Curriculum Reform: A Transformation of Educational Progress

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Abstract

Curriculum renewal is a strategic agenda in responding to the challenges of globalization, technological developments, and the demands of 21st century competencies. This article discusses the urgency of curriculum transformation in Indonesian education with a focus on the implementation of the Independent Curriculum as an effort to improve the quality and relevance of learning. The main objective of this study is to explore the dynamics of curriculum renewal implementation in various geographical contexts and identify the determinants of its success. This study uses a qualitative approach with a multi-site case study type. Data were collected through in-depth interviews, observations, and documentation from 15 informants in urban, semi-urban, and rural areas, then analyzed thematically. The results of the study indicate a significant implementation gap between regions, influenced by teacher readiness, institutional support, and infrastructure. These findings enrich the understanding of the importance of a contextual approach and policy differentiation in curriculum implementation. In conclusion, curriculum renewal will only be effective if supported by adaptive policies, ongoing training, and equal access to educational technology. Further research is recommended to use a longitudinal approach and data triangulation to deepen understanding of the process of sustainable educational transformation.

Keywords: Curriculum; Policy implementation; Educational transformation

Introduction

Currently, the world of education is at an important crossroads. Global demands and technological developments force us to reevaluate the structure and content of the curriculum that we teach to the younger generation. The changing times demand a curriculum that is adaptive and responsive to the needs of the 21st century, such as digital skills, critical thinking, and collaboration, in addition to strengthening mastery of academic material.

In Indonesia, according to data from,[1] the implementation of vocational education has increased: employment of SMK graduates rose from 32.1% to 38.4%, and vocational diplomas from 50.2% to 58.6% in two years. However, there are still serious gaps, especially in the 3T (frontier, remote, underdeveloped) areas, where only about 60% of schools have adequate access to technology; students there have difficulty accessing LMS and online learning.[2]

Globally, the "learning crisis" is still lurking. According to UNESCO, more than 330 million students do not achieve basic competencies, and another 263 million have not even received a formal education. This problem is felt in themismatch between the curriculum and the real needs of the world of work. It is characterized by gaps in access to technology, inadequate teacher preparation, and traditional evaluation systems that are not competency-oriented.[3]

Various countries have begun to overhaul their curricula. In Wales and Scotland, for example, curricula are being redesigned to emphasize digital skills, creativity, literacy, and thematic integration of disciplines. Countries like India, South Africa, and Indonesia are also adopting artificial intelligence in adaptive and personalized learning in thousands of schools. At the same time, the United Arab Emirates has started introducing an AI curriculum from an early age to prepare the digital generation.

In the UK, concerns about the excessive stress and inequality of GCSE exams are driving the discourse of replacing the traditional exam system with a more holistic approach to evaluation. Even in Australia, researchers are calling for comprehensive reforms, including national institution-based teacher training, and industry engagement to ensure the curriculum is relevant. Indonesia is also rolling out the Merdeka Curriculum, starting in 2024 to 2025, with a foundation of character, AI, and project-based learning. However, its implementation is still hampered by infrastructure and teacher readiness.[4]

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[1] Kemdikbudristek, "Survei PISA 2022: Peningkatan Literasi Dan Numerasi," 2023.

[2] Lesprivatexito, "Tren Pendidikan 2025: Apa Yang Dibutuhkan Pelajar Indonesia," 2025.

[3] UNESCO, "Teaching and Learning: Achieving Quality for All," 2014.

[4] OECD, "Digital Education Outlook 2022: Strengthening the Impact of Digital Technology on Learning" (OECD Publishing, 2022).

In general, the sharpest challenge is seen in the gap between theory and practice: graduates who excel in the classroom are still not ready to face real tasks in industry and society. In addition, hybrid learning approaches (a mix of online, offline) are increasingly relevant, but the government needs to balance technological infrastructure development and teacher training so as not to leave marginalized areas behind.

