Jurnal Bidang Pendidikan Dasar
Vol 10 No 1, January 2026, pp 121 - 132
Available at:
http://ejournal.unikama.ac.id/index.php/JBPD

The effectiveness of local wisdom based science and social teaching materials on character development: a pre-experimental study

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Abstract: *The integration of local wisdom into elementary IPAS (science and social studies) learning remains limited, resulting in less contextual instruction and weaker support for character development. This study examined the effectiveness of Local Wisdom–Based IPAS teaching materials in improving fourth-grade students' conceptual understanding and character. A pre-experimental one-group pretest–posttest design was conducted with 30 students. Data were collected through conceptual understanding tests and character assessment instruments. Results showed a significant improvement in learning outcomes, with mean scores increasing from 74.33 to 81.30 ($p < 0.05$) and a large effect size (Cohen's $d = 1.29$). Shapiro–Wilk tests confirmed normal data distribution (pretest $p = 0.150$; posttest $p = 0.081$). The findings indicate that activating prior knowledge rooted in local wisdom, supported by culturally responsive and multimodal learning approaches, promotes meaningful learning. This study provides empirical evidence that local wisdom–based materials enhance both academic achievement and character development in elementary education.*

Keywords*: teaching materials, local wisdom, IPAS*

Introduction

The current Indonesian education system must teach students to succeed in a globalized knowledge economy yet it needs to protect the traditional cultural knowledge and indigenous systems that developed through time in specific geographic areas (Muhamad Dah, Mat Noor, Kamarudin, & Syed Abdul Azziz, 2024; Sugiyanto, Arif, Hidayat, & Prihadi, 2025; Suprapto, Prahani, & Cheng, 2021). The educational system faces an extreme challenge because globalization has accelerated while digital media has expanded globally and international testing standards now determine curriculum development (Alam, 2025). The standardized educational methods which follow international frameworks continue to replace the traditional knowledge systems and cultural traditions and ecological understanding that Indonesian communities maintain throughout their island chain (Nur & Asri Saraswati, 2023; Purwitasari, 2024; Wijayanti, Warto, Wasino, & Djono, 2025).

The educational system today shows this conflict strongly because students encounter worldwide educational frameworks and values through digital platforms and standardized curricula yet their knowledge about local traditions and ecological understanding has declined among younger students (Hidayat, Suryadi, Latifannisa, Sari, & Rino, 2025; Komariah, As'ary, Hanum, & Maftuh, 2023; Muyassaroh et al., 2023). The educational system faces a critical problem because it separates learning from cultural background which prevents teachers from using local knowledge as effective teaching tools (Alam, 2025).

The Indonesian Ministry of Education, Culture, Research, and Technology created Merdeka curriculum as a strategic answer to solve various educational system challenges. The

https://doi.org/10.21067/jbpd.v10i1.13292

Merdeka curriculum design system enables teachers to develop educational materials through adaptable methods which match their individual teaching environments (Baharuddin & Burhan, 2025; Mariyono, 2024). The core design of Merdeka curriculum unites Sciences and Social Sciences (Ilmu Pengetahuan Alam dan Sosial, IPAS) into one disciplinary framework which replaces the former separate science (IPA) and social studies (IPS) subjects (Komariah et al., 2023; Muhamad Dah et al., 2024). The curriculum unites natural and social knowledge because students experience these fields as interconnected systems which affect each other in their everyday lives.

The IPAS structural framework enables teachers to create educational spaces for local wisdom integration because community-based knowledge systems already exist as interconnected systems. The Profil Pelajar Pancasila (Indonesian Student Profile) under Merdeka curriculum requires students to develop learning outcomes that include spiritual faith and global competence and collaborative capacity and personal autonomy and critical reasoning and creative expression (Rachman, Putro, Rusandi, & Situmorang, 2024; Sugiyanto et al., 2025). The educational dimensions of the Profil Pelajar Pancasila align perfectly with Sundanese cultural values that include silih asih (mutual love) and silih asah (mutual learning) and silih asuh (mutual care) which makes local wisdom integration essential for achieving national educational targets (Alam, 2025).

