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# The Impact of the Independent Curriculum on Elementary Students' Critical Thinking and Creativity

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**ABSTRACT**

This research aims to determine the impact of the Independent Curriculum on the critical thinking skills and creativity of elementary school students. It is a quantitative research study that uses survey methods and questionnaires to collect data. Data analysis includes descriptive analysis, analysis of variance, and determination tests. The results of the data analysis show an Independent Curriculum implementation score of 90.15 with a very high category, a critical thinking score of 37.89, and a creativity score of 50.85 with a low category. Hypothesis testing shows that the implementation of the independent curriculum has a positive effect on students' critical thinking and creativity. The Independent Curriculum contributes 67.4% to critical thinking and 49.4% to creativity. Although the implementation of the Independent Curriculum is classified as very high, the increase in students' critical thinking and creativity is classified as low. As a suggestion, teachers must improve their skills in implementing learning to develop students' critical thinking and creativity, and educational institutions must synergize with stakeholders to improve teacher capacity with sustainable programs and provide facilities and infrastructure that support the implementation of the Independent Curriculum in the Loura District.



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## 1. INTRODUCTION

Implementing teacher duties in 21st-century education and transferring knowledge focuses on developing important skills needed today to solve real-life problems. The Indonesian government responded to this need by launching the Independent Curriculum. The government wants to provide a more flexible approach to teachers and students in learning [1]. Through this curriculum, teachers can adjust learning activities according to local wisdom so that students experience a more contextual and impactful learning process [2]. The independent curriculum encourages increased student problem-solving, creativity, and critical thinking abilities through project-based and problem-based learning [3], [4]. In

this context, teachers need to be thoroughly prepared to master the concepts and skills to realize the Independent Curriculum in accordance with educational principles [5], [6]. Through learning approaches such as project-based learning, thematic integration, and differentiated learning, students can develop high-level thinking skills and become more creative [7], [8].

It is known that the Independent Curriculum can succeed in improving 21st-century skills because it is supported by teacher competence, adequate educational resources, support from schools and the government [9], and teacher training that is carried out periodically and regularly [10], [11]. The Independent Curriculum makes students the main subject in the learning process, provides a broad learning experience, and prioritizes the development of student potential [12], [13]. Learning Outcomes, which are then described specifically through learning objectives supported by active and contextual learning strategies, facilitate students to develop critical thinking skills[14]. Project and problem-based learning, which are the main strategies in the Independent Curriculum, are expected to increase capacity in analyzing, evaluating, and solving problems [15], [16], [17].

In today's fast-paced digital era and amid increasingly complex global challenges, critical thinking and creativity have become essential skills for students. Critical thinking enables students to analyze information thoroughly, evaluate arguments objectively, and make logical decisions. Many experts define critical thinking as a cognitive ability encompassing several key components. These include the skills to formulate questions, analyze and synthesize information logically and reflectively, clarify and evaluate various types of information, present evidence, make appropriate decisions, solve problems, assess situations based on existing evidence, and draw valid conclusions [18], [19], [20]. On the other hand, creativity encourages students to develop innovative solutions to problems, generate new ideas, and adapt to rapidly changing circumstances. Creativity is the ability to produce original, imaginative, and expressive works, theories, techniques, and ideas [21]. Sternberg and Halpern offer a triarchic theory of creativity consisting of three abilities: analytical, creative, and practical ability [22]. Similarly, Torrance defines creativity as the capacity to think in an open, flexible, and original manner when solving problems. He also developed a creativity test focusing on four main aspects: fluency, flexibility, originality, and elaboration [23]. Combining these two skills can significantly enhance students' learning outcomes, prepare them to compete effectively in the workforce, and enable them to contribute meaningfully to societal progress. Therefore, schools must create ample opportunities and an environment that fosters the development of critical thinking and creativity skills throughout the learning process.

The Independent Curriculum offers a progressive and innovative learning approach, but its implementation in many elementary schools in Loura District still faces various challenges [24], [25], [26]. Teachers often experience difficulties due to limited resources, lack of training, and low understanding of new pedagogical approaches [27], [28]. As a result, the expected results have not been achieved optimally, especially in improving students' critical thinking skills and creativity [29]. Loura District faces several educational challenges, especially in developing critical thinking skills and creativity in elementary schools. Although the Independent Curriculum has been implemented since 2022,

elementary school teachers still use conventional methods that do not encourage active student participation, thus risking inhibiting their readiness to face the challenges of the times. The learning process is still centered on teachers, so teachers become more dominant while students are less active and collaborative. Most teachers do not yet know the application of learning strategies that develop 21st-century skills [30]. Tanggur specifically describes the major challenges of implementing the independent curriculum from the aspects of compiling learning tools, implementing differentiated learning, and diagnostic and formative assessments [31].

The research question centers on two main aspects: the description of critical thinking skills and creativity among the Loura District elementary school students and the Independent Curriculum's impact on these skills. This study aims to describe the critical thinking and creativity levels of elementary school students in the Loura District, assess the effects of implementing the Independent Curriculum on these skills, and determine the percentage of its impact on critical thinking and creativity.

