CHALLENGES AND STRATEGIES IN IMPLEMENTING THE INDEPENDENT CURRICULUM TO IMPROVE STUDENTS' CRITICAL THINKING (CASE STUDY IN GRADE 4 SCIENCES)

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Abstract

The implementation of the Independent Curriculum in elementary schools in Ciamis Regency faces challenges in developing students' critical thinking skills, especially in Natural and Social Sciences (IPAS) subjects that focus on social aspects. The challenges include limited teacher understanding, less contextual learning resources, and low student involvement. This study uses a qualitative approach with a descriptive method and a Case Study research design to analyze the obstacles and strategies for implementing the Independent Curriculum. The results of the study indicate that a collaborative approach between teachers, integration of local contexts, active learning methods, and gradual use of technology can improve students' critical thinking skills. In addition, the development of a curriculum that is responsive to local needs has proven effective in encouraging students to understand and evaluate social issues in more depth. This study underlines the importance of sustainable learning innovation and local community involvement as key strategies in ensuring that the Independent Curriculum is able to produce critical, creative, and relevant students in accordance with the objectives of implementing the Independent Curriculum.
Keywords: Independent Curriculum, Critical Thinking, Science, Challenges and Strategies.

Abstrak

Penerapan Kurikulum Merdeka di sekolah dasar di Kabupaten Ciamis menghadapi tantangan dalam mengembangkan keterampilan berpikir kritis siswa, khususnya pada mata pelajaran Ilmu Pengetahuan Alam dan Sosial (IPAS) yang berfokus pada aspek sosial. Tantangannya meliputi keterbatasan pemahaman guru, sumber belajar yang kurang kontekstual, dan rendahnya keterlibatan siswa. Penelitian ini menggunakan pendekatan kualitatif dengan metode deskriptif dan desain penelitian Studi Kasus untuk menganalisis kendala dan strategi penerapan Kurikulum Merdeka. Hasil penelitian menunjukkan bahwa pendekatan berbasis kolaborasi antar guru, integrasi konteks lokal, metode pembelajaran aktif, serta pemanfaatan teknologi secara bertahap mampu meningkatkan keterampilan berpikir kritis siswa. Selain itu, pengembangan kurikulum yang responsif terhadap kebutuhan lokal terbukti efektif dalam mendorong siswa memahami dan mengevaluasi isu sosial secara lebih mendalam. Penelitian ini menggarisbawahi pentingnya keberlanjutan inovasi pembelajaran dan pelibatan komunitas lokal sebagai strategi kunci dalam memastikan Kurikulum Merdeka mampu menghasilkan siswa yang kritis, kreatif, dan relevan yang sesuai dengan tujuan penerapan Kurikulum Merdeka.
Kata kunci: Kurikum Merdeka, Critical Thinking, IPAS, Tantangan dan Strategi.

INTRODUCTION

Rapid technological advances and globalization have made critical thinking skills a competency that students must have to face future challenges. In order to meet these needs, the Indonesian government has implemented the Independent Curriculum as a strategic effort to create learning that is more relevant and adaptive to the development of the times. This curriculum is designed to provide freedom and flexibility to educators and students, thus enabling the creation of a dynamic learning environment and supporting active student participation.[1] Through this approach, students are expected to be able to develop Critical Thinking skills comprehensively and integratedly. Critical thinking skills are not just the ability to analyze or evaluate information, but also include the ability to integrate knowledge into the context of everyday life effectively.[2] Therefore, education in Indonesia needs to continue to transform to ensure that the learning system can answer the needs of 21st century learning competencies, especially in producing superior generations who are ready to compete at the global level. The development of critical thinking skills is one of the main aspects of 21st century education, especially in the subject of Natural and Social Sciences (IPAS) in grade 4 of elementary school.

The subject of science is unique in integrating scientific concepts and social contexts. In the scientific aspect, students are trained to observe, analyze, and understand natural phenomena through a data-based approach, while in the social aspect, students are invited to explore human interactions with the surrounding social, cultural, and ecological environment. The combination of Natural and Social Sciences into science is to build critical thinking skills. Science learning is designed to provide authentic and relevant learning experiences to students' daily lives.[3] Within the framework of the Independent Curriculum, the learning approach places students as the main subject or is known as (Student Centered Learning).

Teachers act as facilitators who create a collaborative learning environment and support student exploration. With this approach, students are not only recipients of information, but also active participants involved in the process of exploring knowledge and solving problems.[4] Independent Curriculum-based science learning provides an opportunity to relate material to students' real experiences, such as analyzing the impact of environmental change in their

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[1] P. Purba et al., "Penerapan Kurikulum Merdeka pada Pembelajaran IPAS Kelas IV di SD Negeri Tahunan Yogyakarta," *Bulletin of Educational Management and Innovation* 1, no. 2 (2023), https://doi.org/10.56587/bemi.v1i2.80.

[2] Mutia Sari Sinaga et al., "Analisis Tantangan Dan Pendekatan Strategis Dalam Penerapan Kurikulum Merdeka Di SDN 106161 Laut Dendang," *Jurnal Sadewa : Publikasi Ilmu Pendidikan, Pembelajaran Dan Ilmu Sosial* 2, no. 3 (2024), https://doi.org/10.61132/sadewa.v2i3.926.

