

Barriers to Critical Reasoning in Sociology Learning: An Ecology of Curriculum Enactment

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Abstract

Critical reasoning is a central aspiration of the Merdeka Curriculum, yet formal curriculum adoption does not guarantee that students routinely perform the cognitive work associated with critical reasoning. This qualitative secondary analysis revisits a 2023 case study of Grade XI sociology learning at SMA Negeri 7 Padang. The original research had previously generated a publication on barriers to the critical-reasoning dimension of the Pancasila Student Profile; the present manuscript asks a distinct question about how barriers interact as an ecology of opportunity to learn. The archived corpus comprises 15 informants—13 students, one sociology teacher, and one vice principal for curriculum—together with classroom observation and school documents. Reanalysis identifies five connected constraints: weak literacy routines, uneven cognitive participation during problem-based learning, limited assessment literacy regarding higher-order thinking questions, fatigue associated with long school days and late lesson periods, and classroom infrastructure and thermal discomfort. Descriptive school records provide contextual evidence: the mean daily-test score across three Grade XI classes was approximately 49.2, and correct responses on four higher-order items ranged from about 31.3% to 45.5%. Using Rogers' diffusion-of-innovations perspective, the study interprets these findings as an adoption-enactment gap. Critical reasoning was accepted as a curriculum goal, but pedagogical routines, assessment preparation, time, and material conditions did not consistently distribute opportunities for all students to practise it.

Keywords: critical reasoning; sociology education; Pancasila Student Profile; Merdeka Curriculum; curriculum enactment.

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Introduction

Critical reasoning has become a prominent educational goal because contemporary students must evaluate information, distinguish claims from evidence, connect multiple sources, and make reasoned judgments in conditions of information abundance. In the Indonesian Merdeka Curriculum, the Pancasila Student Profile positioned critical reasoning as a dimension involving the acquisition and processing of information and ideas, analysis and evaluation of reasoning, reflection on thinking, and decision making (Irawati et al., 2022). These competencies do not emerge simply because they appear in curriculum language. They require repeated opportunities to read, question, compare, interpret, argue, revise, and justify.

Sociology is a particularly relevant setting for examining this problem. The subject deals with social groups, inequality, conflict, social change, institutions, and other phenomena for which explanations are often contested. Students therefore need more than definitional knowledge. They must distinguish symptoms from causes, identify actors and interests, connect cases with concepts, evaluate competing interpretations, and consider alternative responses. Critical reasoning in sociology is consequently embedded in disciplinary practice rather than detached from subject matter.

Studies of the Pancasila Student Profile generally report the importance of learning activities that encourage students to acquire and process information, analyze evidence, and reflect on reasoning (Ernawati & Rahmawati, 2022; Iliadi et al., 2024; Maielfi et al., 2024). Work on teaching materials and diagnostic instruments also suggests that critical reasoning needs to be operationalized through concrete tasks and indicators rather than treated as an abstract character label (Fajriyah et al., 2024; Ratnawati et al., 2024; Sadiyah et al., 2024). This literature establishes what supportive learning can look like, but it also raises a practical question: what happens when a school formally adopts the intended profile while classroom conditions do not consistently sustain the required cognitive practices?

Active learning models are often proposed as the answer. Problem-based learning, discussion, and collaborative inquiry can create situations in which students identify problems, seek information, explain relationships, and defend conclusions. In sociology learning, Hasnawati et al. (2023) and Maulidah and Yunus (2023) show the value of participatory learning for reasoning and engagement. Yet the name of a model does not guarantee equitable participation. A group task can be completed by one or two high-performing students while peers remain cognitively peripheral. The analytical focus must therefore move from the presence of an instructional model to the distribution of thinking opportunities inside it.

Assessment is another part of this ecology. Higher-order thinking skills (HOTS) items are intended to require application, analysis, evaluation, or the processing of unfamiliar information. If daily learning primarily rewards recall and students are then confronted with lengthy case-based questions at examination time, assessment can reveal a mismatch rather than simply measure a stable ability. Students need assessment literacy: familiarity with the kinds of reasoning expected, strategies for unpacking a question, and experience articulating evidence-based responses.

