



The Effect of Problem Based Learning Models and Auditory Learning Styles on Internship Learning Outcomes in Elementary Schools

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ABSTRAK

Pendidikan di Indonesia menghadapi tantangan untuk meningkatkan hasil belajar siswa melalui model pembelajaran yang tepat dan penyampaian materi yang efektif. Penelitian ini bertujuan untuk menganalisis pengaruh model pembelajaran berbasis masalah dan gaya belajar auditori terhadap kemampuan berpikir kritis siswa sekolah dasar. Penelitian menggunakan pendekatan kuantitatif dengan metode pra-eksperimental (non-desain). Data dikumpulkan menggunakan tes objektif berbentuk pilihan ganda dengan empat pilihan jawaban untuk mengukur hasil belajar, serta angket gaya belajar untuk mengidentifikasi preferensi belajar auditori siswa. Sampel penelitian terdiri atas 28 siswa kelas V sekolah dasar. Hasil penelitian menunjukkan bahwa penerapan model pembelajaran Problem Based Learning (PBL) berpengaruh signifikan terhadap kemampuan berpikir kritis siswa dengan gaya belajar auditori. Uji hipotesis menunjukkan peluang sebesar $0,000 > \alpha = 0,05$, yang mengindikasikan hubungan yang signifikan antara model pembelajaran dan hasil belajar siswa. Penerapan model PBL yang menyesuaikan dengan gaya belajar siswa dapat meningkatkan pemahaman konsep dan kemampuan berpikir kritis secara efektif. Penelitian ini menyimpulkan bahwa penerapan model pembelajaran berbasis masalah yang dikombinasikan dengan gaya belajar auditori berkontribusi positif terhadap hasil belajar pendidikan kewarganegaraan, terutama dalam meningkatkan kemampuan berpikir kritis siswa sekolah dasar.

ABSTRACT

Education in Indonesia faces the challenge of improving student learning outcomes through appropriate learning models and effective content delivery. This study aims to analyze the influence of Problem-Based Learning (PBL) and auditory learning styles on the critical thinking skills of elementary school students. The study employed a quantitative approach using a pre-experimental (non-design) method. Data were collected through multiple-choice tests to assess learning outcomes and questionnaires to identify students' auditory learning preferences. The sample consisted of 28 fifth-grade students. The findings revealed a significant impact of the PBL model on students with auditory learning styles in enhancing critical thinking skills. Hypothesis testing showed a probability value of $0.000 > \alpha = 0.05$, indicating a significant relationship between the learning model and student outcomes. The integration of PBL tailored to students' learning styles can effectively improve their conceptual understanding and critical thinking skills. The study concludes that implementing a problem-based learning model combined with an auditory learning style positively influences students' learning outcomes in civic education, particularly in developing critical thinking abilities in elementary school students.

1. INTRODUCTION

Education is one of the important pillars in nation development. The quality of a nation's education can be seen from the learning outcomes of its students. In Indonesia, elementary school students' learning outcomes still have not reached the expected standards. This can be seen from the low average score on the National Examination (UN). Implementing the National Examination (UN) as part of the education system assessment is a crucial step in improving the overall quality of education at the national level (Adom et al.,

2020; Indahri, 2021). One of the reasons causing low student learning achievement is a lack of contextualization in the learning process. At the elementary school level, learning approaches are still often oriented towards memorization and do not provide enough space for students to learn contextually (Monica et al., 2019; Ridwan, 2022). This condition causes disinterest in learning and difficulty in understanding lesson material. Another factor that influences students learning achievement is their diverse learning styles. Each student has a unique learning style preference, there are those who learn more effectively through visuals, there are those who are more responsive to auditory approaches, and there are also those who learn more effectively through direct experience (Lee & Boo, 2022; Slavin, 2012). This research integrates two methods that have been proven effective, namely the problem-based learning model and the auditory learning style. The problem-based learning model allows students to learn in context and solve problems independently (Purbaningrum, 2017; Winkel, W., 2014). On the other hand, auditory learning style is one of the learning styles commonly found in elementary school students (Amin, 2016; Mustafida, 2016). It is hoped that combining these two approaches will create a greater impact on student learning achievement. This research does not also evaluate the success of existing learning models, but also designs innovative learning models specifically created to facilitate auditory learning styles. This new learning model will integrate various learning methods that suit auditory learning preferences, such as lectures, discussions and presentations.

