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Application of ICT-Based Problem Based Learning Method as a Learning Innovation for Pancasila Education to Improve Learning Outcomes of Class VII D Students of SMPN 51 Palembang

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Abstract

This study aims to improve the effectiveness of learning outcomes of students in class VII D SMPN 51 Palembang in the subject of Pancasila Education, especially the material of Unity in Diversity, through the application of the Problem Based Learning (PBL) learning model by utilizing ICT media. The research method used is Classroom Action Research (PTK) which is carried out in two cycles, each consisting of the stages of planning, implementation, observation, and reflection. Data were obtained through observation, interviews, and evaluation of learning outcomes using Google Form. The results showed that the application of ICT-based PBL was able to increase the active participation of students, improve the learning process, and improve learning outcomes significantly. Learning media such as interactive presentations through Canva and online evaluation based on Google Form make learning more interesting and accessible to students. Based on the evaluation results in cycle II, there was an increase in the class average score which showed the achievement of the success indicator. Thus, the ICT-based PBL model is effectively applied in learning Pancasila Education to encourage active learning, critical thinking, and deeper understanding.

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INTRODUCTION

The government is constantly making efforts to improve and enhance the quality of education in Indonesia. This effort never stops because education is considered the main foundation in building the nation's future. Various policies, programs, and innovations in the education system continue to be initiated and implemented to answer the challenges of the times and improve the competitiveness of human resources. The government also collaborates with various parties, including educators, educational institutions, and communities, to jointly create a better learning environment that is inclusive and adaptive to technological developments and the needs of students.

Education is a crucial sector that needs to be improved in order to encourage the progress of a nation. As a form of responsibility for this, the government has set the objectives of national education as stated in the Law of the Republic of Indonesia Number 20 of 2003, Chapter II Article 3 concerning the National Education System. The article explains that national education plays a role in developing abilities and shaping the character and civilization of a dignified nation as an effort to educate the nation's life (Darmawan Harefa, 2023).

Learning in the 21st century era focuses on developing three main competencies, namely literacy, numeracy, and digital skills. These three aspects are the main focus in implementing learning that is relevant to the times, especially in implementing the Merdeka Curriculum (Amini, dkk, 2024). This curriculum carries the principle that education is not solely oriented towards mastering academic knowledge, but also aims to equip students to be able to face the challenges of everyday life and develop their potential in a comprehensive and balanced manner (Martin, et. al., 2024).

The implementation of Merdeka Curriculum in the learning process can be realized through the application of the Problem Based Learning (PBL) learning model combined with the use of Information and Communication Technology (ICT). The PBL model encourages students to think critically, solve contextual problems, and work together in groups. When combined with ICT, learning becomes more interactive, engaging and relevant to today's digital world. In the context of classroom action research, this strategy plays an important role in improving the effectiveness of learners' learning outcomes. Through ICT-based PBL, learners not only understand the subject matter more deeply, but also develop digital literacy skills, creativity, and learning independence. This approach is in line with the principles of Merdeka Curriculum, which emphasizes meaningful, experiential learning, and is oriented towards developing 21st century competencies.

Based on the literature review, previous studies have focused on improving numeracy skills through the application of the Problem Based Learning (PBL) model supported by ICT-based media, especially on the material of the Linear Equation System. However, until now there has been no classroom action research (PTK) at the Palembang area junior high school level that specifically examines the application of

Problem Based Learning-based learning models with the integration of information and communication technology (ICT) in Pancasila Education subjects. This condition indicates a research gap that can be used as a strategic opportunity for further study. This research aims to fill this gap by designing and implementing an ICT-based PBL learning model in the context of Pancasila Education, in order to develop critical thinking skills, national values, and the ability of students to face the challenges of the 21st century in a more contextual and meaningful way.

Research conducted by Suryani, et al (2022) at Wali Songo Junior High School showed that the implementation of the Problem Based Learning (PBL) learning model integrated with information and communication technology (ICT) was able to improve student learning outcomes, which previously only reached a level of completeness of 30%. This study used a Classroom Action Research (PTK) approach with data collection techniques through tests and observations. The data obtained were analyzed using quantitative descriptive methods. The results showed an increase in the average value of students' learning outcomes, which amounted to 71.66 in the first cycle, increased to 74.29 in the second cycle, and reached 84.77 in the third cycle. These findings prove that the application of the ICT-based PBL model can have a positive impact on improving the learning outcomes of students in class VII (Suryani, et. al.,2022).