Physical and temporal conditions are also educational conditions. Concentration is affected by fatigue, heat, ventilation, lesson scheduling, and access to functional learning media. Research on classroom thermal comfort shows that uncomfortable physical environments can interfere with students' learning experience (Duminggu et al., 2023); the archived case adds that long school days and late lesson periods can compound this problem through fatigue. These factors are often classified as logistical rather than pedagogical, but they shape whether students have sufficient attention for demanding cognitive work.

The source case, conducted at SMA Negeri 7 Padang in 2023, documented a clear tension between curriculum aspiration and classroom practice. The school had implemented the Merdeka Curriculum and the Pancasila Student Profile. Nevertheless, students were often passive in discussion, relied heavily on textbook wording, struggled to formulate conclusions in their own words, and had difficulty answering case-based higher-order questions. School records also showed low mean daily-test scores across three Grade XI classes. The original study was subsequently published by Yulindra and Fernandes (2024), where the primary focus was the identification of barriers.

The present manuscript does not claim a new dataset. It transparently reuses the archived thesis corpus to ask a different question: how do the identified barriers interact to produce an ecology that restricts opportunities to practise critical reasoning? This distinction is important for research integrity. A secondary analysis is justified not by repackaging identical findings but by changing the analytical unit from a list of barriers to the relationships among literacy routines, pedagogy, assessment, time, and material conditions.

Rogers' (2003) diffusion-of-innovations framework offers a useful interpretive lens. A curricular innovation can be known and formally adopted without being implemented with equal depth across settings. Implementation depends on how actors understand the innovation, whether practices are compatible with existing routines, how complex new demands appear, whether teachers and students can try them in manageable forms, and whether benefits are observable. From this perspective, the central problem is an adoption-enactment gap: critical reasoning is accepted as an institutional goal, while the everyday system of learning has not fully reorganized around it.

Accordingly, this study asks: How do literacy practices, instructional participation, assessment preparation, school-time organization, and physical learning conditions interact in constraining critical reasoning in Grade XI sociology learning? The contribution is an ecological interpretation that avoids attributing low critical reasoning to student motivation alone and instead locates reasoning opportunities within a network of classroom and organizational conditions.

Method

This article is a qualitative secondary analysis of an archived case-study dataset collected in 2023 at SMA Negeri 7 Padang. The original study examined barriers to forming the critical-reasoning dimension of the Pancasila Student Profile in Grade XI sociology learning and later supported a published article (Yulindra & Fernandes,

2024). The secondary analysis returns to the thesis corpus rather than treating the prior publication as a new data source. No new interviews, observations, or tests were conducted for the present manuscript.

The secondary qualitative reading follows a case-oriented logic in which contextual evidence is preserved and interpretations are checked across interview, observation, and documentary materials (Creswell & Poth, 2018).

The source research used purposive sampling. The archived research record identifies 15 informants: 13 Grade XI students, one sociology teacher, and one vice principal responsible for curriculum. This participant count follows the documented composition reported in the original publication and corrects an earlier draft reconstruction that had underestimated the number of student informants. In the present manuscript, individual students are not named; student accounts are treated as S1–S13, with the teacher and curriculum representative identified only by role.

Data were collected through classroom observation, interviews, and documentary review. Observations focused on student participation, learning activities, classroom conditions, and the implementation of the Pancasila Student Profile in sociology. Interviews explored literacy habits, experiences with problem-based learning, higher-order questions, fatigue and scheduling, and the availability of learning facilities. Documents included daily-test records, examples of HOTS-oriented questions, school timetable information, and school infrastructure records.

The secondary analysis followed an interactive qualitative process of data condensation, data display, and conclusion drawing (Miles et al., 2014). First-cycle coding identified empirical units related to reading and information processing, group participation, assessment demands, fatigue, teacher workload, classroom temperature and ventilation, and instructional media. Second-cycle analysis examined relationships among these codes. A barrier was treated as ecologically consequential when it affected another part of the learning process—for example, when heat and late scheduling reduced participation, or when weak literacy made case-based assessment more difficult.

