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Problem-Solving Learning Model in Improving Civic Education Learning Outcomes in Supian Private Vocational School

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Abstract

This study aimed to assess the academic performance of Class XI2 students enrolled at Supian Private Vocational School located in the Silangkitang Building. The research methodology employed was classroom action research, focusing on students from Class XI2 at Supian Pembangunan Silangkitang Private Vocational School. The study utilized the Kurt Lewin model, consisting of four cycles: planning, implementing actions, observation, and evaluation. Data collection methods included observation and testing. In the initial cycle, the average observation score indicated a low level of student engagement, with only 31.14% of students categorized as actively participating. However, in the subsequent cycle, this figure increased to 65.4%, demonstrating significant improvement in student activity following the implementation of the problem-solving learning model. Moreover, in the third cycle, the percentage of students achieving the required level of proficiency reached 84.2%, surpassing the 80% benchmark. Consequently, students in Class XI Semester II at Supian Private Vocational School in Silangkitang Building achieved satisfactory academic results.

Keywords: Problem-solving learning model, civic education, Learning outcomes, vocational school

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INTRODUCTION

The utilization of the problem-solving learning model represents a significant advancement in refining the educational system. According to Saputri (2021), this model engages students by presenting learning material in the form of challenges that must be tackled to attain educational objectives. Similarly, Suhardi (2020) underscores that implementing this model encourages active participation in learning, fosters systematic thinking, nurtures creativity, promotes realistic problem-solving, enhances investigative skills, and facilitates the evaluation and interpretation of findings.

In essence, the problem-solving learning model compels students to apply existing knowledge to tackle a variety of problems, as noted by Argusni & Sylvia (2019). Consequently, there is a pressing need to refine the structure of this model to optimize its efficacy and enhance students' social attitudes.

It's evident that the ability to solve problems hasn't been adequately emphasized in traditional teaching methods, leading to detrimental consequences when students encounter challenges. In some cases, students resort to harmful behaviors such as substance abuse or even contemplate suicide due to their inability to effectively address problems. Teachers, much like parents, aspire for holistic development in students, encompassing cognitive, affective, and psychomotor domains, as stipulated in Article 3 of the Indonesian National Education System

Law (Undang-Undang Republik Indonesia Nomor 20 Tahun 2003 Tentang Sistem Pendidikan Nasional).

The evolving educational landscape necessitates continuous enhancement of teachers' competencies to cater to changing student demographics and adapt to the demands of the era (Nurgiansah & Pringgowijoyo, 2020). This includes not only refining pedagogical skills but also honing professional competence to ensure teachers can effectively navigate evolving educational paradigms. Moreover, teachers serve as facilitators and mentors, imparting essential skills to students to prepare them for competitive environments (Nurgiansah et al., 2020).

As external influencers on students' development, teachers play a pivotal role in nurturing students' potential across various domains. However, conventional teaching methods, predominantly relying on lectures and discussions, often fail to fully engage students. This is particularly evident in scenarios like the one observed in Supian Private Vocational High School, where Civics teachers primarily adopt lecture-based approaches, leading to student disengagement and inadequate comprehension.

Consequently, there is a noticeable impact on students' academic performance and behavior. Many students struggle to meet academic standards, exhibit disruptive behavior, lack concentration during lessons, fail to relate theoretical knowledge to real-life scenarios, and demonstrate minimal participation in discussions. Additionally, there's a prevalent lack of motivation among students, contributing to a pervasive sense of disengagement from the learning process.

To address these challenges, adopting the problem-solving learning model presents a promising solution. Tanjung. S (2018) highlights how this approach empowers students to construct their knowledge through authentic investigations, fostering independent and collaborative problem-solving skills. Problem-based learning, as elucidated by Jacub et al. (2020), serves as a catalyst for honing students' competencies by immersing them in real-world challenges, aligning with the assertion by Sumartini. S (2016) that problem-solving lies at the core of learning objectives.

In light of the aforementioned issues, the central problem addressed in this study revolves around the efficacy of implementing the problem-solving learning model to enhance the learning outcomes of Civics class XI2 students at Supian Private Vocational School in the Silangkitang Building.