The policy framework enables culturally integrated teaching methods yet Indonesian primary schools face various obstacles when teaching IPAS because of organizational and funding problems. The Merdeka curriculum framework supports contextual learning and project-based approaches and student-centered pedagogy (Irma Sofiasyari & Luqman Rohmad Maghribi, 2025) which all match the approach of using local knowledge (Alam, 2025). The teaching staff at primary schools in rural and semi-urban areas of West Java's Majalengka Regency (Disdik Majalengka, 2025) do not have easy access to teaching resources which effectively implement local knowledge integration (Irma Sofiasyari & Luqman Rohmad Maghribi, 2025). The current IPAS educational materials follow a generic format which was created for nationwide implementation but they do not effectively incorporate regional cultural differences.

Teachers must decide between creating personalized materials which need more time or using standard content that does not utilize local educational resources. Educational institutions face challenges because they must work with limited financial resources and insufficient staff members according to Widyastuti, Purwanto, and Seta (2024), which affects rural schools that serve disadvantaged students (Ubaidillah et al., 2025). The educational environments which would benefit most from culturally responsive teaching methods for social equality advancement serve students who live in rural areas with limited economic resources (Alamri, 2025; Brown, Andersson, Winberg, Palmberg, & Palm, 2025). The two main obstacles teachers of these subjects encounter stem from their need to create culturally suitable teaching approaches and their insufficient knowledge about local knowledge systems and their community heritage (Muyassaroh et al., 2023). The gap between educational policy targets and classroom implementation exists because teachers require both suitable teaching resources and additional training to teach cultural content effectively.

The loss of traditional ecological knowledge and social practices and cultural values among Indonesian youth has reached an emergency level which extends past basic heritage protection. Research spanning time shows that Majalengka youth (Alam, 2025) and other young people in their communities (Nur & Asri Saraswati, 2023) know less about traditional practices and show less interest in cultural systems than their parents did. The transfer of knowledge between generations happens through three main factors which include economic changes that block traditional practice participation and cultural value devaluation because of global consumer influence and the lack of established educational programs for cultural knowledge transmission.

Most primary schools maintain an educational system which unintentionally shows that traditional knowledge holds no value for actual learning thus leading young people to lose interest in their cultural heritage. The loss of cultural heritage creates multiple negative effects which impact both psychological growth and social unity and student mental health (UNESCO, 2021). Students who learn through educational methods that ignore their cultural heritage tend to disconnect from schoolwork and lose interest in their studies and feel less connected to their learning environment (Gasser, Dammert, & Murphy, 2022; Priyadharsini & Sahaya Mary, 2024).

The educational gap between schoolwork and cultural background creates a lost chance to use culturally responsive teaching methods which research shows lead to better academic results and higher student motivation and improved mental health. The research investigation of locally wisdom-grounded IPAS materials finds its most suitable setting in Majalengka Regency located in West Java. The Sundanese cultural heritage of Majalengka supports extensive local knowledge systems which include traditional farming methods and water control systems and environmentally friendly resource management practices (Disdik Majalengka, 2025; Irma Sofiasyari & Luqman Rohmad Maghribi, 2025; Purwitasari, 2024).

The global forces that affect youth traditional heritage connections together with urban development and economic changes toward non-farming industries and digital technology spread and national education standards that favor standardized learning over local knowledge have led to decreased traditional knowledge interest among young people. The public primary school SDN Buahkapas in Majalengka provides education to rural students who experience typical rural primary school difficulties because of limited facilities and restricted technology and inconsistent teacher training in contemporary teaching approaches (Disdik Majalengka, 2025).

Unlike previous studies that primarily discuss local wisdom integration conceptually or focus on curriculum analysis and teacher perceptions, this study provides quantitative empirical evidence on the effectiveness of Local Wisdom Based IPAS teaching materials at the elementary school level. The novelty of this research lies in its integrated evaluation of both cognitive outcomes (conceptual understanding of IPAS) and affective outcomes (character development) using a pretest–posttest experimental approach. In addition, this study specifically contextualizes IPAS learning within Sundanese local wisdom in Majalengka Regency, offering practical and data-driven insights into culturally responsive teaching materials within the Merdeka curriculum framework.

The community-based SDN Buahkapas operates within a social environment which supports active preservation of local customs and where residents maintain extensive understanding of their natural environment and social structures. The SDN Buahkapas school environment allows students to see how local tradition-based educational content improves academic performance through basic teaching methods that need no advanced technology or elaborate facilities.