Descriptive numerical data were used only to contextualize the qualitative findings. The three Grade XI classes included 36, 32, and 31 students, with daily-test means of 54.3, 50.7, and 42.8 respectively, producing an overall class-level average of approximately 49.2. Four higher-order items showed correct-response proportions of roughly 31.3%–45.5%. These values are not treated as causal evidence and were not used to estimate an intervention effect.

The original school research was conducted with permission from the West Sumatra Provincial Education Office to undertake research at SMA Negeri 7 Padang. The archived materials do not document a separate contemporary ethics-board approval or a standardized individual consent form; the present secondary analysis therefore makes no unsupported claim about such procedures. Only de-identified material is used here.

Results and Discussion

A persistent gap between curriculum expectations and observed reasoning

The empirical starting point was a mismatch between the curriculum language of critical reasoning and the reasoning students displayed in routine sociology learning. Students could often restate definitions or reproduce textbook sentences, yet many found it difficult to transform information into an independent explanation. During discussion, participation was uneven and some students relied on peers who were perceived as academically stronger. At the end of a lesson, formulating a concise conclusion in their own words remained difficult for a substantial part of the class.

School assessment records provided a consistent contextual signal. The mean daily-test score across the three observed Grade XI classes was about 49.2, substantially below the school benchmark reported in the source research. The problem was not interpreted as proof that students lacked a fixed reasoning capacity. Instead, it prompted examination of what kinds of learning experiences were available before students were expected to perform higher-order reasoning in assessment.

The HOTS-oriented items made the mismatch more visible. Correct-response rates across four selected items remained between approximately one-third and less than one-half of students. Interview accounts indicated that students were more accustomed to memorizing concepts than to unpacking long case narratives, identifying the command in a question, or constructing a reasoned response.

Table 1. Descriptive context of Grade XI sociology learning

Indicator	Observed value	Analytical use
Daily-test mean: XI F4	54.3 (n=36)	Context for classroom achievement

Indicator	Observed value	Analytical use
Daily-test mean: XI F5	50.7 (n=32)	Context for classroom achievement
Daily-test mean: XI F6	42.8 (n=31)	Context for classroom achievement
Overall class-level mean	≈49.2	Not used as causal evidence
Correct responses on four HOTS-oriented items	≈31.3%–45.5%	Context for assessment-literacy difficulty

Source: Authors' reanalysis of the archived research *data*.

Weak literacy routines reduced the material available for reasoning

The first recurrent barrier concerned literacy practices. Students described limited willingness to read longer materials and a tendency to look for short answers. In classroom tasks, reading was frequently instrumental: students searched for a sentence that could be copied into a worksheet rather than reading several passages to build an interpretation. This pattern constrained critical reasoning at its earliest stage because students had less information to compare and fewer concepts to mobilize.

The observations also suggested that access to digital devices did not automatically expand academic literacy. Phones could support information seeking, but without an explicit search-and-evaluate routine they also competed for attention. The empirical problem was therefore not the device itself. It was the absence of a sufficiently structured literacy task specifying what information should be sought, how sources should be compared, and what students were expected to do with the information after finding it.

Students who read minimally were then placed at a disadvantage in discussion and assessment. They had fewer examples to draw on, were less confident in explaining a case, and were more likely to reproduce wording from a single source. The data thus showed literacy as a mechanism connecting information exposure with later analysis rather than as a separate extracurricular habit.

Problem-based learning was present, but cognitive participation was uneven

The sociology teacher reported using problem-based learning and case-oriented worksheets. At the level of lesson design, this was compatible with the curriculum aim because students were asked to work with social problems rather than only listen to exposition. Observation, however, showed that group completion did not mean that every member carried out the same reasoning work.

Some students became the de facto problem solvers: they read the case, proposed an answer, or wrote the group response. Other members participated through copying, listening, or waiting for the group result. The group therefore produced an output, but the cognitive process was not evenly distributed. The key empirical finding was a participation gap inside an apparently active-learning format.