The novelty of this study is evident from the condition of the Loura District as an area that is geographically and socioculturally unique. There are still very few scientific studies that highlight the implementation of the current Independent Curriculum, making this study a source of new contextual insights relevant to the educational needs of Sumba as a frontier, outermost, and disadvantaged area in Indonesia [32], [33]. This study comprehensively combines aspects of critical thinking and creativity to provide a more complete picture of the impact of the implementation of the Independent Curriculum on the holistic development of student potential. The findings of this study significantly contribute to enhancing the quality of learning practices in elementary schools in the Loura District. They serve as a reference for local governments in shaping educational policies and provide valuable insights for elementary school teachers, encouraging them to be more innovative and creative in their implementation of the Independent Curriculum.

## 2. METHOD

### 2.1. Research Design

This study uses a quantitative approach, with a survey method for data collection, which is then analyzed statistically to draw objective conclusions [34]. This study was designed to examine the impact of implementing the Independent Curriculum on critical thinking and creativity based on data from teachers in elementary schools that have adopted the Independent Curriculum. The research design is presented in Figure 1 below.

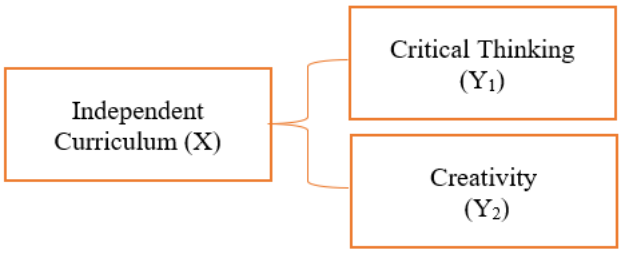


Figure 1. Research Design

This study examines the variables Independent Curriculum (X), critical thinking ($Y_1$), and creativity ($Y_2$). As illustrated in Figure 1, this study assesses the impact of implementing the Independent Curriculum (X) on the critical thinking ($Y_1$) and creativity ($Y_2$) of elementary school students in a partial manner. Indicators of the Independent Curriculum variable include flexibility in learning, implementation of Pancasila student profile strengthening projects, integrated learning, and diagnostic and summative assessments. Meanwhile, critical thinking variable indicators consist of the ability to analyze, evaluate, draw conclusions, and solve problems. The indicators of the creativity variable include fluency in conveying ideas, flexibility, originality, and elaboration ability. The research design and the research flow are seen in Figure 2 below.

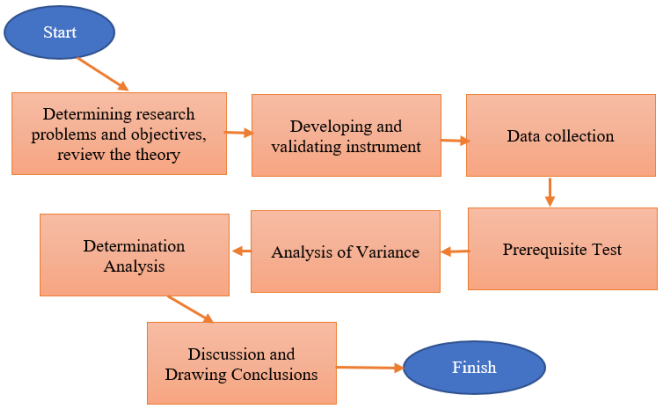


Figure 2. Research flow

Referring to Figure 2, the initial stages of this study began with formulating the problem and determining the research objectives. Furthermore, the researcher developed a research instrument that was adjusted to the research variables and the instrument validation process. Using valid and reliable instruments, data were collected from school teachers who were the research respondents. The data obtained were then analyzed through several stages: descriptive analysis, prerequisite analysis, hypothesis testing using Analysis of Variance (ANOVA), and determination analysis. The data from the analysis were discussed in depth in the discussion section, and conclusions were drawn as answers to the problem formulation.

## 2.2. Population and Sample

The study's population included 243 elementary school teachers from 23 schools in the Loura District of Southwest Sumba Regency [35]. The sample size was determined using the Slovin formula [36], with a margin of error set at 5%, resulting in a sample of 151 participants. The sample comprised homeroom teachers for grades I to VI, who taught all subjects in their respective classes. The sample was selected using simple random sampling to ensure all elementary school teachers in Loura District have an equal opportunity to participate in the study.

### 2.3. Data Collection and Research Instruments

This study employs a questionnaire to collect data. The questionnaire is designed using a Likert Scale, featuring four alternative responses: Very High (4), High (3), Moderate (2), and Low (1). Instrument validation consists of content validation, validity tests, and reliability tests. Content validation by education experts (doctorate degrees in education). Meanwhile, 22 elementary school teachers who were not part of the research sample conducted the validity and reliability tests. The results of the content validation by the education experts included revisions to the wording to make it more practical and understandable, adjustments to ensure the instrument content aligns with the research indicators, and modifications to several items found to be confusing. Based on the results of the validity and reliability tests, out of 62 questionnaire items, 6 were found to be invalid and unreliable. Therefore, 56 items met the criteria for validity and reliability and were used as instruments in this study.