[3] D. Fitra, "Kurikulum Merdeka dalam Pendidikan Modern," *Jurnal Inovasi Edukasi* 06, no. 02 (2023).

[4] I. Sumarsih et al., "Analisis Implementasi Kurikulum Merdeka di Sekolah Penggerak Sekolah Dasar," *Jurnal Basicedu* 6, no. 5 (2022), https://doi.org/10.31004/basicedu.v6i5.3216.

community or evaluating solutions to relevant social problems. The focus on developing critical thinking skills is in line with the vision of the Independent Curriculum which aims to produce a generation of students who have 21st-century competencies. This curriculum not only emphasizes mastery of material, but also character development. This is an important strategy to form students' systematic mindsets from an early age, while preparing them to face global challenges in the future.[5]

Critical Thinking skills developed through science learning are an important foundation for preparing students to face global challenges. In the context of basic education, the integration of these skills is in line with the vision of the Merdeka Curriculum, which focuses not only on mastering the material, but also on developing character, creativity, and high-level thinking skills.[6] Therefore, research that focuses on the implementation of the Independent Curriculum in grade 4 science learning is very relevant to provide insight into educational strategies that support 21st century competencies.

Natural and Social Sciences (IPAS) learning in grade 4 has great potential to develop students' critical thinking skills, in line with the implementation of the Independent Curriculum which places students as the center of learning.[7] However, in its implementation, various challenges arise related to the implementation of this curriculum. The problem in this study is the challenge in implementing the independent curriculum in science learning to improve students' critical thinking skills in grade 4, the main challenge is the unpreparedness of teachers in combining new curriculum concepts into learning practices that encourage critical thinking skills. Research conducted by Idris et al., shows that the success of curriculum implementation is highly dependent on the pedagogical competence and technical skills of teachers in integrating modern learning methods.[8] An effective strategy is needed to overcome the challenges in implementing the Independent Curriculum, especially in science learning in grade 4.

Research bySartini & Mulyonosuggest the development of a project-based collaborative learning model that can stimulate students' critical thinking skills.[9] Evaluation of the implementation of the Independent Curriculum in science learning needs to be carried out to

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[5] O. Mukhlisin et al., "Problematika Penerapan Kurikulum Merdeka pada Sekolah IKM Mandiri Berubah," *Kalam Cendiki: Jurnal Ilmiah Kependidikan* 12, no. 2 (2024).

[6] G.T. Rahmayati and A. Prastowo, "Pembelajaran Ilmu Pengetahuan Alam dan Sosial di Kelas IV Sekolah Dasar dalam Kurikulum Merdeka," *Elementary School Journal PGSD FIP UNIMED* 13, no. 1 (2023), https://doi.org/10.24114/esjpgsd.v13i1.41424.

[7] M. Rizki et al., "Implementasi Pembelajaran IPAS pada Siswa Kelas IV Sekolah Dasar Berbasis Kurikulum Merdeka," *At Taksis: Jurnal Pendidikan Dasar* 2, no. 1 (2024), https://jurnal.staiskutim.ac.id/index.php/AT-Taksis/about.

[8] S.H. Idris et al., "Kurikulum Merdeka Perspektif Pemikiran Pendidikan Ki Hajar Dewantara," *Jurnal Literasiologi* 9, no. 2 (2023), https://doi.org/10.47783/literasiologi.v9i2.472.

[9] Sartini and Rahmat Mulyono, "Analisis Implementasi Kurikulum Merdeka Belajar Untuk Mempersiapkan Pembelajaran Abad 21," *Didaktik : Jurnal Ilmiah PGSD STKIP Subang* 8, no. 2 (2022): 2, https://doi.org/10.36989/didaktik.v8i2.392.

identify the extent to which the curriculum objectives are achieved in improving students' critical thinking skills. Research bySafitri et al.,highlights the importance of competency-based evaluation tools that are able to measure higher-order thinking skills, including analysis, synthesis, and evaluation skills.[10] Transparent and data-based evaluation results can provide valuable input for improving curriculum implementation.

Research byMusdalipahighlighting that the effectiveness of the curriculum also depends heavily on adequate infrastructure support and learning environment.[11] However, there is great potential to increase effectiveness through the integration of educational technology, such as interactive learning applications and the use of learning videos that trigger students' independent exploration.

RESEARCH METHODS

This study uses a qualitative approach with a descriptive method. The research method is understood as a scientific procedure that aims to collect and analyze data systematically to support the interpretation of research results. The research design used is a case study.Thank youexplains that case studies are a method that provides a comprehensive picture and explanation of various aspects of individuals, groups, organizations, programs, or social phenomena.[12] This research was conducted in one of the elementary schools in Ciamis Regency. This research focuses on the analysis of the implementation of the Independent Curriculum in science learning as an effort to support the development of students' critical thinking skills. In addition, this study aims to identify the challenges faced, the strategies implemented, and the effectiveness of the implementation of the Independent Curriculum in improving students' critical thinking skills. The research was conducted for three weeks. Data collection techniques used included in-depth interviews, documentation studies, and observations. The interviews aimed to explore detailed information regarding the challenges and strategies for implementing the Independent Curriculum. The main informants in this study consisted of grade 4 science teachers, principals, and students. Teachers provided information regarding teaching barriers, strategies implemented, and evaluation of the development of students' critical thinking skills. The principal provided insights regarding institutional policies and support, while students provided their perspectives on their learning experiences.