This pattern also affected classroom feedback. When a confident student presented the group answer, the teacher could reasonably perceive that the task had been completed, while less active members had not necessarily practised identifying evidence or constructing an argument. The data therefore distinguish behavioral participation—being present in a group—from cognitive participation—personally performing the reasoning steps required by the task.

Higher-order assessment arrived without sufficient assessment literacy

Students repeatedly reported difficulty with long, case-based HOTS questions. Several described having memorized concepts before an examination but becoming confused when questions required them to interpret a narrative and decide which concept or reasoning operation was relevant. One student explained that the concepts had been memorized, yet the story-like question was unfamiliar and the meaning of HOTS itself was not understood.

The teacher confirmed that HOTS, MOTS, and LOTS terminology was not explicitly taught as content. Higher-order items had been included in worksheets as practice, but students had not received a systematic explanation of how to unpack the demand of an item. The empirical issue was therefore not that teachers should teach test labels for their own sake. Rather, students needed guided experience in recognizing evidence, identifying what a question asks them to do, and building an answer from a case.

The source data also indicate variation in student readiness. The teacher described a small group of students as able to process difficult material more quickly, whereas others struggled when tasks moved to C4–C6 levels. A uniform jump in task complexity consequently amplified existing differences in participation and literacy.

Long school days and late lessons narrowed students' attention

The fourth barrier concerned temporal organization. The school operated a full-day schedule beginning early in the morning and continuing until approximately 16:00. Sociology for one focal class was scheduled late in

the day. Student accounts consistently associated the later period with tiredness, sleepiness, and reduced concentration. The teacher also described lower physical energy after teaching earlier classes.

The data show that fatigue was relational: students arrived at the sociology lesson after many hours of school, while the teacher arrived after substantial prior teaching. A pedagogical strategy that might require sustained questioning, monitoring of groups, and feedback was therefore implemented at a time when both sides had fewer attentional resources. Outside-school responsibilities intensified the problem for some students, including helping family businesses after school and sleeping late before an early start the next morning.

Infrastructure and thermal comfort constrained media use and concentration

The fifth barrier was material. Although projectors were available, electrical connections were not always functional or convenient enough to support regular use. The teacher described difficulty connecting classroom equipment to limited power outlets. This reduced the feasibility of varying visual and digital media when the teacher wanted to supplement explanation or problem-based tasks.

Classroom comfort was an equally concrete issue. Students described a hot room, limited fan function, and windows that could not be opened properly. One student summarized the problem as a class that became hot because only one of two fans worked; another described the room becoming stuffy by midday and making concentration difficult. A third connected the heat in the last sociology period with sleepiness and using books as hand fans.

These accounts are analytically important because critical reasoning is attention-intensive. Physical conditions also interacted with scheduling: the hottest and most tiring part of the day coincided with a lesson that required analysis.

The barriers formed a literacy-assessment feedback loop

The archived evidence also shows that literacy routines and assessment difficulty were mutually reinforcing rather than independent problems. Students who rarely used additional reading sources had fewer opportunities to compare claims, identify relevant evidence, or restate an argument in their own words. When these students later encountered longer case-based HOTS items, the difficulty was not only the cognitive level of the question. They also had to decode the stimulus, identify the sociological issue, separate relevant from irrelevant information, and formulate a conclusion. Weak reading routines therefore reduced the very practice needed to interpret higher-order assessment tasks.

This pattern is visible in the contextual test record. Across 99 Grade XI students, correct responses on four higher-order items were 32.3%, 45.5%, 31.3%, and 32.3%. These percentages are not a standardized measure of the Pancasila Student Profile and should not be interpreted as a psychometric score of critical reasoning. They are nevertheless useful classroom indicators because the items required students to classify causes, relate visual information to a social-problem statement, and evaluate whether a proposition matched a sociological case. The low success rates converged with interview evidence about difficulty understanding long questions and with observations of students reproducing textbook wording rather than synthesizing information.

