Jurnal Pendidikan Sekolah Dasar 7 (1S) April 2026: 59-67 E-ISSN: 2809-2910
DOI: https://doi.org/10.37366/jpgsd.v7i1S.7427
RESEARCH ARTICLE **Triyono et al.**

The Effect of Child-Friendly Problem Based Learning on the Science Learning Ability of Elementary School Students

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To cite this article: Triyono, T., Handoyo, E., Waluyo, E. (2026). Pengaruh Pembelajaran Problem Based Learning Berbasis Ramah Anak terhadap Kemampuan Belajar IPAS Siswa Sekolah Dasar. *Jurnal Pendidikan Sekolah Dasar*, *7*(1S), 59-67. https://doi.org/10.37366/jpgsd.v7i1S.7427

Articles Information

Received : 01-05-2026
Revised : 15-05-2026
Accepted : 17-05-2026
Published : 30-05-2026

Abstrak

Penelitian ini dilatarbelakangi oleh rendahnya kemampuan belajar IPAS siswa sekolah dasar yang disebabkan oleh pembelajaran yang masih berpusat pada guru serta kurangnya keterlibatan peserta didik dalam proses pembelajaran. Penelitian ini bertujuan untuk mengetahui pengaruh pembelajaran *Problem Based Learning* berbasis ramah anak terhadap kemampuan belajar IPAS siswa sekolah dasar. Penelitian menggunakan pendekatan kuantitatif dengan jenis penelitian eksperimen menggunakan desain *One Group Pretest-Posttest Design*. Sampel penelitian berjumlah 15 peserta didik kelas V sekolah dasar yang dipilih menggunakan teknik *purposive sampling*. Teknik pengumpulan data dilakukan melalui tes, observasi, dan dokumentasi. Instrumen penelitian berupa soal pretest dan posttest kemampuan belajar IPAS. Data dianalisis menggunakan uji *Paired Sample t-Test*. Hasil penelitian menunjukkan bahwa nilai rata-rata pretest peserta didik sebesar 64,8 dengan rentang nilai 48-82, sedangkan nilai rata-rata posttest meningkat menjadi 85,6 dengan rentang nilai 70-96. Hasil uji statistik menunjukkan nilai *p-value* sebesar 0,000 lebih kecil dari taraf signifikansi 0,05 sehingga terdapat pengaruh yang signifikan dari pembelajaran *Problem Based Learning* berbasis ramah anak terhadap kemampuan belajar IPAS siswa sekolah dasar. Model pembelajaran ini dapat dijadikan sebagai alternatif pembelajaran yang inovatif, aktif, dan menyenangkan dalam proses pembelajaran di sekolah dasar.

Kata Kunci: *Problem Based Learning*; ramah anak, kemampuan belajar; IPAS; sekolah dasar

Abstract

This research is motivated by the low learning ability of elementary school students in IPAS, which is caused by teacher-centered learning and the lack of student involvement in the learning process. This study aims to determine the effect of child-friendly Problem Based Learning on the IPAS learning ability of elementary school students. The research uses a quantitative approach with experimental research employing a One Group Pretest-Posttest Design. The research sample consisted of 15 fifth-grade elementary school students selected using purposive sampling. Data collection techniques were carried out through tests, observations, and documentation. The research instruments consisted of pretest and posttest questions on IPAS learning ability. The data were analyzed using the Paired Sample t-Test. Research results show that the average pretest score of the students was 64.8 with a score range of 48-82, while the average posttest score increased to 85.6 with a score range of 70-96. The statistical test results showed a p-value of 0.000, which is smaller than the significance level of 0.05, indicating a significant effect of child-friendly Problem Based Learning on elementary school students' science learning abilities. This learning model can be used as an alternative innovative, active, and enjoyable approach in the learning process at elementary schools.

