

Literature Review on the Effectiveness of the Merdeka Curriculum in Secondary Education in Indonesia Based on CIPP Evaluation

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ABSTRACT

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The Merdeka Curriculum was introduced to increase learning flexibility, encourage project-based learning, and integrate technology and local culture in the educational process. However, its implementation faces several challenges, including the varying readiness of educators, limited educational infrastructure, and disparities in access to technology and learning resources between regions, particularly in remote areas. This study aims to evaluate the effectiveness of the implementation of the Merdeka Curriculum in secondary schools using the CIPP (Context, Input, Process, Product) evaluation model. The study employs the Systematic Literature Review (SLR) method using the PRISMA framework to identify, screen, and analyze relevant studies. A total of 26 articles published between 2022 and 2024 were selected and analyzed to understand the effectiveness, opportunities, and challenges of curriculum implementation. The findings indicate that the Merdeka Curriculum provides greater flexibility in learning, promotes project-based learning, and supports the development of 21st century competencies such as critical thinking, creativity, collaboration, and digital literacy. In addition, the curriculum has a positive impact on increasing students' learning motivation and encouraging more contextual learning practices. However, the effectiveness of its implementation is highly dependent on the readiness of teachers, the availability of learning infrastructure, and consistent policy support. To optimize the implementation of the Merdeka Curriculum, strengthening teacher capacity through continuous professional development, improving educational infrastructure, and refining project-based and authentic assessment systems are essential. Continuous evaluation and adaptive strategies are also needed to ensure that the curriculum remains relevant to global educational demands. The findings of this study provide insights for policymakers, educators, and researchers in improving the effectiveness of curriculum implementation and in designing more inclusive and sustainable educational policies in Indonesia.



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Introduction

The curriculum is the main component in the education system that directs the learning process and provides learning experiences for students (Faiz et al., 2023). The curriculum includes objectives, materials, teaching methods, and evaluation, and adapts to changes in social situations, technology, and society. In a narrow sense, the curriculum is a set of subjects, while in a broad sense, it includes all learning experiences under the responsibility of the school (Usdarisman, 2024).

Along with the times, the curriculum must be constantly updated to remain relevant and able to meet the increasingly complex demands of learning. The “Merdeka Curriculum” emphasizes flexibility and project-based learning, although it still faces challenges such as teacher readiness and access gaps. According to Zulhuda et al. (2024) the integration of 21st century skills and digital literacy is an important factor in creating an adaptive and relevant education system for students.

Curriculum development in Indonesia reflects adaptation to community needs, challenges, and national development goals (Zulhuda et al., 2024). The current curriculum has advantages, such as more structured competency standards and the utilization of technology in learning. Curriculum 2013 emphasizes skill competencies, contextual and integrated approaches, and project-based learning. However, its complex implementation and rapid industry changes are a challenge (Marta et al., 2024). Curriculum changes, including the implementation of Merdeka Curriculum, bring advantages such as greater flexibility, more enjoyable learning, and reduced pressure on students. Students can choose materials according to their needs, so they are more active, participate, and develop skills better (Shakila Riyan et al., 2024). The curriculum also provides flexibility for teachers to customize learning and integrate projects that emphasize character values such as honesty, responsibility, and teamwork (Hasja et al., 2023).

However, the implementation of Merdeka Curriculum faces challenges such as the lack of teacher training, limited facilities in remote areas, and the need for changes in assessment methods that still focus on memorization. In addition, in their research Hasja et al. (2023) revealed that there are obstacles in equipment, motivation, expertise, and support from schools and communities. The mismatch between the world of education and industry is also an obstacle, where the lack of cooperation between educational institutions and the industrial sector causes curriculum materials to be misaligned with skill needs in the field (Hasja et al., 2023).

Although the current curriculum has advantages, there are still weaknesses that need to be addressed in order to improve the quality of education and adapt graduates to industry needs. Improvements should focus on adjusting teaching materials, increasing curriculum flexibility, and encouraging active student participation. In addition, collaboration between educational institutions and industry needs to be strengthened so that graduates are more competent and ready to face the global job market.

