



Implementation of the Merdeka Curriculum in the Society 5.0 Era

Zainal Abidin*

Universitas Islam Internasional Darullughah Wadda'wah, Pasuruan, Indonesia

Email: zainalabidin@uiidalwa.ac.id

*Corresponding Author

Received: 05, 2025. Revised: 06, 2025. Accepted: 06, 2025. Published: 07, 2025

ABSTRACT

Global challenges related to the digital revolution in the Society 5.0 era drive the need for innovation within the national education system, including the implementation of the Merdeka Curriculum in Indonesia. The aim of this study is to analyze the factors and stages influencing the successful implementation of the Merdeka Curriculum within the context of Society 5.0, as well as to identify barriers and opportunities. This research employs a mixed-method approach, collecting data through interviews, classroom observations, and document analysis at three secondary schools in Bangil, Pasuruan over a period of three months. The findings show that the implementation of the Merdeka Curriculum is appreciated for its flexibility, especially in developing innovative learning and utilizing technology, which aligns with theories of adaptive leadership and resource management. However, some challenges such as lack of facilities, training, and community perceptions remain main obstacles, resulting in variations in student learning outcomes across schools. These findings emphasize the need for investments in infrastructure and training, as well as the importance of ongoing collaboration and evaluation to improve implementation effectiveness. The contribution of this study is to provide an empirical basis for developing sustainable and innovative curriculum strategies in the Society 5.0 era.

Keywords: Merdeka Curriculum, Society 5.0, Curriculum Implementation, Education Reform, Educational Technology.

ABSTRAK

Tantangan global terkait revolusi digital pada era society 5.0 mendorong perlunya inovasi dalam sistem pendidikan nasional, termasuk implementasi Kurikulum Merdeka di Indonesia. Tujuan penelitian ini adalah untuk menganalisis faktor dan tahap keberhasilan implementasi Kurikulum Merdeka dalam konteks Society 5.0 serta mengidentifikasi hambatan dan peluangnya. Penelitian menggunakan pendekatan campuran dengan pengumpulan data melalui wawancara, observasi kelas, dan analisis dokumen di tiga sekolah menengah di Bangil, Pasuruan selama tiga bulan. Hasil penelitian menunjukkan bahwa penerapan Kurikulum Merdeka dihargai atas fleksibilitasnya, terutama dalam pengembangan inovasi belajar dan pemanfaatan teknologi, yang sejalan dengan teori kepemimpinan adaptif dan sumber daya. Namun, beberapa tantangan seperti kekurangan fasilitas, pelatihan, dan persepsi masyarakat masih menjadi penghambat utama, menyebabkan variasi hasil belajar siswa antar sekolah. Temuan ini menegaskan perlunya investasi pada infrastruktur dan pelatihan, serta pentingnya kolaborasi dan evaluasi berkelanjutan untuk meningkatkan efektivitas implementasi. Kontribusi penelitian ini adalah memberikan dasar empiris dalam pengembangan strategi keberlanjutan dan inovasi kurikulum di era Society 5.0.

Kata Kunci: Kurikulum Merdeka, Society 5.0, Implementasi Kurikulum, Reformasi Pendidikan, Teknologi Pendidikan.

INTRODUCTION

In the Society 5.0 era, the world is undergoing a massive transformation driven by the development of digital technologies such as artificial intelligence, the Internet of Things, and big data.¹ This paradigm demands changes in the education system to produce human resources who are not only academically competent but also capable of adapting and innovating in dynamic and complex environments.² Indonesia's national curriculum, as one of the main pillars of education, must be able to meet these challenges by innovating in the learning process and developing student competencies.³ Therefore, the concept of the Merdeka Curriculum (Independent Curriculum) is introduced as an effort to provide freedom and flexibility for schools to develop learning processes according to the needs of the times and the characteristics of students.⁴

However, the implementation of the Merdeka Curriculum has not been fully in line with expectations and still faces various obstacles, both in terms of policy, resources, and the readiness of educators and students themselves.⁵ Theoretically, the implementation of the curriculum should be supported by the readiness of all parties and a philosophical foundation that can answer the needs of social and technological advancements, but this has not been fully realized in the field.⁶ Social facts show that there is still a lack of clarity regarding effective implementation strategies, as well as cultural and administrative barriers that hinder

¹ Bhanu Chander et al., "Artificial Intelligence-Based Internet of Things for Industry 5.0," in *Artificial Intelligence-Based Internet of Things Systems*, ed. Souvik Pal, Debashis De, and Rajkumar Buyya (Cham: Springer International Publishing, 2022), 3–45, https://doi.org/10.1007/978-3-030-87059-1_1; Dimitris Mourtzis, John Angelopoulos, and Nikos Panopoulos, "A Literature Review of the Challenges and Opportunities of the Transition from Industry 4.0 to Society 5.0," *Energies* 15, no. 17 (January 2022): 6276, <https://doi.org/10.3390/en15176276>.