Keywords: Problem Based Learning; child-friendly; learning ability; science; elementary school

1. INTRODUCTION

Education is an important process in shaping human resources who are qualified, creative, and able to face the developments of the times (Sarapung et al., 2025). In the implementation of education in elementary schools, the learning process not only focuses on mastering the material, but also on developing thinking skills, problem-solving abilities, as well as shaping students' character (Patras et al., 2024). One of the subjects that plays an important role in developing these abilities is Natural and Social Sciences (IPAS). The IPAS subject in the Merdeka Curriculum is designed to help students understand their surroundings through active, contextual, and meaningful learning activities (Zhari et al., 2025). However, the reality on the ground shows that the IPAS learning process in elementary schools still faces various problems (Niswah & Asih, 2024). Learning is often still teacher-centered, so students tend to be passive in participating in learning activities. Teachers mostly use lecturing methods and assign tasks without actively involving students in the process of discovering concepts (Azakia & Gunansyah, 2025). This condition causes students' learning abilities, especially in understanding material, thinking critically, and solving problems, to not develop optimally. In addition, a less enjoyable learning atmosphere also makes students easily bored and less motivated to learn (Sudewiputri & Dharma, 2021).

The learning ability of students is one of the important factors in the success of the educational process (Sudirjo, 2016). Learning ability is not only related to academic results, but also includes the ability to understand information, process knowledge, cooperate, communicate, and solve problems in daily life (Paratiwi & Ramadhan, 2023). Therefore, a learning model is needed that can create an active, enjoyable learning atmosphere and is suitable for the developmental needs of elementary school-aged children. One learning model that can be used to improve students' learning abilities is Problem Based Learning (PBL) (Maharani et al., 2024). The Problem Based Learning model is a learning model that is student-centered through the presentation of real problems as the basis of learning. In this model, students are encouraged to think critically, seek information, discuss, and find solutions to a problem. Through these activities, students become more active in the learning process, so their learning abilities can develop better (Rambe et al., 2024).

The application of Problem Based Learning in IPAS learning is very relevant because IPAS material is closely related to the daily life of students (Quraisin, 2021). By presenting real problems that are close to the surrounding environment, students can more easily understand the learning material (Azakia & Gunansyah, 2025). In addition, this model can also train students' critical thinking, creativity, cooperation, and communication skills (Aida & Annisa, 2024). In addition to the use of appropriate learning models, the learning process in elementary schools also needs to pay attention to child-friendly principles (Iskandar & Hendrowati, Tri Yuni, 2024). Child-friendly learning is a learning approach that provides a sense of safety, comfort, enjoyment, and respects the rights of students during the learning process. Child-friendly learning places students as the main subjects in learning so that they can learn without pressure, fear, or discrimination. A child-friendly learning environment is believed to increase students' motivation, self-confidence, and active participation in learning activities (Sayekti et al., 2024).

The combination of the Problem Based Learning model with a child-friendly approach is expected to be able to create learning that is more effective and meaningful. Students are not only invited to actively solve problems, but also to learn in a comfortable and enjoyable atmosphere (Quraisin, 2021). Thus, the learning ability of students in the IPAS subject can improve optimally (Zhari et al., 2025). Based on the results of initial observations at SD Negeri Karangmalang in the City of Pekalongan, it was found that students' learning ability in Science and Social Studies is still considered low. This is evident from the lack of student participation in learning, the low ability to understand the material, and learning outcomes that have not yet reached the expected targets. This condition indicates the need for learning innovations that can increase student engagement and learning ability.

Therefore, the researcher is interested in conducting a study entitled "The Effect of Child-Friendly Based Problem-Based Learning on Elementary School Students' Science Learning Ability." This research is expected to contribute to the development of an innovative, effective learning model that aligns with the characteristics of elementary school students, thereby improving the quality of science learning.

2. METHOD

This study uses a quantitative approach with an experimental type of research. The quantitative approach was chosen because the research aims to determine the effect of child-friendly Problem Based Learning on primary school students' science learning abilities through data in the form of numbers that are analyzed statistically. The experimental method is used to observe changes in students' learning abilities before and after being given treatment in the form of the implementation of a child-friendly Problem Based Learning model. The research design used is a Pre-Experimental Design in the form of a One Group Pretest-Posttest Design. In this design, students are given an initial test (pretest) before the learning process and a final test (posttest) after the learning process is completed. The results of the pretest and posttest are then compared to determine the effect of the learning model implementation on students' learning abilities. This design was chosen because it is able to provide an overview of changes in students' learning outcomes after being given child-friendly Problem Based Learning treatment. This design was chosen because it is able to provide an overview of changes in students' learning outcomes after being given child-friendly Problem Based Learning treatment..