The rapid development of technology and the dynamics of the labor market further complicate the curriculum challenges. The gap between education and industry causes graduates to be less skilled (Halizah, 2024). According to Hermawan et al. (2024) the teacher-centered learning approach also hinders the development of critical thinking and problem solving. Limited resources, infrastructure, and technology utilization are additional obstacles. Therefore, curriculum management must adapt to technological changes and industry needs to improve the quality of graduates (Bachtiar, 2022).

In order for the curriculum to adapt to change, systematic evaluation is needed to assess its effectiveness in meeting the needs of students and the world of work. Comprehensive evaluations, such as the CIPP (Context, Input, Process, Product) model, enable a holistic analysis of curriculum implementation. Haerul's (2024) research on Merdeka Curriculum in Makassar City Junior High School shows that social, cultural, and economic factors affect the effectiveness of the curriculum, so a flexible and contextual approach is needed. In addition, teacher readiness and availability of facilities, including the use of technology, are key factors in the success of curriculum implementation.

Curriculum evaluation aims to measure the achievement of educational objectives and identify aspects that need improvement. The CIPP model is widely used in curriculum evaluation research, including Curriculum 2013, to assess its implementation and effectiveness (Mukhdlor et al., 2024). This evaluation covers four main aspects: context to assess program objectives, input to identify resources, process to analyze implementation, and product to measure achievement (Suri & Hariyati, 2024). With continuous data-based evaluation, the curriculum can be continuously refined to align with the times and the demands of global education.

Curriculum changes should be based on relevant learning theories, such as social constructivism, which emphasizes active learning through social interaction. This process involves collaboration, group discussions and utilization of technology, with the teacher acting as a facilitator so that students can be guided to develop their ideas and find solutions (Puspita et al., 2024). Constructivism also according to Refi Mariska & Abdul Khobir (2023) emphasizes student-centered learning, where they build knowledge based on experience

Merdeka curriculum is in line with this theory as it gives students the freedom to explore their learning experiences (Refi Mariska & Abdul Khobir, 2023). In addition, social constructivism emphasizes that knowledge is co-developed through interaction, encouraging active and participatory learning, with the teacher as a facilitator who stimulates critical thinking and exchange of ideas (Shafa Salsabila & Gumiandari, 2024).

This research presents a new approach to curriculum evaluation by combining the CIPP method and social constructivism theory as the basis for analysis. In addition, it provides practical recommendations for curriculum development that is more relevant to industry needs and technological developments, with a focus on technology integration and increased social interaction in learning.

This study aims to evaluate the secondary school curriculum using the CIPP (Context, Input, Process, Product) model and focuses on: (1) analysis of the curriculum context in facing the challenges of education and the times; (2) identification of input factors that affect learning, including resources, teacher readiness and infrastructure; (3) review of curriculum implementation in learning practices; and (4) evaluation of implementation results from the academic and skills aspects of students. The results of this study are expected to provide a comprehensive picture of the effectiveness of the curriculum as well as recommendations for its improvement.

Method

The Systematic Literature Review (SLR) method was used in this research to identify, evaluate and synthesize literature studies relevant to the research questions. The main objective of SLR is to provide a comprehensive and transparent overview of the research that has been conducted on a particular topic, by following a systematic and structured process. The SLR process involves an extensive search strategy to collect relevant literature, which is then analyzed to assess its relevance to the research topic (Triandini et al., 2019).

In this study, data collection was conducted by applying the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) framework. This approach is used to assist the process of reporting systematic reviews in a transparent and complete manner, ensuring that the rationale for the review, methods used, and findings are clearly presented. In addition, PRISMA helps avoid duplication of studies by providing comprehensive guidance in the identification and selection process of scientific literature. Thus, the application of the PRISMA method improves the quality and accuracy of systematic review reporting, facilitating researchers in compiling more reliable and informative reviews (Page et al., 2021). The figure below shows the process of screening literature studies using PRISMA:

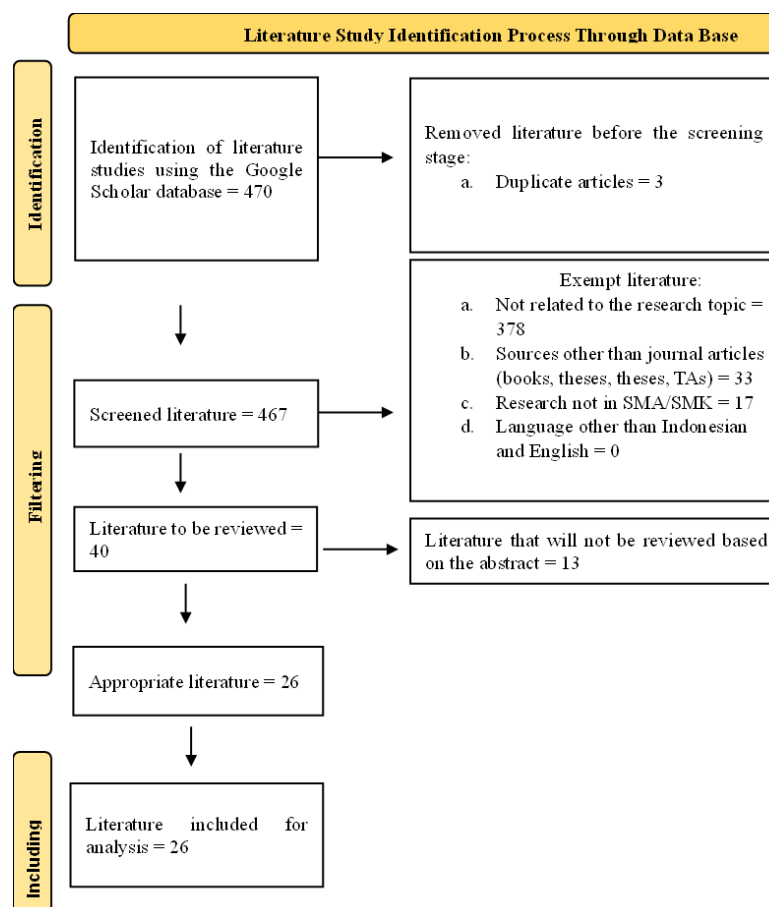


Figure 1. Literature Review Inclusion Phase

From the PRISMA figure above, it can be seen that the process of screening and analyzing literature studies goes through 4 main phases, namely:

1. Identification

Identification of literature studies was done using the Google Scholar database and 470 studies were found. This literature was then reviewed using a reference management platform and 3 duplicate articles were found.

2. Filtering

In this second phase, literature that does not meet the criteria will be excluded, the exclusion criteria include literature that is not related to the research topic, sourced other than journal articles either books, theses, theses or final assignments, research not in SMA or SMK, and languages other than Indonesian and English. From this exclusion determination, 427 studies were excluded and 40 literatures remained for the next phase.

3. Eligibility

In determining the feasible studies, 40 studies were further reviewed by checking the relevance to the research topic through title and abstract examination. 13 literatures were found to be unsuitable and 26 literatures remained.

4. Inclusion of the last stage, 26 literatures were obtained to be reviewed and analyzed further. These 26 articles are known to have met the inclusion criteria set, namely published in the range of 2022-2024, articles used with case studies in senior high schools (SMA), Indonesian language, articles can be accessed in full, and in accordance with research topics related to curriculum and CIPP curriculum evaluation.

In order to ensure the quality, relevance and focus of the studies included in this review, the inclusion and exclusion criteria as part of the screening process are described in detail. The inclusion criteria focused on literature studies with discussions related to curriculum evaluation using the CIPP (context, input, process, product) method. By setting this criterion, the literature that was subsequently screened and included could be ensured to have a connection with the research topic.

In this study, data analysis was conducted by evaluating the quality of articles based on methodological criteria established in the literature. These criteria included clarity of research objectives, relevance of topics, and quality of results presented. The evaluation of the quality of the literature followed Kitchenham & Brereton's (2013) guidelines, which assessed clarity of purpose, validity of methods, and accuracy of concept definitions and terminology.

This study also used thematic analysis to interpret the data, as proposed by Braun & Clarke (2019). This method identifies, analyzes and reports emerging themes from the reviewed studies. The literature was reviewed by extracting key themes, identifying patterns of findings, and synthesizing them through a thematic synthesis approach, thus providing a more comprehensive understanding of the phenomenon under study.