Documentation study was used to complement interview and observation data. This technique involves analyzing various relevant documents, such as teaching modules prepared by

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[10] D. Safitri et al., "Dinamika Implementasi Kurikulum Merdeka di SD Negeri Karang Mekar 9," *MARAS: Jurnal Penelitian Multidisiplin* 2, no. 3 (2024), https://doi.org/10.60126/maras.v2i3.351.

[11] Musdalipa, "Implementasi Kurikulum Merdeka dalam Meningkatkan Kualitas Pendidikan di Indonesia," *Ulil Albab: Jurnal Ilmiah Multidisiplin* 3, no. 9 (2024).

[12] Jarkasih, "Penerapan Model Pembelajaran Berbasis Proyek untuk Membantu Siswa Berpikir Kritis," *Jurnal Pendidikan: Kajian dan Implementasi* 6, no. 1 (2024).

teachers, with the aim of obtaining in-depth and objective information regarding the implementation of the Independent Curriculum in science learning. Non-participatory observation was conducted to record in detail the interactions between teachers and students, the learning strategies applied, and students' responses to learning activities designed to improve critical thinking skills. In this observation, the researcher was not directly involved in the learning process, but rather acted as a passive observer. The data analysis process refers to the Miles and Huberman approach, which involves data reduction, data presentation, and drawing conclusions. To ensure data validity, triangulation techniques were used, namely by integrating the results of interviews, observations, and documentation studies to produce comprehensive and reliable conclusions.

RESULTS AND DISCUSSION

Challenges of Implementing the Independent Curriculum to Improve Critical Thinking Skills in Science Subjects

1. Limitations of Teachers' Understanding in Designing Learning.

The implementation of the Independent Curriculum in elementary schools in Ciamis Regency faces challenges in developing students' critical thinking skills, especially in Natural and Social Sciences (IPAS) subjects which focus on social aspects.[13] One of the main challenges is the limited understanding of teachers in designing Critical Thinking-based learning. Although initial training related to the Independent Curriculum has been provided, the training is still general and limited to basic theory, without any further assistance that can deepen teachers' understanding of the application of learning models that support critical thinking skills.[14] Difficulties in compiling evaluations based on Higher Order Thinking Skills (HOTS), such as analyzing the causes of social conflict or evaluating solutions to social problems, also worsen the situation. This has an impact on students' understanding, who often find it difficult to complete tasks that require deeper social analysis. The learning provided is still unable to encourage students to think critically, especially in evaluating more complex social issues.[15] The limited initial abilities of students in understanding social concepts that require abstract thinking are also an obstacle.

Many students have difficulty relating learning to the context of their daily lives, making it difficult to complete tasks that require an evaluation of the role of cooperation in resolving

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[13] Margaretha Novita Rupa Lobemato et al., "Peningkatan Hasil Belajar IPAS Materi Keanekaragaman Budaya Melalui Pembelajaran Sosial Emosional Dengan Model Project Based Learning Pada Peserta Didik Kelas IV," *Prosiding Webinar Penguatan Calon Guru Profesional*, June 18, 2024.

[14] Rahmayati and Prastowo, "Pembelajaran Ilmu Pengetahuan Alam dan Sosial di Kelas IV Sekolah Dasar dalam Kurikulum Merdeka."

[15] Lobemato et al., "Peningkatan Hasil Belajar IPAS Materi Keanekaragaman Budaya Melalui Pembelajaran Sosial Emosional Dengan Model Project Based Learning Pada Peserta Didik Kelas IV."

social conflicts. Therefore, a more contextual and relevant learning approach to students' social experiences is needed to address this gap.[16] More intensive mentoring for teachers is an urgent need so that they can design learning that not only encourages students to think critically, but also allows students to apply these skills in solving social problems that are relevant to their lives.

2. Limited Parental Support

According to the results of observations and interviews with grade 4 teachers, principals and students. Most parents of students in one of the elementary schools in Ciamis Regency have limitations in providing support for the development of critical thinking skills, especially in the social aspect. Many parents work in the fields or have jobs that take up time, so their involvement in their children's learning process is very minimal. This has an impact on students' difficulties in completing tasks based on Higher Order Thinking Skills (HOTS), such as analyzing social conflicts or evaluating the role of individuals in solving social problems, which should involve discussions at home. This condition leads to low student understanding of the material, as well as weak development of critical thinking skills which are the main objectives of the Merdeka Curriculum.[17]

Students often find it difficult to complete tasks that require in-depth analysis due to the lack of support and direction outside of school. This is in accordance with the findings of research by Sartini & Mulyono, which states that parental involvement is very important in critical-based learning to improve students' understanding and skills.[18] It is important for schools to strengthen collaboration with parents, such as through training or activities that increase parents' understanding of the importance of accompanying children in tasks that involve critical thinking.[19] With this approach, the development of students' critical thinking skills, especially in social learning, can be achieved optimally.

3. Limited Learning Resources That Support Critical Thinking Skills Learning

According to the results of observations and interviews with teachersclass 4, kPrincipal and students. Learning resources in one of the elementary schools in Ciamis Regency are considered not to support the development of students' critical thinking skills. The textbooks and teaching modules used focus more on theoretical materials without presenting contextual social

[16] E. Andari, "Implementasi Kurikulum Merdeka Belajar Menggunakan Learning Management System (LMS," *Allimna: Jurnal Pendidikan Profesi Guru* 1, no. 2 (2022), https://doi.org/10.30762/allimna.v1i2.694.

