outcomes in science subjects. Similar findings were also reported by Putri, A. N., & Sari, M. (2022) which found that PjBL was able to significantly increase the interest and independence of elementary school students. On the other hand, Halimah, Y., & Nurdin, H. (2020) examine the implementation of PjBL in the context of language learning and conclude that this model has great potential to be applied across subjects to improve the quality of learning.

Although various efforts to innovate learning have been made, the reality on the ground shows that there are still a number of problems that need to be addressed. Based on initial observations made at SD Nurul Muttahid, it was found that most of the fourth grade students showed symptoms of a decline in interest in learning IPAS which was quite worrying. These symptoms can be seen from the low attention of students during the learning process, the lack of perseverance of students in doing assignments, and the lack of active participation in group discussion activities. This condition is allegedly closely related to teaching methods that still tend to be monotonous and do not involve students as active subjects in learning.

Learning interest is one of the psychological variables that has a crucial role in determining the success of the learning process. According to Sardiman, A. M. (2012), interest in learning can be understood as a high inclination of the heart towards something, which in the context of education means the student's sense of pleasure and interest in learning activities. Slameto. (2020) adding that interest

makes a huge contribution to the learning process because students who have high interest tend to show more active, diligent, and achievement-oriented learning behaviors. Therefore, efforts to increase interest in learning are a must for every educator who wants to create a meaningful and sustainable learning experience.

Based on the above background description, this study is designed to empirically examine the influence of the Project Based Learning model supported by poster media and ice breaking activities on the interest of learning IPAS students in grade IV of SD Nurul Muttahid. Specifically, this study aims to describe the implementation of learning using the PjBL model with poster and ice breaking media and test whether there is a significant influence of the application of the model on students' interest in learning science.

The formulation of the problem in this study is divided into two main questions, namely: (1) how to implement the Project Based Learning model with poster media and ice breaking in IPAS learning in grade IV of SD Nurul Muttahid; and (2) whether there is a significant influence of the Project Based Learning model with poster and ice breaking media on the interest of learning IPAS students in grade IV of SD Nurul Muttahid. Regarding the second question, this study proposes two working hypotheses, namely H0 which states that there is no significant influence, and H1 which states that there is a significant influence of the application of the PjBL model with poster media and ice breaking on students' interest in learning IPAS.

2. METHODS

This study uses a quantitative approach with an experimental design in the form of a one-group pretest-posttest design. According to Sugiyono. (2020), this design allowed researchers to compare conditions before and after treatment of the same group of subjects. The design scheme of this study can be described as O1 → X → O2, where O1 is the initial measurement (pretest), X is the treatment in the form of the application of the Project Based Learning model with poster and ice breaking media, and O2 is the final measurement (posttest). This design was chosen because it allows for better control over disruptive variables and provides a more accurate picture of the changes that occur as a result of treatment.

The population in this study is all students of SD Nurul Muttahid which totals 134 students spread across several classes. From this population, a sample of 20 fourth grade students consisting of 10 male students and 10 female students were selected. The sampling technique used is Simple Random Sampling, which is a technique of extracting samples from population members that is carried out randomly regardless of the strata in the population Sugiyono. (2020). The selection of this technique is based on the consideration that each member of the population has an equal chance of being selected as a sample, so that the representativeness of the sample can be maintained.

The location of the research is SD Nurul Muttahid, with the implementation time from August to September 2025. The research activities were carried out in six meetings which included one pretest session, four learning sessions with the PjBL model, and one posttest session. Each meeting is allocated a time of about 2x35 minutes according to the learning schedule at school.

The variables in this study are divided into two, namely independent variables (X) and dependent variables (Y). Independent variables are a Project Based Learning model supported by the use of poster media and ice breaking activities. Meanwhile, the dependent variable is the interest in learning IPAS of grade IV students of SD Nurul Muttahid. The relationship between these two variables is tested through statistical analysis to determine whether the treatment given results in significant changes in the dependent variable.

The instruments used in this study consist of two types. First, the objective test of learning interest in the form of 20 multiple-choice questions that have been adjusted to the indicators of learning interest in science. The questions were developed based on the conceptual framework of learning

interests and have gone through a validation process to ensure the suitability of content and constructs. Second, observation sheets are used to document the activities of teachers and students during the learning process. This observation sheet is designed to measure the implementation of each stage of PjBL as well as the level of student involvement in each learning activity.