Table 1. Inclusion and Exclusion Criteria

Exclusion	Inclusion	Criteria
Publication year	2022-2024	Before 2022
Document type	Research article	In addition to research articles, books, theses, theses or final assignments
Language	Indonesian language	Not in Indonesian language
access	open access	closed access
Topic	CIPP method curriculum evaluation	Not a CIPP method curriculum evaluation

Results and Discussion

Year of publication

The included literature studies were published between 2020 and 2024, assuming that the Merdeka Curriculum was implemented starting in 2020. Total literature published in 2022 (n=1), 2023 (n=7) and 2024 (n=19).

Place of research

The research area focused on the whole of Indonesia with the assumption that the implementation of the Merdeka Curriculum is limited to Indonesia. Based on 27 literatures, each has a different research place, including Banjarmasin, Tual, Sukabumi Regency, Jombang Regency, Semarang, Bali, Bima (NTB), Central Kalimantan, Padang, West Kalimantan, Ponorogo Regency, Semarang Regency, Jambi, Yogyakarta, Ngawi Regency, Bukittinggi, Pasaman Regency, Bandar Lampung, Cirebon Regency, Sidoarjo, Makassar, Bangli, Mojosari, and Tangerang Regency.

Subject matter

The subject matter in each literature is assumed to use the Merdeka Curriculum at the secondary school level. Each included study has different subject matter, including the project of strengthening the Pancasila student profile (P5), guidance and counseling, Islamic religious education, physical education, sports, and health, marketing basics, natural science, thematic learning, biology, physics, Minangkabau natural culture character education, automotive engineering, and mathematics.

Based on the results of the research as examined in Table 2, Table 3, Table 4, and Table 5, in the context of the evaluation component, in general, the implementation of the educational webinar program by the learning community of Guru Penggerak in Mukomuko Regency showed relatively high results. These results can be compared to a study from (Yulizar & Student, 2023). On Evaluation of Implementation of the Independent Curriculum at State Level Schools for Academic Year 2022/2023 in Belitung District, Bangka Belitung Islands Province where the level of understanding of participants towards the webinar material was 77% in the good category.

Table 2. Classification of literature study findings

No	Research Results	Influencing Factors	Author and Year
1	Context and Readiness	- Supportive environment - School readiness - Local culture integration	(Aprilia, 2024; Cantika & Supriyanto, 2023; Hendri et al., 2024; Irvansyah et al., 2023; Jumiati et al., 2024; Komang et al., 2024; Maryati et al., 2023; Novianto & Supahar, 2024; Nurfadhilah, 2024; Risdiyanto, 2024; Rosadi, 2023; Sholihah, 2024; Sulastri, 2023; Wiguna Yasa, 2023)
2	Inputs and Resources	- Qualified teachers - Limited resources - Varied infrastructure	(Aprilia, 2024; Irvansyah, 2023; Jumaeda, 2024; Jumiati, 2024; Komang et al., 2024; Mufid & Prasetyo, 2023; Nurjanah & Mustofa, 2024; Rahma & Mulyono, 2024; Rosadi et al., 2023; Sapuadi, 2024; Sulastri, 2023; Wiguna Yasa, 2023)
3	Process and Implementation	- Project-based learning - Varied teaching methods - Technology integration - Implementation challenges	(Cantika & Supriyanto, 2023; Irvansyah, 2023; Jumaeda, 2024; Jumiati, 2024; Komang, 2024; Mulyati, 2024; Novianto & Supahar, 2024; Nurfadhilah, 2024; Pariz, 2024; Prasetyowati et al., 2024; Rahayu & Istikomah, 2024; Rahma & Mulyono, 2024; Rosadi et al., 2023; Sari et al., 2023; Sholihah et al., 2024; Sulastri et al., 2023; Yusadi & Sabri, 2024)
4	Products and Results	- Achievement variable - Skill enhancement - Character development	(Aprilia, 2024; Jumaeda, 2024; Jumiati, 2024; Mufid & Prasetyo, 2023; Nurhalimah, 2022; Nurjanah & Mustofa, 2024; Ribisi, 2024; Risdiyanto et al., 2024; Sari, 2023; Sholihah, 2024; Sulastri, 2023; Wiguna Yasa, 2023)

