

ISIR Journal of Arts, Humanities and Social Sciences (ISIRJAHSS)
ISSN: 3048-7463 (Online)
Frequency: Bimonthly
Published By ISIR Publisher
Journal Homepage Link- https://isirpublisher.com/index.php/isirjahss

PHILOSOPHY OF MATHEMATICS EDUCATION IN INDONESIAN NATIONAL POLICY

BY

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Article History

Received: 05/09/2025
Accepted: 17/10/2025
Published: 20/11/2025

Vol – 2 Issue – 6

PP: -29-41

Abstract

President Prabowo Subianto's directive on educational reform, particularly in the field of mathematics, emphasizes the critical need to strengthen students' competencies from an early age as a foundational pillar to address the challenges of the Fourth Industrial Revolution. Mathematics education is positioned as a key factor in fostering logical, analytical, and problem-solving skills essential for the digital era. This article examines how a constructivist approach, combined with the integration of Pancasila values, can be implemented in the mathematics curriculum to shape students who are not only academically proficient but also possess strong character. Employing qualitative methods and narrative analysis of educational policies set forth by the President, this research reveals that a more interactive and collaborative educational approach, supported by continuous teacher training and the development of technology-based educational infrastructure, is crucial for ensuring the successful implementation of these policies. The implications suggest that this educational reform is expected to accelerate the creation of a competitive young generation in Indonesia who are prepared to contribute to the globalized world while remaining rooted in national values.

Keywords: *Mathematics Education, Fourth Industrial Revolution, Constructivism, Pancasila*

A. Introduction

In facing the challenges of the Fourth Industrial Revolution, Indonesia stands at a critical juncture in preparing a competent human resource base to compete in an increasingly fast-paced digital era. This era is marked by rapid advancements in automation technology, artificial intelligence, and big data, which have fundamentally transformed the economic, social, and educational landscape (Schwab, 2017). Acknowledging these shifts, President Prabowo Subianto has emphasized the need for a national education reform aimed at equipping students with the skills required to adapt to developments in science and technology, as well as the growing complexity of global challenges (Rosa, 2024). In his directive, President Prabowo stressed that education is not merely about the transmission of knowledge but also about equipping students with relevant, adaptive skills. Mathematics education, in particular, has been identified as a crucial foundation for fostering logical, analytical, and innovative thinking—skills that are indispensable in the 21st century (Mason, 2008). Furthermore, President Prabowo Subianto underscored that building mathematical capabilities from an early age is key to preparing younger generations to face the complexities of the modern world (Nuraini, 2024).

One of President Prabowo Subianto's main priorities is the importance of embedding mathematics education at the elementary level, ensuring that students develop a solid foundation in critical thinking and problem-solving (Aranditio, 2024). Elementary education designed to instill these skills not only enhances mathematical literacy but also nurtures creative and innovative mindsets, which are essential in the digital and high-tech era (Amidi, 2024). According to the President, this approach is not solely about imparting theoretical knowledge but also about fostering students' abilities to apply concepts to solve real-world problems (Savitri, 2024). However, amid the policy shifts directed by President Prabowo, critical questions have emerged regarding how the philosophy of mathematics education can be effectively integrated into the national curriculum. Can President Prabowo's directives genuinely drive significant changes in curriculum reform that are more responsive to the demands of the Fourth Industrial Revolution? The primary challenge lies in shifting the educational paradigm from rote memorization to a more interactive, constructivist-based approach, where students actively engage in the learning process through exploration and collaboration (Vygotsky, 1978).

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This article aims to analyze how President Prabowo Subianto's directives could influence national education policy, particularly in the field of mathematics education. Additionally, it seeks to explore how the philosophy of mathematics education, especially the constructivist approach that emphasizes experiential learning, can be implemented to enhance student competence. By focusing on early childhood education, the new policies are expected to integrate technological approaches and digitalization, thereby preparing Indonesia's youth to compete in the global market. This study aims to provide comprehensive recommendations for policymakers, especially in formulating more effective and future-oriented educational strategies. By recognizing the importance of mathematics education from an early age, the findings of this research are expected to assist the government in developing policies that are more responsive to contemporary needs. Moreover, the research also seeks to offer insights for educators and educational institutions on the importance of adapting curricula to align with the demands of the digital era (OECD, 2019).