The result suggests a feedback loop: limited literacy practice makes complex questions harder to interpret; repeated difficulty can then encourage students to depend on peers or search for immediate answers rather than persist with independent reasoning. Ratnawati et al. (2024) and Fajriyah et al. (2024) similarly argue that critical reasoning must be translated into observable indicators and learning materials rather than assumed from curriculum adoption. In the present case, assessment exposed the absence of sufficient rehearsal opportunities before it functioned as an evaluation of reasoning.

Discussion

The five barriers formed one ecology of opportunity to learn

The central contribution of the reanalysis is that the five barriers should not be treated as independent causes. They formed an ecology of opportunity to learn. Weak reading routines reduced the amount and quality of information students brought into a problem task. Uneven group participation meant that the students with the greatest literacy difficulty could avoid some of the reasoning work. When higher-order questions later required independent processing, those students had less practice. Fatigue and discomfort further reduced the likelihood that teachers could sustain differentiated support at the point where it was most needed.

This ecological reading is consistent with the structure of the critical-reasoning dimension itself. Obtaining and processing information precedes analysis, evaluation, reflection, and decision making (Irawati et al., 2022). Studies of critical-reasoning learning materials likewise show that the dimension must be embedded in specific activities rather than assumed to emerge from curriculum exposure (Ernawati & Rahmawati, 2022; Fajriyah et al., 2024; Sadiyah et al., 2024). In the present case, the difficulty was not the absence of a curricular intention; it was the discontinuity among the activities that should have formed a progression.

The ecology perspective also prevents a deficit interpretation of students. Describing students as lazy or weak readers may summarize visible behavior, but it does not explain how classroom systems reproduce that behavior. If reading has little consequence for group success because one member can complete the task, the environment does not strongly reinforce individual reading. If assessment abruptly demands independent analysis, the gap only becomes visible at the end.

From active-learning labels to distributed cognitive participation

Problem-based learning remains appropriate for sociology because social problems provide authentic material for analysis. The finding does not imply that PBL failed as a model; it shows that implementation quality matters. Research on active sociology learning similarly suggests that participation and structured engagement are central to the development of critical thinking (Hasnawati et al., 2023; Maulidah & Yunus, 2023). The practical unit of improvement is therefore not simply 'use PBL more often' but 'design PBL so that every student performs identifiable reasoning operations.'

A distributive design can use individual pre-reading, short written claims before group work, rotating roles, evidence cards, individual exit tickets, or random selection of group members to explain the reasoning. These mechanisms do not eliminate collaboration. They ensure that collaboration does not allow cognitive outsourcing. The teacher can then use differences among individual responses to identify which students need scaffolding.

Monitoring distributed reasoning is more demanding than checking a single group product. Schools that expect critical reasoning therefore need to protect planning time, provide reusable task structures, and avoid positioning teacher innovation as an individual moral obligation. Capacity-building and schedule design are organizational responsibilities.

Assessment literacy should be built before high-stakes HOTS use

The assessment findings suggest a need for alignment. Higher-order items are educationally meaningful when they extend the reasoning students have already practised. They are less informative when students encounter the required operation only during tests. Work on critical-reasoning diagnostic assessment shows the value of making indicators explicit and using assessment to inform support (Ratnawati et al., 2024; Wahyuni & Handayani, 2024).

In sociology, alignment can be constructed through a progression: identify facts and concepts in a short case; distinguish evidence from opinion; explain a causal relationship; compare two interpretations; evaluate a proposed response; and formulate a conclusion with justification. Once these operations become familiar, longer HOTS items measure transfer rather than unfamiliarity with the task form.

The implication is not to coach students narrowly for tests. Assessment literacy here means understanding the intellectual action expected by the discipline. Students learn what it means to analyze a social phenomenon and how such analysis differs from copying a definition.

Time and infrastructure are part of pedagogy, not background conditions

Research on classroom comfort and study-time concentration supports treating physical and temporal conditions as part of the learning system rather than as peripheral complaints (Duminguu et al., 2023). The present data show a convergence of late scheduling, heat, inadequate ventilation, and teacher fatigue. Each factor can reduce interaction, but together they create a predictable low-attention period.