This research will present scientific evidence regarding the effectiveness of a combined problem-based learning model and an auditory learning style approach on student learning achievement at the elementary school level. It is hoped that the results of this research can provide guidance to teachers in choosing appropriate learning methods to improve student learning achievement. Therefore, a teacher needs to be able to meet the diverse learning needs of each student, so that they can achieve meaningful and sustainable learning outcomes for them. Considering each individual's differences, educators have a responsibility to sequentially design effective teaching strategies, thereby creating a supportive learning environment for each student's success. This research aims to determine the synergistic effect of the problem-based learning model and auditory learning style on the learning outcomes of elementary school apprentice students, a new approach for which there is still little literature (Asrifah et al., 2020; Schwartz et al., 2023). This research only focuses on discussing one of the three learning styles, namely auditory, because the hypothesis shows that auditory learning style plays an important role in certain educational contexts (Dewi et al., 2023; Hafizha et al., 2022). Apart from that, the limited time to conduct this research is a factor in focusing on one learning style. Meanwhile, other learning styles, namely visual and kinesthetic, require more time in teaching because the visual style spends a lot of time reading, while the kinesthetic style tends to learn by doing and involves the senses that spend time doing.

Auditory learning style is a way of learning that relies on hearing to understand, remember and listen to obtain the information presented (As'ari & Kurniati, 2019; Peri Wijaya et al., 2021). The characteristics of auditory learners include obtaining information by listening, preferring to listen rather than reading or writing, having difficulty communicating through body language and facial expressions, having the ability to reproduce symbols, letters or words by hearing, having more difficulty finding written directions to follow. rather than spoken, enjoys dialogue, drama, dictation, and likes music (Han & Qian, 2024; Mahalingappa et al., 2024). Auditory learning style is a learning style where students learn through their sense of hearing (As'ari & Kurniati, 2019; Rochmatika & Yana, 2022). Defining learning style as the most preferred and dominant way in the learning process where a student is able to receive, absorb, measure and process the information received (Pourhosein Gilakjani, 2011; Putri Ningrat et al., 2018). Learning styles have a positive impact in the world of education, this is related to what learning styles are used for learning materials, teaching and assessment as a benchmark for achieving learning goals. To achieve learning objectives, teachers must be able to choose a model learning that suits students' learning styles as an alternative to overcome the diversity of students' learning styles in one class in Citizenship Education learning. Citizenship education is a subject that can be used as a vehicle for the development and preservation of noble values and morals that are rooted in the culture of the Indonesian nation (Nanggala & Suryadi, 2020; Nasution, 2023; Nurdiansyah & Dewi, 2021).

The Problem Based Learning (PBL) model can be used as an alternative in learning Citizenship Education with the variety of learning styles that students have at the elementary school level because it prioritizes active learning, contextual learning, collaboration and communication, preparation for future learning and intrinsic motivation. In PBL learning show better problem solving abilities and are more successful in transferring their knowledge to new and complex problems Like (Hmelo-Silver et al., 2007; Tarmizi & Bayat, 2010). With the Problem Based Learning learning model The learning process is expected to take place naturally in the form of student activities to strengthen problem-solving abilities and increase student independence, so that students are able to design, solve and understand mathematics in various contexts (Hwang, 2024; Saputro & Rayahu, 2020). One alternative for character education is to apply PBL