Table 2 presents the findings of 26 articles and shows that there are various factors that contribute to the readiness of educational institutions, the availability of resources, the effectiveness of implementation, and the achievement of learning outcomes in the context of the Merdeka Curriculum evaluation. The CIPP (Context,

Input, Process, Product) model used for evaluation offers a systematic approach to assessing various aspects of the curriculum to ensure its effectiveness and relevance in the educational context.

1. Context: The context aspect in the Merdeka Curriculum evaluation includes the readiness of educational institutions to adopt and implement the designed curriculum. Factors such as environmental support, institutional readiness, and integration of local culture are crucial components in building a conducive learning ecosystem. This context also reflects the extent to which the implemented education policies are aligned with the needs and characteristics of students and society.
2. Input: Evaluation at the input stage focuses on the availability of resources that support the implementation of the Merdeka Curriculum, including the competence of teaching staff, the adequacy of infrastructure, and the feasibility of educational facilities and infrastructure. The quality of teachers and adequate facilities are determinant factors in learning effectiveness. However, limited resources are still a challenge that has the potential to hinder the optimization of curriculum implementation.
3. Process: In the process aspect, the evaluation is carried out on the Merdeka Curriculum implementation strategy, including the use of innovative learning approaches such as project-based learning, variations in teaching methods, and the use of technology in the learning process. The effectiveness of this strategy is determined by the consistency of implementation and the capacity of educators in adapting methods that suit the needs of students. However, there are still various challenges in its implementation, such as limited technological literacy and institutional readiness in supporting pedagogical transformation.
4. Product (Result): Evaluation of the results aspect focuses on the academic achievement of students, improving skills, and developing character in line with the demands of 21st century competencies. The results of this evaluation serve as an indicator of the successful implementation of the Merdeka Curriculum in forming graduates who have competitiveness and can adapt to the dynamics of scientific and technological developments.

Thus, the CIPP approach in evaluating the Merdeka Curriculum provides a holistic perspective that not only assesses the success of curriculum implementation in terms of learning outcomes, but also pays attention to context, input, and process factors that affect its effectiveness. The results of this evaluation are expected to be the basis for improving and developing educational policies that are more adaptive and sustainable.

RQ 1: How is the curriculum implemented at school and how does it fit with the principles of Merdeka Curriculum?

The main principles of the Merdeka Curriculum, namely flexibility and contextualization, are reflected in the modification of teaching materials to be relevant to local social, cultural, and economic needs, such as the integration of Minangkabau culture in Bukittinggi or adjustments to industrial needs in Semarang (Hendri et al., 2024; Rahma & Mulyono, 2024). The implementation of Merdeka Curriculum in schools varies, with some schools having fully implemented it, while others are still adapting gradually or in parallel with Curriculum 2013. This flexibility allows adjustments between resources and the characteristics of learners in each region (Jumiati et al., 2024).

A project-based approach is a hallmark, especially in the “Pancasila Student Profile Strengthening Project” (P5), which encourages critical thinking skills, collaboration, and creativity (Sulastri et al., 2023). However, time and resource constraints are still an issue. In vocational education, curricula are beginning to be aligned with industry standards through strategic partnerships, although the readiness of resources and educators remains a challenge. Technology integration is also growing, with the use of digital platforms such as “Merdeka Mengajar” and learning support devices. However, there are still gaps in access to technology, especially in remote areas. The readiness of infrastructure and educators also affects the success of implementation, with the need for further training in authentic assessment, differentiated learning, and technology (Sulastri et al., 2023).

From a student perspective, there is increased motivation in project-based learning, although active participation still needs to be improved in some environments. Assessment in the Merdeka Curriculum is more authentic, prioritizing portfolios and project evaluations, but its implementation still varies between schools (Mulyati et al., 2024).