B. Methods

This research adopts a descriptive qualitative approach, with a focus on policy analysis and philosophical studies. This approach was selected due to the study's objective of exploring the underlying philosophy of mathematics education embedded within national policies, particularly under the leadership of President Prabowo Subianto in addressing the challenges posed by the Fourth Industrial Revolution. According to Creswell (2014), qualitative methods are particularly suited for exploring complex phenomena that require interpretative analysis, especially within educational contexts influenced by social and technological dynamics. Through this approach, the research aims to identify how educational philosophy is applied within mathematics education policies in Indonesia and its impact on the national curriculum.

The data sources used in this study encompass speeches and academic literature. Primary data were obtained from relevant documents, including transcripts of President Prabowo's speeches delivered on various occasions, as well as policies published by the Ministry of Education. For instance, a speech reported by Nuraini (2024) highlights the President's directives on the necessity of curriculum reform, emphasizing the enhancement of mathematical literacy and critical thinking skills. Additionally, statements from the Minister of Primary and Secondary Education, Prof. Abdul Mu'ti, supporting the President's directives, will also be analyzed as part of the primary data. Furthermore, relevant academic literature is used to strengthen the conceptual analysis of educational philosophy and its application in policy-making. This literature includes scholarly journals, books, and articles discussing competency-based education concepts and constructivist approaches in mathematics teaching. For instance, studies by Triplett (2023); Basak, Wotto, & Bélanger (2022); Fiandra, Giatman, Effendi, Muskhir, & Billet (2022); Haleem, Javaid, Qadri, & Suman (2022); and Putrawangsa & Hasanah (2018) on the integration of technology in education within the digital era, along with Freire's (1970) theory of liberating education, serve as crucial references for understanding the approaches adopted in these policies.

The data collection process involved a literature review and content analysis of various documents and articles. The literature review entailed gathering information from academic journals, online articles, and books related to the research topic. Content analysis was utilized to extract key information from policy documents issued by President Prabowo and the Ministry of Education. This technique enabled the researcher to identify the primary themes related to mathematics education reform, focusing on the development of critical thinking skills and adaptation to technological advancements (Riessman, 2008). The collected data were subsequently analyzed using a narrative analysis approach to uncover the principles underlying the policies implemented by the government. Narrative analysis assists researchers in understanding the narratives behind President Prabowo's directives on mathematics education and evaluating the implications of these policies on curriculum changes in Indonesia. According to Miles, Huberman, and Saldaña (2014), this method is effective in identifying patterns and emerging themes within document content, thereby providing deeper insights into the policy context. Finally, to ensure data validity, this research employs triangulation techniques by cross-referencing information from various sources, including official documents, academic articles, and credible media coverage. Triangulation aims to enhance the reliability of the analytical findings and minimize interpretative biases. According to Denzin and Lincoln (2018), this technique is crucial in qualitative research to ensure that conclusions are based on valid and consistent data.

C. RESULTS AND DISCUSSION

1. Analysis of President Prabowo Subianto's Directives on the Reform of Mathematics Education in Indonesia

The directives delivered by President Prabowo Subianto during the inaugural Plenary Cabinet Meeting encompassed various aspects related to national life and governance. Education was one of the key areas emphasized in these directives. Presented below is the transcript of President Prabowo Subianto's address during the first Plenary Cabinet Meeting, specifically focused on the future direction of education (Sushmita, 2024).

> *"Dan di antaranya tentunya adalah menjamin kedaulatan bangsa. Saya ingatkan saudara sekalian jangan sampai kita lupa dengan Undang-Undang Dasar kita sendiri, Undang-Undang Dasar 1945, yang jelas dalam pembukaannya tertera tujuan-tujuan nasional kita, di mana tujuan-tujuan nasional kita sangat jelas oleh pendiri-pendiri bangsa kita, tujuan pertamanya adalah melindungi segenap bangsa Indonesia dan seluruh tumpah darah Indonesia, ini tujuan nasional yang pertama untuk kita survive. Kedua tentunya memajukan kesejahteraan umum. Saya katakan berkali-kali bahwa negara yang merdeka rakyatnya harus*