learning. This learning allows students to develop noble characters such as religious, responsible, hardworking, independent, democratic, tolerant and environmentally conscious. and socio-religious love for the homeland and nation. Then the aim of PBL itself is a learning model that helps students gain diverse experiences and change their behavior qualitatively and quantitatively Hosnan in (Adifta et al., 2022; Putranta & Kuswanto, 2018). The PBL model is highly recommended for use in the 2013 Curriculum and the Merdeka Curriculum. Because the PBL model can help teaching in the 2013 Curriculum and the Independent Curriculum to become more applicable and interactive. Apart from that, the PBL model can also strengthen the two curricula with real tasks (related to daily life) given so that students feel challenged to complete these tasks in groups. Choosing a learning model as an alternative to deal with various student styles, student success in following the learning process will be seen from their learning results. Learning outcomes are a final assessment of a process and introduction that has been carried out repeatedly and will be stored for a long period of time or will not even be lost forever because learning outcomes also form individuals who always want to achieve better results so that they will change the way of thinking and produce better work behavior (Ganiwati, 2022; Sjukur, 2013). Learning outcomes are an assessment concept which is generally presented in the form of grades or numbers and describes the level of students' understanding and mastery of a subject (Nurhasanah & Sobandi, 2016; Rihdo, Aldo, 2022).

From the explanation above, it can be concluded that learning outcomes are an assessment of students' abilities including cognitive, affective and psychomotor aspects. Assessments are given to students who have followed a series of learning processes within a certain period of time (Nurbudiyani, 2013; Syafi'i et al., 2018). Teachers give assessments to students in the form of numbers that have been collected in a document. Intelligence Quotient (IQ) is one of the determining factors for student success in learning, Thus, student learning outcomes function as one of the goals of the learning process at school. Therefore, a teacher needs to know and study various learning models that will be practiced when teaching to produce high student learning outcomes. (Astiti et al., 2021; Sjukur, 2013). Citizenship education in elementary schools has an important meaning for students in forming individuals into citizens who understand and are able to carry out the rights and obligations to become intelligent, skilled and characterized Indonesian citizens as mandated in Pancasila and the 1945 Constitution (Ministry of National Education). Citizenship education taught to students aims to prepare citizens who have the ability to think critically and act democratically, through activities to instill awareness about democracy in the form of social life in the younger generation (Hikmah, 2021; Vélez & Zuazua, 2017).

Citizenship education is expected to prepare students to become citizens who have a strong and consistent commitment to defending the Unitary State of the Republic of Indonesia, . Ki Hajar Dewantara's thoughts state that students are unique individuals and have different characteristics, so learning must be on the side of the students. This system is known as the Among system, which means that educating students must be in accordance with their nature (nature and era) so that children have freedom in their minds, thoughts and energy. Teachers must be able to educate by liberating students during learning activities and the teacher's job is only to guide students in optimizing their potential without changing their nature (Bojko, 2013; Minasari & Susanti, 2023).

This research aims to analyze the influence of the Problem Based Learning (PBL) learning model and auditory learning style on Civics Education learning outcomes in class V of Jetis Elementary School, Yogyakarta. Choosing the Problem Based Learning (PBL) learning model as an alternative in learning to improve Citizenship Education learning outcomes, researchers feel that the Problem Based Learning (PBL) learning model is designed so that students can think critically, creatively and actively in solving problems that exist in the student's environment stay. This research novelty combines Problem-Based Learning (PBL), which focuses on solving real problems, with an auditory learning style. This combination of approaches has not been widely explored in the context of primary education, so this research can be an innovation in more effective teaching methods for children with a preference for an auditory learning style.

2. METHOD

This research design uses a quantitative approach with experimental research methods. This research is a type of pre-experimental research (non-design), which involves only one group or class that receives tests before and after the implementation of activities. This one-group pretest design was carried out in one group without a control or comparison group (Sugiyono, 2016). The research paradigm of the influence of the Problem Based Learning model and auditory learning style on the Citizenship Education learning outcomes of elementary school students is visualized on the Figure 1.