METHOD

The research took place at Supian Private Vocational School located in the Silangkitang Building. The choice of this venue was primarily due to its proximity to the researcher's residence, as well as the desire to gain insights at a national level, particularly focusing on Class XI at Supian Private Vocational School in Silangkitang Building. The study was conducted in early November 2022.

It is essential to note that this research adopts a classroom action research approach. This method involves the researcher actively participating in classroom activities and learning processes, as explained by Machali (2022) and Arikunto (2007). The chosen model for this action research is the Kurt Levin Model, emphasizing the transformation of current conditions into desired ones (Utami et al., 2021). This model comprises four integral stages: planning, action, observation, and reflection. These stages form a cyclical process, where each cycle progresses from design to evaluation.

The primary parameter assessed in this study is student activity, comparing pretest and post-test scores over a month. Pretests evaluate student mastery before material delivery, while post-tests gauge comprehension after learning. The comparison between pretest scores from the first week and post-test scores from the second week informs the effectiveness of the intervention. If desired outcomes are not achieved, subsequent cycles, mirroring the second cycle's treatment, are pursued.

Table 1. One-Group Pretest-Postest Research Design

Measurement Pretest	Treatment	Measurement Postest
Measuring student learning outcomes by using test questions without being given the Problem solving treatment . The questions consist of 40 multiple choice questions, each correct answer will get 1 point, while wrong answers will not reduce points.	Educational and learning activities for 3 full cycles to get data results from research as desired.	Measuring student learning outcomes by using test questions by giving the Problem solving treatment . The questions consist of 40 multiple choice questions, each correct answer will get 1 point, while wrong answers will not reduce points.

Source: (William & Hita, 2019)

To collect the data obtained in this study, the researchers used several research instruments including:

Observation

Observation, as a scientific approach, typically involves the structured act of closely observing and documenting the phenomena under examination. It encompasses the process of observing interactions, interests, and the educational achievements of students as they engage in the learning process. This specific observation was conducted to gather information regarding the circumstances surrounding learning activities and the description of class XI at Supian Private Vocational School for Building Silangkitang in 2020, as outlined by Brahma.

Learning Outcome Test

According to Arikunto in Novianti Novianti et al., (2020) a test can be said to be valid if the test can accurately measure what it is supposed to measure. The learning outcomes test also requires several steps in developing the learning outcomes test according to Mardapi in Purnomo (2017) explaining the nine steps are; 1) draw up test specifications; 2) write test questions; 3) review the test questions; 4) conduct trial tests; 5) analyze the test items; 6) fix the test; 7) assemble test; 8) carry out tests; and 9) interpreting the test. So after going through the various stages mentioned above, the researcher determined that the tool used to collect the main data in this study was a learning outcomes test in the form of a multiple choice test totaling 40 questions with four options in each question. The tests used in data collection techniques in this study were pre-test and posttest .

Data analysis technique

The data obtained in this study will be analyzed for learning outcomes by determining the activeness of students through observation instruments and test questions. Analysis of learning outcomes data was carried out by comparing the scores obtained by each student divided by the number of questions multiplied by 10 and for the minimum learning completeness percentage by comparing the number of students who completed with the total number of students multiplied by 100%. The value of learning outcomes and the percentage of classical learning completeness can be written by the following formula (Fauzan et al., 2019).

$$Value = \frac{score\ obtained}{number\ of\ questions}$$

$$percentage\ of\ classical\ learning\ completeness = \frac{\sum finished\ studying}{\sum All\ student}$$

Analysis of student activeness data was carried out by comparing the total score of student activeness divided by the total score of student activeness multiplied by 100%. Student activity data can be written using the formula below. Furthermore, criteria for determining student activity showed in Table 2.

$$Student\ Classical\ Presentation = \frac{\sum score\ obtained}{\sum total\ score}$$

Table 2. Student activity criteria

Activity Score	Criteria
0 % - 54%	very less
55 % - 64%	less
65% - 79%	sufficient
80% - 89%	good
90% - 100%	very good

Success Indicator

An indicator of success in this classroom action research is if at least 80% of students are active in participating in civics education lessons in class XI ^{2} of the Supian Bangun Silangkitang Private Vocational School as evidenced by an increase in learning outcomes from cycle I, cycle II and cycle III.