The research was conducted in grade V of elementary school in the even semester of the 2025/2026 academic year at SD Negeri Karangmalang, Pekalongan City. The selection of the research location was based on the results of initial observations which indicated that the students' science and social studies learning abilities still needed improvement. In addition, the learning process that took place was still dominated by lectures, so students were less active in participating in learning. The population in this study consisted of all grade V elementary school students in the 2025/2026 academic year. The research sample was taken using purposive sampling, which is a sampling technique based on certain considerations according to the needs of the research. The research sample consisted of one class that was considered to have characteristics in accordance with the research objectives. All students in that class were taken as

research subjects. The sample in this study amounted to 15 students.

The variables in this study consist of independent variables and dependent variables. The independent variable in this study is child-friendly Problem Based Learning, while the dependent variable is students' science learning ability. Child-friendly Problem Based Learning is a learning model that is student-centered through solving real problems while still paying attention to the principles of safe, comfortable, enjoyable learning and respecting children's rights during the learning process. Meanwhile, science learning ability is defined as students' ability to understand the material, think critically, solve problems, and apply learning concepts in daily life. The data collection techniques in this study used tests, observation, and documentation. The test is used to measure the learning ability of students before and after the implementation of child-friendly Problem Based Learning. The form of the test used consists of multiple-choice and essay questions adjusted to the V-grade science and social studies (IPAS) material at elementary school. Observation is conducted to observe student activities during the learning process, including student involvement in discussions, group cooperation, and problem-solving abilities. In addition, observation is also used to see the implementation of child-friendly learning in the classroom. Documentation is used to obtain supporting data in the form of student name lists, learning outcomes, learning tools, and photos of research activities.

The research instruments used consisted of test sheets, observation sheets, and documentation. The research implementation was carried out through several stages. The first stage was the preparation stage, which included the preparation of the research proposal, preparation of learning tools, preparation of research instruments, and handling of research permits. The second stage was the research implementation stage. At this stage, the researcher administered a pretest to the students to determine their initial abilities in the IPAS subject. Next, the researcher conducted learning using a child-friendly Problem Based Learning model. In the learning process, students were given problems related to everyday life to discuss and solve in groups. The teacher acted as a facilitator who guided the students throughout the learning process. After the learning is completed, students are given a posttest to determine changes in learning ability after treatment is given. The final stage is the stage of data processing and preparation of the research report.

The data obtained in the study were analyzed using statistical analysis techniques. Descriptive analysis was used to determine the average value, the highest value, the lowest value, and the percentage of students' learning outcomes. Next, a normality test was conducted to determine whether the data were normally distributed or not. After the data were declared normal, the analysis continued with hypothesis testing using the paired sample t-test. This test was used to determine whether there was an effect of child-friendly Problem Based Learning on students' Natural Sciences learning abilities. Decision making was carried out by looking at the significance value. If the significance value is less than 0.05, then the alternative hypothesis is accepted, which means that there is an effect of child-friendly Problem Based Learning on elementary school students' science learning ability. Through this research method, it is expected that accurate data can be obtained regarding the effect of child-friendly Problem Based Learning on the science learning ability of elementary school students so that the research results can contribute to the development of innovative,

active, and enjoyable learning in elementary schools.

3. RESULT AND DISCUSSION

Table 1. Results of the Paired Sample t-Test on IPAS Learning Ability

Variable	n	Mean	Min-Max	p-value
IPAS Learning Ability Pre Test	15	64.8	48-82	0.000
IPAS Learning Ability Post Test	15	85.6	70-96	

Based on Table 1 regarding the results of the Paired Sample t-Test on IPAS learning ability, it is known that the number of samples in this study was 15 students. The research data consisted of pretest and posttest scores of students' IPAS learning ability after implementing Child-Friendly Problem Based Learning. In the pretest results, the mean score obtained was 64.8 with a minimum and maximum range of 48 to 82. These results indicate that the initial ability of students in IPAS learning was still considered low. Some students still experienced difficulties in understanding the learning material, answering analytical questions, and solving problems related to everyday life.