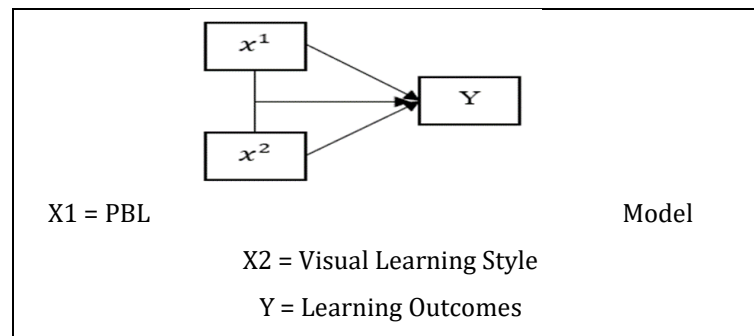


Figure 1. Chart of Relationship between Variables

The subjects in this study were grade five elementary school students with a total of 28 students. This study used PBL model and review of auditory learning styles on the subject of civic education (Civics), to determine student learning outcomes. The instrument used for data collection in this study is one group pretest which will then be analyzed using hypotheses with the SPSS 16 program. Population is a generalization area consisting of objects / subjects that have certain qualities and characteristics determined by researchers to be researched and then conclusions are drawn (Sugiyono, 2016). The data collection instrument in this study used tests and non-tests. The test instrument consists of 10 questions in the form of objective tests with four answer choices that focus on the theme of socio-cultural diversity of Indonesian society. While the non-test instrument consists of three parts that include learning styles, learning models and learning outcomes. The learning style section consists of five items that include: the habit of capturing information (listening or reading), following explanations (oral or visual), ways of learning (individual or group), ways of remembering information (repetition or concrete examples), and problem solving (independently or using the help of others). The learning model section consists of five items which include: participation in learning activities, the role of the learning model, the emergence of learning motivation, the emergence of self-confidence, and the development of social skills. The learning model section consists of five items which include: sensitivity to following learning, understanding of the topic, ability to answer question questions, obtaining test scores, and the perceived influence of the PBL model in Civics learning. Learning outcome data is used as the main information to determine differences in learning outcomes using PBL and conventional models controlled by auditory learning styles. In general, data analysis is carried out through hypothesis testing with the help of the SPSS 16 program. The results of the data analysis are further interpreted based on the hypotheses compiled.

3. RESULT AND DISCUSSION

Result

Based on Calculations Using the SPSS 16 Program

Based on the Learning Style Questionnaire Score Analysis, it can be explained that in the experimental class with the Problem Based Learning model there were 21 students with a visual learning style, 4 children with an auditory learning style, and 3 children with a kinesthetic learning style out of the total number of students. There are 28 students in one class. Learning style categories are obtained from comparing total learning questionnaire scores where each learning style has 9 statements. The numbers of the three learning styles were then compared. If a student has a number of values that are more dominant among the three learning styles, then that student has a dominant tendency whether his learning style is visual, auditory, or kinesthetic. The focus in this research is on students with an auditory learning style. Furthermore, a summary of the analysis of descriptive results based on SPSS shows that there are differences in the scores obtained between the pretest and posttest of students with the auditory learning style category in applying the Problem Based Learning learning model. This is indicated by the minimum and maximum scores on the Problem Based Learning posttest in the auditory learning style category. The experimental group with an auditory learning style in learning using the Problem Based Learning model obtained a minimum score of 64 and a maximum score of 72. The results of the effect size data analysis show that there is an influence of implementing a learning model using Problem Based Learning on the learning outcomes of students with an auditory learning style. This is indicated by the effect size and treatment effect value of 0.32 with the effect size criteria being in the medium category, namely in the ES range > 0.8. Summary results of hypothesis testing based on learning styles. The problem-based learning model (PBL) group got an average score of 82.44 with a chance of error/probability of $0.000 < 0.05$, the Visual learning style group got a score of 83 with a chance of error/probability of $0.000 < 0.05$, while the auditory learning

style group got a score of 70.44 with a chance error/probability 0.178 and the kinesthetic learning style group got a score of 77 with a chance of error/probability 0.172

First Hypothesis Results

The calculation regarding the Problem Based Learning learning model for Citizenship Education learning outcomes shows that the probability of error or probability is $0.000 < 0.05$. Based on this, it can be concluded that H_0 is rejected and H_a is accepted. The average learning outcomes for Citizenship Education in the experimental class show that the learning outcomes of students who use the Problem Based Learning learning model are higher. Average learning outcomes with the application of the learning model Problem Based Learning has a significant effect on Citizenship Education learning outcomes. amounting to 82.44. This means that the application of the Problem Based Learning learning model has a significant effect on Citizenship Education learning outcomes. Thus, the first hypothesis states that: There is an influence of the application of the Problem Based Learning learning model on the learning outcomes of Citizenship Education in Elementary Schools. The learning outcomes of students who use the Problem Based Learning learning model are higher so that the hypothesis is declared accepted.

