



The Effectiveness of the Indonesian Education Curriculum in Enhancing Middle School Students' Literacy and Numeracy Skills

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ABSTRACT

In 2022, the Indonesian education curriculum underwent changes to address the learning recovery post-COVID-19. Students' learning gaps resulted in lower literacy and numeracy skills. This research aims to assess the effectiveness of Indonesia's education curriculum changes in improving students' literacy and numeracy skills. The study employed literature review and documentary analysis methods. The research demonstrates that the literacy and numeracy skills of students improved following the changes in the Indonesian education curriculum, as evident in Indonesia's ranking in the Programme for International Student Assessment (PISA). These findings highlight the positive impact of curriculum changes on enhancing the quality of education, particularly in students' literacy and numeracy skills at the middle school level. Thus, these curriculum changes hold significant potential in enhancing students' academic performance in Indonesia.

Index Terms— indonesian curriculum, literacy, numeracy, middle school

I. INTRODUCTION

In 2020, the education system in Indonesia underwent a sudden transformation due to the impact of the COVID-19 pandemic. By March 2020, all educational activities across educational institutions came to a complete halt, leading to students having no access to the learning process (Siahaan, 2020). This situation posed a significant challenge to the education sector, as the priority shifted to safeguarding public safety and health. These drastic changes necessitated the development of a responsive and adaptive educational system to address the crisis.

The Indonesian Ministry of Education issued Circular Letter No. 4 regarding the Home Learning Process, considering the psychological well-being of learners to provide meaningful and customized learning experiences aligned with each student's access and facilities. This initiative aimed to ensure the enrichment of students through emergency education services during the COVID-19 pandemic, safeguarding educational institutions from the adverse impacts of COVID-19, outbreaks, and infections within the education sphere. Additionally, it sought to provide psychosocial support for educators, students, and parents/guardians.

The initial steps taken by the Indonesian Ministry of Education with the policy of home-based education were commendable, aiming to curb the spread of COVID-19 while facilitating students' learning from home. Over the course of two years, all educational activities were conducted online. However, the implementation of remote learning encountered numerous challenges.

Teachers faced limitations in utilizing the internet effectively for teaching purposes, posing constraints on their ability to conduct online classes. On the other hand, students encountered difficulties in maintaining focus during online learning sessions, often experiencing boredom and stress throughout the process. These challenges not only affected the quality of education but also had psychological repercussions on students, impacting their engagement and mental well-being during the online learning experience. Despite the efforts to adapt to the circumstances, the obstacles faced by both teachers and students highlight the complexities and limitations associated with sustained online education delivery.

Some of the issues faced, such as the lack of alignment between teaching materials and the intended targets in middle schools, have resulted in significant impacts. The decline in students' interest in learning has also

become a concerning problem, leading to a loss of motivation in the learning process (Widyasari et al., 2022). This affects the stress levels of students, which can disrupt adolescent development. This condition not only influences students' academic achievements but also other aspects of their growth. The significant decline in students' literacy and numeracy skills during the COVID-19 pandemic is substantiated by empirical data,

Category/Year		2019	2020
Literacy	Laki-laki	0,93	0,62
	Perempuan	1,12	0,65
Numeracy	Laki-laki	0,7	0,35
	Perempuah	0,85	0,32

(Pascoe et al., 2022)

Through the Indonesian Ministry of Education's Decision Number 719 of 2020, guidelines for implementing a specialized curriculum were issued in response to the heavy academic workload in an unusual situation. The application of this special curriculum aims to offer educational institutions the flexibility to select a curriculum aligned with students' learning needs. In delivering education, educational units are provided with options to adhere to the national curriculum, implement an emergency curriculum, or independently simplify the curriculum. This decision was introduced to adapt education to specific circumstances, accommodating challenges faced in the teaching and learning process amid an unprecedented situation. It demonstrates the government's efforts to provide leeway for educational units to adjust the curriculum most suitable to meet students' learning needs.

Although the guidelines have been implemented, they haven't fully addressed the educational achievements, particularly in literacy and numeracy skills. The government is endeavoring to conduct an in-depth study to refine the curriculum to address learning loss effectively (Sumarbini & Hasanah, 2021). In 2022, the government introduced changes to the Indonesian curriculum, transitioning from the previously known Curriculum 2013 to the "Curriculum Merdeka" (Independent Curriculum).

The "Curriculum Merdeka" stands as a pivotal point in addressing the "learning loss" impacts induced by the COVID-19 pandemic. Tailored to meet the specific needs of each region, educational institution, and student characteristics, this curriculum aims to provide a more adaptive educational solution. The focus of the Curriculum Merdeka lies in project-based learning, problem-based learning, and strengthening character values in line with Pancasila principles. This approach is not only intended to address learning gaps but also to provide more real-life-oriented learning experiences while reinforcing students' morality and ethics.

