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Implementation of Problem-Based Learning and Contextual Teaching and Learning has Improve Problem-Solving Skills

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Abstract

Problem-solving skills are one of the social studies learning goals that must be possessed by students in the 21st century. This ability can be improved through various learning activities, one of which is the selection of the right learning model. This study aims to determine the improvement of students' problem-solving skills through the use of PBL and CTL models in social studies learning at SMP Negeri 2 Sijuk. This type of research is a *quasi-experimental design* pretest-posttest with a population of grade VIII students at SMP Negeri 2 Sijuk, Belitung Regency, the sample used is 98 students determined by *random sampling* technique. The data analysis technique uses *the One way* ANOVA test. The results of the study showed that there was a difference in effectiveness between the PBL and CTL experimental classes and the control class in improving students' problem-solving skills in social studies learning, this was evidenced by the results of the ANOVA test obtained from 0.00 < 0.05. As well as the results *of the effect size test* which showed that the PBL model had a value of 1.064 and a CTL of 0.823 included in the high category, it can be concluded that the PBL and CTL models are both effective in improving students' problem-solving skills in social studies learning at SMP Negeri 2 Sijuk.

Keywords: *Problem Based Learning (PBL); Contextual Teaching and Learning (CTL); Problem Solving*

Introduction

Challenges in life require students to have the skills of 21 abab. (Sugiyarti et al., 2018) stated that in formal schools, learning has been required to apply the 4C skills *(Critical Thinking, Communication, Collaboration, Creativity)*. *Critical thinking* (critical thinking) is the ability of students to think critically in the form of reasoning, expressing, analyzing, and solving problems. Problem solving involves ways or approaches to solve it through various activities, namely understanding, observation, experimentation, speculation, discovery, and re-evaluation (Yerizon et al., 2021). Social studies learning helps students understand various social, economic, and cultural aspects in society, with this knowledge, students can think critically, analyze problems, and make better decisions, both for themselves, others, and society (Langango, 2022). This learning also equips them with the skills to face and solve various social challenges in the future (Sa'diyah & Aini, 2022). Thus, it is important to equip students to develop their problem-solving skills in the context of social studies learning.

Problem-solving skills are critical skills that are important for a student. This ability allows them to overcome the challenges they face in the learning process and daily life (Siswanto & Meiliasari, 2024). However, researchers found that many students still have a low level of ability to solve problems, due to weak thinking skills so that students have difficulty doing problem-based tasks.

Based on the analysis of the answer sheet, they have not been able to solve problems correctly, students still find it difficult to identify, formulate and implement problem-solving strategies appropriately. Social studies learning is also still focused on developing technical skills such as reading, memorizing, and arithmetic, but not enough emphasis on developing analytical, critical thinking and problem-solving skills for students. In general, the learning process in social studies subjects still tends to be centered on the role of teachers or *Teacher center*. This is also reinforced by reports *Programme for International Student Assessment* (PISA) which reported that the problem-solving ability of Indonesian students is still relatively low compared to other member countries (Ilmi, 2019).

This phenomenon is not in line with the concept of 21st century learning, where there is a significant paradigm shift in the world of education. From a traditional approach that emphasizes the role of teachers, it is now shifting to a student-centered and interactive learning model (Siswanto & Meiliasari, 2024). The phenomenon that occurs in society shows that there is a gap between the learning goals of social studies and the reality of life. If this situation continues, it can be concluded that social studies learning has not been fully successful in developing students' abilities to become good citizens, namely citizens who have sensitivity to social problems and are able to provide solutions to social challenges in their environment (Susilowati, 2022).

Efforts to improve problem-solving skills must be improved in the learning process, one of which is by choosing the right learning model, a learning model that can create a learning environment that involves student activity in problem-solving (Yuliani et al., 2020). This improvement step can be realized through the selection of learning models that have been recognized and recommended by experts and researchers. (Wicaksana et al., 2023) said that the selection of learning models is a crucial factor so that learning goals can be achieved. In addition to acquiring knowledge, memory, and thinking skills, students also need to be trained to think analytically and critically in solving problems.