[17] Lucky Putri Ramadhani et al., "Analisis Materi Ilmu Pengetahuan Sosial Sekolah Dasar Kelas Empat Terhadap Sikap Sosial Peserta Didik," *Seminar Nasional Ilmu Pendidikan Dan Multi Disiplin* 4, no. 0 (2021): 0.

[18] Sartini and Mulyono, "Analisis Implementasi Kurikulum Merdeka Belajar Untuk Mempersiapkan Pembelajaran Abad 21."

[19] Idris et al., "Kurikulum Merdeka Perspektif Pemikiran Pendidikan Ki Hajar Dewantara."

issues that are relevant to students' lives. This causes students to have difficulty in understanding and analyzing social problems, especially those that require critical thinking skills. The available learning resources do not provide concrete examples of social problems that can encourage students to think more deeply.[20] In addition, the limitations of interactive learning media such as videos, simulations, or teaching aids that depict social dynamics also hinder students' understanding of social concepts, such as cooperation in society or conflict resolution.

This limitation also affects the effectiveness of designing evaluations based on Higher Order Thinking Skills (HOTS), because the existing materials are less able to encourage students to analyze social problems critically.[21] This condition is in line with the opinionSafitri et al., which emphasizes the importance of developing contextual learning resources based on real examples to increase student engagement in critical learning.[22] Therefore, collaboration between schools and education offices is needed to provide learning resources that are relevant to the local context, so that students can more easily relate the material to everyday life. With more varied and contextual learning resources, science learning will be more effective in developing students' critical thinking skills, as well as helping them understand and analyze social problems more deeply.

4. Student Unpreparedness

The abilities of elementary school students in Ciamis Regency vary in terms of understanding concepts and critical thinking skills. The Merdeka Curriculum requires students to be more active in analyzing and solving social problems, but some students have difficulty meeting these demands. Some students feel confused when asked to analyze the causes of social conflict, because they are not used to thinking deeply.[23] In addition, students with low academic ability often feel pressured and passive in group discussions, considering that they feel unable to make meaningful contributions. Students with higher abilities dominate the discussion, while students with low abilities are merely observers.

This is in line with research findings bySetiawan et al., who stated that students' unpreparedness to participate in discussion-based learning is a major challenge in developing critical thinking skills.[24] Strategies that allow each student to actively contribute, such as

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[20] Sartini and Mulyono, "Analisis Implementasi Kurikulum Merdeka Belajar Untuk Mempersiapkan Pembelajaran Abad 21."

[21] Sartini and Mulyono, "Analisis Implementasi Kurikulum Merdeka Belajar Untuk Mempersiapkan Pembelajaran Abad 21."

[22] Safitri et al., "Dinamika Implementasi Kurikulum Merdeka di SD Negeri Karang Mekar 9."

[23] Siti Fatimah, "Peningkatan Aktivitas dan Hasil Belajar Kurikulum Merdeka Menggunakan Model Problem-Based Learning (PBL) di Kelas IV Sekolah Dasar Negeri 5 Kawunglarang Ciamis," *JGuruku: Jurnal Penelitian Guru* 1, no. 2 (2023): 2.

[24] T. Setiawan et al., "Analisis Penerapan Model Pembelajaran Project-Based Learning dan Problem-Based Learning pada Peserta Didik Sekolah Dasar," *Jurnal Basicedu* 6, no. 6 (2022), https://doi.org/10.31004/basicedu.v6i6.4161.

balanced group division and clear role assignments, can help overcome these challenges. Gradual familiarization and individual mentoring are also needed to develop students' critical thinking skills, so that they can catch up without feeling burdened. With the right approach, students can be given more equal opportunities to develop critical thinking skills in science learning.

5. Lack of Student Involvement in Critical Discussions

    The results of the observation show that studentssoElementary school students in Ciamis Regency tend to be passive in group discussions or debates. They listen more often than they contribute, such as expressing opinions or putting forward arguments. This is an obstacle in integrating critical thinking skills in learning. Teachers identified that low student engagement was caused by a lack of ability to construct and convey arguments logically and a lack of self-confidence.[25] Students often give shallow answers that are not supported by clear reasons.

    In addition, students are also not used to using data or facts as the basis for their arguments. This has an impact on the limited quality of discussions. Teachers noted that students often provide opinions without supporting facts, which reduces the substance of the discussion. This finding is in line with research byRamadhani et al.,which states that students' inability to construct logical and structured arguments is an obstacle to the development of critical thinking skills.[26] To overcome this, a more strategic approach is needed, such as consistent practice in using relevant sources of information and getting students used to supporting opinions with data or facts. The pair discussion method can be a solution to increase student confidence, before moving on to larger group discussions. With this approach, it is hoped that students can be more active in critical discussions, not only in science learning, but also in their daily social lives.