With the hope of enhancing literacy and numeracy skills in middle school, the implementation of the "Merdeka Curriculum" has been designed. This research aims to assess the effectiveness of the Merdeka Curriculum in middle schools to improve students' literacy and numeracy skills. The Merdeka Curriculum, tailored to uplift educational quality, emphasizes adaptive, responsive learning, aligning with students' needs. Evaluating the implementation of the Merdeka Curriculum seeks to provide a clear picture of its impact on students' literacy and numeracy abilities. The study intends to offer comprehensive insights into how this curriculum may significantly influence key aspects of learning in middle school.

II. METHOD

This research applies the methods of documentation study and library research (Indarta et al., 2022). Documentation study involves the use of official government documents, particularly regulations from the Indonesian Ministry of Education, gathered to strengthen arguments in the research. Meanwhile, library research involves retrieving indexed scholarly journals from sources such as Google Scholar and Taylor and Francis. Data obtained from both methods are then analyzed to ensure accuracy and obtain valid findings within the research context. Through this approach, it is hoped that the research can provide a strong foundation and credible information related to the issues under investigation.

III. RESULT AND DISCUSSION

RESULT

A. Curriculum of Indonesian education in Middle School Student

Curriculum Merdeka, introduced in 2022 through the Minister of Education's Decision No. 262/M/2022, revolutionized the Indonesian education system. Termed as 'Curriculum Merdeka' (Free Curriculum), it aimed to tailor learning experiences to each student's needs, educational facilities, and the unique vision and mission of every educational institution. This curriculum prioritized relevance and flexibility in students' learning experiences. It emphasized differentiated learning approaches, ensuring that diverse learning styles among students are accommodated, allowing for a more inclusive educational environment.

Additionally, the implementation guidelines under Curriculum Merdeka aimed to offer a more adaptive and holistic learning experience. It encouraged educators to diversify teaching methods, accommodating various student learning preferences. This curriculum reform aimed to not just address the learning gaps exacerbated

by the pandemic but also to revolutionize the learning process, fostering an environment conducive to individualized learning approaches and better adaptability to students' distinct learning styles and preferences (Rahayu et al., 2022).

The Merdeka Curriculum in junior high schools consists of two main learning activities and one additional learning activity. Intrakurikuler learning activities emphasize learning achievements for each subject at the junior high school level. There are ten main subjects with predetermined learning hours set by the Ministry of Education. Co-curricular activities in junior high schools focus on projects, particularly the strengthening project of the Pancasila student profile, referring to the competency standards for graduates regulated by the Ministry of Education.

The additional learning activity of local content offers three implementation options. The first option integrates local content into intrakurikuler learning, while the second option incorporates local content into co-curricular activities. The third option involves developing special subjects tailored to the unique regions of Indonesia (Sumarsih et al., 2022).

The Merdeka Curriculum at the junior high school level specifically designs a diverse learning structure. With an emphasis on learning achievements, co-curricular activities as projects, and flexibility options in integrating local content, this curriculum depicts an approach to more focused and adaptive learning according to regional needs and students. All of this reflects an effort to enrich student learning experiences by responding to local needs while considering the established national framework.

Curriculum Merdeka is believed to respond to the learning demands of the 21st century, aiming for outcomes where students can analyze and solve problems relevant to their lives, collaborate effectively in this globalized era, and adapt to diverse challenges. This curriculum reform aligns with the essential competencies students need to thrive in an evolving world. It emphasizes critical thinking, problem-solving, and collaboration, fostering skills necessary for success in today's interconnected society (Marisa, 2021). By focusing on these key areas, curriculum Merdeka aims to equip students with the capacity to tackle real-world issues, promoting adaptability and resilience in a rapidly changing environment.

The curriculum's emphasis on problem-solving and collaboration is paramount in preparing students for the complexities of the contemporary world. By instilling these skills, curriculum Merdeka aspires to nurture students who are not only academically proficient but also socially adept. This approach supports students in developing a comprehensive skill set essential for their holistic development, ensuring they are well-prepared to navigate the challenges and opportunities presented in the 21st-century landscape (Fitriyah & Wardani, 2022). Thus, Curriculum Merdeka stands as a pivotal step toward fostering well-rounded individuals capable of contributing meaningfully to a globalized society.