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merasakan kemerdekaan. Janganlah kita bangga menjadi anggota G20, kalau rakyat kita masih banyak yang miskin, masih banyak yang lapar. Mencerdaskan kehidupan bangsa mutlak, pendidikan bagi kita adalah prioritas yang sangat tinggi. Saya kira ini terlihat komitmen kita kepada pendidikan, kalau tidak salah alokasi kita dalam anggaran 2025 untuk pendidikan salah satu tertinggi, mungkin selama sejarah kita, untuk pertama kali kita sudah 25 persen, 20 persen. Jadi, masalah pendidikan yang pertama, ya tentunya tujuan nasional keempat kita juga hadir dalam pergolakan ataupun interaksi dunia, dimana kita harus selalu membela kemerdekaan bangsa-bangsa. Dan sesudah itu tentunya yang saya katakan pendidikan, pendidikan sangat mutlak. Saya sudah panggil menteri pendidikan tinggi, saya sudah turunkan menteri pendidikan dasar menengah, kita sudah mempunyai gambaran besar bagaimana kita segera akan menyentuh semua anak-anak kita. Kita akan gunakan teknologi untuk mempercepat, membawa pendidikan kepada anak-anak kita. Dan ini sesudah itu tentunya, kesehatan juga penting. Demokratisasi yang paling cepat, yang paling dirasakan oleh rakyat adalah pendidikan. Kalau kita bisa mempunyai pendidikan yang terbaik untuk anak-anak kita, kesehatan yang memadai untuk seluruh rakyat kita, itu adalah demokrasi yang sebenarnya, saudara-saudara. Menteri kesehatan, reformasi kesehatan atasi persoalan dengan dokter dan tenaga kesehatan, kita punya program khusus nanti kita bahas tersendiri."

The directive is translated into English as follows:

> "Among the fundamental priorities, of course, is ensuring the sovereignty of our nation. I must remind all of you not to forget our own Constitution, the 1945 Constitution of the Republic of Indonesia, which clearly outlines our national goals in its preamble. The founding fathers of our nation explicitly defined these objectives, with the foremost goal being to protect the entire Indonesian populace and the nation's sovereign territory. This is our primary national objective, essential for our survival. The second goal, undoubtedly, is to advance the general welfare. I have repeatedly emphasized that a truly independent country should enable its citizens to experience the benefits of independence. There is no reason to take pride in being part of the G20 if our people continue to face poverty and hunger. Ensuring the intellectual development of the nation is imperative; education for us is an utmost priority. This commitment to education is evident in our budget allocation for 2025, which, if I am not mistaken, marks one of the highest in our history — possibly for the first time reaching 20 to 25 percent. Thus, addressing educational issues remains paramount. Moreover, our fourth national goal entails engaging in global interactions and advocating for the freedom of all nations. Following that, I reiterate the significance of education — it is an absolute necessity. I have already instructed the Minister of Higher Education and the Minister of Basic and Secondary Education to outline a comprehensive plan to reach all of our children. We will leverage technology to accelerate access to education for our young generation. In addition, healthcare is equally critical. The most tangible and impactful form of democratization for the people is education. If we can provide the best possible education for our children and ensure adequate healthcare for all citizens, that is the true essence of democracy, my fellow countrymen. Regarding healthcare, I have instructed the Minister of Health to initiate reforms to address challenges related to doctors and healthcare workers. We have a specific program in place, which we will discuss in detail separately."

The directives issued by President Prabowo Subianto during the plenary cabinet meeting underscore a strong emphasis on the significance of the education sector as a national priority. Analytical findings reveal that there are at least six key areas of focus highlighted by him regarding the future of Indonesia's educational policies. These six focal points are as follows:

First, Education as a High Priority to Advance the Nation. President Prabowo emphasizes that education is an integral part of Indonesia's national goals as outlined in the 1945 Constitution, specifically in its objective to "enlighten the nation." According to him, quality education forms the essential foundation for achieving national progress and enhancing public welfare. In this directive, he highlighted that the budget allocation for education in 2025 will be among the highest in Indonesia's history, reaching between 20% and 25% of the total national budget. This commitment signifies the government's prioritization of education as a means to cultivate a more educated and competent generation.