### 2.4. Data Analysis

The stages of data analysis include descriptive analysis, prerequisite tests, Analysis of Variance test as an instrument for hypothesis testing, and simple linear regression analysis. Descriptive analysis is needed to describe research data, especially the average value of each research variable. Prerequisite tests are conducted to determine the validity and reliability of the instrument. The analysis of variance is used to determine the significance of hypothesis testing. Regression analysis was used to identify and explain the contribution of Independent Curriculum variables to students' critical thinking and creativity skills. The guidelines supporting this data description refer to the Meryastiti [37], as presented in Table 1 below.

Table 1. Guidelines for Data Description

| Interval | Category |
|---|---|
| 85 - 100 | Very High |
| 65 - 84 | High |
| 55-64 | Moderate |
| 35 - 54 | Low |
| < 35 | Very Low |

This study presents two hypotheses regarding the impact of the Independent Curriculum on critical thinking and creativity. The null hypothesis ($H_0$) states that the Independent Curriculum has no significant effect on students' critical thinking and creativity. On the contrary, the alternative hypothesis ($H_1$) states that the Independent Curriculum significantly affects students' critical thinking and creativity. To evaluate these hypotheses, we will use an ANOVA test. If the p-value obtained is less than 0.05, we will reject $H_0$ and accept $H_1$, which indicates that the Independent Curriculum has a significant impact on the critical thinking and creativity of elementary school students in Loura District. Conversely, if the p-value is equal to or greater than 0.05, we will accept $H_0$ and reject $H_1$, which indicates no significant impact on the critical thinking and creativity of elementary school students in Loura District.

## 3. RESULTS AND DISCUSSION

### 3.1. Results

The description of the results of this study presents descriptive statistics in the form of average values, highest and lowest scores, and standard deviations. The results of the data description are shown in Figure 3 below.

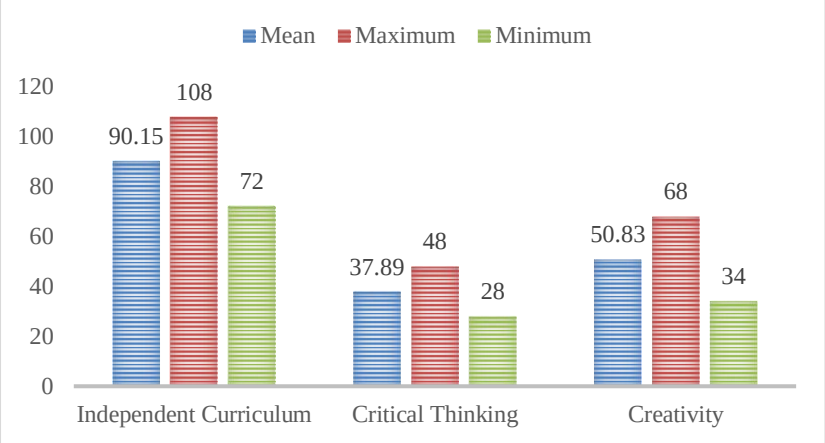


Figure 3. Data Description

Based on the data presented in Figure 3, the average score of the Independent Curriculum reached 90.15 and was categorized as very high. However, students' average critical thinking ability only reached 37.89, and the average creativity was 50.83, which was included in the low category. This finding indicates that although the implementation of the curriculum has been running optimally, it has not fully contributed significantly to improving students' critical thinking and creativity. Furthermore, Table 2 shows the prerequisite analysis.

Table 2. Prerequisite Test Results

| Normality (Asymp. Sig. (2-tailed) | Linearity (Deviation from Linearity) | |
|---|---|---|
| | Critical Thinking | Creativity |
| 0.07 | 0.338 | 0.058 |

As in Table 2, data normality analysis shows a significance value 0.07. A significance value greater than 0.05 indicates that the data meets the normal requirements. Based on the Linearity Deviation, 0.338 was obtained for critical thinking and 0.058 for creativity. Both are greater than 0.05, which means the data meet the linearity requirements. Table 4 below presents the results of the Analysis of Variance (ANOVA) concerning the Independent Curriculum and critical thinking.

Table 4. Independent Curriculum and Critical Thinking

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 2158.667 | 1 | 2158.667 | 307.603 | .000[b] |
| | Residual | 1045.637 | 149 | 7.018 | | |
| | Total | 3204.305 | 150 | | | |

a. Dependent Variable: Critical Thinking

b. Predictors: (Constant), Implementation of Independent Curriculum

Table 4 shows a significance value of 0.000, which is below the threshold of 0.05. This indicates a significant impact of the Independent Curriculum on students' critical thinking skills. These results support the assumption that student-centered learning processes, as promoted in the Independent Curriculum, will more effectively stimulate reflective, analytical, and evaluative thinking. The quality of the implementation of the independent curriculum impacts not only the dimensions of basic knowledge but also essential thinking skills in today's education. The results of the Analysis of Variance (ANOVA) of the Independent Curriculum and Creativity are presented in Table 5 below.