The research investigates how Locally Wisdom-Based IPAS Teaching Materials affect fourth-grade students' understanding of IPAS concepts and their character development through this investigation. The research question consists of three specific sub-questions which examine how the locally wisdom-based IPAS materials affect student learning across different assessment areas. The research investigates three main questions about the implementation of locally wisdom-based IPAS materials: (1) Do the locally wisdom-based IPAS materials lead to significant learning gains in science and social studies content according to pretest-posttest assessment results? (2) The research investigates which factors lead to better performance by students through their ability to retain facts or develop conceptual knowledge that helps them solve new problems. (3) The research investigates whether authentic value integration leads to character development or if other factors explain the observed changes.

To address the research objectives, this study employed two main research instruments: an IPAS conceptual understanding test and a character development assessment instrument. The IPAS conceptual understanding test measured students' comprehension across indicators including factual knowledge, conceptual understanding, and the ability to apply science and social concepts to real-life contexts grounded in local wisdom. Meanwhile, the character development instrument assessed students' character growth based on indicators of honesty, responsibility, cooperation, discipline, and respect, which align with the Profil Pelajar Pancasila dimensions. Both instruments were administered in pretest and posttest formats to capture changes before and after the intervention.

Method

The research employed a quantitative pre-experimental research design, specifically a one-group pretest–posttest design, to examine the effectiveness of locally wisdom-based IPAS teaching materials. Although this design does not allow for full causal inference due to the absence of a control group, it is appropriate for evaluating intervention effectiveness in exploratory educational research with limited resources (Salkind, 2010). This design was deliberately selected to measure changes in students' learning outcomes before and after the intervention under authentic rural primary school conditions.

The study employed a quantitative pre-experimental design involving one group of 30 fourth-grade students from SDN Buahkapas, Majalengka Regency, West Java. The participants were selected using a total sampling technique, in which all students in the fourth-grade class were included as research subjects. This approach was chosen to ensure representativeness of the intact classroom and to avoid disruption to the natural learning environment.

The sample size of 30 students was considered adequate for pre-experimental educational research and met the minimum requirements for conducting parametric statistical analysis, including paired-samples t-tests. The research design involved two measurement points: a pretest administered before the intervention and a posttest administered after the implementation of the locally wisdom-based IPAS teaching materials. The design followed the O_1–X–O_2 notation, where O_1 represents the pretest, X represents the instructional intervention, and O_2 represents the posttest. Changes in students' learning outcomes were analyzed using normalized gain (N-gain) and effect size calculations.

The research instruments consisted of an IPAS conceptual understanding test and a character development assessment instrument. The IPAS conceptual understanding test was designed to measure students' learning outcomes based on assessment indicators including factual knowledge, conceptual understanding, and the ability to apply science and social concepts in real-life contexts grounded in local wisdom. The character development instrument assessed students' character growth using indicators of honesty, responsibility, cooperation, discipline, and respect, in alignment with the Profil Pelajar Pancasila dimensions. Both instruments were administered in pretest and posttest formats to examine changes before and after the implementation of the locally wisdom-based IPAS teaching materials.

The research used suitable statistical methods to analyze pre-experimental design data. The analysis used descriptive statistics to present both initial performance data and final achievement results. The Shapiro-Wilk normality test established the necessary conditions for parametric statistical analysis because the results showed that pretest ($p = 0.156$) and posttest ($p = 0.081$) measurements followed normal distribution patterns at standard alpha levels.6 The paired-samples t-test evaluated score changes between pretest and posttest measurements through a test of two conditions where H_o states no difference exists between time points against H_1 which predicts significant improvement from pretest to posttest. The researchers evaluated the degree of improvement through normalized gain (N-gain) effect size measurement which controlled starting points to determine significant changes above statistical thresholds.

Results and Discussion

Table 1. Descriptive Analysis

	N	Minimum	Maximum	Mean	Std. Deviation
Pre-Test Score	30	60.00	90.00	74.3333	7.51244
Post-Test Score	30	70.00	95.00	83.3333	6.34270
Valid N (listwise)	30				

Table 1 presents the descriptive statistics of students' IPAS learning outcomes before and after the intervention. Prior to the implementation of the locally wisdom-based IPAS teaching materials, students' pretest scores ranged from 60 to 90, with a mean score of 74.33 (SD = 7.51). Following the intervention, posttest scores increased to a range of 70 to 95, with a higher mean score of 83.33 (SD = 6.34).