Second Hypothesis Results

The calculation of students' auditory learning styles in Citizenship Education learning shows an error opportunity or probability of $0.000 < \hat{y} = 0.05$. Based on this, it can be concluded that H_0 is rejected and H_a is accepted. This means that there is an influence of the auditory learning style grouping. There are learning outcomes of citizenship education. This shows that the learning outcomes of students who have an auditory learning style do not really improve. The average student who has an auditory learning style in Citizenship Education learning is 70.4. This means that the grouping of students' learning styles has a significant effect on Citizenship Education learning outcomes. Thus, the second hypothesis states that there is an influence of students' auditory learning style in learning on Citizenship Education learning outcomes in elementary schools. The learning outcomes of students with a grouping visual learning style are higher so that the hypothesis is declared accepted.

Third Hypothesis Results

The application of the Problem Based Learning learning model to students with an auditory learning style has an effect on Citizenship Education learning outcomes which shows a chance of error or probability of $0.000 > \alpha = 0.05$. So H_a is rejected and H_0 is accepted. This means that there is a significant influence between the Problem Based Learning learning model and the auditory learning style in influencing learning outcomes. Thus, it can be concluded that the third hypothesis states that there is an influence of the Problem Based Learning learning model and auditory learning style together. Regarding the learning outcomes of class V Citizenship Education students at SDN Jetis Yogyakarta. Student learning outcomes by applying the Problem Based Learning learning model with an auditory learning style are not too high so the hypothesis is declared accepted.

Discussion

The Influence of the Problem-Based Learning Model on Student Learning Outcomes

In the first hypothesis that was tested, research conducted in class V of SDN Jetis Yogyakarta with the application of the Problem Based Learning (PBL) model showed significant results. This suitability can be seen from the data analysis in the first hypothesis, where the results show that the average learning outcomes for Citizenship Education using the PBL model have increased. Further data analysis revealed that the influence of the PBL model on Citizenship Education learning outcomes showed a probability of error or p value of 0.000, which is lower than the threshold value $\alpha = 0.05$. This indicates that there is a significant influence between the application of the PBL model on Citizenship Education learning outcomes at SDN Jetis Yogyakarta. This is evident from the increase in students' posttest scores which reached an average of 72, higher than the average pretest score of 68.5. This increase shows that the PBL model is effective in improving students' understanding and academic performance in Citizenship Education subjects. The effectiveness of the PBL model in this context can be attributed to its ability to invite students to actively explore real problems relevant to the subject matter, encourage collaboration in groups, and develop critical thinking and problem solving skills. In conclusion, the application of the Problem Based Learning model has been proven to improve Civic Education learning outcomes, which reflects the importance of innovative learning methods in the educational process. The Problem-Based Learning (PBL) learning model helps readers determine a suitable learning model that can arouse students' interest in learning. PBL requires awareness of the problem to be solved beforehand. In this activity, teachers can guide students in

overcoming gaps felt by students or their social environment. Students are expected to develop the ability to choose or accept gaps through various activities that have been prepared.

Based on the previous discussion, implementing the PBL model has an impact on improving student learning outcomes. The Problem-Based Learning learning model is very suitable to use because it has several advantages, such as: (1) increasing student involvement as a whole, both physically and mentally, (2) encouraging students to learn through a process of exploration and problem solving rather than just memorizing, (3) turns the classroom into a place for students to face real problems and find solutions, (4) allows students to build their own understanding of the subject matter with the teacher's guidance. This finding is also supported by previous research which shows that the application of the Problem-Based Learning learning model has a positive effect on student learning outcomes at the elementary school level. This finding is reinforced by previous findings which stated that the Problem Based Learning learning model had an effect on student learning outcomes in elementary schools (Sukaptiyah, 2015) : (Wong & Lam, 2007) . The application of the Problem-Based Learning(PBL) model can also improve student learning outcomes with support from various learning media (Daryanes et al., 2023; Chueh & Kao, 2024).