Second, Leveraging Technology to Enhance Educational Access. President Prabowo asserts that technology will serve as a crucial tool in accelerating educational access, particularly for children throughout Indonesia, including those in remote areas. He underscores that by harnessing technology, education can become more accessible and inclusive. This directive reflects a focus on the digitalization of education, aiming to elevate learning to a more modern and relevant level in line with the advancements of the digital era.

Third, The Importance of Building Inclusive and Equitable Education. The President emphasizes that education must benefit all levels of society without exception. He highlights the necessity of ensuring that the benefits of significant budget allocations are genuinely felt by the people, not merely reflected in statistics but realized in daily life. This directive demonstrates a commitment to reducing educational disparities between urban and rural areas and ensuring equitable access to education for all Indonesian children.

Fourth, Integration of Education and Democratization. According to the President, education and healthcare are tangible manifestations of democracy that can be directly experienced by the populace. In other words, access to quality education and adequate healthcare services serves as indicators of true democratic progress. This implies that good education is not only an intellectual pursuit but also an effort

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to improve the quality of life, which in turn will strengthen Indonesia's democracy.

Fifth, Strengthening Collaboration and Synergy Among Ministries. The President mentioned that he has coordinated with the Minister of Higher Education and the Minister of Primary and Secondary Education to develop a more comprehensive strategy covering all aspects of education. This aims to ensure that every Indonesian child receives adequate educational attention, tailored to the needs of the modern era. This directive underscores the importance of cross-sectoral synergy in realizing the vision of inclusive and sustainable education.

Sixth, Focusing on the Development of a Competitive Workforce. In the global context, the President also stresses that Indonesia must be able to compete on the international stage. Therefore, investing in education is crucial to developing an exceptional human resource base that is prepared to compete globally. By advancing education, Indonesia is expected to increase national productivity and competitiveness in the era of the Fourth Industrial Revolution.

At the very least, President Prabowo Subianto's directives underscore education as a strategic sector that stands as a national priority, emphasizing the achievement of national objectives and the utilization of technology to enhance accessibility. He has demonstrated a strong commitment to ensuring equitable and high-quality education across Indonesia, which not only aims to empower the nation but also to enhance welfare and strengthen democratic values. Through policies focused on education, he aspires to nurture a younger generation that is more competent, innovative, and better prepared to face global challenges. These points illustrate a comprehensive vision to guide Indonesia into a new era, wherein education serves as a foundational pillar of national development.

On another occasion, President Prabowo urged the Minister of Primary and Secondary Education, Prof. Abdul Mu'ti, to strengthen the quality of mathematics education for elementary and secondary school students. Furthermore, this reinforcement is recommended to begin at an early age, specifically in kindergartens. According to the President, as conveyed by the Minister, science and technology are deeply intertwined with competencies in mathematics.

President Prabowo Subianto's directives during the plenary cabinet meeting, along with his specific instructions to the Minister of Primary and Secondary Education to enhance the quality of mathematics education at the elementary and secondary levels, exhibit a strong correlation and reflect a consistent vision concerning the prioritization of the education sector in Indonesia. The following section will elaborate on the interconnections between these directives.

First, Prioritizing Education as a National Focus. In the plenary cabinet session, President Prabowo emphasized that education is a top priority for the government, aligning with the national objectives set forth in the Preamble of the 1945 Constitution, which aims to "educate the nation's life." The President also highlighted that the education budget for 2025 will be among the highest in history, with allocations ranging from 20% to 25% of the total state budget. This commitment reflects the government's dedication to advancing education across all levels. This directive is closely tied to specific instructions for the Minister of Primary and Secondary Education to enhance the quality of mathematics education from an early age. The focus on mathematics is not merely to improve academic achievement but also to equip students with logical and analytical thinking skills essential in the era of the Fourth Industrial Revolution. Thus, this directive forms an integral part of the national agenda to elevate the intellectual capacity of the nation and bolster the competitiveness of Indonesia's younger generation.