² Constantin Bratianu, Shahrazad Hadad, and Ruxandra Bejinaru, "Paradigm Shift in Business Education: A Competence-Based Approach," *Sustainability* 12, no. 4 (January 2020): 1348, <https://doi.org/10.3390/su12041348>; Nicole C. Jackson, "Managing for Competency with Innovation Change in Higher Education: Examining the Pitfalls and Pivots of Digital Transformation," *Business Horizons*, Digital Transformation & Disruption, 62, no. 6 (November 1, 2019): 761–72, <https://doi.org/10.1016/j.bushor.2019.08.002>.

³ Asmayawati, Yufiarti, and Elindra Yetti, "Pedagogical Innovation and Curricular Adaptation in Enhancing Digital Literacy: A Local Wisdom Approach for Sustainable Development in Indonesia Context," *Journal of Open Innovation: Technology, Market, and Complexity* 10, no. 1 (March 1, 2024): 100233, <https://doi.org/10.1016/j.joitmc.2024.100233>.

⁴ Lalu Sumardi, Arif Rohman, and Dwi Wahyudiati, "Does the Teaching and Learning Process in Primary Schools Correspond to the Characteristics of the 21st Century Learning?," *International Journal of Instruction* 13, no. 3 (July 2020): 357–70; Alaa Zuhir Al Rawashdeh et al., "Advantages and Disadvantages of Using E-Learning in University Education: Analyzing Students' Perspectives," *Electronic Journal of E-Learning* 19, no. 3 (May 17, 2021): 107–17, <https://doi.org/10.34190/ejel.19.3.2168>.

⁵ Sarah K. Howard et al., "Ready, Set, Go! Profiling Teachers' Readiness for Online Teaching in Secondary Education," *Technology, Pedagogy and Education* 30, no. 1 (January 1, 2021): 141–58, <https://doi.org/10.1080/1475939X.2020.1839543>; Shuang Geng, Kris M. Y. Law, and Ben Niu, "Investigating Self-Directed Learning and Technology Readiness in Blending Learning Environment," *International Journal of Educational Technology in Higher Education* 16, no. 1 (May 21, 2019): 17, <https://doi.org/10.1186/s41239-019-0147-0>.

⁶ Ercan Oztemel and Samet Gursev, "Literature Review of Industry 4.0 and Related Technologies," *Journal of Intelligent Manufacturing* 31, no. 1 (January 1, 2020): 127–82, <https://doi.org/10.1007/s10845-018-1433-8>; John Torous et al., "The Growing Field of Digital Psychiatry: Current Evidence and the Future of Apps, Social Media, Chatbots, and Virtual Reality," *World Psychiatry* 20, no. 3 (2021): 318–35, <https://doi.org/10.1002/wps.20883>.

the adaptation of Merdeka Curriculum-based learning. This condition indicates a gap between the theory being promoted and the practice in the field.⁷

Social facts show that many schools in Indonesia are still facing various challenges in implementing the Merdeka Curriculum effectively. One of these is the uneven distribution of technological infrastructure and other supporting resources in various regions, especially in remote and underdeveloped areas.⁸ This hinders the adaptation process to the use of technology that supports Society 5.0-based learning, so not all students and educators have equal access to digital learning innovations.⁹ Industry 5.0 in smart education: Concepts, applications, challenges, opportunities, and future directions. IEEE Access. This inequality reinforces existing social gaps and reduces the opportunities for all students to develop the competencies needed in the digital and innovative era.¹⁰

In addition, public perceptions and understanding of curriculum changes are also a significant social factor.¹¹ Many parents and surrounding communities do not fully understand and support the concept of the Merdeka Curriculum, which emphasizes freedom of creativity and competency-based and innovative learning. This perception is often influenced by local culture that still upholds traditional learning patterns and dependence on conventional teaching systems.¹² This condition can create resistance and distrust towards learning processes that utilize technology and more flexible approaches, so socialization and increased educational literacy are needed for all elements of society to support the innovative and relevant implementation of the Merdeka Curriculum in the Society 5.0 era.¹³

Meanwhile, previous studies have highlighted aspects of policy and learning perspectives in the context of national curriculum and competency-based curriculum. Research by Astuti et al.,¹⁴ for example, reveals that the main challenge in implementing innovative curricula is the lack of training and understanding of educators regarding new concepts. The novelty of this research lies in its focus on proving how the implementation

⁷ Qiang Chen et al., "Unpacking the Black Box: How to Promote Citizen Engagement through Government Social Media during the COVID-19 Crisis," *Computers in Human Behavior* 110 (September 1, 2020): 106380, <https://doi.org/10.1016/j.chb.2020.106380>; Dana Kanze et al., "We Ask Men to Win and Women Not to Lose: Closing the Gender Gap in Startup Funding," *Academy of Management Journal* 61, no. 2 (April 2018): 586–614, <https://doi.org/10.5465/amj.2016.1215>.

⁸ Koen Saleminck, Dirk Strijker, and Gary Bosworth, "Rural Development in the Digital Age: A Systematic Literature Review on Unequal ICT Availability, Adoption, and Use in Rural Areas," *Journal of Rural Studies* 54 (August 1, 2017): 360–71, <https://doi.org/10.1016/j.jrurstud.2015.09.001>.