Equally important is the demand for soft skills: The World Economic Forum states that 50% of jobs in 2025 require skills that were not common in 2020, such as problem solving, critical thinking, and digital literacy. Global breakthroughs are also emerging in the modern physics curriculum, such as the Einsteinian Science Curriculum that introduces 20th-century physics concepts from an early age in an effort to align school science with the latest scientific advance.[5] Similarly, the integration of interdisciplinary learning, such as STEAM, is a solution to overcome curriculum fragmentation and increase the relevance of learning. With these various initiatives, the urgency of discussing curriculum reform is increasingly evident: the curriculum is not just about the content of lessons, but about shaping character, work readiness, digital readiness, and readiness to face global challenges.[6]

This article is here to address that urgency: exploring how curriculum transformation can be a driver of change in our education system. Several key questions are raised: What forms of curriculum reform are effective? How can it be implemented in the Indonesian context? What are the biggest obstacles, and how can they be solved? Through theoretical grounding from literature such as[7] on generative AI and on computation in the statistics curriculum,[8] this article dissects the theoretical review and practical implementation of curriculum transformation.

The main objective of this article is to provide a comprehensive analytical framework on the direction of curriculum reform that is relevant, data-driven, and applicable in Indonesia. The expected benefits are theoretically enriching educational discourse with real analysis and practical, providing policy recommendations and implementation strategies for

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[5] World Economic Forum, "Laporan Keterampilan Global 2025," 2020.

[6] Netty Suryanti et al., "Development of an Oral Hygiene Behavior Questionnaire for Adolescents Based on the Theory of Planned Behavior," *Journal of Stomatology* 73, no. 3 (2020).

[7] Ibrahim, S. (2017). Pendidikan tentang Manusia dalam Perspektif Al-Qur'an. *Jurnal Ilmiah AL-Jauhari: Jurnal Studi Islam Dan Interdisipliner*, *2*(2), 243–256. https://doi.org/10.30603/jiaj.v2i2.691

S Chakraborty, "Generative AI in Modern Education Society," *ArXiv*, 2024.

[8] N J.; Hardin Horton J. S., "Integrating Computing in the Statistics and Data Science Curriculum: Creative Structures, Novel Skills and Habits, and Ways to Teach Computational Thinking," *ArXiv*, 2020.

educational stakeholders.

With this background, this article is expected to be a strong foundation for an inclusive, competitive, and transformative curriculum system innovation that connects theory, practice, and modern challenges.

Methods

This research used a qualitative approach with an exploratory descriptive study design. This type of research was chosen because it is suitable for studying complex, in-depth, and contextual phenomena related to the dynamics of curriculum renewal in education. Qualitative research allows researchers to understand the meaning, perceptions, and implementation strategies of the curriculum from the point of view of educational actors naturally and holistically.[9]

The approach used is phenomenological, because the main focus of this research is to explore the in-depth understanding of educational stakeholders (teachers, principals, curriculum developers and policy makers) regarding their experiences in the curriculum renewal process. This approach is relevant for exploring the subjective meanings inherent in their interactions with the education system and curriculum policies.[10]

The main data sources in this study come from primary and secondary data. Primary data were obtained through in-depth interviews and observations of education actors directly involved in curriculum planning and implementation. Secondary data included curriculum policy documents (such as Merdeka Curriculum documents), ministry of education reports, as well as academic publications and official media discussing curriculum reform.[11]

The main data collection technique was semi-structured interviews. These interviews were conducted with key informants, including school principals, subject teachers, education supervisors and national curriculum developers. This technique was chosen because it allowed for the exploration of in-depth answers while maintaining a consistent guiding framework.[12] In addition to interviews, non-participatory observations were conducted in

[9] J W.; Poth Creswell C. N., *Qualitative Inquiry and Research Design: Choosing among Five Approaches*, 4th ed. (Sage Publications, 2018).

[10] Ibrahim, S. (2017). Pendidikan tentang Manusia dalam Perspektif Al-Qur'an. *Jurnal Ilmiah AL-Jauhari: Jurnal Studi Islam Dan Interdisipliner*, *2*(2), 243–256. https://doi.org/10.30603/jiaj.v2i2.691. Lesprivatexito, "Education Trends 2025: What Indonesian Students Need."