Overall, the Merdeka Curriculum is in line with the principles of flexibility, contextualization, project-based learning, and integration of technology and local culture (Irvansyah et al., 2023; Novianto & Supahar, 2024; Rosadi et al., 2023). However, challenges related to the readiness of resources, teachers, and time need to be addressed through continuous support, capacity building of educators, and more contextualized adaptation strategies for optimal implementation.

RQ 2: To what extent are schools ready to implement Merdeka Curriculum in terms of teacher competence, availability of facilities, cooperation, and budget support?

Schools vary in their level of readiness to implement Merdeka Curriculum, which can be influenced by teacher competence, availability of facilities, collaboration with stakeholders, and budget support. Although many schools are committed to adopting it, challenges in these aspects determine the effectiveness of implementation.

In terms of teachers' competencies, despite having participated in socialization and training, their readiness still varies (Jumiati et al., 2024; Nurjanah & Mustofa, 2024). Senior teachers tend to have difficulty adapting to flexible and project-based approaches. Digital literacy is also an obstacle, considering that the use of technology is increasingly crucial in learning (Aprilia et al., 2024; Nurfadhilah et al., 2024). The Guru Penggerak program has been proven to increase teachers' capacity in designing adaptive and innovative learning, so it needs to be expanded to accelerate the readiness of educators (Aprilia et al., 2024).

School readiness is also determined by supporting facilities, especially in remote areas that face limited teaching aids, laboratories and internet access (Komang et al., 2024). Schools with better infrastructure, such as the provision of books and LCD projectors, show higher readiness (Jumiati et al., 2024; Sulastris et al., 2023). However, the management of school digitalization still needs to be improved, especially in utilizing the "Merdeka Mengajar" platform (Maryati et al., 2023; Nurjanah & Mustofa, 2024; Sulastris et al., 2023).

Collaboration with stakeholders, such as industry and the community, is an important factor in strengthening project-based learning (Jumiati et al., 2024; Nurjanah & Mustofa, 2024; Sulastris et al., 2023). Some schools have established partnerships with local businesses and cultural organizations, especially in SMK (Rahma & Mulyono, 2024). However, parental participation is still a challenge in some areas, so more effective communication and outreach is needed to increase their involvement.

In terms of funding, many schools still rely on the BOS Fund, which is not fully sufficient (Rahma & Mulyono, 2024). Schools with access to additional funding or external support are better equipped to provide facilities and training for teachers (Rosadi et al., 2023). Therefore, resource efficiency strategies and private sector involvement need to be strengthened for the sustainability of this curriculum implementation.

Overall, school readiness depends on improved teacher competencies, adequate facilities, collaboration with stakeholders and sufficient funding. Challenges such as infrastructure gaps, teacher digital literacy, and budget constraints still need to be addressed. The successful implementation of Merdeka Curriculum requires a comprehensive approach through continuous training, strengthening collaboration, and optimizing technology in learning.

RQ 3: How is the Merdeka Curriculum implementation process reflected in learning activities, use of technology, and utilization of facilities?

The implementation of Merdeka Curriculum in schools is reflected in learning activities, technology utilization, and available facilities. This curriculum emphasizes flexibility, project-based learning, and a learner-centered approach in order to develop character and 21st century competencies. Despite the progress, challenges in educator readiness, technology infrastructure and limited facilities are still the main obstacles.

According to Irvansyah et al. (2023) in learning, Merdeka Curriculum prioritizes Project-Based Learning (PBL) through the Pancasila Student Profile Strengthening Project (P5). This approach optimizes student involvement and creativity, although its implementation still faces obstacles in teacher readiness and time allocation. Teachers began to apply more varied and adaptive learning methods, such as differentiation, discussion, and peer tutors, in line with their role as facilitators of student exploration (Jumiati et al., 2024).

The integration of local context is also an important part, especially in linking the material with the culture and economic potential of the region (Aprilia et al., 2024; Rahma & Mulyono, 2024). In SMK, learning is tailored to the needs of local industries, while public schools adapt local cultural elements into the curriculum. Experiential learning, such as out-of-class activities and hands-on practice, is also being implemented to deepen students' understanding.