6. School Infrastructure Limitations

    Infrastructure limitations are one of the challenges in implementing the Merdeka Curriculum in Ciamis Regency. Schools have difficulty in providing adequate teaching aids and technology to support critical thinking skills-based learning. Facilities and infrastructure such as projectors and computers are still limited, which hinders the use of technology in learning. Although in 2024 schools received smartboard assistance, limited teacher training means that its use is not optimal. In addition, limited internet access is only available in office spaces, and not all classrooms have adequate access to electricity. This condition complicates the implementation of learning that relies on collaboration and independent information searching. These limited facilities also hinder teachers from designing more innovative and interactive

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[25] Neliwati et al., "Kebijakan Kurikulum Merdeka Belajar Di Sekolah," *Jurnal Penelitian, Pendidikan Dan Pengajaran: JPPP* 4, no. 2 (2023), https://doi.org/10.30596/jppp.v4i2.15475.
[26] Ramadhani et al., "Analisis Materi Ilmu Pengetahuan Sosial Sekolah Dasar Kelas Empat Terhadap Sikap Sosial Peserta Didik."

learning. As expressed by several teachers, the limited supporting tools reduce the quality and effectiveness of learning.[27]

Teachers also revealed that even though smartboards were available, limited training prevented them from being fully utilized. This is in line with findings in a study by Jamil which showed that limited technological infrastructure can be a barrier to implementing Higher Order Thinking Skills (HOTS)-based learning.[28] That infrastructure issues also affect teachers' ability to design learning that develops students' critical thinking skills. This finding indicates the need for more systematic efforts to improve infrastructure and provide more in-depth training for teachers. Collaboration between schools, parents, and the education office is needed to overcome these obstacles, so that the implementation of the Merdeka Curriculum can be more optimal in developing students' critical thinking skills.

Strategy for Implementing the Independent Curriculum to Improve Critical Thinking Skills in Science Subjects

1. Strengthening Teacher Capacity Through Collaboration

The implementation of the Independent Curriculum in an elementary school in Ciamis Regency shows that strengthening teacher capacity through collaboration is an important strategy in improving students' critical thinking skills. Teachers routinely hold discussions with colleagues to develop contextual and relevant learning tools for students' lives, such as developing teaching modules and teaching materials. These discussions allow teachers to share experiences, ideas, and challenges faced, resulting in more effective learning in developing students' critical thinking skills.[29] The principal plays a very important role in facilitating this collaboration by scheduling discussions and providing internal training that focuses on the implementation of the Independent Curriculum and the development of critical thinking skills. As explained by the principal, this training aims to deepen teachers' understanding of critical thinking-based teaching that can be applied in science learning.

This is in accordance with the findingsMusdalipawhich reveals the importance of training to improve teachers' abilities in teaching critical thinking skills.[30] In addition, the principal also actively provides direct assistance to teachers during the implementation of

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[27] Lobemato et al., "Peningkatan Hasil Belajar IPAS Materi Keanekaragaman Budaya Melalui Pembelajaran Sosial Emosional Dengan Model Project Based Learning Pada Peserta Didik Kelas IV."

[28] Lobemato et al., "Peningkatan Hasil Belajar IPAS Materi Keanekaragaman Budaya Melalui Pembelajaran Sosial Emosional Dengan Model Project Based Learning Pada Peserta Didik Kelas IV."

[29] Musdalipa, "Implementasi Kurikulum Merdeka dalam Meningkatkan Kualitas Pendidikan di Indonesia."

[30] Musdalipa, "Implementasi Kurikulum Merdeka dalam Meningkatkan Kualitas Pendidikan di Indonesia."

learning and invites external speakers to provide further training. This support strengthens efforts to develop critical thinking skills in students. Although there are obstacles related to infrastructure and technology facilities, the principal encourages teachers to make maximum use of existing resources and seek creative solutions in designing technology-based learning. Overall, strengthening teacher capacity through collaboration and support from the principal has succeeded in creating a culture of sustainable reflection, which is able to improve the quality of learning. This process shows that the implementation of the Merdeka Curriculum can run more optimally with solid collaboration between teachers and the principal.

2. Integrating Local Context In Learning

Integration of local context in 4th grade science learning has proven effective in increasing students' engagement and critical thinking skills. In the material Story about My Region, students are asked to recognize the social, cultural, and economic characteristics of their region by making a map of the region. This approach allows students to analyze social structures and their influence on everyday life. This is in line with the findings Yolanda et al., which reveals that local context deepens students' understanding of the subject matter.[31] In the chapter My Indonesia is Rich in Culture, students are encouraged to compare local culture with cultures from other regions and discuss the contribution of culture to national unity. Some students even proposed ideas for preserving local culture, such as making documentary videos.

This step is in accordance with the research results of Purba et al., which show that the integration of local culture encourages students to better understand diversity and the importance of tolerance.[32] In the material How to Get All Our Needs, the teacher links economic concepts to the practice of buying and selling in traditional markets, and invites students to discuss the challenges faced by small traders. Students are also invited to think critically about managing local resources in everyday life. This supports Fitra's findings.[33] Which emphasizes the importance of context-based learning in training students' problem-solving skills. The principal emphasized that the integration of local context in learning aims to make education more relevant to students' real lives. He believes that this approach helps students develop critical thinking skills, tolerance, and cooperation needed to face today's social and cultural challenges, in line with the needs of 21st century skills.[34] Integrating local context into science learning not

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[31] A. Yolanda et al., "Strategi Pembelajaran Kontekstual untuk Meningkatkan Pemahaman Konsep Siswa Sekolah Dasar," *Pragmatik: Jurnal Rumpun Ilmu Bahasa dan Pendidikan* 2, no. 3 (2024), https://doi.org/10.61132/pragmatik.v2i3.941.