This finding has a practical implication for school management. Cognitively demanding lessons should not systematically be placed in the least favorable time slots for the same class. Rotating schedules, repairing ventilation and electrical access, and ensuring functional media may contribute to critical reasoning as much as adding another instructional model. Such improvements do not replace pedagogy; they make ambitious pedagogy feasible.

The same argument applies to digital resources. Technology becomes useful when its instructional function is specified. A phone can support evidence searches and comparison of sources, but it can also fragment attention. The relevant design question is what students must produce from their digital activity and how that production is checked.

An adoption-enactment gap in the diffusion of a curricular innovation

The analytical contribution of this secondary analysis is therefore relational rather than enumerative: the earlier publication identified barriers, whereas the present article explains how those barriers reinforce one another and jointly shape opportunities to practise critical reasoning.

Rogers' (2003) framework helps synthesize the case. At the institutional level, the school had adopted the Merdeka Curriculum and recognized critical reasoning as a desirable outcome. At the enactment level, however, the expected practices were complex, their classroom consequences were not always immediately observable, and existing routines—memorization, group dependence, long schedules, and uneven media access—were only partly compatible with the new expectation.

Diffusion should therefore not be measured by whether the language of the innovation appears in school documents. Implementation depth is visible in repeated practice. A school has substantively enacted critical reasoning when students routinely encounter multiple sources, justify claims, receive feedback on reasoning, revise interpretations, and perform these actions across different tasks. The present case indicates that formal adoption preceded this deeper routinization.

This interpretation extends the original publication (Yulindra & Fernandes, 2024). The previous article identified barriers; the secondary analysis specifies their mechanism and interdependence. The study contributes the concept of an ecology of opportunity to learn: curriculum, pedagogy, assessment, time, and physical conditions jointly determine whether critical reasoning is merely named or actually practised.

Designing a minimum ecology for critical reasoning in sociology

The practical implication is not that sociology teachers need a completely new model. The evidence points instead to a minimum ecology that can be built into ordinary lessons. A short pre-reading routine can establish a common information base; a case prompt can require every student to record an individual claim before group discussion; group roles can rotate responsibility for evidence, counterargument, and synthesis; and one HOTS-style item can be unpacked together before similar questions are used independently. Such routines distribute cognitive responsibility more evenly than asking a group to 'discuss' without specifying who must do what thinking.

This recommendation is consistent with studies showing that discussion and technology-supported learning can support critical thinking when students are required to articulate reasoning rather than merely participate nominally (Hasnawati et al., 2023; Maulidah & Yunus, 2023). Recent Pancasila Student Profile research also emphasizes the need for varied media, explicit indicators, and repeated opportunities to practise critical reasoning (Maielfi et al., 2024; Sari et al., 2024). The case therefore refines the curriculum-implementation debate: the central implementation unit is not the label of the learning model but the recurring reasoning routine experienced by each learner.

Rogers' framework clarifies why this distinction matters. Adoption becomes visible when a school can name the innovation and incorporate it into documents; enactment becomes visible when teachers and students repeatedly perform the practices implied by the innovation. In this case, critical reasoning had institutional legitimacy but incomplete routinization. The scientific contribution is thus an ecology-of-enactment explanation: literacy, distributed participation, assessment literacy, time, and physical conditions form a coupled system that either expands or narrows students' opportunity to reason.

The emphasis on purposeful media and learning routines is also consistent with broader syntheses showing that digital tools and instructional video are most valuable when design decisions are tied to specific cognitive work rather than technology use alone (Hillmayr et al., 2020; Noetel et al., 2021).

The interpretation of the classroom indicators also follows the established distinction between recalling information and analysing or evaluating it; earlier Indonesian work similarly found substantial difficulty on critical-thinking tasks when learners had limited opportunities to practise higher-order reasoning (Nuryanti et al., 2018). The curriculum context itself is anchored in the national Merdeka Curriculum implementation framework issued in 2022 (Kementerian Pendidikan, Kebudayaan, Riset, dan Teknologi, 2022).