⁹ Y. Supriya et al., "Industry 5.0 in Smart Education: Concepts, Applications, Challenges, Opportunities, and Future Directions," *IEEE Access* 12 (2024): 81938–67, <https://doi.org/10.1109/ACCESS.2024.3401473>.

¹⁰ Kamal Raj Devkota, "Inequalities Reinforced through Online and Distance Education in the Age of COVID-19: The Case of Higher Education in Nepal," *International Review of Education* 67, no. 1 (April 1, 2021): 145–65, <https://doi.org/10.1007/s11159-021-09886-x>.

¹¹ Richard Harris and Suzanne and Graham, "Engaging with Curriculum Reform: Insights from English History Teachers' Willingness to Support Curriculum Change," *Journal of Curriculum Studies* 51, no. 1 (January 2, 2019): 43–61, <https://doi.org/10.1080/00220272.2018.1513570>.

¹² Sandie Gunara, Toni Setiawan Sutanto, and Febby Cipta, "Local Knowledge System of Kampung Naga: A Study to Investigate the Educational Values of Indigenous People in Transmitting Religious and Cultural Values," *International Journal of Instruction* 12, no. 3 (July 2019): 219–36.

¹³ Mardiah Astuti et al., "The Relevance Of The Merdeka Curriculum In Improving The Quality Of Islamic Education In Indonesia," *International Journal of Learning, Teaching and Educational Research* 23, no. 6 (June 30, 2024): 56–72.

¹⁴ Astuti et al.

process of the Merdeka Curriculum can directly adapt to the characteristics and needs of the Society 5.0 era. In addition, this study will review the role of technological innovation, participatory strategies, and aspects of sustainability in curriculum implementation, thus providing a more comprehensive and contextual perspective.

The main objective of this research is to analyze and describe the stages and factors that influence the successful implementation of the Merdeka Curriculum in the Society 5.0 era, as well as to identify the challenges and opportunities that arise in the process. This research also seeks to provide strategic recommendations for policymakers to improve the effectiveness and sustainability of innovative curriculum implementation in the future.

METHOD

This research employed a mixed-methods approach, combining qualitative and quantitative techniques, to comprehensively investigate the implementation of the Merdeka Curriculum within the context of the Society 5.0 era.¹⁵ Data were collected from three secondary schools in Bangil, Pasuruan, East Java Province, over three months in early 2024. Schools were selected to represent a range of institutional types (public and private) and varying levels of experience with the Merdeka Curriculum. The study focused on gathering in-depth data regarding perceptions, experiences, challenges, and strategies related to curriculum implementation and technology integration. Informants included 2 headmasters, 14 teachers from different subjects and 4 staff from the curriculum and infrastructure unit.

Data collection involved semi-structured interviews, classroom observations, and document analysis. Interviews with headmasters, teachers and staff explored perceptions and experiences with the Merdeka Curriculum implementation and efforts to adapt to Society 5.0 Era. Classroom observations during teaching-learning and at school events, captured the implementation of curriculum, technology used, and adaptation to Society 5.0. Analysis of school official records, activity reports, internal policies, and assessments supported the collected data.¹⁶ Interview transcripts and observations were analyzed using content analysis and thematic coding to identify key themes and patterns. Document analysis was conducted descriptively to support the qualitative findings. Data validity was ensured using source and method triangulation, and peer reviews.¹⁷

RESULTS AND DISCUSSION

The majority of school principals stated that the implementation of the Merdeka Curriculum provides them with the freedom to develop learning processes according to students' needs and local conditions. One principal commented, "*We feel more free to design innovative learning that aligns with students' characters within the support of this policy.*" They also

¹⁵ Dinelti Fitria, Asrizal Asrizal, and Lufri Lufri, "Enhancing 21st-Century Skills through Blended Problem-Based Learning with Ethnoscience Integration: A Mixed-Methods Study in Indonesian Junior High Schools," *International Journal of Learning, Teaching and Educational Research* 24, no. 1 (January 30, 2025): 464–80.

¹⁶ Jane Sutton and Zubin Austin, "Qualitative Research: Data Collection, Analysis, and Management," *Canadian Journal of Hospital Pharmacy* 68, no. 3 (June 25, 2015), <https://doi.org/10.4212/cjhp.v68i3.1456>.

¹⁷ Rebecca Campbell et al., "Assessing Triangulation Across Methodologies, Methods, and Stakeholder Groups: The Joys, Woes, and Politics of Interpreting Convergent and Divergent Data," *American Journal of Evaluation* 41, no. 1 (March 1, 2020): 125–44, <https://doi.org/10.1177/1098214018804195>.

mentioned increasingly actively utilizing technology, especially in project-based learning and digital literacy integration. This statement aligns with the adaptive leadership theory, which emphasizes the importance of leaders adjusting their leadership style to suit the organizational context and needs.¹⁸ The curriculum's flexibility allows school principals to become adaptive leaders, creating a learning environment responsive to change.