The data analysis techniques used include descriptive statistical analysis and inferral statistical analysis. Descriptive statistical analysis is used to describe the characteristics of the data including mean values, standard deviations, minimum values, and maximum values. The inferential statistical analysis used is the Paired Samples T-Test test with the help of SPSS software version 26. Before conducting the t-test, an analysis prerequisite test was first carried out which included a normality test using the Shapiro-Wilk method and a homogeneity test. The statistical decision-making criterion used is that if the Sig. (2-tailed) value < 0.05, H0 is rejected and H1 is accepted, which means that there is a significant influence of the treatment on the students' interest in learning science.

3. RESULTS AND DISCUSSION

Research Implementation Results

This research was carried out for six meetings at SD Nurul Muttahid, starting from August 8, 2025 to September 11, 2025. Details of the stages of the research implementation are presented in Table 1 below.

Table 1. Stages of Research Implementation

Meetings	Day/Date	Agenda	Short Activities
I	Friday, 08 Aug 2025	Pre-test	Multiple-choice questions (20 numbers)
II	Tuesday, 12 Aug 2025	Planning	Ice breaking, explanation of energy matter, group division
III	Tuesday, 19 Aug 2025	Scheduling	Preparation of project schedules and poster sketches
IV	Tuesday, 26 Aug 2025	Production	Poster work interspersed with ice breaking
V	Tuesday, 02 Sept 2025	Presentation	Presentation of group poster work
VI	Kamis, 11 Sep 2025	Post-test	Giving final test questions

Based on Table 1, it can be seen that the implementation of the research follows the stages of PjBL systematically. The first meeting was focused on providing a pretest to measure the initial condition of students' interest in learning. The second to fifth meetings are the implementation stages of the PjBL model which include the planning, scheduling, production, and presentation stages. At each learning meeting, ice breaking activities are given at the beginning of the learning to create a fun atmosphere, while poster media is used as the main means in project activities. The last meeting was used for posttest to measure changes in learning interest after treatment.

The results of observation of teachers' activities during the implementation of learning showed a consistent trend of improvement from meeting to meeting. The details of the teacher's observation results are presented in Table 2.

Table 2. Recapitulation of Teacher's Observation Results

Yes	Stages of Activity	Implementation Percentage	Category
1	Pretest	70%	Good
2	Meeting 2	80%	Excellent
3	Meeting 3	85%	Excellent
4	Meeting 4	90%	Excellent
5	Encounter 5	95%	Excellent
6	Posttest	95%	Excellent
Average		85,8%	Excellent

Based on Table 2, the percentage of teacher activity implementation shows a progressive increase from 70% during the pretest to 95% at the fifth and posttest meetings. The average percentage of teacher implementation reached 85.8% which was included in the Very Good category. This increase indicates that teachers are becoming more skilled in managing classes and carrying out each stage of PjBL as time goes by. At the initial meeting, teachers were still in the adaptation phase to the PjBL model, but in subsequent meetings the implementation became more fluid and structured.

The results of observations of student activities also showed a similar pattern of improvement. Details of the results of student observations can be seen in Table 3.

Table 3. Recapitulation of Student Observation Results

No	Stages of Activity	Average Percentage	Category
1	Pretest	65%	Good
2	Meeting 2	75%	Good
3	Meeting 3	82%	Excellent
4	Meeting 4	88%	Excellent
5	Encounter 5	94%	Excellent
6	Posttest	98%	Excellent
Rerata		83,6%	Excellent

The data in Table 3 shows that the average percentage of student activity has increased significantly from 65% at the time of the pretest to 98% at the time of the posttest, with an overall average score of 83.6% which is included in the Very Good category. This increase illustrates that as the learning process with the PjBL model progresses, student involvement and active participation are increasing. At the initial meetings, some students still showed a passive attitude, but as the poster making project progressed, the enthusiasm and activeness of the students increased drastically. This shows that project-based activities are able to foster students' intrinsic motivation to be actively involved in learning.

Descriptive Statistics of Learning Interest

Descriptive statistical analysis was carried out to obtain an overview of the distribution of students' learning interest scores before and after treatment. The results of the descriptive statistical analysis of learning interest scores are presented in Table 4.

Table 4. Descriptive Statistics of Learning Interest Score

Variabel	N	Minimum	Maximum	Mean	Std. Deviation
Pretest	20	60	85	77,25	7,159
Posttest	20	90	100	98,25	3,243

Based on Table 4, there was a very significant increase in students' learning interest scores after treatment. The average learning interest score increased from 77.25 in the pretest to 98.25 in the posttest,

which means an increase of 21 points. In addition, the minimum score of learning interest score also increased from 60 to 90, and the maximum score increased from 85 to 100. The standard deviation decreased from 7.159 on the pretest to 3.243 on the posttest, which shows that the distribution of posttest scores is more homogeneous or even compared to the distribution of pretest scores. This decrease in standard deviation indicates that after the treatment, the individual differences between students in terms of learning interest became smaller, which means that the PjBL model with poster media and ice breaking effectively increased learning interest evenly across the sample.