[32] Purba et al., "Penerapan Kurikulum Merdeka pada Pembelajaran IPAS Kelas IV di SD Negeri Tahunan Yogyakarta."

[33] Fitra, "Kurikulum Merdeka dalam Pendidikan Modern."

[34] Neliwati et al., "Kebijakan Kurikulum Merdeka Belajar Di Sekolah."

only makes the material more meaningful for students but also improves analytical and critical skills in solving social issues in their environment.

3. Implementation of Active Learning Methods

The implementation of active learning methods in one elementary school in Ciamis Regency has made a real contribution to improving students' critical thinking skills, especially in learning the social aspects of Natural and Social Sciences (IPAS). Teachers strategically adapt active learning methods according to the characteristics of the material and the needs of students, creating a contextual, relevant, and interesting learning atmosphere. In the material "Stories about My Region," teachers use group discussions to encourage students to explore the social potential in their area, such as traditions and customs.[35] This approach allows students to not only understand the material in depth, but also relate it to the realities of everyday life. Project-based learning methods are also used effectively in the material "How to Get All Our Needs." Using role-playing methods allows students to play traders and consumers, training them to think critically about how to meet the needs of society through productive social interactions.[36]

Observations showed that this active learning approach significantly increased student participation. They became more confident in asking questions, giving opinions, and using data to support arguments. Teachers noted positive changes in student attitudes, including increased self-confidence and their ability to work together in groups.[37] The principal also appreciated this method, emphasizing the importance of teacher innovation in creating learning activities that are relevant to the local context to develop students' critical thinking skills. active learning methods that are designed contextually and based on real needs have proven effective in supporting the implementation of the Merdeka Curriculum.

4. Gradual Improvement of Learning Facilities

In an effort to improve critical thinking skills through the implementation of the Merdeka Curriculum, One of the elementary schools in Ciamis Regency demonstrated strategic efforts to support students' critical thinking skills in the implementation of the Merdeka Curriculum, despite limited learning facilities. maximizing available resources despite limited learning facilities. The school library is the main source of learning, although the book collection is still limited.[38] Teachers expressed that learning materials were selectively chosen for

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[35] Mukhlisin et al., "Problematika Penerapan Kurikulum Merdeka pada Sekolah IKM Mandiri Berubah."

[36] Rizki et al., "Implementasi Pembelajaran IPAS pada Siswa Kelas IV Sekolah Dasar Berbasis Kurikulum Merdeka."

[37] Musdalipa, "Implementasi Kurikulum Merdeka dalam Meningkatkan Kualitas Pendidikan di Indonesia."

[38] Setiawan et al., "Analisis Penerapan Model Pembelajaran Project-Based Learning dan Problem-Based Learning pada Peserta Didik Sekolah Dasar."

relevance, such as stories about local social and cultural values. The limitations of digital media, such as only one projector that had to be used alternately between classes, were also significant challenges.

On the other hand, activities based on the surrounding environment are an effective alternative solution. For example, students are invited to visit a traditional market to observe social interactions, then discuss their findings in class. This activity provides students with direct experience to develop analytical and evaluation skills in real situations. Teachers emphasize that this approach is more effective than conventional methods such as reading books or watching videos.

The strategies implemented showed that the integration of local context and active learning methods, such as group discussions, simulation projects, and case studies, encouraged optimal student engagement. Although limited infrastructure was an obstacle, teachers and principals collaborated to find creative solutions and make maximum use of existing facilities.[39] Strengthening teacher capacity through internal training and regular discussions facilitated by the principal also contributes to improving the quality of critical thinking-based learning. This implementation, although gradual, is a progressive step in overcoming the limitations of facilities to create relevant and meaningful learning.

Evaluation of the Implementation of the Independent Curriculum to Improve Critical Thinking Skills in Science Subjects

The implementation of the Independent Curriculum in elementary schools in Ciamis Regency has shown a positive impact on the development of students' critical thinking skills, although it still faces a number of challenges. Based on interviews and observations, teachers have begun to integrate critical thinking into science learning, especially in the social aspect. Teachers stated that the Independent Curriculum provides space to encourage students to analyze and evaluate social problems in their environment. Activities such as group discussions and simple projects allow students to be more active in expressing their opinions, although intensive mentoring is still needed to help them formulate applicable solutions.[40]

Support for this evaluation was obtained through formative assessments and daily teacher documentation, which showed gradual development in students' abilities to identify and understand social issues such as poverty or inequality. The principal stated the importance of analyzing evaluation results to design more specific strategic steps, both in developing teacher abilities and

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[39] Mukhlisin et al., "Problematika Penerapan Kurikulum Merdeka pada Sekolah IKM Mandiri Berubah."

[40] Lobemato et al., "Peningkatan Hasil Belajar IPAS Materi Keanekaragaman Budaya Melalui Pembelajaran Sosial Emosional Dengan Model Project Based Learning Pada Peserta Didik Kelas IV."

mentoring students. Data from observations, interviews, and documentation strengthen the validity of these findings, also supported by literature that emphasizes the importance of critical thinking in contextual learning. The implementation of the Independent Curriculum has succeeded in opening up opportunities for the development of critical thinking in students, although improvements in the quality of mentoring and learning strategies are still needed. Continuous evaluation is key to optimizing relevant and meaningful learning outcomes.