RESULTS AND DISCUSSION

The findings from the study involved an assessment of question validity and reliability based on responses from a sample of 38 students, conducted with a confidence level. This assessment utilized a validity threshold, denoted as "r table," which was determined to be 0.32. Each question's validity was determined by comparing its calculated correlation coefficient (r xy) with this threshold. For instance, if the correlation coefficient for a question exceeded 0.32, it was deemed valid. This process was repeated for all 40 questions, resulting in 20 being classified as valid and 15 invalid.

Following the validity assessment, a reliability test was carried out on the 20 valid questions, employing a confidence level 0.05. The reliability threshold, obtained as 0.32, was utilized in this test. The total variance was initially computed, yielding a value of 6.43, which was then incorporated into the reliability formula. The resulting coefficient (r11) was found to be 0.53, surpassing the reliability threshold of 0.33. Thus, the test was deemed reliable. Further support for the reliability was provided by an instrument reliability index falling within the range of 0.40-0.59, indicating sufficiency. Consequently, question 1 was shown to possess a satisfactory level of reliability.

Moving on to the difficulty assessment question, an analysis was conducted on both high-achieving and low-achieving student groups. This analysis revealed that 11 out of the 20 questions fell into the category of medium difficulty, while nine were categorized as easy.

Similarly, the discriminating power of each question was assessed by analyzing results from both high-achieving and low-achieving student groups. Out of the 20 questions, 10 demonstrated good discriminating power, 8 showed sufficient discriminating power, and 2 exhibited poor discriminating power.

Table 3. Calculation Results of Difficulty Level and The Differential Power of The Question

No.	Difficulty Level	Information	Discriminating Power	Information
1	0.68	Currently	0.5	Good
2	0.66	Currently	0.1	Bad
3	0.63	Currently	0.5	Enough
4	0.86	Easy	0.3	Enough

No.	Difficulty Level	Information	Discriminating Power	Information
5	0.74	Easy	0.2	Enough
6	0.68	Currently	0.5	Good
7	0.44	Currently	0.3	Enough
8	0.84	Easy	0.3	Enough
9	0.76	Currently	0.4	Good
10	0.74	Easy	0.3	Enough
11	0.66	Currently	0.3	Enough
12	0.42	Currently	0.1	Bad
13	0.68	Currently	0.4	Good
14	0.71	Easy	0.4	Good
15	0.32	Currently	0.7	Good
16	0.79	Easy	0.4	Good
17	0.71	Easy	0.6	Good
18	0.48	Currently	0.5	Good
19	0.82	Easy	0.4	Good
20	0.87	Easy	0.2	Enough

Cycle Stage 1

In the preparatory phase, researchers and educators within the specified field undertake the task of developing instructional materials, crafting Learning Implementation Plans (RPP), and devising assessments to serve as research instruments. In this particular investigation, the researcher opted to employ a pretest as a learning achievement gauge, to be administered to each student by the subject teacher.

A collaborative agreement was established between the researcher and the subject teacher, delineating their respective roles. The researcher assumed the role of an observer tasked with monitoring the research's progression, while the subject teacher undertook the responsibility of delivering the agreed-upon material. During discussions regarding the instructional content, the researcher communicated to the teacher the decision to utilize previously covered material, specifically national insight material, in the initial cycle. It was elucidated that during this phase, the intended learning model would not be applied. This decision was driven by the researcher's intention to contrast student learning outcomes between cycle I, where the learning model was omitted and familiar material was revisited, and cycle II, where the learning model was implemented alongside the introduction of new material. In the event students in cycle I fail to meet the Minimum Completion Criteria (KKM) standard, subsequent cycles will mirror cycle II's treatment, incorporating a posttest to evaluate student learning outcomes.

Following the initial cycle observations in Class XI2 at Supian Private Vocational School during the 2014/2015 academic year, the average observation scores were as follows: (1) student engagement and attentiveness to teacher explanation: 0.58; (2) comprehension of problems in Learning Activity Sheets (LAS): 0.45; (3) problem-solving and determination of problem-solving methods and answers: 0; (4) asking questions or responding to questions: 0.18; (5) respecting and understanding different opinions: 0.66; (6) group work results percentage: 0. These average observation scores indicate that the percentage of student engagement in cycle I amounted to 31.14, denoted as "very low" in terms of student activity level.