The learning model that encourages student problem-solving activities is the *Problem based learning* (PBL), through this model, students are also equipped with scientific thinking skills in solving problems (Sari et al., 2021). Research conducted by (Asmiyunda, 2023) with meta-analysis from 12 international journals also showed that the PBL model can improve student learning outcomes, including in improving problem-solving skills. In addition to the PBL Model *Contextual teaching and learning* (CTL) can also motivate students to understand the concept of problem solving because it presents problems that exist in daily life (Triyanto et al., 2022). Thus the researcher conducted an experiment using the *Problem Based Learning* (PBL) and *Contextual Teaching and Lerning* (CTL) compared to group discussion control classes in improving students' problem-solving skills.

Research Methods

This study uses a quantitative approach with Quasi Experimental method. The design applied is pre-test post-test non equivalent group design. The experimental group in this study consists of those who apply a PBL-based learning model, CTL and compared with group discussion control classes in social studies learning to improve problem-solving skills (Sugiyono, 2022:120). The total population is 526 all students at SMP Negeri 2 Sijuk. The research sample was determined by random sampling from all 8 grades of 6 classes selected 3 classes as research classes, namely classes 8A, 8C and 8E. The research design in the research Quasi Experimental It is illustrated in the following table 1:

Table.1 Research Design

E1	→	Pretest	→ PBL →	Posttest
E2	→	Pretest	→ CTL →	Posttest
C	→	Pretest	→ Group discussions →	Posttest

Vulnerability:

E1: Experimental group using the PBL model
E2: Experimental group using the CTL model
C: control group using the group discussion model

Results and Discussion

The research was carried out at the school, namely SMP Negeri 2 Sijuk. The research was conducted 3 times. The results of the pretest and posttest of students were tested for normality using the Kolmogorov-smirnov and Shapiro wilk tests. The results of the normality test can be seen in the table below:

Table 1. Analysis of the Normality Test

Tests of Normality

	Kolmogorov-Smirnova		**Shapiro-Wilk**	
	Df	Sig.	Df	Sig.
Pretest PBL	31	.200*	31	.488
Posttest PBL	31	.200*	31	.964
Pretest CTL	31	.166	31	.440
Posttest CTL	31	.200*	31	.311
Pretest control	31	.200*	31	.086
Posttest control	31	.116	31	.131

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

The data showed that the data was normally distributed because the values obtained from the results of the Kolmogorov smirnov and Shapiro wilk tests showed a number greater than 0.05. The results of the homogeneity test can be seen in the table below:

Table 2. Homogeneity Test Analysis

Tests of Homogeneity of Variances

		Levene Statistic	**Sig.**
Troubleshooting Results	Based on Mean	1.634	.153
	Based on Median	1.589	.165
	Based on Median and with adjusted df	1.589	.166
	Based on trimmed mean	1.616	.158

It can be seen in the table above that the magnitude of the statistical levene number is 1.634 while the magnitude of the significance number is 0.153, the value is greater than 0.05 so it can be concluded that the data is homogeneous. Then the data can be carried out statistical tests, because it meets the requirements for further analysis.

The hypothesis test uses the One-Way ANOVA test, the basis for taking the One-Way ANOVA test is that if the sig value > 0.05 then H0 is accepted Ha is rejected but if the sig value is < 0.05 then H0 is rejected Ha is accepted. The results of the analysis of the One-Way ANOVA test can be seen in the following table.

Table 4. ANOVA Test Analysis

ANOVA

RESULTS OF SOLVING PROBLEMS FOR JUNIOR HIGH SCHOOL N 2 SIJUK					
	Sum of Squares	f	Mean Square	F	Sig.
Between Groups	4769.470		2384.735	11.080	.000
Within Groups	20446.530	5	215.227		
Total	25216.000	7			

Based on the results of the analysis in the table above, it can be seen that the problem-solving value in SMP Negeri 2 Sijuk obtained in the sig column is 0.00, the value is less than 0.05, indicating a significant influence between the experimental class and the control class.