Effectiveness of Implementing the Independent Curriculum to Improve Critical Thinking Skills in Science Subjects

1. Increasing Student Engagement

    The implementation of the Merdeka Curriculum in one elementary school in Ciamis Regency has succeeded in significantly increasing student engagement in science learning, especially in the social aspect. Teachers apply an activity-based approach such as group discussions, simulations, and small projects designed to maximize student active participation. For example, in the theme of Stories about My Region, students are encouraged to explore information about local culture in their environment and present it to their classmates. This activity not only increases students' enthusiasm but also builds their confidence in expressing their opinions.[41]

    In addition, project-based approaches, such as identifying daily needs in the theme How to Get All Our Needs, help students understand the material more concretely while developing critical thinking skills.[42] The principal supports this learning innovation by encouraging students to be free to explore their ideas. This policy has proven effective, especially in training students to analyze social phenomena and provide logical reasons for the solutions they offer.

    The evaluation results showed that the activity-based learning strategy had a positive impact, not only increasing students' enthusiasm, but also strengthening their ability to relate the concepts taught to real situations.[43] This approach reflects the main objective of the Independent Curriculum in creating learning experiences that are relevant, meaningful, and able to encourage the development of students' critical thinking skills.

2. Critical Thinking Skills Progress

    The implementation of the Independent Curriculum in elementary school science learning in Ciamis Regency effectively improves the critical thinking skills of grade 4 students.

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[41] Lobemato et al., "Peningkatan Hasil Belajar IPAS Materi Keanekaragaman Budaya Melalui Pembelajaran Sosial Emosional Dengan Model Project Based Learning Pada Peserta Didik Kelas IV."

[42] Setiawan et al., "Analisis Penerapan Model Pembelajaran Project-Based Learning dan Problem-Based Learning pada Peserta Didik Sekolah Dasar."

[43] Sinaga et al., "Analisis Tantangan Dan Pendekatan Strategis Dalam Penerapan Kurikulum Merdeka Di SDN 106161 Laut Dendang."

Activity-based learning such as discussions, simulations, and small projects encourage students to identify, analyze, and solve simple social problems related to the themes of Stories about My Region, My Indonesia is Rich in Culture, How to Get All Our Needs, and Building a Civilized Society.[44] The results of the formative assessment showed that students were able to identify problems, analyze causes, and design practical solutions. However, mentoring is still needed to strengthen their arguments. Data triangulation confirmed the consistency of the findings, showing that the problem-based approach in the Independent Curriculum creates meaningful and relevant learning, and supports the gradual development of students' Critical Thinking.

Research at SD Negeri Tahunan Yogyakarta shows that the planning and implementation of science learning has met the criteria of the Independent Curriculum, with a focus on a collaborative, interactive learning atmosphere and the use of varied methods to improve student understanding.[45] This finding is consistent with the results of a study at an elementary school in Ciamis Regency, which revealed that the activity-based learning approach effectively encourages active student participation in the learning process.

CONCLUSION

This study shows that the implementation of Independent Curriculum-based learning in grade 4 science subjects has a positive impact on the development of students' Critical Thinking skills, especially in the social aspect. The results of the study indicate that the project-based learning strategy successfully improves students' abilities in analyzing, evaluating, and formulating solutions to social problems. The main advantage of this approach lies in its ability to present more interactive, challenging, and contextual learning, so that students can understand social problems more deeply and holistically, but this study also found several weaknesses. Not all teachers are able to optimally utilize technology or compile learning materials that are fully relevant to students' needs. Lack of infrastructure support in some schools is another obstacle in the implementation of technology-based learning. By fixing these weaknesses, learning can be more effective in developing students' Critical Thinking skills, which are important capital in facing the challenges of the 21st century.

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[44] Jarkasih, "Penerapan Model Pembelajaran Berbasis Proyek untuk Membantu Siswa Berpikir Kritis."

[45] Purba et al., "Penerapan Kurikulum Merdeka pada Pembelajaran IPAS Kelas IV di SD Negeri Tahunan Yogyakarta."

BIBLIOGRAPHY

Andari, E. "Implementasi Kurikulum Merdeka Belajar Menggunakan Learning Management System (LMS." *Allimna: Jurnal Pendidikan Profesi Guru* 1, no. 2 (2022). https://doi.org/10.30762/allimna.v1i2.694.

Fatimah, Siti. "Peningkatan Aktivitas dan Hasil Belajar Kurikulum Merdeka Menggunakan Model Problem-Based Learning (PBL) di Kelas IV Sekolah Dasar Negeri 5 Kawunglarang Ciamis." *JGuruku: Jurnal Penelitian Guru* 1, no. 2 (2023): 2.

Fitra, D. "Kurikulum Merdeka dalam Pendidikan Modern." *Jurnal Inovasi Edukasi* 06, no. 02 (2023).

Idris, S.H., M. Muqowim, and M. Fauzi. "Kurikulum Merdeka Perspektif Pemikiran Pendidikan Ki Hajar Dewantara." *Jurnal Literasiologi* 9, no. 2 (2023). https://doi.org/10.47783/literasiologi.v9i2.472.