Limitations

The study is based on one school and one subject context and does not support statistical generalization. The numerical records are descriptive and cannot establish causal relationships between the five barriers and achievement. The secondary analysis is constrained by what was documented in the original 2023 corpus and does not include a standardized pre-post measure of critical reasoning. Future research should combine longitudinal classroom observation, student work artifacts, validated reasoning measures, and comparative school cases.

Conclusion

Critical reasoning at SMA Negeri 7 Padang was constrained not by a single student characteristic but by an interconnected learning ecology. Weak literacy routines, uneven cognitive participation in group problem solving, limited familiarity with the reasoning demanded by HOTS items, full-day fatigue, and classroom infrastructure and comfort interacted to reduce opportunities for sustained analysis.

The case demonstrates an adoption-enactment gap. The critical-reasoning dimension had been formally adopted as a curriculum objective, but the routines and conditions needed to make reasoning an everyday practice were not yet consistently distributed. Improvement therefore requires alignment across literacy, instructional design, assessment, scheduling, teacher capacity, and physical learning conditions rather than isolated remediation directed at students.

For sociology learning, the most practical priority is to make reasoning visible and individually accountable: students should read evidence, produce an initial interpretation, discuss it, justify a claim, receive feedback, and revise a conclusion.

Declarations

Author contribution

Author 1: developed the main research idea and objectives, designed the research methodology, conducted data collection and investigation, performed the data analysis, and prepared the first draft of the manuscript. Author 2: contributed to the development and implementation of the research methodology, supported the data collection and investigation process, and reviewed and revised the manuscript to improve its academic quality, clarity, and structure, provided input into the research concept and direction, supervised and guided the overall research process, reviewed and improved the manuscript, and contributed to obtaining financial support or research funding

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Conflict of Interest

The authors declare that there is no conflict of interest related to the publication of this article.

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References

- Creswell, J. W., & Poth, C. N. (2018). *Qualitative inquiry and research design: Choosing among five approaches (4th ed.)*. SAGE Publications.
- Dumingu, P. A., Mulyadi, R., & Ishak, T. (2023). Kenyamanan termal siswa pada ruang kelas (Studi kasus: SMAN 08 Gowa). *Jurnal Penelitian Enjiniring*, 27(1), 1–6. <https://doi.org/10.25042/jpe.052023.01>
- Ernawati, Y., & Rahmawati, F. P. (2022). Analisis Profil Pelajar Pancasila elemen bernalar kritis dalam modul belajar siswa literasi dan numerasi jenjang sekolah dasar. *Jurnal Basicedu*, 6(4), 6132–6144. <https://doi.org/10.31004/basicedu.v6i4.3181>
- Fajriyah, K., Wijayanti, A., Kiswoyo, & Nugroho, B. A. (2024). Pengembangan bahan ajar Pendidikan Pancasila berbasis Profil Pelajar Pancasila dimensi bernalar kritis dan kreatif. *Edukasi: Jurnal Penelitian dan Artikel Pendidikan*, 16(1), 193–204. <https://doi.org/10.31603/edukasi.v16i1.11392>
- Hasnawati, N., Sukardi, & Nursaptini. (2023). The effect of the ARIAS learning model assisted by Google Classroom media on students' critical thinking skills in sociology subjects. *Jurnal Pembangunan Pendidikan: Fondasi dan Aplikasi*, 11(1), 1–10. <https://doi.org/10.21831/jppfa.v11i1.58232>
- Hillmayr, D., Ziernwald, L., Reinhold, F., Hofer, S. I., & Reiss, K. M. (2020). The potential of digital tools to enhance mathematics and science learning in secondary schools: A context-specific meta-analysis. *Computers & Education*, 153, 103897. <https://doi.org/10.1016/j.compedu.2020.103897>
- Ifliadi, I., Nazurty, & Sukendro. (2024). Penerapan Profil Pelajar Pancasila dimensi bernalar kritis pada pembelajaran IPAS kelas IV sekolah dasar. *Pendas: Jurnal Ilmiah Pendidikan Dasar*, 9(2), 3591–3600. <https://doi.org/10.23969/jp.v9i2.13880>
- Irawati, D., Iqbal, A. M., Hasanah, A., & Arifin, B. S. (2022). Profil Pelajar Pancasila sebagai upaya mewujudkan karakter bangsa. *Edumaspul: Jurnal Pendidikan*, 6(1), 1224–1238. <https://doi.org/10.33487/edumaspul.v6i1.3622>
- Kementerian Pendidikan, Kebudayaan, Riset, dan Teknologi. (2022). Keputusan Menteri Pendidikan, Kebudayaan, Riset, dan Teknologi Republik Indonesia Nomor 56/M/2022 tentang Pedoman Penerapan Kurikulum dalam Rangka Pemulihan Pembelajaran.