[11] M Yusuf, "Teacher Resistance and Educational Reform in Indonesia: Understanding Barriers to Curriculum Implementation," *Journal of Educational Change* 22, no. 3 (2021): 289-305.

[12] Michael Quin Patton, *Qualitative Research & Evaluation Methods: Integrating Theory and Practice*, Vicki Knig (Los Angeles: Asia-Pacific Pte. Ltd, 2015).

several education units (primary, junior secondary and senior secondary) that had implemented the new curriculum. Observations were made of the learning process, the use of curriculum tools and interactions between teachers and students to understand how the curriculum was actually implemented.[13]

Documentation was also a supporting data collection technique. Researchers reviewed curriculum documents, implementation guidelines from the Ministry of Education and Culture, and curriculum implementation evaluation reports from the education office. This is important to assess the correspondence between the written policy and the factual implementation in the field. In terms of determining research subjects, purposive sampling was used, which is the deliberate selection of informants based on certain criteria. The criteria for informants included: having direct experience in implementing the latest curriculum (at least one year), having knowledge of education policy and being willing to be interviewed in depth.

The sample consisted of 15 informants spread across three provinces to represent different educational contexts in urban, semi-urban and rural areas. The selection of these areas was intended to allow the data to reflect variations in curriculum implementation due to differences in access to resources, infrastructure support, and teacher readiness.

The data collection process took place over three months, with procedures that upheld the ethical principles of research, including informed consent, data confidentiality and anonymity of informants' identities. All interviews were recorded (with permission), transcribed verbatim, and analyzed systematically. The data analysis technique used was thematic analysis, according to Braun and model.[14] The process involved six stages: data familiarization, initial coding, searching for themes, reviewing themes, defining and naming themes, and preparing an analysis report.[15]

To ensure data validity, source and method triangulation techniques were used, comparing the results of interviews with observation and documentation, and verifying information from different types of informants (teachers, principals, supervisors, curriculum developers). Validity was also strengthened through member checking, which is asking informants to verify the results of the researcher's interpretation. Reliability was maintained by developing a consistent interview guide, training research assistants (if any)

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[13] Hairuddin, H., & Ibrahim, S. (2023). دراسة تاريخية للقرآن الكريم: نقط المصحف ومراحله. *Jurnal Ilmiah AL-Jauhari: Jurnal Studi Islam dan Interdisipliner*, *8*(1), 17-41.

[14] V.; Clarke Braun V., "Using Thematic Analysis in Psychology," *Qualitative Research in Psychology* 3, no. 2 (2006): 77–101.

[15] Ibrahim, S. (2017). Pendidikan tentang Manusia dalam Perspektif Al-Qur'an. *Jurnal Ilmiah AL-Jauhari: Jurnal Studi Islam Dan Interdisipliner*, *2*(2), 243–256. https://doi.org/10.30603/jiaj.v2i2.691

and keeping an audit trail of the research process. The entire research process is systematic, structured and replicable in a similar context.

With this method, the research is expected to produce in-depth and contextualized findings on the challenges, strategies and impacts of the curriculum renewal process. The results are not only theoretically relevant for the development of educational literature but also practically significant in designing responsive and adaptive educational policies.

This method is designed to answer the main purpose of the article, which is to examine the transformation of curriculum renewal as an important part of efforts to improve the quality and relevance of national education in facing global challenges and the times.