Table 5. Independent Curriculum and Creativity

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 4096.55 | 1 | 4096.55 | 145.527 | .000[b] |
| | Residual | 4194.311 | 149 | 28,15 | | |
| | Total | 8290.861 | 150 | | | |

a. Dependent Variable: Creativity

b. Predictors: (Constant), Implementation of Independent Curriculum

Based on Table 5, a significance value of 0.000 was obtained, below the significance of 0.05. This finding shows that the implementation of the Independent Curriculum has a significant impact on student creativity. Furthermore, determination analysis is conducted using simple linear regression by calculating the determination coefficient, denoted as $R^2$ (R-squared). This coefficient represents the proportion of the Independent Curriculum that impacts elementary school students' critical thinking and creativity. The results of the determination analysis are presented in Table 6 below.

Table 6. Determination Analysis

| Independent Curriculum and | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| Critical Thinking | 0.821 | 0.674 | 0.671 | 2.649 |
| Creativity | 0.703 | 0.494 | 0.491 | 5.306 |

Based on Table 6, the correlation coefficient of Independent Curriculum and critical thinking is 0.821, which indicates a very strong positive relationship between Independent Curriculum and critical thinking. The R Square value of 0.674 indicates that 67.4% of the proportion of the impact of Independent Curriculum on critical thinking, while 32.6% is

other factors. Furthermore, the correlation coefficient value of the Independent Curriculum and creativity is 0.703, which indicates a strong relationship between the Independent Curriculum and creativity. The R Square value of 0.494 indicates that the proportion of the impact of the Independent Curriculum on creativity is 49.4%, while 50.6% is by other factors.

### 3.2. Discussions

The research data shows that the implementation of the Independent Curriculum has reached a very high category, but this has not yet significantly improved the critical thinking skills and creativity of elementary school students in the Loura District. The statistical analysis results show that the p-value is below the threshold of 0.05, which leads us to reject the null hypothesis ($H_0$) and accept the alternative hypothesis ($H_1$). Implementing the Independent Curriculum significantly impacts the critical thinking skills and creativity of elementary school students in the Loura District. This condition shows a gap between curriculum implementation and substantive learning outcomes. Several factors that can explain this phenomenon include the following: First, the implementation of the independent curriculum is still administrative and formalistic.

In many cases in elementary schools in Loura District, the implementation of the Independent Curriculum is measured based on the fulfillment of administration and compliance with the curriculum structure, such as the preparation of teaching materials, the implementation of the Pancasila student profile strengthening project, and routine assessments. The fulfillment of this curriculum administration is the main concern of school supervisors from the Education and Culture Office. They strictly examine the learning plans so that they ignore the learning process in the classroom. The success of the implementation of this curriculum administratively does not at all reflect the transformation in the teaching and learning process that truly fosters critical thinking skills and creativity. The Administrative burdens on teachers waste time, increase stress, reduce collaboration, hinder innovation, and ultimately decrease the effectiveness of classroom learning [38], [39]. Teachers teach by following the curriculum procedures without fundamentally changing the learning approach. Suluh [40] researched Southwest Sumba Regency and found that teachers' understanding of the Independent Curriculum is still not optimal regarding its fundamental concepts and implementation strategies. Most teachers in Loura District, especially those working for a long time, still view the Independent Curriculum as something similar to the 2013 Curriculum. They find it difficult to understand the concept and implementation of the Independent Curriculum, especially in terms of digital literacy and adaptation to technology, which help develop students' critical thinking skills and creativity [41]. This perception can hinder the effective implementation of the Independent Curriculum to improve students' critical thinking skills and creativity.

Second, the teacher's capacity to implement innovative learning is crucial. A teacher's ability to utilize learning strategies that promote critical and creative thinking is vital for successfully implementing the Independent Curriculum in elementary schools. Many teachers still rely on conventional approaches [42] that focus solely on cognitive outcomes [43]. As a result, they often provide limited opportunities for students to explore ideas, ask

reflective questions, and make their own decisions during the learning process. While the curriculum supports innovative practices, its effectiveness can be compromised if teachers do not understand or cannot apply a learning approach that fosters higher-order thinking skills. Third, a learning culture that does not support self-expression and alternative thinking: The learning environment in elementary schools, both in terms of physical and institutional culture, does not fully provide a conducive space for students to express ideas freely, explore, and experiment in the learning process. In this condition, students' creativity and critical thinking skills are hampered, especially if the learning approach still focuses on memorization, compliance with instructions, and achieving conventional assessment targets. According to Mandailina and Syaharuddin [44], a learning environment, both in terms of physical and institutional culture, that is less conducive can hinder the achievement of 21st-century skills such as critical thinking and creativity. A learning environment supported by school policies is important in increasing student creativity. Supporting this opinion, Nilimaa [45] stated that the assessment method should actively engage students in inquiry-based learning and focus on developing problem-solving skills. This approach to assessment is crucial for effective education and cultivating knowledgeable learners.