To be able to see the differences between the three models in detail, a further test called post hoc was carried out. The post hoc test is used to see the differences between each model used. The results of the analysis using the post hoc test can be seen in the table below.

Table 5. *Post Hoc Test Analysis*

Multiple Comparisons				
Dependent Variable: Results of Problem Solving SMP 2 Sijuk				
Tukey HSD				
(I) Class	(J) CLASS	Mean Difference (I-J)	Std. Error	Sig.
PBL	CTL	2.367	3.640	.793
Control	PBL	15,822*	3.640	.000
	CTL	13.455*	3.612	.001
*. The mean difference is significant at the 0.05 level.				

In the table above, it can be seen that between the PBL and CTL models, the obtained sig values are 0.793 > 0.05 so that when compared between the two models there is no significant difference.

Meanwhile, in the control class that uses the group discussion model, when compared to the PBL class, it has a sig value of 0.00 and if the control class is compared to the CTL class, it has a sig value of 0.001, both values < 0.05, so that the control class compared to the experimental class that uses the PBL and CTL models has a significant difference.

The results of the analysis of the Cohens'd effect size test proved that the PBL model obtained a value of 1.064 and the CTL model 0.823 the number was included in the high category. Therefore, it can be concluded that the PBL and CTL models are effective in improving students problem-solving skills in social studies learnin.

Discussion

The application of the PBL and CTL models was carried out as an experimental class and a control class using a group discussion model, where the group discussion model is a model commonly used for learning at SMP Negeri 2 Sijuk. Before carrying out the research, students were first given a pretest simultaneously in the experimental class and the control class. Pretest is used to determine students' initial ability to solve problems.

- Implementation of PBL

Learning activities using the PBL model were carried out 3 times. The stages of the PBL model have 5 phases namely the first teacher provided a learning video related to the diversity of Indonesian society, both cultural, religious, ethnic and occupational diversity. Teachers also shared LKPD which has contained case studies related to the diversity around the student's environment, with the selection of case studies related to students' lives will make it easier students in understanding the concepts learned (Wulansari et al., 2024).

The second stage is to organize students to research. At this stage, the teacher forms students into groups, students are given the opportunity to have group discussions with their classmates to unite the results of the analysis of the main problems in the case study contained in the LKPD. This activity can increase student collaboration, allowing students to delve into the material by exchanging ideas and insights with their group (Umar, 2024).

The third stage is to guide the investigation, at the investigation stage the teacher asks students to cooperate in carrying out scientific activities by collecting data related to the problems in the LKPD, students are given time to look for reference sources such as books, modules, through the internet or those sourced from their environment. This activity motivates students to collect the materials needed and carry out experimental activities in solving problems (Ilmi, 2019).

The fourth stage is to present the results of a group discussion where the teacher motivates students to determine the best solution to the existing problem and provide conclusions from the results of their group discussion. At this stage, the teacher also asks students to present the results of their group discussion in front of the class, this is of course to train students to be more confident in expressing their opinions in front of the class (Lubis et al., 2019).

The fifth stage is an evaluation where teachers and students both make conclusions from solutions that have been discussed in groups by each group and ask students to take values from the case study (Nuha, 2016). This can certainly provide new knowledge for students related to problem solving that can be implemented in their daily lives, where students not only get knowledge but also gain experience that can then be applied to their lives.

The more involved students are, the greater their ability to think and find solutions to a given problem. Students become in control and responsibility for their learning, which can encourage students to dig deep into information and find relevant solutions. As expressed by (Oktaviyanti & Novitasari, 2019) Student-centered learning is able to develop the ability to work together, giving rise to a sense of responsibility in finding a solution that can hone students' ability to solve problems (Agustin et al., 2024). The use of the PBL model encourages students to have group discussions so that students are more independent to find the root of the problems given to the group and find solutions, so students are more courageous to argue and be actively involved in learning.