Various pro and contra opinions about the Merdeka Curriculum emerged. Some principals expressed that, *"This curriculum allows us to incorporate technology into teaching and learning processes and improve 21st-century competencies."* This view is in line with the resource-based view theory in educational management, which states that adequate resources and relevant competencies are key to successful policy implementation.¹⁹ Lack of resources and training can hinder teachers' ability to adopt innovative teaching approaches mandated by the Merdeka Curriculum. Another statement indicated that, *"This curriculum helps us become more innovative and provides space for creativity in teaching."* This is consistent with constructivism theory, which emphasizes the importance of students actively constructing knowledge through experience and social interaction.²⁰ The Merdeka Curriculum, with its emphasis on project-based and collaborative learning, can facilitate deeper, more relevant knowledge construction for students, especially in the context of the Society 5.0 era where technology and innovation are integral to education.

The main argument behind this research is that the successful implementation of the Merdeka Curriculum greatly depends on the readiness of all elements of education in facing the challenges of the Society 5.0 era, as well as on the ability of schools to innovate based on technology and a personalized learning approach.²¹ This approach is important to ensure that the curriculum is not only theoretical but can truly provide real benefits for students and the nation in anticipating rapid social and technological changes.

In addition, another argument underlying this is that the implementation of a curriculum based on the philosophy of independence must be able to foster a culture of innovation and collaboration among educators, students, and all stakeholders.²² With empirical experience and studies, this research is expected to be an empirical basis that

¹⁸ Alice Bonini et al., "The Relationship between Leadership and Adaptive Performance: A Systematic Review and Meta-Analysis," *PLOS ONE* 19, no. 10 (Okt 2024): e0304720, <https://doi.org/10.1371/journal.pone.0304720>; Sophie Nöthel et al., "Development and Validation of the Adaptive Leadership Behavior Scale (ALBS)," *Frontiers in Psychology* 14 (September 27, 2023), <https://doi.org/10.3389/fpsyg.2023.1149371>.

¹⁹ Akwesi Assensoh-Kodua, "The Resource-Based View: A Tool of Key Competency for Competitive Advantage," *Problems and Perspectives in Management* 17, no. 3 (August 9, 2019): 143–52, [https://doi.org/10.21511/ppm.17\(3\).2019.12](https://doi.org/10.21511/ppm.17(3).2019.12); Kyoung-Joo Lee and Yang-Joong Yun, "Reconciling Resource-Based View and Competency-Based View of Start-Up Formation in Universities," *IEEE Access* 8 (2020): 143274–84, <https://doi.org/10.1109/ACCESS.2020.3014213>.

²⁰ Thi Thuy An Ngo, "Perception of Engineering Students on Social Constructivist Learning Approach in Classroom. | EBSCOhost," January 1, 2024, <https://doi.org/10.3991/ijep.v14i1.43101>; Ha Van Le and Long Quoc Nguyen, "Promoting L2 Learners' Critical Thinking Skills: The Role of Social Constructivism in Reading Class," *Frontiers in Education* 9 (June 25, 2024), <https://doi.org/10.3389/educ.2024.1241973>.

²¹ Olga Tapalova and Nadezhda Zhiyenbayeva, "Artificial Intelligence in Education: AIED for Personalised Learning Pathways," *Electronic Journal of E-Learning* 20, no. 5 (2022): 639–53.

²² William R. Penuel et al., "Principles of Collaborative Education Research With Stakeholders: Toward Requirements for a New Research and Development Infrastructure," *Review of Educational Research* 90, no. 5 (October 1, 2020): 627–74, <https://doi.org/10.3102/0034654320938126>.

strengthens the strategy for implementing the Merdeka Curriculum effectively and sustainably in the context of Society 5.0.

The importance of this research lies in its contribution to providing a comprehensive overview of the process and factors for the successful implementation of the Merdeka Curriculum in an era full of challenges and opportunities. With the results of this research, policymakers and education practitioners are expected to be able to design strategies that are more adaptive, innovative, and sustainable, so as to improve the quality of education in Indonesia as a whole.

However, there are contrasting views, with critics pointing out that despite good intentions, the curriculum faces practical challenges. They highlight that the lack of infrastructure—including technological facilities and training—causes the implementation to be less than optimal. A teacher mentioned, *“Most teachers are not yet ready to adopt project-based and digital learning due to insufficient training and facilities.”* This perspective aligns with critiques of the Global Education Reform Movement (Germ), which argues that uniform educational reforms imposed without considering local contexts can exacerbate inequality.²³

Furthermore, there are concerns that insufficient implementation support could lead to educational disparities and reduced learning quality among students. They stated, *“Without proper infrastructure and training, the implementation of the curriculum could widen the gaps between schools and regions.”* This view is supported by Rogers’ (2003) theory, which states that the success of technological and methodological innovations in education heavily depends on the availability of adequate resources within institutions.²⁴ Insufficient infrastructure and training can hinder the adoption process and reinforce inequalities.