Based on the results of observations, interviews, and learning evaluations conducted with teachers and students of class VII D SMPN 51 Palembang, it is known that the learning process is still dominated by the lecture method. The teacher has not applied innovative and interesting learning methods, while the media used is considered unable to arouse students' interest in learning. This causes the classroom atmosphere to be less interactive, with low learner participation and a tendency to be passive in expressing opinions. This condition has an impact on learning outcomes that are less than optimal, seen from the daily test scores for Pancasila Education subjects that have not met the Minimum Completeness Criteria (KKM). Especially on the material of Unity in Diversity, students claim to have difficulty understanding the content of the material because it is abstract and related to national values that they have not fully experienced in their daily lives.

The Problem Based Learning (PBL) learning model is expected to be one of the effective solutions in overcoming learning problems that are less interesting and participatory. Through the application of PBL in the subject of Pancasila Education class VII SMP, students are given the opportunity to face real-life problems that are relevant to the values of Pancasila. In this process, learners are invited to apply logical reasoning, including skills in solving problems related to social responsibility, justice, and democracy. In addition, PBL encourages active group work, so as to improve learners' social skills such as the ability to communicate, cooperate, and establish effective collaboration.

The utilization of Information and Communication Technology (ICT)-based media in the Problem Based Learning (PBL) learning model can further strengthen the effectiveness of the learning process. Advances in information technology also affect the

world of education, so the integration of ICT is an important part in supporting the transformation of learning that is more interactive, flexible, and relevant to the needs of the times (Meryansumayeka, et. al.,2025).

Combining the Problem Based Learning (PBL) learning model with Information and Communication Technology (ICT) based media opens up opportunities for more innovative and creative learning approaches. This integration allows teachers to present material in a more interesting and interactive form, such as through learning videos through canva, power point, quiz-based games such as bamboozle, wordwall and kahoot, to collaborative platforms.

Based on the description above, this research aims to apply the ICT-based Problem Based Learning Method as a Learning Innovation for Pancasila Education to Improve Learning Outcomes of Class VII D Students of SMPN 51 Palembang. It is expected that through the application of this strategy, students can be more actively involved in the learning process, and have higher learning motivation. In addition, the use of ICT media is expected to create a more interesting and enjoyable learning atmosphere, so that students' learning outcomes increase and can achieve the Minimum Completion Criteria (KKM) set in the Pancasila Education subject. This research is also expected to make a positive contribution to teachers in choosing learning methods and media that are more effective and relevant to the times.

METHOD

According to Kusnandar, classroom action research is a form of activity carried out by teachers, either independently or through cooperation with other parties (collaborative), which aims to improve and improve the quality of the learning process in the classroom. Through PTK, teachers can identify real problems that occur during learning, design solutions, implement them systematically, and evaluate the results to create more effective, innovative, and learner-centered learning (Rahmat, 2023).

This study aims to improve the effectiveness of learning outcomes through problem-based learning method by utilizing ICT media. This research was conducted at SMPN 51 Palembang which is located at Jl. HM. Yusuf Senen, Sukamoro, Kec. Talang Klp., Banyuasin Regency, South Sumatra 30961. The subjects of this study were students of class 7/VII D consisting of 32 students. The data of this research through observation, interview and learning evaluation. Test questions for learning evaluation are multiple choice using ICT media, namely google form.

The research was conducted in the even semester of the 2024/2025 academic year in two cycles from April to May 2025 with each cycle consisting of four stages, namely planning, implementation, observation and reflection. The implementation stage is carried out according to the teaching module, where students solve contextual problems in groups. The teacher acts as a facilitator, and at the end of learning, students work on evaluation questions online. In the observation stage, the researcher observes learner engagement and learning effectiveness through observation and interviews. Evaluation data from Google Form was analyzed to see learning outcomes. The

reflection stage was conducted to evaluate the shortcomings in cycle I and develop improvements for cycle II. The second cycle was carried out with improvements based on previous reflections, with the hope of increasing the effectiveness of learning outcomes of students in class VII D SMPN 51 Palembang. The success of this study was measured through an increase in student learning outcomes, which was marked by the achievement of a minimum average score of 75% in the learning process.