Contextually, the Problem Based Learning (PBL) learning model looks very simple. However, in reality, many teachers feel they have failed to implement this PBL model, especially at the elementary school level. One of the drawbacks of implementing the PBL model is that it requires sufficient time and selecting the right materials, because not all materials are suitable for application (Lestari et al., 2017; Yulianti, E., & Gunawan, 2019). The limitations of problem-based learning are that learning requires more time and resources compared to traditional learning models. Teachers need to prepare appropriate learning materials, facilitate group discussions, and assess individual student learning outcomes. Problem Based Learning is not always suitable for all students. Some students may not be motivated to engage in group discussions or may not have the skills necessary to work together effectively (Kusumawati, 2017; Yulianti, E., & Gunawan, 2019).

The Influence of Auditory Learning Style on PKN Learning

Analysis of the second hypothesis has produced evidence that the auditory learning style contributes significantly to the learning outcomes of Citizenship Education in class V students at SDN Jetis Yogyakarta. This research identifies that students' individual preferences in choosing the most suitable learning method for them are greatly influenced by their personal characteristics and interactions with the environment, especially interactions with teachers during the learning process in the classroom. These results confirm that understanding students' auditory learning style tendencies can be a valuable tool for educators to adapt their teaching methods to be more effective, thereby improving student learning outcomes in Citizenship Education subjects.

Learning style is an individual's method of responding, organizing and utilizing information or learning to solve problems and apply it in everyday life. It refers to the strategies or approaches a person uses to develop their abilities. This research is strengthened by previous research which stated that learning interaction models, motivation and learning styles influence students' critical thinking skills. Other research results show that students with an auditory learning style learn best through the auditory process, regardless of the subject matter (e.g. science, literature, or mathematics) or the environment (Rini et al., 2020; Willingham et al., 2015). Students who have an auditory learning style prefer to learn from sound, read aloud, tell others what they have just experienced, listen, learn, talk to themselves and repeat sounds silently, this understanding is used by researchers as a guide to determine student learning style tendencies. The auditory learning style shows that students' problem solving abilities are better than students with kinesthetic learning styles (Ezzeddine et al., 2023; Inastuti et al., 2021).

Individuals with an auditory preference tend to learn best through listening. They absorb information more effectively through discussions, lectures, and listening to verbal explanations, strengthening memory and understanding through listening, group discussions, and verbal explanations (Marpaung, 2016; Pourhosein Gilakjani, 2011). The auditory learning style towards Citizenship Education (PKN) learning suggests that teaching materials and methods in elementary schools should be adapted to better support auditory learning, by integrating class discussions, interactive lectures, audio media, and oral assessments. This not only maximizes the learning potential of students with an auditory learning style, but also increases their overall, Students who have an auditory learning style preference are usually less strong in activities related to visuals. In the context of classroom learning, it can be observed that students tend to be unfamiliar with completing assignments that involve complex work processes and the ability to describe the results in graphical form (Ekowati et al., 2022; Masjaya & Wardono, 2018). Engagement and motivation. Therefore, teachers need to receive adequate training to identify and respond to these diverse learning needs, allowing for more inclusive and differential teaching approaches.

The results of this research put forward several important recommendations for all parties involved. Teachers are advised to better understand the characteristics of students' learning styles in order to adjust the learning methods used, while students need to be given the opportunity to understand and recognize learning methods that are effective for them so that the learning process can run more smoothly. Apart from that, parents are also advised to provide learning facilities that suit their children's learning styles at home, so that they can support the learning process optimally (Azzahrah Putri et al., 2021; Nabela et al., 2021).