Meanwhile, the posttest results showed an improvement in students' learning abilities after the implementation of child-friendly Problem Based Learning. The students' average score (mean) increased to 85.6, with a minimum and maximum score range between 70 and 96. The increase in the average score indicates that most students were able to understand the learning material better after participating in the learning process using the child-friendly Problem Based Learning model. Based on statistical tests using the Paired Sample t-Test, a p-value of 0.000 was obtained. This value is smaller than the significance level of 0.05, indicating a significant difference between the students' pretest and posttest results. Therefore, it can be concluded that child-friendly Problem Based Learning affects the science learning ability of elementary school students.

The research results show that the implementation of child-friendly Problem Based Learning can improve the science learning abilities (IPAS) of elementary school students. This can be seen from the increase in the average scores of students between the pretest and posttest. Before treatment was given, the average score of students was only 64.8. After the implementation of child-friendly Problem Based Learning, the average score increased to 85.6. This increase indicates that students experienced a fairly significant development in learning ability. The low pretest results indicate that students' initial abilities in science learning (IPAS) were not yet optimal. In the initial condition, students tended to be less active in participating in learning and still relied on teacher explanations. In addition, the learning process that is still teacher-centered makes students less able to have opportunities to think critically and solve problems independently (Putra et al., 2024). As a result, students experience difficulties in understanding IPS learning concepts in depth (Suryani et al., 2023).

After implementing the child-friendly Problem Based Learning model, students' learning abilities improved. The Problem Based Learning model provides students with the opportunity to learn actively

through problem-solving activities (Joyoleksono et al., 2022). In the learning process, students are faced with real problems related to everyday life so that they can more easily understand the learning material (Atmoko et al., 2025). Students are also directly involved in group discussion activities, searching for information, exchanging opinions, and presenting the results of the discussion in front of the class. These activities make students more active, creative, and confident in the learning process (Firdaus et al., 2021). In addition, this learning model is capable of training students' critical thinking skills because they are required to analyze problems and find solutions together (Zurhaida, 2025).

The application of child-friendly learning principles also has a positive impact on the students' learning process (Sudirjo, 2016). Child-friendly learning creates a learning atmosphere that is safe, comfortable, enjoyable, and respects the opinions of the students. During the learning process, students are given equal opportunities to participate actively without pressure or fear. This condition makes students feel more comfortable in learning, so they find it easier to understand the learning material (Setiyadi et al., 2025). In addition, a fun learning atmosphere makes students more motivated to participate in learning activities. Students become more confident to ask questions, actively discuss, and are able to collaborate with their groupmates. A good relationship between teachers and students also helps create a conducive learning environment so that learning objectives can be achieved well (Iskandar & Hendrowati, Tri Yuni, 2024).

The statistical test results using the Paired Sample t-Test showed a p-value of 0.000 or less than 0.05. These results prove that there is a significant effect of implementing child-friendly Problem Based Learning on the science learning abilities of elementary school students. Therefore, this learning model can be used as one of the effective learning alternatives to improve science learning abilities in elementary schools. Based on these research results, it can be concluded that child-friendly Problem Based Learning not only improves student learning outcomes but also enhances learning activities, critical thinking skills, cooperation, communication, and students' self-confidence during the learning process.

4. CONCLUSION

Based on the results of research and discussion regarding the influence of child-friendly Problem Based Learning on the science learning abilities of elementary school students, it can be concluded that the implementation of child-friendly Problem Based Learning has a positive and significant effect on students' learning abilities. This can be seen from the improvement in students' learning outcomes before and after being given the treatment. In the pretest results, the average score was 64.8 with a score range of 48-82, while in the posttest results, the average score increased to 85.6 with a score range of 70-96. This increase in scores indicates that students' science learning abilities improved after the application of child-friendly Problem Based Learning.

The results of the statistical test using the Paired Sample t-Test also showed a p-value of 0.000, which is smaller than the significance level of 0.05. Thus, it can be stated that there is a significant effect of the application of Child-Friendly Problem Based Learning on the science learning abilities of elementary school

students. The improvement in students' learning abilities occurs because the Problem Based Learning model can actively involve students in the learning process through problem-solving activities, group discussions, information searching, and presenting the results of discussions. In addition, the implementation of child-friendly learning principles creates a safe, comfortable, enjoyable learning environment that respects students' opinions, so students are more motivated and confident in participating in learning.