- Maielfi, D., Nurpatri, Y., & Zaturrahmi. (2024). Implementasi Profil Pelajar Pancasila dimensi bernalar kritis menggunakan media video animasi. *Journal of Human and Education*, 4(4), 47–53. <https://doi.org/10.31004/jh.v4i4.1169>
- Maulidah, N. A., & Yunus, M. (2023). Penerapan metode diskusi terhadap kemampuan berpikir kritis mahasiswa pada pembelajaran sosiologi. *Dinamika Sosial: Jurnal Pendidikan Ilmu Pengetahuan Sosial*, 2(2), 234–240. <https://doi.org/10.18860/dsjpips.v2i2.2612>
- Miles, M. B., Huberman, A. M., & Saldaña, J. (2014). *Qualitative data analysis: A methods sourcebook (3rd ed.)*. SAGE Publications.
- Noetel, M., Griffith, S., Delaney, O., Sanders, T., Parker, P., del Pozo Cruz, B., & Lonsdale, C. (2021). Video improves learning in higher education: A systematic review. *Review of Educational Research*, 91(2), 204–236. <https://doi.org/10.3102/0034654321990713>
- Nuryanti, L., Zubaidah, S., & Diantoro, M. (2018). Analisis kemampuan berpikir kritis siswa SMP. *Jurnal Pendidikan: Teori, Penelitian, dan Pengembangan*, 3(2), 155–158.
- Ratnawati, V., Arofah, L., Puspitarini, I. Y. D., & Sunita, L. D. (2024). Development of a psychological scale for critical reasoning Pancasila learner profile in Phase D as a diagnostic assessment instrument in independent curriculum-based BK services. *Nusantara of Research*, 11(1), 92–101. <https://doi.org/10.29407/nor.v11i1.20025>
- Rogers, E. M. (2003). *Diffusion of innovations* (5th ed.). Free Press.
- Sadih, E., Yanti, P. G., & Tarmini, W. (2024). Implementation of critical thinking values in Grade IV Indonesian language textbooks of the Merdeka Curriculum: A content analysis in the application of the Pancasila Student Profile. *Jurnal Kependidikan*, 10(4), 1537–1547. <https://doi.org/10.33394/jk.v10i4.12977>
- Sari, A. P., Rochgiyanti, & Susanto, H. (2024). Hambatan serta dampak pelaksanaan Profil Pelajar Pancasila dimensi bernalar kritis dalam proses pembelajaran sejarah di kelas X SMA Negeri 1 Banjarmasin. *Santhet: Jurnal Sejarah, Pendidikan dan Humaniora*, 8(1), 997–1006. <https://doi.org/10.36526/santhet.v8i1.3874>
- Wahyuni, T. W., & Handayani, R. (2024). Analisis Profil Pelajar Pancasila elemen bernalar kritis siswa pada materi barisan dan deret aritmatika kelas X SMAN 1 Sungkai Utara tahun ajaran 2023/2024. *Griya Cendikia*, 9(2), 525–536. <https://doi.org/10.47637/griyacendikia.v9i2.1177>
- Yulindra, M., & Fernandes, R. (2024). Faktor penghambat pembentukan Profil Pelajar Pancasila dimensi bernalar kritis dalam pembelajaran sosiologi. *Naradidik: Journal of Education & Pedagogy*, 3(1), 107–115. <https://doi.org/10.24036/nara.v3i1.185>