Fourth, the duration and consistency of the implementation of the Independent Curriculum: As a relatively new policy in the Indonesian education system, the implementation of the Independent Curriculum, especially in Loura District, still faces various challenges and obstacles, both from the side educators and from schools as educational institutions. Therefore, the influence of this curriculum on the development of critical thinking and student creativity cannot be observed in a short period. Yufani [46] noted that implementing the independent curriculum has faced challenges. Many teachers are still confused about the new curriculum, lack the necessary skills to implement it effectively and face inadequate school facilities. As a result, implementing this curriculum has not improved the quality of student learning and the achievement of learning outcomes as intended. The transformation of the learning paradigm promoted by the Independent Curriculum demands a continuous process, consistent implementation, increased teacher capacity through training, development of contextual teaching materials, and an evaluation system [47] that supports the development of critical thinking skills and student creativity. Implementing the Independent Curriculum in Loura District still requires significant time to enhance elementary school students' critical thinking skills and creativity. To achieve this, teachers must have opportunities to develop their skills, schools should improve their facilities, and the government should train teachers.

Fifth, there is a lack of ability to compile assessment instruments that measure critical thinking skills and creativity authentically: The assessment system that still emphasizes written or objective assessments can hinder the authentic measurement of students' critical thinking skills and creativity [48]. Without these assessment instruments, teachers will find it difficult to objectively assess critical thinking and creativity. Elementary school teachers in the Loura District lack training in developing assessment tools that evaluate high-level thinking skills. The assessments created by these teachers primarily measure basic abilities, such as remembering and explaining learning materials, rather than critical thinking and creativity.

The practical implications of this study's results indicate that the success of the Independent Curriculum's implementation should not be measured solely by formal program completion. Instead, it should be evaluated based on tangible changes in the learning process and student outcomes. Consequently, further interventions are necessary to bridge the gap between curriculum policies and their impacts on elementary school classrooms. These interventions should include focused teacher training on high-order thinking-based learning, providing resources that foster exploration and creativity, and reforming assessment systems to better evaluate critical and creative thinking. Therefore, the statistical significance highlighted in this study should be viewed as the beginning of more profound practical actions rather than the conclusion of the curriculum evaluation process. Only through the synergy of quantitative statistical findings and qualitative changes in the classroom can the Independent Curriculum fulfill its goal of developing students who can think critically, creatively, and independently in their learning.

## 4. CONCLUSION

Based on these findings, the conclusion regarding implementing the Curriculum in Elementary Schools throughout Loura District has been running very well, especially regarding procedures and administration. However, implementing the independent curriculum has not improved 21st-century skills, especially critical thinking and student creativity. This condition indicates that implementing the independent curriculum has not explored essential and meaningful aspects for students. Various conditions contribute to this reality, such as the readiness and capacity of teachers to implement learning strategies that encourage critical thinking skills and creativity, which are not yet adequate. The transformation of the independent curriculum still requires time and serious support, such as ongoing teacher training. External conditions must be handled properly to improve students' academic achievement significantly. Therefore, this research suggests gradual and ongoing teacher training so that teachers become more skilled at designing and implementing the independent curriculum. Teachers do not need to waste much time working on the administration of the independent curriculum but rather focus more on designing contextual learning plans to make their implementation more meaningful for students. The school, as an educational institution, needs to ensure the availability of adequate learning facilities. Stakeholders need to increase synergistic cooperation to support the holistic transformation of the independent curriculum in elementary schools in the Loura District.

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## REFERENCES

[1] Rokayah, N. Hermita, R. Vebrianto, M. I. Mujtahid, U. Sulistiyo, and A. Samsudin, “Reflection of Indonesian Educators on the Implementation of the Merdeka Curriculum,” *Mimb. Sekol. Dasar*, vol. 10, no. 3, pp. 684–700, 2023, doi: 10.53400/mimbar-sd.v10i3.64864.

[2] I. S. Pramesworo, I. Fathurrochman, D. Sembing, B. M. A. . A. Bangkara, and D. Sudrajat, “Relevance

Between Blended Learning and Students' Independent Learning Curriculum : An Overview of Digital Age Education, Student and Teacher Engagement, Technological Resources," *J. Kependidikan J. Has. Penelit. dan Kaji. Kepustakaan di Bid. Pendidikan, Pengajaran dan Pembelajaran*, vol. 9, no. 3, pp. 858–869, 2023, doi: 10.33394/jk.v9i3.8320.

[3] J. M. Allison, "Project Based Learning to Promote 21St Century Skills: An Action Research Study," Virginia: The College of William and Mary in Virginia, 2018. doi: 10.25774/w4-m5xm-wc95.