Second, Strengthening Mathematics Education from Early Childhood as a Foundation for Science and Technology Competence. President Prabowo has called for strengthening mathematics education, beginning as early as the preschool level. This aligns with directives issued during the plenary cabinet meeting on the critical role of leveraging technology to accelerate educational access and improve the quality of learning. In this context, mastering mathematics at the foundational level is crucial for students to excel in science and technology disciplines in higher education stages. Mathematics is a fundamental skill that underpins competencies in Science, Technology, Engineering, and Mathematics (STEM). Therefore, by enhancing mathematics education quality from an early age, the government aims to prepare a more competitive younger generation to face global challenges. This initiative also reflects the President's directive to ensure that Indonesia's education system remains relevant to contemporary demands, particularly in the digital and technological era.

Third, Aligning Educational Policies with Long-term Vision. In his cabinet directives, the President stressed the importance of synergy among various ministries, including the Ministry of Primary and Secondary Education, to achieve more inclusive and high-quality educational outcomes. The specific request for a focus on mathematics education from the primary to the secondary level is part of this effort. President Prabowo understands that high-quality education represents a long-term investment that will positively impact national welfare and sovereignty. By strengthening mathematics competencies from an early age, students are not only prepared for academic pursuits but also for future industry needs that increasingly rely on technological proficiency. This aligns with the President's commitment to leveraging technology in education and accelerating digital transformation in the educational sector.

Fourth, Empowering the Younger Generation as a Key to National Self-reliance. The President's directive to strengthen education, including a specific emphasis on mathematics, underscores his view that education is a genuine form of democracy. By providing high-quality education, the government can help create a generation that is intelligent, self-reliant, and ready to contribute to the nation. In this context, strengthening mathematics education from an early

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age aims to build the foundational skills necessary for the future, including critical thinking, problem-solving, and digital literacy. Hence, the President's directive to the Ministry of Primary and Secondary Education is not solely focused on improving academic outcomes but is also part of a broader national strategy to enhance national resilience through education. President Prabowo believes that if Indonesia aspires to be sovereign and independent on the global stage, it must begin with strengthening education at the most fundamental levels.

President Prabowo's directives during the plenary cabinet session, coupled with his specific instructions to the Minister of Primary and Secondary Education to enhance early mathematics education, are complementary and reflect a holistic commitment to educational sector development. These efforts embody the President's strategic vision to develop high-quality human resources who are not only globally competitive but also actively contribute to the progress of the Indonesian nation. Additionally, among all educational subjects, there is a clear indication that mathematical competence holds a strategic position in President Prabowo Subianto's vision. He perceives mastery of mathematics as a crucial foundation for national development, especially in preparing the younger generation to confront the challenges of the digital era and the Fourth Industrial Revolution.

A Further Review on President Prabowo's Emphasis on Mathematical Competence in the National Education Agenda is as follows.

First, Mathematics as the Foundation for Mastering Science and Technology. President Prabowo explicitly emphasizes the importance of enhancing students' mathematical abilities from an early age, including at preschool and elementary levels. In his view, mathematics is not merely a subject taught in schools but serves as a foundational pillar for mastering science, technology, engineering, and mathematics (STEM) fields. Proficiency in these areas is essential to equip students with future-relevant skills, particularly in an era increasingly dominated by technology and digitalization. The President believes that mathematical skills will aid students in developing logical, analytical, and systematic thinking, which are crucial for excelling in science and technology. By emphasizing the importance of mathematics, the President aims to enhance the quality of Indonesia's human resources, thus better preparing them to compete at a global level. This initiative aligns with the government's efforts to drive digital transformation and technological innovation across various sectors, including industry, economy, and education.

Second, Building a Foundation of Skills from an Early Age. President Prabowo acknowledges that building a strong and self-sufficient nation requires a young generation equipped with a robust foundation of skills, especially in mathematics. Therefore, he advocates for the introduction of mathematics education from early childhood at the preschool level. According to the President, the earlier students are introduced to mathematical concepts, the better their ability to grasp and master more complex skills in subsequent educational stages. Strengthening the foundation of mathematics early on is expected to foster problem-solving abilities and critical thinking skills, which are indispensable in today's globally competitive environment. The President believes that these skills will prepare students to be more adaptive and innovative, not only within academic settings but also in a workforce that increasingly demands complex cognitive capabilities.