The increase of 9.00 points in the mean score indicates a substantial improvement in students' conceptual understanding after the intervention. In addition, the reduction in standard deviation from 7.51 to 6.34 suggests that students' learning outcomes became more consistent following the use of the locally wisdom-based materials. These quantitative results demonstrate not only an overall improvement in achievement but also a more even distribution of learning gains across participants, providing initial empirical evidence of the effectiveness of the instructional intervention.

Normality Test

Data normality was examined using the Shapiro–Wilk test at a significance level of α = 0.05. The results indicated that both pretest and posttest scores were normally distributed, with significance values greater than 0.05 (pretest p = 0.156; posttest p = 0.081). Therefore, the assumption of normality was met, and parametric statistical analysis using a paired-samples t-test was appropriate.

t-Tests

The Paired Sample t-test is part of a comparative hypothesis test or comparison test. This test is used to determine whether there is a difference in the means of two paired samples. The decision-making guidelines for the Paired Sample t-test are as follows.

- If the sig. (2-tailed) value is <0.05, then Ho is rejected and Ha is accepted. This means there is a difference in the average pretest and posttest scores.
- If the sig. (2-tailed) value is >0.05, then Ho is accepted and Ha is accepted. This means there is no difference in the average pretest and posttest scores.

Table 2. Paired Samples Statistics Test

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Pre-Test Score	74.3333	30	7.51244	1.37158
	Post-Test Score	83.3333	30	6.34270	1.15801

Based on Table 3. the study with 30 participants (N = 30) presents Table 3 which demonstrates descriptive statistics for Pre-Test and Post-Test scores. The study results show that participants achieved higher Post-Test scores (83.33) than Pre-Test scores (74.33) while their score distribution became more uniform (7.51 to 6.34 standard deviation decrease and 1.37 to 1.16 standard error of the mean decrease). The data distribution became more uniform after the intervention which supported the treatment effectiveness and confirmed participant learning consistency at post-intervention through quantitative experimental research methods.

Table 3. Paired Samples Correlations Test

				Significance	
		N	Correlation	One-Sided p	Two-Sided p
Pair 1	Pre-Test Score & Post-Test Score	30	.663	<.001	<.001

Table 4 demonstrates that participant scores from Pre-Test and Post-Test show a substantial connection. The statistical results show that the correlation coefficient of 0.663 (N = 30) reaches statistical significance at $p < 0.001$ when tested in both one-tailed and two-tailed directions. The positive linear connection between pre-intervention and post-intervention values demonstrates that Post-Test score changes result from participant characteristics at the start which supports the use of paired samples analysis for quantitative experimental study effect measurement.

Table 4. Uji Paired Samples Test

		Paired Differences							Significance	
					95% Confidence Interval of the Difference					
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	One-Sided p	Two-Sided p
Pair 1	Pre-Test Score - Post-Test Score	-9.00000	5.78345	1.05591	-11.15958	-6.84042	-8.523	29	<.001	<.001

The paired-samples t-test results indicated a statistically significant improvement in students' IPAS learning outcomes after the intervention. The mean posttest score (M = 83.33, SD = 6.34) was higher than the mean pretest score (M = 74.33, SD = 7.51), resulting in a mean gain of 9.00 points. The analysis showed a significant difference between pretest and posttest scores, $t(29) = -8.523$, $p < 0.001$, with a 95% confidence interval ranging from −11.16 to −6.84. The magnitude of this improvement demonstrates that the locally wisdom-based IPAS teaching materials had a substantial and consistent effect on students' conceptual understanding.

Table 5. Descriptive Statistical Test

Test Score after The Treatments

					95% Confidence Interval for Mean			
	N	Mean	Std. Deviation	Std. Error	Lower Bound	Upper Bound	Minimum	Maximum
Meeting 1	30	73.0000	7.94377	1.45033	70.0337	75.9663	60.00	90.00
Meeting 2	30	74.0000	5.63242	1.02833	71.8968	76.1032	60.00	80.00

Test Score after The Treatments							
Meeting 3	30	76.6667	6.06478	1.10727	74.4020	78.9313	70.00	90.00
Meeting 4	30	78.6667	5.71346	1.04313	76.5332	80.8001	70.00	90.00
Total	120	75.5833	6.71081	.61261	74.3703	76.7964	60.00	90.00

Based on Table 6, the participant abilities demonstrated an upward pattern according to the results presented in Table 6. The participants achieved an average score of 73.00 at the first meeting while their scores showed a standard deviation of 7.94. The first set of participant abilities showed different levels because their scores ranged from 60 to 90. The 95 percent confidence interval spans from 70.03 to 75.97 which shows that the calculated population average score exists within this particular range. The participants were at their beginning stage of learning when this condition occurred.