- Implementation of CTL

Learning activities using the CTL model were carried out 3 times. Implementation of learning with models CTL has 7 stages, the first stage is constructivism, at this stage the teacher asks students to start building their own knowledge with some triggering questions related to the diversity problems around them. This stage allows students to build their own knowledge through experience and interaction with the surrounding environment (Zuliyanti & Pujiastuti, 2020).

The second stage is an inquiry activity where teachers provide opportunities for students to find reference sources related to the diversity of society both through modules, the internet and their surrounding environment. At this stage, students can be active and independent learners, they are encouraged to explore so that they are able to foster students' curiosity about the material being studied (Badiah et al., 2023).

The third stage is to ask questions, teachers provide opportunities to students who still feel that they are not connected to learning (Anggraeni et al., 2019). This stage, the teacher again gives several triggering questions to encourage students to be able to connect their knowledge with the material studied.

The fourth stage is the learning community, teachers form students into several groups and provide LKPD which contains case studies that they must solve with their groups, the problems presented are problems that exist around the student's environment. Students are given time to discuss finding the right solution. The teacher only acts as a facilitator during this group discussion stage.

In the fifth stage, teachers presented modeling, by showing several videos and examples of problems that exist in their surroundings and other sources related to problem solving. At this stage, students seem to have understood the concept of problem solving because the problems presented are problems that exist in their environment, so that learning becomes more meaningful for students (Daud, 2021). Students are more confident in expressing their opinions in front of the class.

The sixth stage, namely teacher reflection, invites students to jointly take values in problem solving that can be applied to daily life. So that students not only get knowledge that is only stored in memory but students can apply it when facing problems in their social environment. And in the final stage, the teacher gives an assessment to students from the results of their group discussion regarding the strategies applied in solving a problem.

Learning using this model relates learning to the relevance of students' lives, so that students not only understand the theory but students can apply the theory they learn to apply it to daily life. Students become more motivated in solving the given problems because their learning becomes more meaningful by connecting learning with real situations. Teachers integrate examples that exist in daily life such as providing case studies around them so that they are able to provide a deeper understanding of what students are learning.

- Effectiveness of PBL and CTL Models

The results of the research have proven that there is a difference between the experimental class of the PBL and CTL models and the control class of group discussion, where the PBL and CTL models are effective in improving students' problem-solving skills. Such as research conducted by (Setiawan et al., 2021) that the PBL and CTL models are able to improve student learning outcomes. There are a number of factors that affect these results. First, the PBL model and CTL both place students as active and independent learners, in line with the opinion of (Yunitasari & Hardini, 2021) The PBL model helps create learning where each activity actively involves students.

Second, the PBL model and CTL both relate the material to real life, so that students are better able to understand the relevance of learning to their daily lives. Opinion (Budiarti & Airlanda, 2019) Learning with the PBL model is easier to apply if using the context of the surrounding environment, because the thinking process in solving problems will be more effective if the material presented is relevant and close to the students' daily lives. Meanwhile, according to (Lestari et al., 2023) CTL makes learning more meaningful because it integrates contextual aspects of daily life, so that students can understand material concepts well and apply them in real life.

Third, the PBL model and CTL Both provide opportunities for students to conduct investigations both in the form of problems and related to the material being studied. According to (Mayasari et al., 2022) that problem-based learning is student-centered learning. In this process, students solve problems gradually using scientific methods, so that they can understand and learn knowledge relevant to the problem. (Ifana et al., 2021) said that the PBL model directs to solve problems and is written logically and systematically. Meanwhile, according to (Nababan, 2023) Learning CTL Train students to think critically in collecting data, understanding a problem, and finding solutions. In addition, students are given the freedom to choose and determine the information they need in investigative activities before making decisions in solving a problem.