Thus, child-friendly Problem Based Learning can be used as an alternative learning model that is effective in improving the science learning abilities of elementary school students. In addition to improving learning outcomes, this learning model is also able to enhance learning activities, critical thinking skills, cooperation, communication, and students' self-confidence during the learning process.

5. ACKNOWLEDGEMENT

The author expresses gratitude to Allah SWT for all His blessings and graciousness so that this research and article writing could be completed well. This research could not have been carried out without the help, support, and cooperation from various parties. The author wishes to thank the principal, fifth-grade teachers, and all elementary school students who have given permission, assistance, and participation during the research process. The author also expresses gratitude to the supervising lecturer who has provided guidance, suggestions, and motivation so that this research could be completed properly. In addition, the author extends thanks to family and all parties who have provided moral and material support during the preparation of this research. Hopefully, this research can provide benefits for the development of IPAS learning in elementary schools and serve as a reference for future research.

6. REFERENCES

Aida, N., & Annisa, M. (2024). Meningkatkan Ketrampilan Proses IPA dan Karakter Wasaka Menggunakan Model Problem Based Learning, Team Games Tournament Terintegrasi STEM Pada Siswa Kelas VA SDN Basirih 1 Banjarmasin. *Pendas : Jurnal Ilmiah Pendidikan Dasar*, *09*(04), 851–866.

Atmoko, B., Amellah, K., Sholeh, M., Saputri, T., & Widiyono, D. (2025). Pengaruh Project Based Learning pada Anak 4-14 Tahun. *Aulad : Journal on Early Childhood*, *8*(3), 1152–1164. https://doi.org/10.31004/aulad.v8i3.1224

Azakia, A. A., & Gunansyah, G. (2025). Desain Pembelajaran IPAS Berbasis Problem Based Learning dan ESD Untuk Meningkatkan Ketrampilan Pemecahan Masalah Siswa SD. *Jurnal Penelitian Pendidikan Guru Sekolah Dasar (JPPGSD)*, *13*(3), 787–801.

Firdaus, A., Widiyanto, B., & Arfiani, Y. (2021). Pengaruh Model PBL (Problem Based Learning) Berbantuanan Video Motion Graphic Materi Pencemaran Lingkungan Terhadap Sikap Peduli Lingkungan. *Jurnal Pendidikan MIPA Pancasakti*, *5*(1), 17–24. https://doi.org/10.24905/jpmp.v5i1.1691

Iskandar, D., & Hendrowati, Tri Yuni, S. S. (2024). Efektivitas Program Sekolah Ramah Anak Dalam Mengembangkan Sekolah Berkarakter. *Manajemen Pendidikan*, *19*(1), 61–72.

Joyoleksono, S. K., Raharjo, T. J., & Suratinah, S. (2022). Pengaruh Model Problem based learning dalam Meningkatkan Motivasi dan Hasil Belajar Peserta Didik Kelas IV Pada Pembelajaran Matematika. *Jurnal Profesi Keguruan*, *8*(1), 85–96.

Maharani, N. Ko. A. W., Riastini, P. N., & Asril, N. M. (2024). Model Pembelajaran Problem Based Learning (PBL) Berorientasi Gaya Belajar Siswa terhadap Minat Belajar IPAS Kelas IV Sekolah Dasar. *Jurnal Penelitian Dan Pengembangan Sains Dan Humaniora*, *8*(1), 77–84.

Niswah, K., & Asih, S. S. (2024). Problem Based Learning Berbasis E-LKPD Untuk Meningkatkan Kemampuan Berpikir Kritis IPA Siswa Kelas V SDN Jatingaleh 02 Semarang. *Kreatif: Jurnal Kependidikan Dasar Volume*, *15*(1), 1–10.

Paratiwi, T., & Ramadhan, Z. H. (2023). Model Pembelajaran Problem Based Learning untuk Meningkatkan Aktivitas dan Hasil Belajar Siswa Pada Pembelajaran IPAS Kelas V Sekolah Dasar. *Journal of Education Action Research*, *7*(4), 603–610.