Observations of student achievement show significant variation across schools. Schools that adopted the Merdeka Curriculum earlier and had adequate technological infrastructure demonstrated improvements, with some reporting up to a 10% increase in average test scores and success in national innovation competitions. Conversely, some schools showed stagnant or declining academic results, acknowledging that many students are still unfamiliar with project-based and technology-based learning models, resulting in less optimal academic outcomes. A teacher remarked, *“We see that student outcomes are uneven, and some students still struggle to follow more innovative and tech-active learning methods due to lack of experience and supporting facilities.”*

This variation in academic results highlights the importance of Rogers’ diffusion of innovations theory in education.²⁵ Adoption of innovations like the Merdeka Curriculum

²³ Marcel Pagès and Miriam and Prieto, “The Instrumentation of Global Education Reforms: An Analysis of School Autonomy with Accountability Policies in Spanish Education,” *Educational Review* 72, no. 6 (November 1, 2020): 671–90, <https://doi.org/10.1080/00131911.2020.1803795>; Ee-Seul Yoon, “From GERM (Global Educational Reform Movement) to NERM (Neoliberal Educational Reform Madness),” *Critical Education* 15, no. 2 (2024): 13–28, <https://doi.org/10.14288/ce.v15i2.186904>.

²⁴ Emily Costan et al., “Education 4.0 in Developing Economies: A Systematic Literature Review of Implementation Barriers and Future Research Agenda,” *Sustainability* 13, no. 22 (January 2021): 12763, <https://doi.org/10.3390/su132212763>; Irfan Ridwan Maksum, Amy Yayuk Sri Rahayu, and Dhian Kusumawardhani, “A Social Enterprise Approach to Empowering Micro, Small and Medium Enterprises (SMEs) in Indonesia,” *Journal of Open Innovation: Technology, Market, and Complexity* 6, no. 3 (September 1, 2020): 50, <https://doi.org/10.3390/joitmc6030050>.

²⁵ Genevieve Simpson and Julian Clifton, “Testing Diffusion of Innovations Theory with Data: Financial

does not happen uniformly; factors such as individual readiness, characteristics of the innovation, and social environment influence the speed and level of adoption.

Perceptions of School Principals Regarding the Implementation of the Merdeka Curriculum in the Society 5.0 Era

The study revealed that school principals generally held positive perceptions of the Merdeka Curriculum, particularly regarding its flexibility. As Principal A stated,

“We feel more freedom to design innovative learning that aligns with students’ characters within the support of this policy. We are also increasingly actively utilizing technology, especially in project-based learning and digital literacy integration.”

Principal B echoed this sentiment, noting,

“This curriculum provides flexibility for us to adapt learning materials to the local context and students’ needs. We can be more creative in developing learning activities that are relevant to the surrounding environment.”

These positive perceptions align with adaptive leadership theory, which emphasizes the importance of leaders adjusting their leadership style to suit the organizational context and evolving needs. This flexibility enables principals to become adaptive leaders, fostering a learning environment that is responsive to change and student requirements. However, it is crucial to recognize that these positive perceptions must be balanced with adequate support in terms of resources and training for teachers. Without sufficient support, the flexibility offered by the Merdeka Curriculum could become an additional burden for teachers who are not yet prepared to innovate.

Challenges Faced by Teachers in Integrating Technology into the Merdeka Curriculum

Despite the positive views of principals, teachers reported facing several challenges in integrating technology into the Merdeka Curriculum. According to a science teacher, *“Frankly, we are still struggling to integrate technology into learning due to limited facilities and training. Many teachers are not yet familiar with digital learning applications.”* Similarly, an English teacher expressed, *“We need more intensive training on how to use technology to make learning more engaging and effective. In addition, unstable internet connections are also an obstacle.”* These challenges are consistent with findings from Howard et al. (2021),²⁶ which highlighted teacher readiness as a critical factor in the successful implementation of online learning. A lack of infrastructure and training can hinder teachers’ ability to adopt the innovative teaching approaches mandated by the Merdeka Curriculum. This finding also resonates with critiques of the Global Education Reform Movement (GERM),²⁷ which argues that uniform educational reforms

Incentives, Early Adopters, and Distributed Solar Energy in Australia,” *Energy Research & Social Science* 29 (July 1, 2017): 12–22, <https://doi.org/10.1016/j.erss.2017.04.005>; Carlos Kazunari Takahashi, Júlio César Bastos de Figueiredo, and Eusebio Scornavacca, “Investigating the Diffusion of Innovation: A Comprehensive Study of Successive Diffusion Processes through Analysis of Search Trends, Patent Records, and Academic Publications,” *Technological Forecasting and Social Change* 198 (January 1, 2024): 122991, <https://doi.org/10.1016/j.techfore.2023.122991>.

²⁶ Howard et al., “Ready, Set, Go! Profiling Teachers’ Readiness for Online Teaching in Secondary Education.”

²⁷ Yoon, “From GERM (Global Educational Reform Movement) to NERM (Neoliberal Educational Reform

imposed without considering local contexts can exacerbate inequalities. Investing in infrastructure and teacher training is essential to ensure that all teachers have an equal opportunity to succeed in implementing the Merdeka Curriculum.