Fourth, that the PBL model and the CTL model both train students to think at a higher level, which is the most emphasized aspect of learning. According to (Widiawati et al., 2018) The implementation of PBL that is integrated with scientific activities can instill 21st century skills such as critical thinking in problem solving. Align with opinions (Samsudin et al., 2023) The CTL model has the advantage of emphasizing students to think fully both mentally and cognitively, CTL makes students not only memorize the material but also bring students to experience the process in real life. In line with the opinion (Fitri & Ridlo, 2024) With the implementation of PBL, it not only provides a stimulus to think at a higher level but also actively connects learning with real life.

Conclusion

The implementation of instructional models in social studies learning has been proven to show differences in effectiveness between the experimental classes using the Problem-Based Learning (PBL) and Contextual Teaching and Learning (CTL) models and the control class using the group discussion model in improving students' problem-solving abilities at SMP Negeri 2 Sijuk. This is evidenced by the results of the One-Way ANOVA test, which indicates a significant positive effect on students' problem-solving abilities between the experimental and control classes.

This study presents a solution for implementing appropriate instructional models to enhance problem-solving skills. The post hoc test results and Cohen’s d effect size analysis show that the PBL model ranks first, indicating that PBL is the most effective in improving students’ problem-solving abilities. The CTL model ranks second with a highly effective category, while the group discussion model ranks last with a low-effectiveness category. These data were obtained from the implementation of the PBL, CTL, and group discussion models at SMP Negeri 2 Sijuk.

References

Agustin, E. M., Solfitri, T., & Anggraini, R. D. (2024). Problem Based Learning: Solusi Peningkatan Kemampuan Pemecahan Masalah Matematis. *MATHEMA JOURNAL*, *6*(1).

Anggraeni, W., B Yensy, N. A., & Muchlis, E. E. (2019). Penerapan Model Pembelajaran Contextual Teaching and Learning (Ctl) Dalam Meningkatkan Hasil Belajar. *IQRO: Journal of Islamic Education*, *2*(2), 163–174. https://doi.org/10.24256/iqro.v2i2.864

Asmiyunda, H. (2023). The Effect of Problem-Based Learning (PBL) on Learning Outcomes: Meta-Analysis. *Pedagogia Jurnal Ilmu Pendidikan Journal*, *21*(August), 161–172.

Badiah, S., Subekti, H., & Sabtiawan, W. (2023). Peningkatan Rasa Ingin Tahu Siswa Melalui Penerapan Pendekatan Contextual Teaching and Learning (Ctl) Improving Students' Curiosity Through Contextual Teaching and Learning (Ctl) Approach. *Jurnal Pendidikan Guru Sekolah Dasar Edisi*, *3*, 2020. https://encryptedtbn0.gstatic.com/

Budiarti, I., & Airlanda, G. S. (2019). Penerapan model problem based learning berbasis kearifan lokal untuk meningkatkan keterampilan berpikir kritis. *JARTIKA: Jurnal Riset Teknologi Dan Inovasi Pendidikan*, *2*(1), 167–183.

Daud, R. M. (2021). Penerapan Pendekatan Contextual Teaching and Learning (Ctl) Dalam Upaya Meningkatkan Pemahaman Konsep Matematika Siswa. *JURNAL PAJAR (Pendidikan Dan Pengajaran)*, *5*(1). https://doi.org/10.33578/pjr.v5i1.8284

Fitri, N., & Ridlo, Z. R. (2024). *Pengaruh Model Problem Based Learning Melalui Pendekatan Contextual Teaching And Learning Terhadap*. *6356*, 473–479.

Ifana, Y. sari, Sumarmi, Hari, U. dwiyono, & Astina, i komang. (2021). The Effect of Problem Based Learning on Problem Solving and Scientific Writing Skills. *International Journal of Instruction*, *14*(2), 11–26. https://doi.org/10.4324/9780203974681

Ilmi, A. R. M. (2019). Model Pembelajaran Creative Problem Solving (CPS) Untuk Meningkatkan Performa Pemecahan Masalah Siswa. *Jurnal Rekayasa, Teknologi, Dan Sains*, *3*(1), 34–41.