The characteristics of students in class VII D consist of 32 people, with diverse socio-economic backgrounds through non-cognitive assessments. The initial ability of some learners is categorized as low based on the results of previous daily test scores and initial observation findings. The instruments used in this study include:

1. Observation Sheet, used to assess the involvement of teachers and students during the learning process. The observed aspects include active involvement, group participation, and the application of the ICT-based PBL model. To ensure validity, this instrument has been consulted with an education expert lecturer and a subject teacher through expert judgment (Subhaktiyasa, et. al.,2024:5600)
2. Semi-structured interviews, interview guides were prepared to explore teacher and learner responses to the learning process. Interviews were conducted directly after the end of the cycle. Instrument validity was tested using content validity.
3. Cognitive Evaluation Test, evaluation of student learning outcomes is carried out using multiple choice questions presented digitally through Google Form. The use of Google Form was chosen because of its ease of data collection, efficiency in automatic assessment, and its ability to display results in real time. The test questions were developed based on indicators of competency achievement on the material of Unity in Diversity.
4. Documentation, used as a supporting instrument, in the form of photos of learning activities and Google form screenshots of students' work during the process. This documentation helps illustrate the application of the ICT-based PBL model visually.

Data Triangulation To ensure the validity of the data, triangulation of techniques and sources was carried out. Technical triangulation was carried out by comparing data from observations, interviews, and cognitive evaluation results. While source triangulation is done by confirming data from students, subject teachers, and researchers. This aims to ensure that the data collected complement each other and describe the actual conditions in the field (Saadah, et. al.,2022).

RESULT AND DISCUSSION

Result

PRE- CYCLE

The implementation of this study aims to improve the effectiveness of student learning outcomes through the application of the Problem Based Learning method combined with the utilization of ICT media in class VII D SMPN 51 Palembang, especially

on the material of Unity in Diversity. Before the action was carried out, the researcher first conducted a pre-action stage to identify existing problems in the classroom. This pre-action activity includes observation of the ongoing learning process, interviews with subject teachers, and analysis of student learning evaluation results. The observation results showed that the teacher still used the lecture method as the main approach in delivering the material. Learning takes place in one direction, so that students tend to be passive and less actively involved in the learning process. Based on the results of the interview, the teacher admitted that he had not applied a variety of learning methods and had not utilized technology as a supporting medium for learning. This is also reinforced by the data from students' evaluation results, which show that most of the daily test scores are not satisfactory.

Figure 1. Teacher Interview

In an interview with the Pancasila education subject teacher, he informed that students were less enthusiastic when using conventional methods in learning and revealed that the students' scores were unsatisfactory with an average score of 70%. Based on the findings obtained from the pre-action stage, researchers then proceeded to the action implementation stage by entering cycle 1. In this cycle, researchers designed lessons that integrated the Problem Based Learning (PBL) model with the use of ICT media to support a more active and meaningful learning process. The material used was “Unity in Diversity”, especially on the submaterial of respecting local culture, which is an important part of Pancasila Education in class VII D SMPN 51 Palembang. To strengthen the delivery of material, teachers use ICT media presentations in the form of interactive PowerPoint made through the Canva platform.

CYCLE I

In the implementation stage, learning is carried out in accordance with the teaching module that has been prepared. The teacher presents the material by applying the PBL model, where students are faced with real problems related to the diversity of Indonesian culture. Learners then discuss in small groups to find solutions and present the results of their discussions in front of the class. In this process, the teacher acts as a facilitator who guides and monitors students' learning activities. To measure their understanding of the material, at the end of the lesson, learners work on multiple choice-based evaluation questions through Google Form.