Impact of the Merdeka Curriculum Implementation on Student Learning Outcomes

Data from documentation and observations revealed significant variations in student learning outcomes across schools. Schools that adopted the Merdeka Curriculum earlier and possessed adequate technological infrastructure demonstrated improvements, with some reporting up to a 10% increase in average test scores. However, several schools exhibited stagnant or declining results. As a mathematics teacher noted, *“We see that student outcomes are uneven, and some students still struggle to follow more innovative and tech-active learning methods due to a lack of experience and supporting facilities.”* The variation in student learning outcomes underscores the importance of Rogers’ (2003) diffusion of innovations theory, which posits that the adoption of innovations like the Merdeka Curriculum does not occur uniformly. Factors such as individual readiness, characteristics of the innovation, and the social environment influence the speed and level of adoption. These findings suggest that effective implementation of the Merdeka Curriculum requires a holistic and sustained approach. Investments in infrastructure and teacher training must be accompanied by efforts to enhance student readiness and create a learning environment that supports innovation.

Based on these findings, several implications and recommendations can be proposed:

- Enhancing Resources and Training:** Governments and schools need to increase investments in resources and training to support the implementation of the Merdeka Curriculum. Training should focus on developing teachers’ competence in adopting innovative approaches and integrating technology into their teaching.
- Infrastructure Support:** Governments need to ensure that all schools have equal access to adequate technological infrastructure, including hardware, software, and reliable internet connectivity.
- Collaboration and Knowledge Sharing:** Successful schools should share experiences and best practices with others. Inter-school collaboration can facilitate knowledge transfer and support.
- Continuous Evaluation:** Governments and schools should conduct ongoing assessments of the curriculum’s implementation, measuring academic results, gathering feedback from teachers and students, and analyzing impacts on educational disparities.

CONCLUSION

The implementation of the Merdeka Curriculum in the Society 5.0 era is a transformative effort with promising potential but accompanied by complexities. This research highlights that the flexibility offered by the curriculum is positively received by school principals in adapting learning to local contexts, while teachers face challenges related to resources and training to effectively integrate technology. This underscores the need for continued investments in infrastructure and teacher competencies to ensure equitable and successful implementation.

Findings on the pro and contra perspectives regarding the Merdeka Curriculum emphasize the importance of a holistic and contextual approach to educational reform.

Madness).”

Although there is a belief that this curriculum is relevant to developments in the digital era, concerns about potential inequalities and disparities in education serve as a reminder of the risks of uniform reform implementation that does not consider the varying needs and resources of each school.

Finally, the observed variations in academic results highlight the importance of ongoing evaluation and strategy adaptation. This study recommends increased collaboration among schools, knowledge sharing, and a focus on enhancing students' readiness to adopt project-based and technology-enhanced learning models. Thus, the implementation of the Merdeka Curriculum can realize its full potential in preparing Indonesia's young generation to face the challenges and opportunities of the Society 5.0 era.

BIBLIOGRAPHY

- Asmayawati, Yufiarti, and Elindra Yetti. "Pedagogical Innovation and Curricular Adaptation in Enhancing Digital Literacy: A Local Wisdom Approach for Sustainable Development in Indonesia Context." *Journal of Open Innovation: Technology, Market, and Complexity* 10, no. 1 (March 1, 2024): 100233. <https://doi.org/10.1016/j.joitmc.2024.100233>.
- Assensoh-Kodua, Akwesi. "The Resource-Based View: A Tool of Key Competency for Competitive Advantage." *Problems and Perspectives in Management* 17, no. 3 (August 9, 2019): 143–52. [https://doi.org/10.21511/ppm.17\(3\).2019.12](https://doi.org/10.21511/ppm.17(3).2019.12).
- Astuti, Mardiah, Fajri Ismail, Siti Fatimah, Weni Puspita, and Herlina Herlina. "The Relevance Of The Merdeka Curriculum In Improving The Quality Of Islamic Education In Indonesia." *International Journal of Learning, Teaching and Educational Research* 23, no. 6 (June 30, 2024): 56–72.
- Bonini, Alice, Chiara Panari, Luca Caricati, and Marco Giovanni Mariani. "The Relationship between Leadership and Adaptive Performance: A Systematic Review and Meta-Analysis." *PLOS ONE* 19, no. 10 (Okt 2024): e0304720. <https://doi.org/10.1371/journal.pone.0304720>.
- Bratianu, Constantin, Shahrazad Hadad, and Ruxandra Bejinaru. "Paradigm Shift in Business Education: A Competence-Based Approach." *Sustainability* 12, no. 4 (January 2020): 1348. <https://doi.org/10.3390/su12041348>.
- Campbell, Rebecca, Rachael Goodman-Williams, Hannah Feeney, and Giannina Fehler-Cabral. "Assessing Triangulation Across Methodologies, Methods, and Stakeholder Groups: The Joys, Woes, and Politics of Interpreting Convergent and Divergent Data." *American Journal of Evaluation* 41, no. 1 (March 1, 2020): 125–44. <https://doi.org/10.1177/1098214018804195>.
- Chander, Bhanu, Souvik Pal, Debashis De, and Rajkumar Buyya. "Artificial Intelligence-Based Internet of Things for Industry 5.0." In *Artificial Intelligence-Based Internet of Things Systems*, edited by Souvik Pal, Debashis De, and Rajkumar Buyya, 3–45. Cham: Springer International Publishing, 2022. https://doi.org/10.1007/978-3-030-87059-1_1.
- Chen, Qiang, Chen Min, Wei Zhang, Ge Wang, Xiaoyue Ma, and Richard Evans. "Unpacking the Black Box: How to Promote Citizen Engagement through