To provide a more comprehensive picture of changes in the distribution of students' learning interests, interest score is categorized based on certain intervals. The results of the categorization of learning interests are presented in Table 5.

Table 5. Categorization of Learning Interests

No	Score Interval	Category	Pretest Frequency	Pretest Percentage	Frekuensi Posttest	Percentage Posttest
1	90-100	Very High	5	25%	20	100%
2	75-89	Height	14	70%	0	0%
3	60-74	Medium	1	5%	0	0%
4	21-40	Low	0	0%	0	0%

The data in Table 5 show a very striking shift in the distribution of learning interest categories. At the time of the pretest, the majority of students, namely 14 people (70%) were in the High category, 5 people (25%) in the Very High category, and 1 person (5%) in the Medium category. After the treatment, all students, namely 20 people (100%) were in the Very High category. This shift confirms that the PjBL model with poster media and ice breaking not only increases the average interest in learning, but is also able to elevate all students to the highest level of interest. This fact is strong empirical evidence that the combination of these three learning components has a very positive impact on students' interest in learning.

Inferential Statistics

Before conducting the hypothesis test, an analysis prerequisite test was first carried out which included the normality test and the homogeneity test. The normality test using the Shapiro-Wilk method was chosen because of the relatively small sample size of 20 students, which is considered more accurate than the Kolmogorov-Smirnov method for small samples. The results of the normality test showed that the pretest data had a Sig. value of 0.394 and the posttest data had a Sig. value of 0.342. Both values are greater than the significance level of 0.05, so it can be concluded that the pretest and posttest data are normally distributed.

Homogeneity tests are performed to ensure that the variance of the two data groups is homogeneous or equivalent. The results of the homogeneity test based on the mean showed a Sig. value of 0.638 which was greater than 0.05, so it was concluded that the pretest and posttest data had homogeneous variance. Thus, both analysis prerequisites have been met and the Paired Samples T-Test can be resumed.

The results of the Paired Samples T-Test showed that the t-calculated value of 13.591 was greater than the t-table value of 2.093 at a significance level of 5% with a degree of freedom (df) of 19. In addition, the Sig. (2-tailed) value obtained is 0.000 which is smaller than 0.05. Based on the decision-making criteria that have been set, H0 is rejected and H1 is accepted. These results confirm that there is a significant influence of the Project Based Learning model with poster and ice breaking media on the interest of learning in the fourth grade of Nurul Muttahid Elementary School.

Discussion

The findings of this study show that the application of the Project Based Learning model enriched with poster media and ice breaking activities has a significant impact on increasing the interest in learning science of grade IV students of SD Nurul Muttahid. The increase in the average learning interest score by 21 points from 77.25 to 98.25 is strong evidence that the combination of these three components is able to create a more interesting, meaningful, and motivating learning experience for students.

The success of the PjBL model in increasing interest in learning is inseparable from the intrinsic characteristics of this model that place students as active subjects in learning. In the framework of PjBL, students are not only passive recipients of information, but also designers, implementers, and evaluators of the projects they are working on. This process is in accordance with the view Watts, M. (2014) which states that contemporary innovative learning strategies must be able to change the learning paradigm from teacher-centered to student-centered. Through poster making project activities, students gain hands-on experience in exploring IPAS concepts, processing information, and presenting their work creatively. Such a learning experience has proven to be more meaningful and memorable for students compared to conventional lecture methods.

Poster media acts as a tool that facilitates the visualization of abstract IPAS concepts into more concrete and easy-to-understand representations. Wahid, A. (2020) In his research, it is emphasized that the use of appropriate educational facilities in the teaching and learning process can improve the quality of educational interaction in the classroom. The posters created by the students not only serve as the result of the project, but also as a medium for the expression of their creativity and understanding of the IPAS material. The process of creating posters encourages students to think critically in selecting relevant information, organizing content logically, and designing attractive visual displays. These skills are in line with the demands of 21st-century education that require high-level thinking skills and creativity Bell, S. (2010).