Structure of the "merdeka" curriculum at Middle School Student

Subjects or Courses	Allocation of intracurricular learning time within one year (Week)	Allocation of Kokurikuler learning time within one year
Religious Education and Character Education	72 (2)	36
Pancasila Education	72(2)	36
Indonesian language	180(5)	36
Math	144(4)	36
Science	144(4)	36
Social Science	108(3)	36
English Language	108(3)	36
Physical Education, Sports, and Health.	72(2)	36
Computer Science	72(2)	36
Art and Craft Education	72(2)	36
Local Content Education	72(2)	
Σ	1044 (29)	360

(Minister of Education's, 2022)

B. enhancing students' literacy skills in Middle School Student

Literacy in the context of students becomes a crucial foundation in the development of life skills. It involves students' ability not only to access information from various sources but also to understand and apply it in addressing everyday allenges (Réka et al., 2019). Literacy here encompasses aspects of reading, comprehension, and effective information utilization. By building literacy, students can develop independence, critical thinking, and problem-solving skills, which are essential for success in the complex modern world (Pritchett & Sandefur, 2020).

School Literacy in the SLM (School Literacy Movement) paradigm reflects the expansion of the concept of literacy into school life. Involving students in activities that engage various modalities such as reading, viewing, listening, writing, and speaking, SLM shapes a dynamic and inclusive learning environment. It is not just a learning approach but also a comprehensive effort to encourage schools to become centers of lifelong learning (Khoirunnisa & Adirakasiwi, 2023). By integrating literacy comprehensively, SLM contributes to the

vision of a school as a space that inspires active learning and empowers students to become critical thinkers and lifelong learners.

Literacy skills in the context of 21st-century education encompass various dimensions crucial for shaping comprehensive students. First, literacy in reading and writing serves as the primary foundation for acquiring knowledge and developing communication skills through written language. Numeracy literacy, secondly, emphasizes the importance of understanding and applying mathematical concepts, supporting logical thinking and problem-solving skills.

Furthermore, scientific literacy becomes a key element in facilitating students' understanding of the world around them and fostering scientific thinking skills. Financial literacy, fourthly, equips students with knowledge about financial management, investments, and an understanding of economic concepts, providing the necessary foundation to manage their finances in the future. Digital literacy and cultural and citizenship literacy are the last important focuses. Digital literacy teaches students to use information technology and the internet ethically and critically, while cultural and citizenship literacy shapes students' understanding of cultural diversity and citizenship values, supporting them to become active, tolerant, and participative members of society. Thus, these literacy skills together form the basis for a holistic education, preparing students to face the challenges of the 21st century (Minister of Education's, 2021).

The School Literacy Movement Habituation Activity in junior high schools is implemented through several methods designed to stimulate students' reading interest. Firstly, there is an alternative reading activity for 15 minutes before the start of the learning session. This aims to establish a reading habit integrated into daily routines, promote a love for reading, and enhance students' literacy comprehension. Secondly, as an effort to create a literacy-rich environment, each junior high school is required to have a library. Additionally, the creation of a Classroom Reading Corner and reading areas within the school environment is essential to provide a comfortable and enticing space for students to explore various types of literature.

These initiatives are not only about promoting reading activities but also involve the strategic design of physical environments that support literacy development. By ensuring access to a well-equipped library, students have the opportunity to explore a variety of books and references to enhance their learning. The Classroom Reading Corner is a specially designed space to boost creativity and imagination, creating an atmosphere that stimulates reading interest. Meanwhile, the reading areas within the school environment offer students opportunities to learn and read beyond the classroom, expanding the scope of literacy throughout the entire school.

C. enhancing students' numeracy skills in Middle School Student

Numeracy skills limited to understanding numbers and traditional mathematical calculations appear to be increasingly irrelevant in line with the demands of the 21st century (Mareta et al., 2021). Technological advancements and shifts in the job market necessitate individuals to possess more holistic and integrated mathematical skills applicable to everyday life (Baten et al., 2014). In this digital era, numeracy comprehension entails more than just crunching numbers; it is crucial to comprehend the context and applications of mathematics in real-life situations.

Numeracy, also known as numeracy literacy and mathematical literacy, summarizes an individual's ability to apply mathematical concepts and skills to solve practical problems in various contexts of everyday life (Schapira et al., 2012). This includes understanding numbers, mathematical operations, data interpretation, as well as the ability to apply mathematical concepts in daily life, ranging from household matters, work, to involvement in the community. However, in-depth analysis indicates that numeracy understanding is not limited to the ability to calculate but also involves interpretation, application, and critical thinking of numerical information.

In the midst of technological advancements and changing dynamics of work, numeracy literacy becomes key to facing the challenges of the 21st century. The increasing complexity of daily tasks and the need for more contextual problem-solving demand individuals to have more integrated numeracy skills in their daily lives. Therefore, the approach to mathematical education should go beyond merely teaching formulas and mechanical calculations but should also focus on developing analytical, interpretative, and creative skills to face real-life situations.