- Government Social Media during the COVID-19 Crisis.” *Computers in Human Behavior* 110 (September 1, 2020): 106380. <https://doi.org/10.1016/j.chb.2020.106380>.
- Costan, Emily, Gamaliel Gonzales, Roselyn Gonzales, Lynne Enriquez, Felix Costan, Decem Suladay, Nadine May Atibing, et al. “Education 4.0 in Developing Economies: A Systematic Literature Review of Implementation Barriers and Future Research Agenda.” *Sustainability* 13, no. 22 (January 2021): 12763. <https://doi.org/10.3390/su132212763>.
- Devkota, Kamal Raj. “Inequalities Reinforced through Online and Distance Education in the Age of COVID-19: The Case of Higher Education in Nepal.” *International Review of Education* 67, no. 1 (April 1, 2021): 145–65. <https://doi.org/10.1007/s11159-021-09886-x>.
- Fitria, Dinelti, Asrizal Asrizal, and Lufri Lufri. “Enhancing 21st-Century Skills through Blended Problem-Based Learning with Ethnoscience Integration: A Mixed-Methods Study in Indonesian Junior High Schools.” *International Journal of Learning, Teaching and Educational Research* 24, no. 1 (January 30, 2025): 464–80.
- Geng, Shuang, Kris M. Y. Law, and Ben Niu. “Investigating Self-Directed Learning and Technology Readiness in Blending Learning Environment.” *International Journal of Educational Technology in Higher Education* 16, no. 1 (May 21, 2019): 17. <https://doi.org/10.1186/s41239-019-0147-0>.
- Gunara, Sandie, Toni Setiawan Sutanto, and Febby Cipta. “Local Knowledge System of Kampung Naga: A Study to Investigate the Educational Values of Indigenous People in Transmitting Religious and Cultural Values.” *International Journal of Instruction* 12, no. 3 (July 2019): 219–36.
- Harris, Richard, and Suzanne and Graham. “Engaging with Curriculum Reform: Insights from English History Teachers’ Willingness to Support Curriculum Change.” *Journal of Curriculum Studies* 51, no. 1 (January 2, 2019): 43–61. <https://doi.org/10.1080/00220272.2018.1513570>.
- Howard, Sarah K., Tondeur Jo, Siddiq Fazilat, and Ronny and Scherer. “Ready, Set, Go! Profiling Teachers’ Readiness for Online Teaching in Secondary Education.” *Technology, Pedagogy and Education* 30, no. 1 (January 1, 2021): 141–58. <https://doi.org/10.1080/1475939X.2020.1839543>.
- Jackson, Nicole C. “Managing for Competency with Innovation Change in Higher Education: Examining the Pitfalls and Pivots of Digital Transformation.” *Business Horizons, Digital Transformation & Disruption*, 62, no. 6 (November 1, 2019): 761–72. <https://doi.org/10.1016/j.bushor.2019.08.002>.
- Kanze, Dana, Laura Huang, Mark A. Conley, and E. Tory Higgins. “We Ask Men to Win and Women Not to Lose: Closing the Gender Gap in Startup Funding.” *Academy of Management Journal* 61, no. 2 (April 2018): 586–614. <https://doi.org/10.5465/amj.2016.1215>.
- Le, Ha Van, and Long Quoc Nguyen. “Promoting L2 Learners’ Critical Thinking Skills: The Role of Social Constructivism in Reading Class.” *Frontiers in Education* 9 (June 25, 2024). <https://doi.org/10.3389/feduc.2024.1241973>.