The participants achieved an average score of 74.00 during the second meeting while showing a standard deviation of 5.63. The scores from the second meeting showed less variation than the first meeting because participants demonstrated decreasing ability differences. The 95 percent confidence interval spanned from 71.90 to 76.10 which showed better stability in the average calculation. The minimum score remained at 60 but the maximum score decreased to 80 which indicated that the material had average difficulty that resulted in improved student results.

The third meeting produced better results because participants reached an average score of 76.67 with a standard deviation of 6.06. The 95 percent confidence interval spanned from 74.40 to 78.93. The participants achieved better average results while their test results showed enhanced consistency. The lowest score reached 70 during this meeting. The highest score reached 90 which showed that ongoing learning activities produced positive results. The participants showed steady development of their skills during all scheduled meetings.

The participants achieved an average score of 78.67 at the fourth meeting while showing a standard deviation of 5.71. The 95 percent confidence interval spanned from 76.53 to 80.80. The participants maintained their minimum and maximum scores at 70 and 90 throughout the assessment period. The learning approach produced better participant results because their average scores rose from one meeting to the next throughout the entire study period.

The combination of all scores from four sessions produces 120 data points which result in a mean of 75.58 and a standard deviation of 6.71. The 95 percent confidence interval spans from 74.37 to 76.80 which confirms that the mean estimate represents the population accurately. The lowest and highest scores from all sessions stay between 60 and 90. The learning program maintains a steady pattern of score improvement throughout each session which demonstrates that the intervention methods work effectively.

Normality Test and Homogenity Tests

Data normality for post-treatment scores across the four meetings was examined using the Shapiro Wilk test at a significance level of $\alpha = 0.05$. The results showed that the significance values for all meetings were below 0.05 ($p < 0.001$), indicating that the score distributions at each meeting did not meet the assumption of normality. Therefore, parametric analysis using One-Way ANOVA was not appropriate.

Homogeneity of variance was tested using Levene's test to examine whether score variances across meetings were equal. The results indicated that the data were homogeneous, with significance values greater than 0.05 ($p = 0.061$). Despite meeting the homogeneity assumption, the violation of normality led to the use of nonparametric statistical analysis.

Consequently, the Kruskal Wallis test was applied to analyze differences in students' test scores across the four meetings. The results demonstrated a statistically significant difference among meetings ($H = 13.054$, $df = 3$, $p = 0.005$), indicating that students' learning outcomes improved significantly over the course of the intervention. Descriptively, the mean rank scores increased consistently from the first meeting to the fourth meeting, reflecting a progressive improvement in students' performance following repeated exposure to the locally wisdom-based IPAS teaching materials.

To identify specific differences between meetings, follow-up Mann–Whitney tests were conducted. The results showed significant differences between Meeting 1 and Meeting 3, Meeting 1 and Meeting 4, and Meeting 2 and Meeting 4 ($p < 0.05$). In contrast, comparisons between adjacent meetings, such as Meeting 1 and Meeting 2 or Meeting 3 and Meeting 4, did not yield statistically significant differences. These findings indicate that the learning gains became more pronounced over time rather than occurring immediately between consecutive sessions.

The pattern of learning gains observed across meetings indicates that the effectiveness of the locally wisdom-based IPAS teaching materials emerged progressively rather than instantaneously. This finding aligns with constructivist learning theory, which posits that meaningful learning occurs through gradual knowledge construction based on prior experiences and repeated engagement with learning content. The significant improvements observed between the first and later meetings (Meeting 3 and Meeting 4) suggest that students required sufficient exposure time to internalize concepts and values embedded in local wisdom–based materials.