In the subsequent reflection stage, there will be discussions about student achievement, which will be presented in Table 4.

Table 4. Description of Student's Learning Comprehesion in Cycle I

Classic Complete Percentage	The Number Of Students	Total Percentage	Information
≥80%	0	0	Complete

<80 %	38	100%	Not Completed
Amount	38	100%	

Based on the criteria for student success, which define success as achieving an 80% pass rate, it's evident from the provided data that none of the students have met this benchmark. The pretest results from the first cycle indicate a lack of mastery in classical learning, as none of the students have achieved the expected 80% proficiency level. Hence, there's a clear need for enhancing learning methodologies, particularly in addressing material-related queries provided by the instructor, with the aim of improving outcomes in the subsequent cycle.

Cycle II Stage

Based on the findings from the second cycle of learning observations concerning the topics of people's sovereignty and government systems in Indonesia, as taught to Class XI2 students at Supian Private Vocational School in the Silangkitang Building during the 2022/2023 academic year, the following average observation scores were obtained:

1. Attentiveness to teacher's explanations: 0.60
2. Comprehension of issues in LAS (Learning and Assessment System): 0.47
3. Problem-solving and determining solutions: 0.66
4. Asking and responding to questions: 0.82
5. Respect and understanding of different opinions: 0.74
6. Presentation of group work results: 0.63

The average observation score indicates that the student activity percentage in the first cycle was 65.4, falling within the category of sufficient quality. Comparatively, this score is higher than the score from the first cycle, which was 31.14. Consequently, it can be inferred that there has been an improvement in student activity following the implementation of the problem-solving learning model by the researcher. Furthermore, in the reflection phase, we will discuss student achievements, as presented in Table 5.

Table 5. Description of Student's Learning Comprehension in Cycle II

Classic Complete Percentage	The Number Of Students	Total Percentage	Information
≥80%	17	44.73684211	complete
<80 %	21	55.26315789	Not Completed
Amount	38	100%	

The table above illustrates that 17 students successfully completed the classical learning requirements, accounting for 44.7% of the total, while 21 students did not complete them, making up 55.2%. When analyzing the posttest results from cycle II, we observe a 44.7% improvement in students' mastery of classical learning. However, considering the previously mentioned achievement benchmarks with an expected student completion rate of 80%, it becomes evident that even with this improvement, cycle II falls short of reaching the 80% target. Therefore, we can conclude that the desired level of student learning completion in cycle II has not been attained. As a result, it is imperative to enhance the teaching methods for addressing the material presented by teachers and researchers, with further adjustments planned for the subsequent implementation in cycle III.

Stage Cycle III

Based on the findings from cycle II learning observations conducted during the 2022/2023 academic year at the Supian Private Vocational School in the Silangkitang Building in Indonesia, focusing on the topics of people's sovereignty and government systems for Class XI, the following average observation scores were obtained:

1. Actively listening and paying attention to the teacher's explanations: 0.84
2. Reading and comprehending problems in LAS (Learning Activity Sheets): 0.95

3. Solving problems and determining approaches to problem-solving: 0.82
4. Engaging in asking questions or providing responses to questions: 0.89
5. Demonstrating respect and understanding for others' opinions: 0.63
6. Delivering group work results: 0.87

From the observations in the first cycle, it is evident that the average student activity level is 87.7%, categorizing it as "good" in terms of the quality of student activities. This finding reaffirms that the implementation of the Problem-Solving learning model is effective in enhancing student participation in the teaching and learning process. Specifically, this model encourages students to engage actively with the learning material through problem-solving tasks. Thus, it can be concluded that learning approaches that promote critical thinking and active student involvement, such as the problem-solving model, are capable of creating a dynamic and successful learning environment.

The steps applied by (Latif & Safitri, 2020) through the Problem Solving method in teaching relevant subject matter aim to stimulate students' learning abilities in learning activities (Mataka et al., 2014). Consequently, student activity in the learning process can increase, which in turn can assist them in understanding and mastering the material (Pristiwanto, 2016). The importance of improving the quality of student activities in the learning process is emphasized because active student engagement has been proven to have a positive impact on learning outcomes. Therefore, this finding contributes significantly to affirming the importance of learning strategies that consider student activities as one of its success indicators.