In technology utilization, some schools have adopted the "Merdeka Mengajar" platform and other digital resources, although there are still gaps in teachers' digital access and literacy (Jumiati et al., 2024; Nurjanah & Mustofa, 2024). Schools with better infrastructure tend to optimally utilize tools such as projectors, computers and online learning applications (Aprilia et al., 2024; Rahma & Mulyono, 2024). However, disparities in access to technology and challenges in digital-based assessment are still an obstacle in various regions (Komang et al., 2024; Sulastris et al., 2023).

School facilities also play an important role in supporting curriculum implementation. Schools with complete infrastructure, such as adequate laboratories and libraries, are better equipped to implement exploration and technology-based learning. However, many schools still face limitations in teaching aids, textbooks and practical equipment in SMK. Some schools overcome these limitations with flexible learning strategies, such as industrial visits and environmental exploration, although budget constraints are often an obstacle.

Overall, the implementation of Merdeka Curriculum shows positive progress but still faces challenges in teacher readiness, access to technology and infrastructure. A comprehensive strategy is needed, including improving teachers' digital literacy, investing in infrastructure, and optimizing learning facilities for effective and sustainable implementation of this curriculum.

RQ 4: What is the achievement of student learning outcomes in the implementation of Merdeka Curriculum based on good and sufficient categories?

The implementation of Merdeka Curriculum results in the achievement of varied learning outcomes, classified as "Good" and "Adequate". This difference is influenced by school readiness, teacher competence, student involvement, and the availability of supporting resources. In general, this curriculum has a positive impact on students' character development and life skills, although the level of success differs between schools and subjects (Jumiati et al., 2024; Mulyati et al., 2024).

"Good" category

Schools with "Good" achievement demonstrate success in several key aspects:

1. Teacher competence: The Guru Penggerak program helps teachers adopt student-centered approaches more effectively (Risdiyanto et al., 2024).
2. Improved Student Skills and Motivation: Especially in vocational schools, students show progress in vocational skills. In addition, project-based methods optimize student motivation and engagement in the learning process (Jumiati, 2024; Nurjanah & Mustofa, 2024; Sulastrri, 2023).
3. Success of the Pancasila Student Profile Strengthening Project (P5): The project-based approach successfully instills the values of gotong royong, creativity, and independence (Jumiati et al., 2024).
4. Academic Outcomes: Average summative scores reached 85 and above, with 85% of students meeting expectations in creativity and 77% in aspects of faith and piety (Jumiati et al., 2024; Sulastrri et al., 2023).

"Fair" category

In the "Fair" category, challenges are still found in:

1. Gaps in Understanding and Creativity: Some students still have difficulties in mastering concepts and adapting to new learning methods (Jumiati et al., 2024).
2. Achievement Disparities: Schools in urban areas with better access to resources and technology tend to have higher results than schools in remote areas (Sulastrri et al., 2023).
3. Effectiveness of Project-Based Learning: Lack of teacher training and low student engagement lead to suboptimal implementation of PBL (Irvansyah et al., 2023).
4. Authentic Assessment and Grading: Some teachers still have difficulties in compiling a comprehensive assessment rubric, so that students' critical thinking skills have not been maximally measured (Komang et al., 2024).

Overall, Merdeka Curriculum shows a positive impact, but challenges remain in resource equity, educator readiness, and adjustments to learning methods. To increase its effectiveness, it is necessary to improve teacher training, optimize assessments, and provide more equitable infrastructure.

Improving Teacher Competence

Improving the quality of teachers can be done through intensive and continuous training that focuses on innovative methods such as Project-Based Learning (PBL) and differentiated learning. Digital literacy also needs to be improved so that teachers are able to utilize technology in learning. In addition, assistance from facilitators and mentors is needed, especially for teachers who have difficulty adapting to the new curriculum.

Improving Facilities and Infrastructure

Adequate educational facilities are an important factor in implementing the Merdeka Curriculum. Schools need to improve facilities such as laboratories, libraries, and teaching aids to support exploration and practice-based learning. Stable internet access must also be ensured, especially in remote areas, so that digital learning resources can be used optimally. The utilization of technology such as computers and projectors must also be improved to support online and interactive learning.