Patras, Y. E., Yolanita, C., Wildan, D. A., & Fajrudin, L. (2024). Pembelajaran Berbasis STEM di Sekolah Dasar Guna Meningkatkan Kemampuan Berpikir Kritis Dalam Rangka Menyongsong Pencapaian Kompetensi Siswa Abad 21. *Kalam Cendekia: Jurnal Ilmiah Kependidikan*, *12*(2), 857–867.

Putra, L. D., Arlinsyah, N. D., Ridho, F. R., Syafiqa, A. N., & Annisa, K. (2024). Pemanfaatan Wordwall pada Model Game Based Learning terhadap Digitalisasi Pendidikan Sekolah Dasar. *JDPP: Jurnal Dimensi Pendidikan Dan Pembelajaran*, *12*(1), 81–95.

Quraisin, I. (2021). Problem Based Learning Solusi Ppembelajaran Dalam Mata Pelajaran Matematika Dengan Topik KPK dan FPB Di Kelas IV SDI Ramah Anak Cilodong Depok. *ELEMENTARY : Jurnal Inovasi Pendidikan Dasar*, *1*(4), 173–178.

Rambe, Y., Khaeruddin, K., & Ma'ruf, M. (2024). Pengaruh Model Problem Based Learning Terhadap Kemampuan Berpikir Kritis dan Hasil Belajar IPA Pada Siswa Sekolah Dasar. *JRIP: Jurnal Riset Dan Inovasi Pembelajaran*, *4*(1), 341–355.

Sarapung, R. R., Malan, I. H., Pratiwi, F., Mahmud, N., Papingka, G. K., Basri, M., & Lessy, L. Y. (2025). Penerapan IPA Berbasis Lingkungan Untuk Meningkatkan Kompetensi Calon Guru SD. *Jurnal Pembelajaran Pemberdayaan Masyarakat (JP2M)*, *6*(2), 683–694. https://doi.org/10.33474/jp2m.v6i2.23749

Sayekti, D. M., Rahutami, R., & Wijayanti, R. S. (2024). Peningkatan Motivasi Belajar PKn Kelas 4 Berbasis Kelas Ramah Anak. *Seminar Nasional PPG UNIKAMA*, *1*, 346–355.

Setiyadi, D., Handoyo, E., & Waluyo, E. (2025). Sekolah Ramah Anak dan Transformasi Budaya Sekolah : Perspektif Hak Anak dalam Pendidikan Dasar. *Action Research Journal Indonesia (ARJI)*, *7*(2), 500–517.

Sudewiputri, M. P., & Dharma, I. M. A. (2021). Model Pembelajaran Numbered Heads Together (NHT) Terhadap Motivasi dan Hasil Belajar IPA. *Jurnal Pedagogi Dan Pembelajaran*, *4*(3), 427–433.

Sudirjo, E. (2016). Model Pembelajaran Inovatid Berbasis Konsep Sekolah Ramah Anak. *EduHumaniora: Jurnal Pendidikan Dasar*, *2*(1), 1–11.

Suryani, S. A., Komariah, A., & Septiani, S. (2023). Peningkatan Hasil Belajar Siklus Air Melalui Penerapan Model Pembelajaran Problem Based Learning Berbantuan Media Komik Di Kelas V. *Didaktik : Jurnal Ilmiah PGSD FKIP Universitas Mandiri*, *09*(02), 1780–1789.

Zhari, A. A. A., Agustin, N. R., Dewi, A. C. R., Wicaksono, B. Y., Rafikhan, M. A., & Rusminati, S. H. (2025). Peran Bimbingan Belajar Dalam Meningkatkan Motivasi Belajar IPAS Siswa SD Melalui Metode Belajar Sambil Bermain (Play-Based Leraning). *Pendas : Jurnal Ilmiah Pendidikan Dasar*, *10*(3), 817–827.

Zurhaida, Z. (2025). Pengaruh Model Project Based Learning Terhadap Ketrampilan Sosial Siswa Dalam Pembelajaran. *Al-Madrasah: Jurnal Ilmiah Pendidikan Madrasah Ibtidaiyah*, *9*(1), 420–431. https://doi.org/10.35931/am.v9i1.4273