Langango, I. D. (2022). Upaya Meningkatkan Keterampilan Berpikir Kritis Siswa Dengan Menggunakan Model Pembelajaran Cooperative Script Pada Mata Pelajaran IPS Di Kelas V SD Negeri 03 Wanggarasi. *Jurnal Pengabdian Masyarakat: DIKMAS*, *565*(2), 565–574. http://ejurnal.pps.ung.ac.id/index.php/dikmas

Lestari, W. P., Ningsih, E. F., C, C., Sugianto, R., & Lestari, A. S. B. (2023). Efektivitas Model Pembelajaran Kooperatif Dengan Pendekatan Contextual Teaching and Learning (CTL) Terhadap Hasil Belajar Matematika. *Jurnal Penelitian Tindakan Kelas*, *1*(1), 28–33. https://doi.org/10.61650/jptk.v1i1.155

Lubis, D. F., Mashudi, & Khosmas. (2019). Efektivitas Model PBL dalam meningkatkan Kepercayaan Diri dan Hasil Belajar di SMA Negeri 4 Pontianak. *Jurnal Pendidikan Dan Pembelajaran Khatulistiwa*, *8*(10), 1–8.

Mayasari, A., Arifudin, O., & Juliawati, E. (2022). Implementasi Model Problem Based Learning (PBL) Dalam Meningkatkan Keaktifan Pembelajaran. *Jurnal Tahsinia*, *3*(2), 167–175.

Nababan, D. (2023). Pemahaman Model Pembelajaran Kontekstual Dalam Model Pembelajaran (CTL). *Pediaqu: Jurnal Pendidikan Sosial Dan Humaniora*, *2*(2).

Nuha, M. A. (2016). Integrasi Teknologi Dalam Problem Based Learning Untuk Meningkatkan Kemampuan Pemecahan Masalah Siswa. *Seminar Nasional Matematika X Universitas Negeri Semarang*, 146–150.

Oktaviyanti, I., & Novitasari, S. (2019). Analisis Penerapan Problem Based Learning pada Mata Kuliah Pendidikan IPS. *Musamus Journal of Primary Education*, 50–58. https://doi.org/10.35724/musjpe.v2i1.1945

Sa'diyah, H., & Aini, S. (2022). Model Pembelajaran Inkuiri Pada Perkembangan Berfikir Kritis Siswa : Literature Review. *JPEE: Journal Of Professional Elementary Education*, *1*(1), 1–120. https://doi.org/10.46306/jpee.v1i1

Samsudin, A., Raharjo, T. J., & Widiasih. (2023). Effectiveness of Contextual Teaching Learning (CTL) and Problem Based Learning (PBL) Models in Class VI Science Subjects on Creativity and Learning Outcomes. *Jurnal Penelitian Pendidikan IPA*, *9*(11), 9324–9331. https://doi.org/10.29303/jppipa.v9i11.5290

Sari, Y. I., Sumarmi, Utomo, D. H., & Astina, I. K. (2021). The Effect of Problem Based Learning on Problem Solving and Scientific Writing Skills. *International Journal of Instruction*, *14*(2), 11–26. https://doi.org/10.29333/iji.2021.1422a

Setiawan, B., Lodang, H., & Wiharto, M. (2021). Comparison of Student Learning Outcomes with PBL and CTL Models. *Jurnal Pendidikan Biologi*, *10*(1), 24–31. http://jurnal.unimed.ac.id/2012/index.php/JPB

Siswanto, E., & Meiliasari, M. (2024). Kemampuan Pemecahan Masalah pada Pembelajaran Matematika: Systematic Literature Review. *Jurnal Riset Pembelajaran Matematika Sekolah*, *8*(1), 45–59. https://doi.org/10.21009/jrpms.081.06

Sugiyarti, Arif, & Mursalin. (2018). *Pembelajaran abad 21 di SD. Prosiding Seminar Dan Diskusi Nasional Pendidikan Dasar 2018 Pembelajaran Abad 21*. 439–444.