Ice breaking activities that are integrated into each learning session make an equally important contribution to increasing interest in learning. Ice breaking serves as an effective classroom atmosphere management strategy to reduce boredom and maintain students' enthusiasm for learning throughout the learning process. (Wahid & Afni, 2022) In his study, it is proven that a fun and non-monotonous learning atmosphere is a key factor in increasing the learning interest of elementary school students. Through a short but fun ice breaking activity, students get the opportunity to release fatigue, build cohesiveness with their group mates, and restore focus and concentration before entering the core learning stage. This strategy has proven to be effective in keeping student engagement levels high from the beginning to the end of learning.

The findings of this study are also consistent with the results of the research Fitriani. (2021) which shows that PjBL has a positive effect on students' learning interest in science subjects at the junior high school level, as well as findings Putri, A. N., & Sari, M. (2022) which proves that PjBL is able to increase the interest and independence of elementary school students. The difference in context between the previous studies and this study lies in the integration of poster media and ice breaking as complementary components of the PjBL model.

The results of observation of teacher and student activities also provide qualitative indicators that support quantitative findings. The trend of increasing the percentage of teacher implementation from 70% to 95% shows that teachers experience a positive learning curve in implementing the PjBL model. Similarly, the increase in student activity from 65% to 98% illustrates that students are increasingly engaged and enthusiastic as the project progresses. These qualitative data strengthen the argument that the PjBL model with poster media and ice breaking is not only effective in increasing learning interest scores quantitatively, but also succeeds in creating positive transformations in classroom dynamics and student learning behavior.

Overall, the results of this study strengthen the argument that innovation in learning needs to be carried out holistically by considering various aspects, ranging from the selection of learning models,

the use of appropriate media, to the management of the classroom atmosphere. The integration of PjBL with poster and ice breaking media is a clear example of how synergy between learning components can produce a greater impact than the application of separate components. This is in line with the view Kosasih, E. (2020) that the effectiveness of learning is determined by the ability of teachers to combine various strategies and approaches that complement each other.

4. CONCLUSIONS AND SUGGESTIONS

Based on the results of the analysis and discussion that have been described, this study produces several conclusions. First, the implementation of the Project Based Learning model with poster media and ice breaking in IPAS learning in grade IV of SD Nurul Muttahid went well and was structured. This is shown by the average percentage of teacher activity implementation of 85.8% and student activity of 83.6%, both of which are included in the Very Good category. Learning activities take place systematically following the stages of PjBL which include planning, scheduling, poster production, and presentations, interspersed with ice breaking activities at each meeting to maintain a conducive classroom atmosphere.

Second, there is a significant influence of the Project Based Learning model with poster media and ice breaking on the interest of learning IPAS students in grade IV of SD Nurul Muttahid. This is evidenced by the increase in the average learning interest score from 77.25 in the pretest to 98.25 in the posttest, with a t-count value of 13.591 which is greater than the t-table of 2.093 and a Sig. (2-tailed) value of 0.000 which is smaller than 0.05. The change in the distribution of the learning interest category is also very striking, where in the pretest only 25% of students are in the Very High category, while in the posttest all students or 100% have reached the Very High category. Thus, an alternative hypothesis (H1) that states that there is a significant influence is accepted, while the null hypothesis (H0) is rejected.

Regarding the findings of this study, there are several suggestions that can be conveyed to various parties. For teachers, it is expected to be able to adopt and implement the Project Based Learning model with poster and ice breaking media regularly in science and other subjects. Teachers need to continue to develop their creativity in designing project activities that are contextual and fun, and do not hesitate to combine various learning strategies to create an optimal learning experience for students.

For students, the results of this study show that project-based activities and a fun learning atmosphere are able to increase interest and engagement in learning. Therefore, students are expected to always maintain enthusiasm and enthusiasm for learning, as well as actively participate in every learning activity organized by teachers. Students also need to develop the ability to collaborate and think creatively which is fostered through activities such as making poster projects.

For the school, it is recommended to provide adequate support for teachers in implementing learning innovations, both in terms of providing facilities and infrastructure as well as professional training. Schools are also expected to create an academic culture that encourages experimentation and innovation in teaching, so that teachers feel encouraged to continue to develop their pedagogical competence.

For future researchers, it is recommended to expand the scope of the study by involving a larger and more diverse sample, using a more comprehensive research design such as quasi-experimental or true-experimental with a control group, and exploring other variables that have the potential to mediate or moderate the influence of PjBL on learning interests, such as students' learning styles, socioeconomic backgrounds, and teachers' pedagogic competence. Longitudinal research may also be considered to examine the sustainability impact of PjBL on learning interest over a longer period of time.

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