Results and Discussion
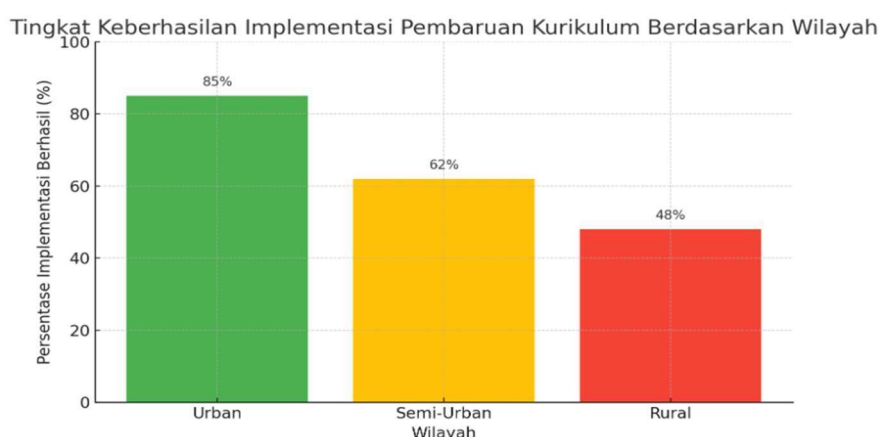
The following is a systematic, in-depth, and lengthy description of the research results and discussion based on the findings of the qualitative study in the article "Curriculum Renewal: A Transformation of the Progress of Education". This description refers to primary and secondary data that has been analyzed thematically.

Research Results

Based on the results of in-depth interviews with 15 informants from various regions (urban, semi-urban and rural), as well as observations and curriculum documentation, it was found that the successful implementation of curriculum reform showed significant differences based on location and institutional readiness. As shown in the graph above:

In urban areas, the success rate of curriculum implementation reached 85%, indicated by the consistent use of teaching modules, technology integration and teachers' mastery of project-based learning approaches. In semi-urban areas, the success rate dropped to 62%, due to limited training and inconsistencies in lesson planning. While in rural areas, the success rate is only

48%, influenced by limited digital infrastructure, lack of teacher training, and resistance to change.[16]

1. In addition to geographical factors, four main themes were found from the data analysis:

a. Teacher Readiness

On average, teachers in urban areas have attended more than two online/offline trainings on Curriculum Merdeka. In contrast, many teachers in rural areas do not fully understand the concept of learning outcomes (CP), which hinders competency-based planning and assessment.[17]

b. Institutional Support.

Schools that have strong leadership from the principal and support from the education office are more capable of innovating learning and adjusting to the characteristics of students. In semi-urban and rural areas, the principal's role is more administrative than strategic, which results in weak internal coordination.

c. Use of Technology and LMS

Most schools in big cities effectively use Learning Management Systems (LMS) such as Google Classroom and Moodle. But in remote areas, LMSs are rarely used due to network constraints and lack of training. This shows that there is a real digital divide in implementing the modern curriculum.[18]

d. Evaluation and Assessment

Most teachers still use conventional evaluation formats (written tests) instead of portfolio and project-based authentic assessments. This contradicts the main principle of Merdeka Curriculum which emphasizes formative and diagnostic assessments.[19]

2. Discussion and Interpretation

This finding reinforces the concept of curriculum as praxis,[20] where the success of the curriculum depends heavily on how it is contextually applied by educational actors.[21] Although the reform policy has been formulated

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[16] Zakaria, D., & Ibrahim, S. (2019). Efektivitas Bimbingan Belajar Mandiri Dan Implikasinya Terhadap Hasil Belajar Pendidikan Agama Islam Peserta Didik Di SMK Negeri 3 Gorontalo. *Jurnal Ilmiah AL-Jauhari: Jurnal Studi Islam Dan Interdisipliner*, *3*(2), 1–18. https://doi.org/10.30603/jiaj.v3i2.538

[17] S D Brookfield, *Becoming a Critically Reflective Teacher* (Jossey-Bass, 2017).

[18] OECD, "Digital Education Outlook 2022: Strengthening the Impact of Digital Technology on Learning."

[19] Kemendikbudristek, "Panduan Pembelajaran Dan Asesmen" (Direktorat Jenderal PAUD, Dikdas, dan Dikmen, 2022).

[20] S Grundy, *Curriculum: Product or Praxis?* (Falmer Press, 1987).