Efforts by the Ministry of Education to enhance students' numeracy skills, particularly in junior high schools, are concentrated on training mathematics and natural science teachers. The training aims to enable teachers to comprehensively and systematically map the numeracy learning journey. Through this mapping, it is anticipated that teachers can more effectively design teaching strategies focused on developing students' numeracy skills. Furthermore, the training provides guidance for educational and training institutions in designing and implementing training and mentoring programs related to Numeracy Competence for Teachers (Tenny et al., 2021).

The development of Teacher Numeracy Competence is based on Teacher Competence criteria, encompassing pedagogical, personal, social, and professional aspects integrated into categories of professional knowledge competence models, professional learning practices, and professional development. Involving teachers in a comprehensive numeracy learning journey ensures that they not only have a profound understanding of mathematical concepts but also can integrate and effectively teach these numeracy skills to students.

Kementerian Pendidikan not only provides training for teachers to understand the importance of numeracy but also sets clear standards regarding the numeracy skills that students, especially those in junior high school, should achieve. These standards serve as concrete guidelines for evaluating students' progress in crucial aspects of numeracy. Students are expected to have a solid understanding of mathematical concepts and the ability to explain the interconnections between these concepts, applying them or logarithms flexibly, accurately, efficiently, and precisely in problem-solving. Moreover, the standards emphasize the use of reasoning in recognizing mathematical patterns and properties, conducting mathematical manipulations to generalize, formulating proofs, and explaining mathematical ideas and statements.

Furthermore, the numeracy standards encompass students' abilities to solve problems involving understanding the problem, designing mathematical models, solving models, and interpreting the obtained solutions. Students are expected to communicate their mathematical ideas using symbols, tables, diagrams, or other media to explain situations or problems. The importance of developing an appreciative attitude toward mathematics is also underscored in these standards, encompassing curiosity, attention, and interest in mathematics lessons, as well as perseverance and confidence in problem-solving (Rahmansyah, & Nuriadin, 2022).

With these standards in place, the Ministry of Education directs mathematics education towards a more holistic approach, ensuring that students not only possess strong mathematical calculation skills but also have broader and more relevant numeracy skills in their daily lives. These standards provide a solid foundation for an objective assessment of students' numeracy development and offer clear guidance for teachers to support comprehensive numeracy skill development-oriented learning.

DISCUSSION

The introduction of Curriculum Merdeka in 2022 marked a significant departure for the Indonesian education system, aiming to provide a personalized learning experience. This curriculum prioritized relevance, flexibility, and inclusivity by tailoring educational approaches to individual needs and the unique characteristics of each institution (Rahayu et al., 2022). The emphasis on differentiated learning, adaptable teaching methods, and the incorporation of local content showcased a comprehensive and adaptable approach that aligned with regional needs, fostering a more focused and adaptive learning environment. This transformative initiative addressed learning gaps exacerbated by the pandemic, reflecting a commitment to enhancing the overall educational experience for students (Marisa, 2021).

Simultaneously, the School Literacy Movement (SLM) in Indonesian junior high schools underscored the expansion of literacy into school life. By incorporating various modalities such as reading, viewing, listening, writing, and speaking, the SLM created a dynamic and inclusive learning environment (Khoirunnisa & Adirakasiwi, 2023). It positioned schools as centers of lifelong learning, encouraging active learning, critical thinking, and lifelong learning habits. The focus on crucial literacy skills for 21st-century education, including reading, writing, numeracy, scientific literacy, financial literacy, digital literacy, and cultural and citizenship literacy, laid a holistic foundation for students (Tenny et al., 2021). Initiatives like alternative reading sessions, library requirements, and designated reading corners exemplified strategic efforts to create literacy-rich environments, supporting comprehensive skill development among students. In tandem, the Ministry of Education's efforts to enhance students' numeracy skills through teacher training and clear standards reinforced the need for a more holistic approach, ensuring students possess relevant numeracy skills for diverse real-life scenarios (Rahmansyah, & Nuriadin, 2022).

IV. CONCLUSION

This research underscores the urgency of examining the effectiveness of the Indonesian education curriculum in enhancing the literacy and numeracy skills of junior high school students. The findings offer critical insights into the expansion of literacy and numeracy at this level. The significance of this research lies in its potential to provide a deeper understanding of the curriculum's implementation in improving students' critical abilities in reading, writing, and arithmetic. The relevance of the findings also indicates the need for a more profound evaluation, particularly in integrating literacy skills into every learning process across various educational units. A suggestion for future research involves a comprehensive assessment of the application of literacy skills in classrooms, examining the extent to which the curriculum is integrated into day-to-day teaching practices. Consequently, future research can be more focused on developing more effective teaching strategies, adapting the curriculum to better suit students' needs, and making a tangible contribution to the improvement of literacy and numeracy skills at the junior high school level.

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