Third, Mathematics as a Key to Economic Self-Sufficiency. In President Prabowo's perspective, mastering mathematics is also intrinsically linked to sustainable economic development. He underscores that one of the ways to achieve national self-sufficiency is by improving educational quality, particularly in mathematics, which serves as a bedrock for the development of scientific and technological skills. This vision aligns with the President's goal of cultivating a generation capable of managing Indonesia's resources and natural wealth more efficiently through technology. Strong mathematical competence is deemed essential to equip students with the analytical skills needed for data-driven decision-making, especially in strategic sectors such as industry, energy, and agriculture. Thus, the President views mathematics education as a key element in enhancing Indonesia's international competitiveness and promoting economic self-reliance.

Fourth, Mathematics as Part of the Democratization of Education. President Prabowo also emphasizes that quality education is a tangible manifestation of true democracy. In this context, he sees equitable access to quality mathematics education as a means to ensure that every Indonesian child has equal opportunities for success, regardless of social or geographical background. He recognizes that disparities in educational quality, particularly in mathematics, can widen the gap between different social groups. By advocating for the strengthening of mathematics education in primary and secondary schools, the President hopes to narrow the educational gap between urban and rural areas. This is consistent with his commitment to prioritizing the improvement of educational quality in remote regions, thereby ensuring that all Indonesian children have access to equal educational opportunities.

Fifth, Mastery of Mathematics as a Strategy for National Sovereignty. For President Prabowo, enhancing mathematical competence is not merely an academic concern but also a matter of national sovereignty. He believes that only with a skilled and educated workforce can Indonesia survive and thrive amid global dynamics. By increasing mathematical proficiency among students, Indonesia is expected to produce a generation that is more intelligent, self-reliant, and prepared to face future challenges. This competence is also seen as part of a national strategy to strengthen defense and economic independence. With graduates who excel in mathematics and technology, Indonesia will be better positioned to manage and utilize its natural resources more wisely and efficiently, thereby bolstering national resilience in the economic sphere.

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President Prabowo Subianto's directives during the Plenary Cabinet Session emphasize education as a top national priority, aligning with the objectives enshrined in the Preamble of the 1945 Constitution. The primary focus is on fostering the intellectual development of the nation as a foundation for building self-reliance and improving the welfare of the Indonesian people. In this context, education is not merely a tool for enhancing knowledge but also serves as a means to strengthen democracy by ensuring equitable access to education across all regions of Indonesia. Moreover, President Prabowo explicitly underscored that reinforcing education, particularly in mathematics, is crucial for preparing an outstanding and competitive younger generation to face the challenges of the Fourth Industrial Revolution. Mathematics is regarded as an essential foundation that supports proficiency in science and technology, which, in turn, serves as the key to cultivating a competent workforce. His directive to the Minister of Basic and Secondary Education to bolster mathematics education from early childhood education (Kindergarten) through secondary school reflects a recognition that such skills must be nurtured from a young age. By improving the quality of mathematics education, the President aspires to create human resources capable of leading Indonesia towards a more prosperous, self-sufficient, and sovereign future.

The President also emphasized that technology will be leveraged to accelerate access to education and to ensure that children across all corners of the country have equal opportunities to learn. The utilization of technology is expected to expedite the digitalization of education, particularly in remote areas that have long faced limited access. Consequently, the focus on digital education becomes a strategic effort to bridge the educational gap between urban and rural regions. Furthermore, the President highlighted mathematical competence as a critical foundation for building the nation's economic self-sufficiency. By enhancing analytical and problem-solving skills, it is hoped that Indonesia's younger generation will be able to contribute to the development of strategic sectors such as energy, agriculture, and industry. This approach will not only enhance the nation's global competitiveness but also support the realization of self-reliance in the management of Indonesia's natural resources.

President Prabowo's directives, in their entirety, emphasize that education, particularly in the fields of mathematics and science, is the key to achieving national sovereignty and prosperity. He firmly believes that only through high-quality and relevant education can Indonesia produce a generation that is intelligent, adaptive, and prepared to face future challenges. With a greater budget allocation for the education sector, this initiative is expected to create a significant transformation in the quality of education in Indonesia, thereby producing graduates who are globally competitive and capable of leading the nation towards a brighter and more sovereign future. This conclusion reflects how President Prabowo's vision extends beyond academic enhancement, focusing equally on strengthening practical skills relevant to the industrial demands of the digital era. Through targeted and integrated policies, it is anticipated that Indonesia can cultivate a younger generation equipped to confront global changes with increased confidence and competence.