[21] Ibrahim, S. (2017). Pendidikan tentang Manusia dalam Perspektif Al-Qur'an. *Jurnal Ilmiah AL-Jauhari: Jurnal Studi Islam Dan Interdisipliner*, *2*(2), 243–256. https://doi.org/10.30603/jiaj.v2i2.691

nationally, its implementation is local and is strongly influenced by human resource capacity, leadership and infrastructure factors.

In theory, the project-based learning and differentiated learning approaches in the Merdeka Curriculum are supported by constructivism theory.[22] However, in practice, teachers who do not understand this principle tend to return to the expository learning pattern. This is where the gap between theory and practice in the field appears.

Compared to previous research by,[23] which found that teacher resistance was the main factor inhibiting curriculum implementation, this study emphasizes that the main problem lies in gaps in training and systematic support, not just teacher attitudes. This provides a new, more structural perspective.[24] The implications of these findings are quite broad. Practically, the results suggest the need for differentiated curriculum implementation strategies based on region and school capacity. Not all education units can be treated the same in terms of administrative burden, achievement targets or training mechanisms.

Factors that reinforce success include: (1) intensive support from local governments, (2) access to free online training, (3) a community forum for teachers to share good practices, and (4) structured monitoring by school supervisors. In contrast, the main constraints include (1) limited internet network, (2) lack of ICT human resources, (3) unavailability of appropriate evaluation tools, and (4) administrative overload.

One limitation of this study is the limited area coverage and number of informants, so it cannot be generalized nationally. In addition, the limited observation time (three months) does not allow longitudinal tracking of the development of curriculum implementation over time.

For further research, it is recommended that a complementary quantitative study be conducted that can provide a statistical picture of the impact of curriculum reform on student learning outcomes, as well as a comparative study between countries in Southeast Asia to see best practices in curriculum transformation.

Conclusion

This study concludes that curriculum reform in Indonesia, especially

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[22] L S Vygotsky, *Mind in Society: The Development of Higher Psychological Processes* (Harvard University Press, 1978).

[23] Yusuf, "Teacher Resistance and Educational Reform in Indonesia: Understanding Barriers to Curriculum Implementation."

[24] Asiyah, N., & Ibrahim, S. (2021). Pendidikan dan Gender dalam Perspektif Islam. *Jurnal Ilmiah AL-Jauhari: Jurnal Studi Islam Dan Interdisipliner*, *6*(1), 50–65. https://doi.org/10.30603/jiaj.v6i1.1953

through the implementation of the Merdeka Curriculum, shows real disparities in its success, mainly determined by factors of teacher readiness, institutional support, and educational infrastructure that differ between urban, semi-urban, and rural areas. This finding provides a deep understanding that curriculum transformation is not just a policy change. Still, it demands a paradigm shift, the capacity of educational actors, and the suitability of the local context, thus enriching curriculum praxis theory and expanding the scope of contextual education implementation studies. The social and cultural implications of the results underscore the importance of equitable access to training and educational resources as the foundation of educational equity. In contrast, academically, the results encourage the development of differentiated approaches in curriculum policy. Although this study is limited to a specific area and does not include longitudinal data, the findings open up opportunities for further research exploring the long-term effectiveness of curriculum reforms and the integration of educational digitalization in more diverse local contexts.

Suggestions

Based on the findings of this study, it is recommended that educational practitioners, especially teachers and principals, strengthen their understanding and skills in implementing the Merdeka Curriculum through contextualized and local needs-based ongoing training. For academics, these results can be used as a basis for developing teacher training models that are adaptive to regional infrastructure and capacity gaps. Stakeholders, such as education offices and policymakers, need to encourage policies to differentiate curriculum implementation and expand access to equitable digital learning resources. For further research development, it is recommended to use data triangulation methods and longitudinal study approaches to capture the dynamics of change in depth and explore other dimensions such as the role of school culture and transformational leadership. Future research should also cover a wider area and involve multi-level educational actors in order to provide a more comprehensive picture of the national curriculum transformation process.

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