Figure 2. Using ICT Media

The observation stage is carried out systematically to record the activities of students during the learning process. Researchers observed the level of activeness, learners' involvement in group discussions, and the effectiveness of the use of ICT media in supporting the learning process. In addition, interviews were conducted with several learners to find out their responses to the learning methods and media used. Evaluation data from Google Form was also collected and analyzed to determine the achievement of students' learning outcomes.

The last stage in cycle I is reflection. At this stage, researchers analyze all the data that has been obtained, both from observations, interviews, and learning evaluation results. This reflection aims to evaluate the success of the actions that have been implemented, as well as identify obstacles or shortcomings that need to be improved in cycle II.

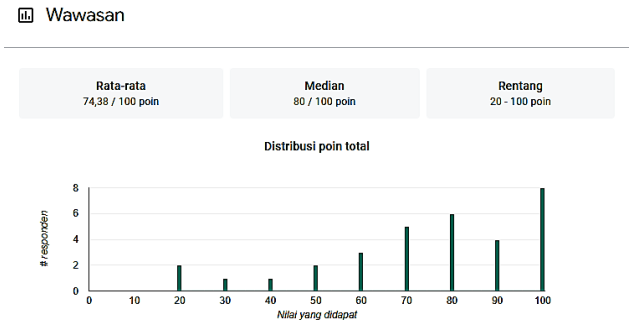

Figure 3. Learning Evaluation Results via Google Form

Based on the results of evaluating students' learning by using problem-based learning methods by utilizing ICT media, the teacher observed that there were still some students who were not active in groups in analyzing problems. The learning outcomes of students in class VII D SMPN 51 Palembang have increased which previously in the pre-action the average student score was 70% and after the implementation of cycle 1 the average student score increased by 74.38% with a median of 80% of 10 HOTS-based multiple choice questions through google form as shown in Figure 3.

CYCLE II

In the implementation of cycle II, all stages of learning were repeated by making improvements based on the results of the reflection from cycle I. Lesson planning was refined by taking into account the obstacles that arose previously, such as the lack of

variety in the media and the fact that there were still students who were not active in group discussions. To overcome this, researchers added elements of ICT media based on educational games such as wordwall, bamboozle and kahoot to increase students' enthusiasm for learning. Interactive digital games related to Bhinneka Tunggal Ika material are designed so that students can learn while playing fun and strengthen their understanding of the values of unity in diversity.

Figure 4. ICT-based Games

In the implementation stage, the Problem Based Learning model remains the main approach, where learners are again faced with contextual problems that must be solved in groups. The teacher guides the discussion process while ensuring all learners actively participate. The material was delivered with the help of an updated PowerPoint from Canva, and supplemented with online-based games as part of the learning activities. At the end of the lesson, evaluation is again conducted through Google Form to quantitatively measure the achievement of learning outcomes.

Figure 5. Cycle 2 Stage of Learning

The observation and reflection stage in cycle II was carried out to evaluate the effectiveness of the actions that had been implemented. Teacher and learner activities during learning were carefully recorded, and evaluation results were analyzed to determine the extent of improvement. Follow-up interviews were also conducted to explore students' responses to PBL-based learning and the use of interactive ICT media. It is hoped that through these two cycles of action, the learning process of Pancasila Education will not only become more interesting and interactive, but also be able to have a real impact in significantly improving the learning outcomes of students of class VII D SMPN 51 Palembang.

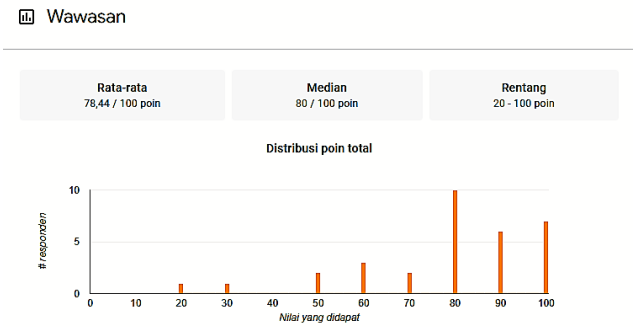

Figure 5. Cycle 2 Learning Evaluation

Based on the results of the learning evaluation in cycle II, there was a significant improvement in the learning outcomes of students compared to the previous cycle. The implementation of this research consists of two cycles with stages: planning, implementation, observation, and reflection. Based on the results of the learning evaluation, there was an increase in students' learning outcomes from the pre-action stage to cycle II. The average score of students increased gradually, namely from 70.00 (pre-action), to 74.38 in cycle I, and increased again to 78.44 in cycle II.