Jarkasih. "Penerapan Model Pembelajaran Berbasis Proyek untuk Membantu Siswa Berpikir Kritis." *Jurnal Pendidikan: Kajian dan Implementasi* 6, no. 1 (2024).

Lobemato, Margaretha Novita Rupa, Siti Khuluqul Khasanah, and Feylosofia Putri Agry. "Peningkatan Hasil Belajar IPAS Materi Keanekaragaman Budaya Melalui Pembelajaran Sosial Emosional Dengan Model Project Based Learning Pada Peserta Didik Kelas IV." *Prosiding Webinar Penguatan Calon Guru Profesional*, June 18, 2024.

Mukhlisin, O., L. Auliyani Daswati, and A. Sutisna. "Problematika Penerapan Kurikulum Merdeka pada Sekolah IKM Mandiri Berubah." *Kalam Cendiki: Jurnal Ilmiah Kependidikan* 12, no. 2 (2024).

Musdalipa. "Implementasi Kurikulum Merdeka dalam Meningkatkan Kualitas Pendidikan di Indonesia." *Ulil Albab: Jurnal Ilmiah Multidisiplin* 3, no. 9 (2024).

Neliwati, Hikmah Bayani Situmorang, Putri Maymuhamna Rahayu, and Raudhatul Munawwarah. "Kebijakan Kurikulum Merdeka Belajar Di Sekolah." *Jurnal Penelitian, Pendidikan Dan Pengajaran: JPPP* 4, no. 2 (2023). https://doi.org/10.30596/jppp.v4i2.15475.

Purba, P., A. Rahayu, and M. Murniningsih. "Penerapan Kurikulum Merdeka pada Pembelajaran IPAS Kelas IV di SD Negeri Tahunan Yogyakarta." *Bulletin of Educational Management and Innovation* 1, no. 2 (2023). https://doi.org/10.56587/bemi.v1i2.80.

Rahmayati, G.T., and A. Prastowo. "Pembelajaran Ilmu Pengetahuan Alam dan Sosial di Kelas IV Sekolah Dasar dalam Kurikulum Merdeka." *Elementary School Journal PGSD FIP UNIMED* 13, no. 1 (2023). https://doi.org/10.24114/esjpgsd.v13i1.41424.

Ramadhani, Lucky Putri, Riyanti Lestari, Restu Kartika, and Nurul Febrianti. "Analisis Materi Ilmu Pengetahuan Sosial Sekolah Dasar Kelas Empat Terhadap Sikap Sosial Peserta Didik." *Seminar Nasional Ilmu Pendidikan Dan Multi Disiplin* 4, no. 0 (2021): 0.

Rizki, M., M. Rizal, and E. Saptaning Pratiwi. "Implementasi Pembelajaran IPAS pada Siswa Kelas IV Sekolah Dasar Berbasis Kurikulum Merdeka." *At Taksis: Jurnal Pendidikan Dasar* 2, no. 1 (2024). https://jurnal.staiskutim.ac.id/index.php/AT-Taksis/about.

Safitri, D., R. Dewi, D.K. Jati, et al. "Dinamika Implementasi Kurikulum Merdeka di SD Negeri Karang Mekar 9." *MARAS: Jurnal Penelitian Multidisiplin* 2, no. 3 (2024). https://doi.org/10.60126/maras.v2i3.351.

Sartini, and Rahmat Mulyono. "Analisis Implementasi Kurikulum Merdeka Belajar Untuk Mempersiapkan Pembelajaran Abad 21." *Didaktik : Jurnal Ilmiah PGSD STKIP Subang* 8, no. 2 (2022): 2. https://doi.org/10.36989/didaktik.v8i2.392.

Setiawan, T., J.M. Sumilat, N.M. Paruntu, and N.N. Monigir. "Analisis Penerapan Model Pembelajaran Project-Based Learning dan Problem-Based Learning pada Peserta Didik Sekolah Dasar." *Jurnal Basicedu* 6, no. 6 (2022). https://doi.org/10.31004/basicedu.v6i6.4161.

Sinaga, Mutia Sari, Nahal Dita Siregar, Hanna Syazidah, Nur Rahmi Br. Siagian, Arjuna Rajaguguk, and Khairunnisa Khairunnisa. "Analisis Tantangan Dan Pendekatan Strategis Dalam Penerapan Kurikulum Merdeka Di SDN 106161 Laut Dendang." *Jurnal Sadewa : Publikasi Ilmu Pendidikan, Pembelajaran Dan Ilmu Sosial* 2, no. 3 (2024). https://doi.org/10.61132/sadewa.v2i3.926.

Sumarsih, I., T. Marliyani, Y. Hadiyansah, A.H. Hernawan, and Prihantini. "Analisis Implementasi Kurikulum Merdeka di Sekolah Penggerak Sekolah Dasar." *Jurnal Basicedu* 6, no. 5 (2022). https://doi.org/10.31004/basicedu.v6i5.3216.

Yolanda, A., M. Sihotang, J.A. Zebua, M. Hutasoit, and Y.L. Sinaga. "Strategi Pembelajaran Kontekstual untuk Meningkatkan Pemahaman Konsep Siswa Sekolah Dasar." *Pragmatik: Jurnal Rumpun Ilmu Bahasa dan Pendidikan* 2, no. 3 (2024). https://doi.org/10.61132/pragmatik.v2i3.941.