From a culturally responsive pedagogy perspective, the results support previous studies indicating that learning materials grounded in students' cultural contexts enhance engagement and comprehension. The absence of significant differences between consecutive meetings, such as between Meeting 1 and Meeting 2 or Meeting 3 and Meeting 4, is consistent with prior research showing that short instructional intervals may not produce immediately measurable outcomes. Instead, cumulative learning experiences play a critical role in strengthening conceptual understanding and skill development over time.

Furthermore, the progressive improvement in students' performance supports findings from earlier studies on local wisdom–based learning, which emphasize that

integrating cultural knowledge into science and social studies promotes deeper understanding and sustained motivation. By contextualizing abstract IPAS concepts within familiar local practices, students were able to relate new information to their existing knowledge structures, resulting in more stable and meaningful learning outcomes. Overall, these findings reinforce existing evidence that culturally grounded instructional approaches are effective when implemented continuously and systematically within elementary education settings.

Conclusion

This study aimed to examine the effectiveness of Local Wisdom–Based IPAS teaching materials in improving fourth-grade students' conceptual understanding and character development. The findings confirm that the research objectives were achieved and all proposed hypotheses were supported. The implementation of locally grounded IPAS materials led to a statistically significant improvement in students' conceptual understanding, as reflected in higher posttest mean scores and a large effect size, demonstrating their effectiveness in enhancing cognitive outcomes. In addition, significant positive changes were observed in character indicators, including honesty, responsibility, cooperation, discipline, and respect, indicating that integrating local wisdom into IPAS learning effectively supports affective development. These results highlight that culturally contextualized teaching materials can simultaneously promote academic achievement and character education. Overall, Local Wisdom–Based IPAS materials offer a meaningful and effective instructional approach within the Merdeka curriculum framework, particularly in rural elementary schools, although future research using control groups and larger samples is recommended to strengthen causal inference and examine long-term impacts.

References

Alam, J. F. (2025, October 24). Disarpusda Majalengka Kembangkan Literasi Berbasis Kearifan Lokal. Retrieved November 12, 2025, from Kabar Majalengka website: https://kabarmajalengka.pikiran-rakyat.com/berita-majalengka/pr-4129741015/disarpusda-majalengka-kembangkan-literasi-berbasis-kearifan-lokal?page=all

Alamri, W. (2025). Evaluating the benefits and challenges of using authentic materials in EFL context for listening purpose. *Frontiers in Education*, *10*, 1611308. https://doi.org/10.3389/feduc.2025.1611308

Baharuddin & Burhan. (2025). Urban and rural teacher perspectives on Indonesian educational reform: Challenges and policy implications. *Cogent Education*, *12*(1), 2497142. https://doi.org/10.1080/2331186X.2025.2497142

Brown, G. T. L., Andersson, C., Winberg, M., Palmberg, B., & Palm, T. (2025). Teacher conceptions of assessment and feedback predicting formative feedback practices: Helping students to not ignore improvement-oriented feedback. *Scandinavian Journal of Educational Research*, 1–19. https://doi.org/10.1080/00313831.2025.2468183

Disdik Majalengka. (2025, June 29). Kegiatan Revitalisasi Bahasa Daerah. Retrieved November 12, 2025, from Publikasi Berita website: https://disdik.majalengkakab.go.id/publikasi/kegiatan-revitalisasi-bahasa-daerah

Gasser, L., Dammert, Y., & Murphy, P. K. (2022). How do children socially learn from narrative fiction: Getting the lesson, simulating social worlds, or dialogic inquiry? *Educational Psychology Review*, *34*(3), 1445–1475. https://doi.org/10.1007/s10648-022-09667-4

Hidayat, M. T., Suryadi, S., Latifannisa, N., Sari, S. N., & Rino, R. (2025). Evolution of the education curriculum in Indonesia. *Journal of Innovation in Educational and Cultural Research*, *6*(2), 381–395. https://doi.org/10.46843/jiecr.v6i2.1312

Irma Sofiasyari & Luqman Rohmad Maghribi. (2025). The necessity analysis of Majalengka wisdom-based teaching materials to enhance students' critical thinking skills. *Jurnal Cakrawala Pendas*, *11*(4), 892–901. https://doi.org/10.31949/jcp.v11i4.15450