2. Integration of Pancasila Values in Mathematics Education

The integration of Pancasila values into mathematics education in Indonesia represents a strategic approach to enhance the quality of education, focusing not only on academic achievements but also on character development. President Prabowo Subianto emphasizes that education should produce graduates who are not only intellectually proficient but also possess high levels of integrity and social responsibility. Within this framework, mathematics education is designed to incorporate Pancasila values, ensuring that students excel in mathematical skills while also embodying noble character traits and a commitment to society (Harefa & Hulu, 2024). This approach fosters a holistic education system that underscores the importance of character formation as the foundation of academic competence.

The Problem-Based Learning (PBL) model, rooted in constructivist theory, has been proven effective in linking mathematical concepts with real-life problems. Harefa & Hulu (2024) assert that through PBL, students are encouraged to analyze issues such as environmental pollution or population statistics, which not only sharpen critical thinking skills but also enhance social awareness. By leveraging real-world contexts, mathematics is no longer perceived as an abstract discipline but rather as a practical tool for addressing relevant social challenges. This learning model aligns with the principles of *Pancasila*, emphasizing collaboration and mutual cooperation, where students engage in group work and exchange ideas (Mariana et al., 2018).

Furthermore, the integration of Pancasila values into mathematics instruction has proven to enhance students' motivation and active participation. Sugimin, Susongko, and Habibi (2024) demonstrated that when mathematical content is linked to everyday life, students become more interested and engaged in the learning process. This finding is corroborated by Nurhajarurahmah, Arsyad, and Dassa (2021), who found that such an approach allows students to better understand the relevance of mathematics in real-world contexts, thereby making learning more meaningful and contextualized. Additionally, Hamdi et al. (2024) emphasize that strengthening the profile of Pancasila learners can be achieved through this approach, aiming to shape a generation with strong character and a sense of responsibility. Moreover, creative strategies, such as the use of comics developed by Ahmad, Rochmad, Lestari, and Harjunowibowo (2021), have been shown to increase student interest while also reinforcing the integration of moral values into the learning process.

The success of this holistic approach largely depends on the role of teachers in designing and implementing a curriculum that not only focuses on cognitive aspects but also emphasizes character development. According to Suyitno, Zaenuri, Sugiharti, Suyitno, & Baba (2019), teaching that prioritizes

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values of nationalism and integrity can cultivate students who excel not only academically but also possess a strong commitment to national development. By integrating Pancasila values into mathematics education, it is anticipated that students will not only achieve academic proficiency but also develop attitudes and character that reflect the identity of the Indonesian nation. This integration is crucial for preparing the younger generation to face real-world challenges while equipping them with the social and moral skills needed for a better future.

3. The Constructivist Approach in Mathematics Learning

The constructivist approach in mathematics education in Indonesia is grounded in the philosophy that knowledge is formed through active interaction between students and their learning environment. The policy initiatives introduced by President Prabowo promote the integration of this method into the national curriculum, with the objective of enhancing students' active engagement in the learning process. Constructivist philosophy emphasizes that deep comprehension is achieved when students actively participate in exploration, collaboration, and concept discovery. Consequently, learning encompasses not only theoretical aspects but also becomes more relevant in addressing real-world challenges (Revina, 2017; Wahyuningsih & Suranti, 2023; Pratiwi, Situmorang, & Iriani, 2024).

Although this philosophy holds promise, its implementation in Indonesian schools continues to face significant challenges. One of the primary obstacles is the lack of ongoing teacher training to support the application of constructivist strategies. Wahyuningsih & Suranti (2023) emphasize the critical need for consistent training to enable teachers to master and effectively implement this approach. Without adequate training, many teachers struggle to adopt constructivist methods, especially in schools that are not well-equipped with supporting technology (Aridanthy & Jupri, 2024). This issue is further exacerbated by limited infrastructure, particularly in remote areas, which hinders the effective application of this approach (Jazim, Anwar & Rahmawati, 2017).