The influence of the problem-based learning model and auditory learning style together on PKN learning outcomes

Based on the research results presented, significant evidence was found regarding the effectiveness of the Problem Based Learning (PBL) model, especially for students with an auditory learning style in the context of Citizenship Education in class V of SDN Jetis Yogyakarta. The hypothesis results show that there is a significant effect of implementing the PBL model on Citizenship Education learning outcomes, with a very low probability value ($p < 0.000$), far below the generally accepted statistical confidence threshold ($\alpha = 0.05$). Thus, the alternative hypothesis (H_a) which states that there is a significant influence is accepted, while the null hypothesis (H_0) is rejected. This conclusion confirms that the PBL model, which supports active participation and listening as part of the learning process, positively contributes to the learning outcomes of students who tend to have an auditory learning style. The implications of these findings indicate that the integration of the PBL model in the teaching of Citizenship Education can be a very effective strategy in increasing students' academic achievement, especially for those who show an auditory learning preference (Harie, 2016; Karlina et al., 2014). The Problem Based Learning (PBL) model has proven effective in improving students' critical thinking skills by encouraging them to actively engage in solving concrete problems, which in turn facilitates the development of collaborative skills through group work and effective communication. This activity not only strengthens students' motivation in learning, but also increases their involvement significantly, because they feel they are an important part of the learning process. Additionally, PBL specifically supports a variety of learning styles, including auditory, by integrating strategies such as group discussions and presentations, allowing students to learn and process information in ways that most resonate with them (Sutrisno, 2019; Zheng et al., 2024).

Recent research results show that the implementation of Problem Based Learning (PBL) in Citizenship Education not only acts as an innovation in the learning process, but also facilitates the adjustment of teaching practices that are more adaptive to students' auditory learning style preferences. Through empirical evaluation, Problem Based Learning (PBL) is proven to be effective in improving learning achievement, emphasizing the importance of teaching strategies that can be adapted to support students' auditive processing of information, thereby maximizing their learning potential in the context of a deeper understanding of social and civic aspects (Bell, 2010; Sonnleitner, 2016).

To ensure the success of students who have an auditory learning style, it is necessary to adjust the educational curriculum to include the Problem Based Learning (PBL) method which prioritizes an auditive approach in the learning process. This demands comprehensive professional development of teachers, so that they have sufficient knowledge and skills to effectively implement Problem Based Learning (PBL) and adapt it to the needs of auditory students. Additionally, education policymakers need to consider the findings of this research as a basis for integrating Problem-Based Learning (PBL) into national or regional teaching standards, aiming to promote education that is inclusive and responsive to the diversity of student learning styles. Thus, curriculum adjustments, teacher training focused on Problem-Based Learning (PBL), and supportive educational policies must work together to create optimal learning environments for all students, especially those who have a strong preference for auditory learning (Barrows, 2000; Silver-Hmelo, 2004).

Research on the effects of the Problem Based Learning (PBL) model for auditory learners faces several limitations that affect the validity and generalizability of its findings. First, this study may be limited by a small or homogeneous sample size, as well as being conducted in a single location, thereby hindering its ability to be widely applied to a larger population. Second, the use of non-experimental research designs or the absence of a control group reduces the strength of the evidence obtained and makes it difficult to determine the effectiveness of PBL with certainty. Third, variations in the implementation of PBL by different teachers can lead to inconsistencies in student learning outcomes, indicating that the success of this method is highly dependent on the specific teaching context. Finally, reliance on specific assessment tools that do not capture the full impact of PBL on broader aspects of learning outcomes, such as social or emotional skills, suggests that assessment may not capture all of the potential benefits of this approach. Overall, these limitations highlight the importance of adopting a more comprehensive research approach in the future to better understand the overall impact of PBL on student learning (Kirschner et al., 2006; Savery

& Duffy, 2001). Recommendations for future research include conducting longitudinal studies with robust experimental designs and solid control groups, diversifying samples, and developing multiple assessment methods to evaluate the long-term impact of Problem-Based Learning (PBL) on auditory learners in diverse educational contexts across the board (Creswell, 2018; Maretasani, 2018).

4. CONCLUSION

Based on the results of the research that has been carried out, it can be seen that the application of the Problem Based Learning learning model has implications for the learning process in elementary schools. This is reflected in the increase in learning outcomes for class V students. In addition, the auditory learning style has an influence on improving student learning outcomes in class V in citizenship education subjects in elementary schools. Thus, learning by applying the Problem Based Learning learning model to students with an auditory learning style has an effect on improving their learning outcomes.

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