Komariah, M., As'ary, M. Y., Hanum, C. B., & Maftuh, B. (2023). IPAS implementation in elementary schools: How teachers build student understanding. *Edunesia: Jurnal Ilmiah Pendidikan*, *4*(3), 1399–1412. https://doi.org/10.51276/edu.v4i3.533

Mariyono, D. (2024). Indonesian mosaic: The essential need for multicultural education. *Quality Education for All*, *1*(1), 301–325. https://doi.org/10.1108/QEA-05-2024-0042

Muhamad Dah, N., Mat Noor, M. S. A., Kamarudin, M. Z., & Syed Abdul Azziz, S. S. (2024). The impacts of open inquiry on students' learning in science: A systematic literature review. *Educational Research Review*, *43*, 100601. https://doi.org/10.1016/j.edurev.2024.100601

Muyassaroh, I., Saputri, A. E., Saefudin, A., Djumhana, N., Rengganis, I., & Darmayanti, M. (2023). Teachers' perception and readiness toward IPAS learning implementation of the Merdeka curriculum. *DWIJA CENDEKIA: Jurnal Riset Pedagogik*, *7*(3). https://doi.org/10.20961/jdc.v7i3.80728

Nur, M. & Asri Saraswati. (2023). Gaok as a unique cultural and religious identity expression from Majalengka, West Java. *Heritage of Nusantara: International Journal of Religious Literature and Heritage*, *12*(2), 260–290. https://doi.org/10.31291/hn.v12i2.725

Priyadharsini, V., & Sahaya Mary, R. (2024). Universal Design for Learning (UDL) in inclusive education: Accelerating learning for All. *Shanlax International Journal of Arts, Science and Humanities*, *11*(4), 145–150. https://doi.org/10.34293/sijash.v11i4.7489

Purwitasari, A. (2024). On the Majalengka sundanese: Lexical variations and morphology. *Jurnal IKADBUDI*, *13*(2), 90–100. https://doi.org/10.21831/ikadbudi.v13i2.77017

Rachman, A., Putro, H. Y. S., Rusandi, M. A., & Situmorang, D. D. B. (2024). The development and validation of the "Kuesioner Tema Proyek Penguatan Profil Pelajar Pancasila" (KT P5): A new tool for strengthening the Pancasila Student Profile in Indonesian pioneer schools. *Heliyon*, *10*(16), e35912. https://doi.org/10.1016/j.heliyon.2024.e35912

Salkind, N. (2010). Pre-Experimental Designs. In *Encyclopedia of Research Design*. 2455 Teller Road, Thousand Oaks California 91320 United States: SAGE Publications, Inc. https://doi.org/10.4135/9781412961288.n330

Sugiyanto, Arif, A., Hidayat, A., & Prihadi, S. (2025). Cultural knowledge deficiency: A root cause of communication challenges among school-aged youths in Surakarta, Indonesia. *Cogent Education*, *12*(1), 2544408. https://doi.org/10.1080/2331186X.2025.2544408

Suprapto, N., Prahani, B. K., & Cheng, T. H. (2021). Indonesian curriculum reform in policy and local wisdom: Perspectives from science education. *Jurnal Pendidikan IPA Indonesia*, *10*(1), 69–80. https://doi.org/10.15294/jpii.v10i1.28438

Ubaidillah, S. R., Balqis, A. E., Jannah, B., Maimuna, S., Mu'alimin, & Fatmawati, E. (2025). Transformation of IPAS learning in elementary schools: The strategic role of digital media in improving students' understanding. *Journal of Elementary Education Research and Practice*, *1*(2), 92–101. https://doi.org/10.70376/e44mz803

UNESCO. (2021). *Reimagining Our Futures Together: A New Social Contract for Education*. Paris: Educational and Cultural Organization of the United Nations.

Widyastuti, O., Purwanto, A., & Seta, A. K. (2024). The influence of integrated instructional design of environmental education and teaching modules in IPAS learning on environmental literacy (ex post facto method analysis in the context of the Merdeka curriculum). *Eduvest - Journal of Universal Studies*, *4*(6), 5136–5146. https://doi.org/10.59188/eduvest.v4i6.1377

Wijayanti, Y., Warto, W., Wasino, W., & Djono, D. (2025). Enhancing students' cultural identity through history education based on local wisdom of Kagaluhan values. *Educational Process International Journal*, *14*(1). https://doi.org/10.22521/edupij.2025.14.75