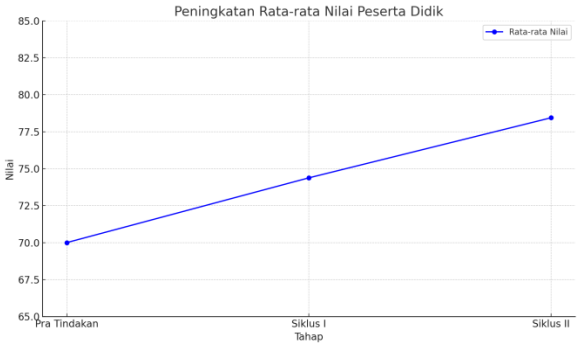

Figure 6. Average score of students in class VII D

In addition, the activeness and participation of students in learning activities also increased, especially when participating in group discussions and when using ICT media based on games that have been provided. During the group discussion process, the observation sheet showed that around 82% of learners were actively discussing, 12% were classified as passive, and 6% were not actively involved. This shows an increased involvement compared to the pre-action, where activeness only reached around 60%.

The learners' response to the Problem Based Learning method was also very positive. The interview results show that learners positively welcomed the use of ICT media, especially when teachers used educational games such as Kahoot! and Wordwall. One of the learners said, “It's very exciting, so I don't get bored learning. I was excited to answer the questions because it was like playing a game, but still learning.” This shows that the integration of game-based ICT in the PBL model provides a more enjoyable and participatory learning experience. They feel more interested, motivated and understand the material more easily.

The results of the learning evaluation show that the average score of students has increased from the pre-action stage to cycle II. Based on the calculation of simple gain score and percentage increase, the data on the increase in value is presented quantitatively, the Gain Score calculation is carried out with the formula:

$$Gain = \frac{Final\ Score - Initial\ Score}{100 - \text{Initial Score}}$$

Cycle I = (74.38 – 70)/(100-70) = 0.146 Medium Category
Cycle II = (78.44 – 70)/(100-70) = 0.281 Medium Category

Table 1. Improvement in Learning Outcomes

Stages	Average Score	Gain Score	Category
Pre Cycle	70.00	-	-
Cycle I	74.38	0.146	Medium
Cycle II	78.44	0.281	Medium

Based on these data, it can be concluded that the application of the Problem Based Learning learning model combined with the utilization of ICT media has succeeded in increasing the effectiveness of Pancasila Education learning in class VII D students of SMPN 51 Palembang, indicated by increased activeness, student involvement in group discussions, and increased learning outcomes from pre-action to cycle II significantly.

Discussion

The Problem Based Learning (PBL) model is a learning approach that places students in situations that reflect real problems in everyday life. In the process, learners are required to think critically, analyze information, and develop problem-solving skills systematically. This approach encourages more meaningful learning because students gain knowledge constructively through experience and direct involvement in the learning process.

The Problem Based Learning (PBL) model is a learning strategy based on the view of constructivism, where the learning process is centered on students. Learners are encouraged to explore solutions through a process of in-depth investigation, by linking various concepts, principles, and theories from various disciplines. The problem acts as a trigger, direction and framework in the thinking and learning process. On the other hand, the teacher is no longer the only source of knowledge, but acts as a guide and facilitator who helps learners navigate the learning process independently and collaboratively (Mayasari, 2022).

The use of information and communication technology (ICT) has developed to have a major impact, such as the ease of accessing information globally, increasing efficiency in various activities, the birth of various applications and innovations, and

accelerating the communication process between individuals and organizations at the local and international levels.