- Lee, Kyoung-Joo, and Yang-Joong Yun. "Reconciling Resource-Based View and Competency-Based View of Start-Up Formation in Universities." *IEEE Access* 8 (2020): 143274–84. <https://doi.org/10.1109/ACCESS.2020.3014213>.
- Mourtzis, Dimitris, John Angelopoulos, and Nikos Panopoulos. "A Literature Review of the Challenges and Opportunities of the Transition from Industry 4.0 to Society 5.0." *Energies* 15, no. 17 (January 2022): 6276. <https://doi.org/10.3390/en15176276>.
- Ngo, Thi Thuy An. "Perception of Engineering Students on Social Constructivist Learning Approach in Classroom. | EBSCOhost," January 1, 2024. <https://doi.org/10.3991/ijep.v14i1.43101>.
- Nöthel, Sophie, Annika Nübold, Sijr Uitdewilligen, Jan Schepers, and Ute Hülshager. "Development and Validation of the Adaptive Leadership Behavior Scale (ALBS)." *Frontiers in Psychology* 14 (September 27, 2023). <https://doi.org/10.3389/fpsyg.2023.1149371>.
- Oztemel, Ercan, and Samet Gursev. "Literature Review of Industry 4.0 and Related Technologies." *Journal of Intelligent Manufacturing* 31, no. 1 (January 1, 2020): 127–82. <https://doi.org/10.1007/s10845-018-1433-8>.
- Pagès, Marcel, and Miriam and Prieto. "The Instrumentation of Global Education Reforms: An Analysis of School Autonomy with Accountability Policies in Spanish Education." *Educational Review* 72, no. 6 (November 1, 2020): 671–90. <https://doi.org/10.1080/00131911.2020.1803795>.
- Penuel, William R., Robbin Riedy, Michael S. Barber, Donald J. Peurach, Whitney A. LeBouef, and Tiffany Clark. "Principles of Collaborative Education Research With Stakeholders: Toward Requirements for a New Research and Development Infrastructure." *Review of Educational Research* 90, no. 5 (October 1, 2020): 627–74. <https://doi.org/10.3102/0034654320938126>.
- Rawashdeh, Alaa Zuhir Al, Enaam Youssef Mohammed, Asma Rebhi Al Arab, Mahmoud Alara, and Butheyra Al-Rawashdeh. "Advantages and Disadvantages of Using E-Learning in University Education: Analyzing Students' Perspectives." *Electronic Journal of E-Learning* 19, no. 3 (May 17, 2021): 107–17. <https://doi.org/10.34190/ejel.19.3.2168>.
- Ridwan Maksum, Irfan, Amy Yayuk Sri Rahayu, and Dhian Kusumawardhani. "A Social Enterprise Approach to Empowering Micro, Small and Medium Enterprises (SMEs) in Indonesia." *Journal of Open Innovation: Technology, Market, and Complexity* 6, no. 3 (September 1, 2020): 50. <https://doi.org/10.3390/joitmc6030050>.
- Salemink, Koen, Dirk Strijker, and Gary Bosworth. "Rural Development in the Digital Age: A Systematic Literature Review on Unequal ICT Availability, Adoption, and Use in Rural Areas." *Journal of Rural Studies* 54 (August 1, 2017): 360–71. <https://doi.org/10.1016/j.jrurstud.2015.09.001>.
- Simpson, Genevieve, and Julian Clifton. "Testing Diffusion of Innovations Theory with Data: Financial Incentives, Early Adopters, and Distributed Solar Energy in Australia." *Energy Research & Social Science* 29 (July 1, 2017): 12–22. <https://doi.org/10.1016/j.erss.2017.04.005>.

- Sumardi, Lalu, Arif Rohman, and Dwi Wahyudiati. "Does the Teaching and Learning Process in Primary Schools Correspond to the Characteristics of the 21st Century Learning?" *International Journal of Instruction* 13, no. 3 (July 2020): 357–70.
- Supriya, Y., Dasari Bhulakshmi, Sweta Bhattacharya, Thippa Reddy Gadekallu, Pratik Vyas, Rajesh Kaluri, S. Sumathy, Srinivas Koppu, David J. Brown, and Mufti Mahmud. "Industry 5.0 in Smart Education: Concepts, Applications, Challenges, Opportunities, and Future Directions." *IEEE Access* 12 (2024): 81938–67. <https://doi.org/10.1109/ACCESS.2024.3401473>.
- Sutton, Jane, and Zubin Austin. "Qualitative Research: Data Collection, Analysis, and Management." *Canadian Journal of Hospital Pharmacy* 68, no. 3 (June 25, 2015). <https://doi.org/10.4212/cjhp.v68i3.1456>.
- Takahashi, Carlos Kazunari, Júlio César Bastos de Figueiredo, and Eusebio Scornavacca. "Investigating the Diffusion of Innovation: A Comprehensive Study of Successive Diffusion Processes through Analysis of Search Trends, Patent Records, and Academic Publications." *Technological Forecasting and Social Change* 198 (January 1, 2024): 122991. <https://doi.org/10.1016/j.techfore.2023.122991>.
- Tapalova, Olga, and Nadezhda Zhiyenbayeva. "Artificial Intelligence in Education: AIED for Personalised Learning Pathways." *Electronic Journal of E-Learning* 20, no. 5 (2022): 639–53.
- Torous, John, Sandra Bucci, Imogen H. Bell, Lars V. Kessing, Maria Faurholt-Jepsen, Pauline Whelan, Andre F. Carvalho, Matcheri Keshavan, Jake Linardon, and Joseph Firth. "The Growing Field of Digital Psychiatry: Current Evidence and the Future of Apps, Social Media, Chatbots, and Virtual Reality." *World Psychiatry* 20, no. 3 (2021): 318–35. <https://doi.org/10.1002/wps.20883>.
- Yoon, Ee-Seul. "From GERM (Global Educational Reform Movement) to NERM (Neoliberal Educational Reform Madness)." *Critical Education* 15, no. 2 (2024): 13–28. <https://doi.org/10.14288/ce.v15i2.186904>.