Sugiyono. (2022). *Metode Penelitian Kuantitatif* (Setiyawami (ed.); 3rd ed.). ALFABETA.

Susilowati, A. (2022). Kesulitan belajar IPS pada siswa sekolah dasar. *Jipsindo (Jurnal Pendidikan Ilmu Pengetahuan Sosial Indonesia)* , *9*(1), 31–43. https://journal.uny.ac.id/index.php/jipsindo/article/view/47123

Triyanto, A., Istiqomah, I., & Arigiyati, T. A. (2022). The Learning Process with Contextual Approach to Improve Students' Motivation and Mathematics Learning Achievement. *Journal of Instructional Mathematics*, *3*(1), 26–35. https://doi.org/10.37640/jim.v3i1.1043

Umar, Y. (2024). *Pengaruh Metode Problem-Based Learning Berbasis Diskusi Kelompok terhadap Sikap Kolaboratif Siswa dalam Pembelajaran Sejarah di Kelas XI SMA Negeri 18 Makassar*. *6*(20), 522–530.

Wicaksana, F., Astutik, S., Mujib, M. A., Kurnianto, F. A., & Pangastuti, E. I. (2023). Pengaruh Model Pembelajaran Problem Based Learning Terhadap Keterampilan Pemecahan Masalah Siswa SMA. *Majalah Pembelajaran Geografi*, *6*(2), 201. https://doi.org/10.19184/pgeo.v6i2.40322

Widiawati, L., Joyoatmojo, S., & Sudiyanto. (2018). Higher Order Thinking Skills as Effect of Problem Based Learning in the 21st Century Learning. *International Journal of Multicultural and Multireligous Understanding*, *05*(03), 96–105. http://ijmmu.com

Wulansari, I., Maharani, S., Laila, D. J., Madiun, U. P., Negeri, S. M. P., & Madiun, K. (2024). *Penerapan Model Problem-Based Learning (Pbl) Menggunakan Pendekatan Contextual Teaching and Learning (CTL) dengan Integrasi Budaya Lokal untuk Meningkatkan Hasil Belajar*. *4*, 7752–7762.

Yerizon, Y., Wahyuni, P., & Fauzan, A. (2021). Pengaruh Problem Based Learning Terhadap Kemampuan Pemecahan Masalah Matematis Ditinjau Dari Gender Dan Level Sekolah. *AKSIOMA: Jurnal Program Studi Pendidikan Matematika*, *10*(1), 105. https://doi.org/10.24127/ajpm.v10i1.2812

Yuliani, Y., Destiniar, D., & Jayanti, J. (2020). Model Pembelajaran Problem Based Learning (Pbl) Untuk Meningkatkan Kemampuan Pemecahan Masalah Matematis Siswa Smp. *AdMathEdu : Jurnal Ilmiah Pendidikan Matematika, Ilmu Matematika Dan Matematika Terapan*, *10*(1), 45. https://doi.org/10.12928/admathedu.v10i1.14486

Yunitasari, I., & Hardini, A. T. A. (2021). Penerapan Model PBL Untuk Meningkatkan Keaktifan Peserta Didik Dalam Pembelajaran Daring Di Sekolah Dasar. *Jurnal Basicedu*, *5*(4), 1700–1708. https://doi.org/10.31004/basicedu.v5i4.983

Zuliyanti, P., & Pujiastuti, H. (2020). Model Contextual Teaching Learning (CTL) untuk Meningkatkan Kemampuan Pemecahan Masalah Matematis Siswa SMP. *Prisma*, *9*(1), 98. https://doi.org/10.35194/jp.v9i1.899

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