An educator is required to be able to choose learning methods and media that are in accordance with the needs and characteristics of students. In its development, the utilization of visual media has increased through the presence of more sophisticated audiovisual-based technology, one of which is the use of information and communication technology (ICT) such as canva, Baamboozle wordwall, google cite and other media.... The presence of this technology not only enriches the learning experience of students, but also makes it easier for teachers to deliver material in an interactive and interesting way, so that the learning process becomes more effective and meaningful (Mulyani, 2021).

The application of the Problem Based Learning model supported by the use of ICT media is one of the innovative solutions that can be applied by educators to create meaningful and relevant learning for students. In this case, the teacher's role is no longer as the center of information, but as a facilitator who provides the widest possible space for students to explore knowledge, convey ideas, and guide them towards understanding concepts in accordance with competency achievements. Then, learning becomes more active, collaborative, and equips learners with 21st century skills (Tri Linda Antika,, 2023:18).

Based on the results of the implementation of classroom action research conducted in two cycles, it appears that the application of the Problem Based Learning (PBL) learning model combined with the utilization of ICT media has a positive impact on increasing the effectiveness of learning outcomes of students in class VII D SMPN 51 Palembang on the material of Unity in Diversity. The results showed that the application of the ICT-based Problem Based Learning (PBL) model on the material of Unity in Diversity was able to increase the effectiveness of Pancasila Education learning in class VII D SMPN 51 Palembang. This increase is reflected in the average value of learning outcomes that rise gradually: 70.00 in pre-action, 74.38 in cycle I, and 78.44 in cycle II. This finding is in line with Sukestini's research which states that the integration of PBL with ICT media can significantly improve learning creativity and student learning outcomes (Sukestini, et. al.,2020).

Learning that initially tends to be passive and does not involve students actively, turns into more interactive, fun, and meaningful. Through PBL, learners are involved in the process of solving real problems in groups, while the use of ICT media such as Canva wordwall and Google Form helps clarify the material and facilitate the evaluation process. Learners' responses to Canva media and educational games such as Kahoot! and Wordwall were also very positive. Based on the questionnaire results, 85% of learners stated that using Kahoot! made learning fun and challenging, while 78% said Canva media helped them understand the material through interesting visualizations. One learner said, “Learning with Kahoot makes us less sleepy, so we compete to answer correctly and quickly.” The teacher also stated that learners seemed more enthusiastic and courageous in expressing their opinions during group discussions. This finding is

supported by Agusti's research which shows that the use of Wordwall media is effective in improving students' learning outcomes (Agusti & Aslam.,2022).

Technical challenges in implementing the ICT-based Problem Based Learning model in class VII D of SMPN 51 Palembang were unavoidable. Some students experienced problems such as limited internet access, unstable signals, and no personal devices. In addition, school infrastructure such as the availability of Wi-Fi and projector devices in each class is also uneven. These constraints hindered the implementation of learning using digital media such as Google Form, Canva, Kahoot! and Wordwall. However, teachers and researchers responded with alternative contextualized strategies. Among others, by providing evaluation questions in printed form if the internet connection is problematic, and encouraging the use of devices in groups. This strategy not only solved the technical problems, but also fostered collaborative attitudes and the spirit of gotong royong, which is a core value in Pancasila Education.

Evaluation results showed an increase in the average score of students, activeness in discussions, and higher motivation to learn. This participatory and adaptive approach, the implementation of ICT-based PBL proved to remain effective in improving learner engagement and learning outcomes. This means that limited facilities are not an absolute obstacle, as long as there is creativity and flexibility in designing relevant and interesting learning. Thus, the ICT-based PBL model is proven effective in improving the overall quality of Pancasila Education learning.

CONCLUSION

Based on the results of class action research conducted in class VII D SMPN 51 Palembang, it can be concluded that the application of the Problem Based Learning (PBL) model combined with the utilization of ICT media can significantly improve the effectiveness of student learning outcomes. This approach encourages active involvement of students in the learning process, improves critical thinking skills, and facilitates cooperation in groups. The use of digital learning media such as Canva, Google Form, as well as educational games such as Kahoot! and Wordwall also contributed to the increase of learners' motivation and interest in learning. Overall, the combination of PBL and ICT not only improves academic achievement, but also develops social skills and positive attitudes towards learning Pancasila Education.

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