Table 6. Descriptive of Student's Learning Comprehension in Cycle III

Classic Complete Percentage	The Number Of Students	Total Percentage	Information
≥80%	32	84.21	complete
<80 %	6	15.78	Not Completed
Amount	38	100%	

The research findings presented in the table indicate that the majority of students, specifically 32 out of a total of 38 participating students, successfully achieved the classical completeness level of 84.2%, while the remaining six students have not yet reached this standard. This signifies a positive achievement in learning at Supian Private Vocational High School. The third cycle of this research demonstrates that students in Class XI Semester II were able to surpass the previously set target achievement of 80%, indicating the effectiveness of learning with the Problem Solving model at the school. The implementation of Creative Problem Solving has also been proven to enhance students' understanding of concepts and communication skills (Oktaviani & Nugroho, 2015). The quality of teaching, student support, and the curriculum implemented in the institution also play crucial roles in achieving this high level of accomplishment. However, special attention is needed for students who have not yet reached the completeness standard to assist them in attaining the same level of achievement as their classmates. In conclusion, these research findings indicate that students at Supian Private Vocational High School have successfully attained a satisfactory level of completeness, yet continuous efforts are still required to enhance their learning achievements.

Table 7. Summary of Observations Per Cycle

Cycle	1	2	3	4	5	6	Total	% Activeness	Category
I	22	17	0	7	25	0	71	31.14	Very less
II	23	18	25	31	28	24	149	65,351	Enough
III	32	36	31	34	34	33	200	87,719	Good

In the initial phase of the first cycle, student learning outcomes were notably deficient, registering at 31.14%, categorizing them as "very poor," as indicated in Table 1. Among the total students, only 38 managed to attain satisfactory scores, while the majority displayed a lack of proficiency. However, as the study progressed into the second cycle, there emerged a discernible enhancement in the average student learning outcomes. Out of the initial 38 students, 17 (44.7%) reached a level of classical mastery, while the remaining 21 (55.2%) fell short. Despite this 44.7% increase in classical mastery between the pre-test and post-test in cycle II, it failed to meet the anticipated 80% benchmark, which was established as a key performance indicator. Consequently, the objective for student learning outcomes in the second cycle was not accomplished. In light of the shortfall in meeting the desired targets during the second cycle, the researcher proceeded with cycle III. This phase witnessed a marked improvement in the average student learning outcomes, with 32 students (84.2%) demonstrating classical mastery, while only 6 students (15.9%) did not. The findings of cycle III underscored that the students' attainment of classical mastery surpassed the 80% benchmark, reaching an impressive 84.2%. Consequently, during the third cycle, students from class XI Semester II at Supian Private Vocational School in Silangkitang Building can be deemed to have achieved comprehensive and satisfactory results. Detailed tabular data will be provided below for reference.

CONCLUSION

Based on the study, it was found that employing problem-solving methods in Civics education yielded significant improvements. Initially, none of the 38 students completed the tasks satisfactorily, with a low engagement rate of 31.14%. However, as the study progressed, there was a noticeable increase in engagement, reaching 65.4% in the next phase and peaking at 84.2% in the third phase, indicating the effectiveness of this approach. Furthermore, integrating problem-solving techniques positively affected students' academic performance, as seen in the rise of test scores. Initially, the average score was 31.14%, but it increased to 44.7% in the second phase and further to 52.2% in the third phase. Although the increase in the second phase fell short of the target completion rate of 80%, student engagement remained high at 87.7%. During reflection, 84.2% of students were deemed complete, highlighting the positive impact of problem-solving methods on student involvement and academic achievement in Civics education.

RECOMMENDATION

Based on the findings in the research, it is recommended to widely apply problem-solving methods in citizenship education to increase student engagement and their academic achievement. Teachers can enrich the curriculum with more activities that emphasize problem solving, actively involve students in identifying and solving real problems, provide necessary support, and continuously monitor students' progress in problem solving and their engagement in civics learning. By implementing these recommendations, significant improvements in student engagement and academic achievement in civics education are expected.

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