[4] A. Suradika, H. I. Dewi, and M. I. Nasution, "Project-Based Learning and Problem-Based Learning Models in Critical and Creative Students," *J. Pendidik. IPA Indones.*, vol. 12, no. 1, pp. 153–167, 2023, doi: 10.15294/jpii.v12i1.39713.

[5] P. E. Puspitasari and R. D. Utami, "Analysis of Teachers Readiness In Implementing The Independent Curriculum In Elementary Schools," *Didakt. TAUHIDI J. Pendidik. Guru Sekol. Dasar*, vol. 10, no. 2, pp. 145–156, 2023, doi: 10.30997/dt.v10i2.9761.

[6] Z. R. Dewi, A. H. Yanto, and M. I. J. Hanim, "Analisis Kesiapan Guru Sekolah Dasar dalam Mengimplementasikan Kurikulum Merdeka pada Pembelajaran," *J. Simki Pedagog.*, vol. 7, no. 1, pp. 95–105, 2024, doi: 10.29407/jsp.v7i1.552.

[7] M. F. Vistara, Rochmad, and K. Wijayanti, "Systematic Literature Review: STEM Approach Through Engineering Design Process with Project Based Learning Model to Improve Mathematical Creative Thinking Skills," *Journals, Math. Educ.*, vol. 6, no. 2, pp. 140–156, 2022, [Online]. Available: http://ejournal.umm.ac.id/index.php/MEJ%0D

[8] A. P. Putri, F. Rachmadiarti, and S. Kuntjoro, "Implementation of Project Based Learning (PjBL) Model with Differentiation Approach to Improve Critical Thinking Ability," *Int. J. Curr. Educ. Res.*, vol. 2, no. 2, pp. 140–149, 2023, doi: 10.53621/ijocer.v2i2.250.

[9] N. Kollo and O. A. Suciptaningsih, "Keterampilan Berpikir Kritis Siswa melalui Penerapan Kurikulum Merdeka," *J. Ilm. Ilmu Pendidik.*, vol. 7, no. 2, pp. 1452–1456, 2024, doi: 10.54371/jiip.v7i2.3845.

[10] C. Martinez, "Developing 21 Developing 21st century teaching skills: A Case Study of Teaching and Learning Through Project-Based Curriculum," *Cogent Educ.*, vol. 9, no. 1, pp. 1–16, 2022, doi: 10.1080/2331186X.2021.2024936.

[11] S. Widiansyah, L. Khairunisa, S. K. Dwi, S. Hamzah, and S. Alya, "Pengembangan Kurikulum Merdeka Untuk Meningkatkan Keterampilan Siswa di Abad 21," *Cendekia Pendidik.*, vol. 9, no. 4, pp. 50–54, 2024, doi: 10.9644/sindoro.v3i9.252.

[12] M. H. Ma'ruf, "Analisis Peran Kurikulum Merdeka dalam Meningkatkan Kemandirian Belajar Siswa di Era Pendidikan Kontemporer," *ANARGYA J. Ilm. Pendidik. Mat.*, vol. 7, no. 1, pp. 16–23, 2024, doi: 10.24176/anargya.v7i1.12407.

[13] K. Said and Aqodiah, "Kurikulum Merdeka: Langkah Menuju Pendidikan yang Berfokus Pada Kreativitas dan Kemandirian di Sekolah," *IBTIDA'IY J. Prodi PGMI*, vol. 9, no. 2, pp. 15–24, 2024, doi: 10.31764/ibtidaiy.v9i2.27704.

[14] H. Nisa, M. Isnaini, L. S. Utami, and Islahudin, "Collaborative Learning Effect on Improving Students' Creativity and Critical Thinking in the Independent Curriculum," *AL-ISHLAH J. Pendidik.*, vol. 15, no. 3, pp. 4038–4048, 2023, doi: 10.35445/alishlah.v15i3.3538.

[15] V. Sukacke *et al.*, "Towards Active Evidence-Based Learning in Engineering Education: A Systematic Literature Review of PBL, PjBL, and CBL." pp. 1–31, 2022. doi: 10.3390/su142113955.

[16] N. Rehman, W. Zhang, A. Mahmood, M. Z. Fareed, and S. Batool, "Fostering Twenty-First Century Skills Among Primary School Students Through Math Project-Based Learning," *Humanit. Soc. Sci. Commun.*, vol. 10, pp. 1–12, 2023, doi: 10.1057/s41599-023-01914-5.

[17] A. Setiawan, *Kurikulum Merdeka: Konsep dan Implementasi*. Jakarta: Penerbit Edukasi, 2023.

[18] H. I. Braun, R. J. Shavelson, O. Zlatkin-Troitschanskaia, and K. Borowiec, "Performance Assessment of Critical Thinking: Conceptualization, Design, and Implementation," *Front. Educ.*, vol. 5, pp. 1–10, 2020, doi: 10.3389/feduc.2020.00156.

[19] D. M. M. Sari and A. K. Wardhani, "Critical Thinking as Learning and Innovation Skill in the 21st Century," *J. English Lang. Pedagog.*, vol. 3, no. 2, pp. 27–34, 2020, doi: 10.36597/jelp.v3i2.8778.