Collaboration and Community Involvement

Collaboration between schools, communities and the industrial world needs to be strengthened to make the implementation of Merdeka Curriculum more effective. Teachers and schools must be more active in sharing best practices, while parental involvement in supporting student development also needs to be improved. Partnerships with local industries and organizations can provide project-based learning experiences that are more relevant to the world of work and students' social lives.

Budget Optimization

Budget management should be done more efficiently, by ensuring adequate allocation of funds for teacher training, infrastructure improvement and provision of learning resources. Efficiency in budget use needs to be prioritized so that every available fund is truly used to optimally support the implementation of Merdeka Curriculum.

Curriculum and Assessment Refinement

Curriculum improvement must be carried out by developing more flexible implementation guidelines so that schools can adapt learning to local needs. Authentic assessments, such as portfolios and project-based assessments, must be further optimized. In addition, the periodic use of diagnostic assessments can help tailor learning strategies to students' needs.

Overcoming Implementation Challenges

Some challenges in implementing this curriculum must be addressed. Senior teachers who have difficulty adapting need more support. Time management also needs to be improved so that teaching and administrative tasks can be balanced. In addition, learning should be more interactive with strategies such as group discussions and case studies to increase student participation.

Evaluation and Continuous Improvement

Periodic evaluation of the implementation of Merdeka Curriculum is an important step to ensure continuous improvement. Evaluation results should be used to refine learning strategies and school management, and systematically monitor student progress with constructive feedback. By implementing these various recommendations, Merdeka Curriculum can run more optimally and provide maximum benefits to the world of education.

Conclusion

This study evaluates the implementation of Merdeka Curriculum in secondary schools using the CIPP (Context, Input, Process, Product) model. The analysis results show that this curriculum has high flexibility, encourages project-based learning, and integrates technology and local culture. However, its implementation still faces challenges, such as the diverse readiness of educators, limited educational infrastructure, and gaps in access to technology, especially in remote areas. Nevertheless, the Merdeka Curriculum has had a positive impact on improving 21st century skills and student learning motivation.

In order to optimize the implementation of the Merdeka Curriculum, it is necessary to strengthen the capacity of educators through continuous training, improve educational infrastructure, and closer synergy between education and industry. In addition, the assessment system needs to be refined to be more project-based and authentic to ensure the achievement of competencies in accordance with global demands. With a more adaptive approach and continuous evaluation, Merdeka Curriculum can be a strategy for transforming education that is more relevant, inclusive, and oriented towards strengthening learner competencies.

The implications of this study provide insights for various stakeholders in the world of education, especially in improving the effectiveness of implementing Merdeka Curriculum in Secondary Schools. The findings of this

study can serve as a basis for the government and policy makers in designing more appropriate strategies to support curriculum implementation, including the provision of training for teachers, improving learning infrastructure, and periodic evaluation of policy effectiveness. For educators, the results of this study can provide a deeper understanding of the challenges and factors that influence the success of curriculum implementation, so that they can adapt teaching methods that are more suitable to the needs of students. In addition, for future researchers, this study can serve as a reference in developing further research on Merdeka Curriculum, both in terms of its long-term impact and from a broader perspective, such as parental involvement and learner readiness. By understanding these implications, it is hoped that all parties involved in education can work together to optimize the implementation of the Merdeka Curriculum to improve the quality of learning in Indonesia.

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Author Contributions Statement

FN served as the primary contributor to this study, which included formulating the research concept, developing the research design, collecting and analyzing data, and drafting the initial manuscript. EA and DI contributed to the development of the conceptual framework and provided input on the analysis based on the CIPP evaluation model. RA was involved in reviewing the methodology, validating the analysis results, and performing the final editing of the manuscript. All authors have read and approved the final version of the manuscript.

AI Usage Statement

The author states that the use of artificial intelligence (AI)-based tools in this study is limited to language editing, grammar checking, and improving the clarity of the writing. AI was not used to generate research ideas, perform data analysis, or draw scientific conclusions. The author bears full responsibility for the entire content and interpretation of the research results.

Conflict of Interest

The authors declare that there are no conflicts of interest in the conduct of this research or the publication of this article.

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