[20] R. H. Ennis and E. Weir, *Ennis, R. H., & Weir, E. (1985). Critical Thinking and Informal Logic: A Handbook for Teachers*. Englewood Cliffs, NJ: Prentice-Hall, 1985.

[21] S. J. Byrne and S. Glasser, "Creativity as a Framework for Innovation in Dental Education," *Front. Oral Heal.*, vol. 4, pp. 1–7, 2023, doi: 10.3389/froh.2023.1233983.

[22] R. J. Sternberg and D. F. Halpern, *Critical Thinking in Psychology*, Second Edi. Cambridge: Cambridge University, 2020.

[23] E. P. Torrance, *Torrance Tests of Creative Thinking: Norms-Technical Manual*, Revised Ed. Princeton, NJ: Personnel Press, 1974.

[24] M. Limbong and A. M. Limbong, "Obstacles and Difficulties in Implementing the Independent Learning Curriculum in High Schools," *J. Pedagog. dan Pembelajaran*, vol. 6, no. 3, pp. 374–384,

2023, doi: 10.23887/jp2.v6i3.66084.
[25] N. K. Armini, "Evaluasi Metode Penilaian Perkembangan Siswa dan Pendidikan Karakter dalam Kurikulum Merdeka Pada Sekolah Dasar," *Metta J. Ilmu Multidisiplin*, vol. 4, no. 1, pp. 98–112, 2024, doi: 10.37329/metta.v4i1.2990.
[26] R. Rumiati, R. P. Ayuni, R. Wulandari, S. D. Saputri, and T. Monica, "Hambatan dan Tantangan dalam Penerapan Kurikulum Merdeka terhadap Proses Pembelajaran di SDN 1 Yogyakarta," *J. Pendidik. Guru Sekol. Dasar*, vol. 1, no. 3, pp. 1–7, 2024, doi: 10.47134/pgsd.v1i3.272.
[27] Mailizar, A. Almanthari, S. Maulina, and S. Bruce, "Secondary School Mathematics Teachers' Views on e-Learning Implementation Barriers During the COVID-19 pandemic: The Case of Indonesia," *Eurasia J. Math. Sci. Technol. Educ.*, vol. 16, no. 7, pp. 1–9, 2020, doi: 10.29333/EJMSTE/8240.
[28] R. R. Aliyyah, Rasmitadila, G. Gunadi, A. Sutisnawati, and S. Febriantina, "Perceptions of Elementary School Teachers Towards The Implementation of The Independent Curriculum During the Covid-19 Pandemic," *J. Educ. e-Learning Res.*, vol. 10, no. 2, pp. 154–164, 2023, doi: 10.20448/jeelr.v10i2.4490.
[29] Q. Aini and Adiyono, "Implementation of An Independent Curriculum in Supporting Students' Freedom to Create and Learn," *J. Sci. Res. Educ. Technol.*, vol. 2, no. 3, pp. 999–1008, 2023, doi: 10.58526/jsret.v2i3.187.
[30] A. T. Daga, N. Magi, I. R. A. Djoru, and M. R. Bela, "Perbedaan Hasil Belajar Menggunakan Model Pembelajaran PBL dan PjBL Siswa Kelas 4 di SDN Kandelu Kutura," *J. Kreat. Pendidik.*, vol. 1, no. 6, pp. 45–59, 2024, [Online]. Available: https://journalpedia.com/1/index.php/jkpm/article/view/617/681
[31] F. S. Tanggur, "Tantangan Implementasi Kurikulum Merdeka bagi Guru Sekolah Dasar di Wilayah Pedesaan Pulau Sumba," *HINEF J. Rumpun Ilmu Pendidik.*, vol. 2, no. 2, pp. 23–29, 2023, doi: 10.37792/hinef.v2i2.993.
[32] E. Randjawali *et al.*, "Evaluation of the Implementation of the Ideal Online Learning System in Frontier, Outermost, and Disadvantaged Regions (3T)," *J. Kependidikan J. Has. Penelit. dan Kaji. Kepustakaan di Bid. pendidikan, Pengajaran dan Pembelajaran*, vol. 8, no. 3, pp. 592–604, 2022, doi: 10.33394/jk.v8i3.5578.
[33] A. T. Daga, D. Wahyudin, and R. Susilana, "The 21st Century Skills of Elementary School Students in 3T Regions (Frontier, Outermost, and Least Developed Regions)," *J. Kependidikan J. Has. Penelit. dan Kaji. Kepustakaan di Bid. Pendidikan, Pengajaran dan Pembelajaran*, vol. 8, no. 4, pp. 817–830, 2022, doi: 10.33394/jk.v8i4.6239.
[34] A. Queirós, D. Faria, and F. Almeida, "Strengths and Limitations of Qualitative and Quantitative Research Methods," *Eur. J. Educ. Stud.*, vol. 3, no. 9, pp. 369–387, 2017, doi: 10.46827/ejes.v0i0.1017.
[35] Badan Pusat Statistik, *Kabupaten Sumba Barat Daya Dalam Angka*, vol. 14. Tambolaka: Badan Pusat Statistik Kabupaten Sumba Barat Daya, 2024.
[36] B. Antoro, "Analisis Penerapan Formula Slovin Dalam Penelitian Ilmiah: Kelebihan, Kelemahan, dan Kesalahan Dalam Perspektif Statistik," *J. Multidisiplin Sosisal Hum.*, vol. 1, no. 2, pp. 53–63, 2024, doi: 10.70585/jmsh.v1i2.38.
[37] V. Meryastiti, Z. R. Ridlo, and Supeno, "Identifikasi Kemampuan Berpikir Kritis Pada Pembelajaran Ipa Siswa SMP Negeri 1 Glenmore," *Siantifika*, vol. 24, no. 1, pp. 20–29, 2022.
[38] A. Rosyada, P. Syahada, and C. Chanifudin, "Kurikulum Merdeka: Dampak Peningkatan Beban Administrasi Guru terhadap Efektivitas Pembelajaran," *J. Inovasi, Eval. dan Pengemb. Pembelajaran*, vol. 4, no. 2, pp. 238–244, 2024, doi: 10.54371/jiepp.v4i2.491.
[39] R. Simanjuntak, E. Elfrianto, Y. Yusmidani, and V. Saragih, "Administrasi Tata Kelola dalam Implementasi Kurikulum Merdeka," *J. Pendidik. dan Konseling*, vol. 5, no. 1, pp. 2613–2619, 2023, doi: 10.31004/jpdk.v5i1.11370.
[40] M. Suluh, Y. A. Lede, and Y. S. Bitu, "Studi Kesiapan Sekolah Mengimplementasikan Kurikulum Merdeka di Kabupaten Sumba Barat Daya," *Indo-MathEdu Intellectuals J.*, vol. 5, no. 6, pp. 6956–6967, 2024, doi: 10.54373/imeij.v5i6.2118.
[41] H. Muslimah and S. Sukartono, "Teachers ' Challenges During the Transition from the 2013 Curriculum to the Independent Curriculum in Elementary Schools," *Lembaran Ilmu Kependidikan*, vol. 54, no. 1, pp. 49–60, 2025, doi: 10.15294/lik.v54i1.19314.
[42] N. P. Suardiani, I. W. Lasmawan, and I. W. Kertih, "Analisis Kesenjangan Antara Ekspektasi dan Realitas Dalam Pembelajaran IPS di Sekolah Dasar: Pendekatan Studi Kasus," *Soc. J. Inov. Pendidik. IPS*, vol. 4, no. 4, pp. 651–656, 2024, doi: 10.51878/social.v4i4.4463.
[43] T. S. Monika, J. Julia, and D. Nugraha, "Peran dan Problematika Guru Mengembangkan Keterampilan 4C Abad 21 Masa Pandemi di Sekolah Dasar," *J. Cakrawala Pendas*, vol. 8, no. 3, pp. 884–897, 2022, doi: 10.31949/jcp.v8i2.2672.

[44] V. Mandailina and Syaharuddin, "Pengaruh Lingkungan Belajar dan Kebijakan Sekolah terhadap Kreativitas Siswa di Sekolah Menengah Pertama," in *Seminar Nasional Paedagoria Universitas Muhammadiyah Mataram*, 2024, pp. 36–47. [Online]. Available: https://journal.ummat.ac.id/index.php/fkip/article/view/25546

[45] J. Nilimaa, "New Examination Approach For Real-World Creativity and Problem-Solving Skills in Mathematics," *Trends High. Educ.*, vol. 2, no. 3, pp. 477–495, 2023, doi: 10.3390/higheredu2030028.

[46] D. E. Yufani, M. A. Riwanto, and U. Umayah, "Pengaruh Kurikulum Merdeka terhadap Kualitas Belajar Siswa Sekolah Dasar," in *Prosding Seminar Nasional Pendidikan Sekolah Dasar*, 2023, pp. 68–72. [Online]. Available: https://jurnal.ustjogja.ac.id/index.php/sn-pgsd/article/view/15173

[47] M. A. A. Adinda and E. T. Andaryani, "Dampak Transformasi Pendidikan Nasional dari Kurikulum 2013 ke Kurikulum Merdeka: Kajian Literatur," *Pedagog. J. Ilmu-Ilmu Kependidikan*, vol. 3, no. 2, pp. 150–156, 2023, doi: 10.57251/ped.v3i2.1122.

[48] R. Hamdina, A. Fuadi, and Usmaida, "Analisis Kesiapan Guru Mengimplementasikan Asesmen Autentik Dalam Kurikulum Merdeka di MAN 2 Langkat," *J. Kaji. dan Ris. Mhs.*, vol. 1, no. 2, pp. 344–359, 2024, [Online]. Available: https://jurnal.perima.or.id/index.php/JRM/article/view/riskahamdina

 https://doi.org/10.58421/gehu.v4i3.443