Technology, on the other hand, plays a pivotal role in supporting the success of constructivist approaches, particularly through the use of interactive media. According to Pratiwi, Situmorang, & Iriani (2024), digital devices can enrich contextual learning and assist students in understanding mathematical concepts within everyday life contexts. By leveraging the Technological Pedagogical Content Knowledge (TPACK) framework, which integrates technology with instructional content, educators can create more interactive and engaging learning experiences. This approach has been shown to enhance student engagement and learning outcomes (Fauzan, 2002; Hadi, 2002; Aridanthy & Jupri, 2024). Furthermore, constructivist-based learning modules play a significant role in fostering critical and creative thinking skills. These modules are designed to encourage students to independently explore concepts and derive solutions to given problems. This approach strengthens students' problem-solving capabilities (Anwar & Rahmawati, 2017; Tamur & Juandi, 2020). Wahyuningsih & Suranti (2023) note that constructivist-based modules not only increase active student participation but also make the material more engaging by linking it to real-life contexts.

The Realistic Mathematics Education (RME) approach, rooted in constructivism, has also demonstrated positive outcomes in Indonesia. Research by Fauzan (2002) and Hadi (2002) indicates that RME helps students connect mathematical concepts with real-life situations, thereby enhancing the relevance of learning. By placing real-world contexts at the core of instruction, RME enables students to not only enhance their academic skills but also develop critical thinking abilities necessary for everyday life (Pratiwi, Situmorang, & Iriani, 2024; Aridanthy & Jupri, 2024). Collaborative activities such as group discussions and problem-based projects further enrich this learning approach, encouraging students to share ideas, collaborate, and appreciate diverse perspectives (Wahyuningsih & Suranti, 2023; Tamur & Juandi, 2020). With robust policy support and sustained investment in teacher training and infrastructure, the constructivist approach holds the potential to transform mathematics education in Indonesia, both in urban areas and remote regions (Revina, 2017; Pratiwi, Situmorang, & Iriani, 2024).

4. Evaluation of Policies and Alignment with the Needs of the Digital Era

The educational policies spearheaded by President Prabowo Subianto demonstrate a profound understanding of the needs of the ongoing digital era. The focus of these policies on the development of practical skills such as critical thinking, problem-solving, and innovation is highly pertinent within the context of Industry 4.0. As technology and automation advance, there is an increasing demand for a workforce that is not only technically proficient but also possesses strong soft skills. This aligns with research that highlights the importance of an integrative approach in educational curricula, where students are trained to become creative and solution-oriented thinkers (Ibrahim, 2020; Ahyani, Waluyo, & Mahfud, 2021).

The integration of a constructivist approach with the values of Pancasila within the mathematics education curriculum in Indonesia not only fosters holistic learning but also reinforces local cultural roots. According to Rahayu, Ramadan, & Kuswanto (2023), the application of a constructivist approach grounded in local values such as Pancasila enables students to not only master academic concepts but also internalize essential social values crucial for communal life. This is expected to produce a generation that is not only intellectually competent but also possesses strong character. Enhancing numerical literacy in this context not only improves students' analytical abilities but also nurtures individuals capable of critical thinking and acting in accordance with ethical principles (Habibi et al., 2024).

Furthermore, educational policies that emphasize digitalization extend beyond merely mastering technological tools; they also focus on character formation through the integration of moral education. This is particularly important

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because the digital era, which tends to be individualistic and fragmented, necessitates a renewed emphasis on collective values such as mutual cooperation and social justice, as embodied in Pancasila. According to Prabowo et al. (2022), this approach not only enhances students' technical skills but also cultivates critical social competencies essential for navigating an increasingly globalized world. Thus, the synergy between technology-driven education and the inculcation of noble values becomes a strategic approach to building an adaptive and highly competitive generation.

Additionally, the integration of digital literacy with moral values rooted in Pancasila can be seen as a strategic approach to addressing the challenges of globalization. By ensuring that students are not only proficient in technology but also comprehend relevant social values, Indonesia can prepare a generation that is competitive at the global level without losing its local cultural identity (Sakinah & Dewi, 2021; Dewadi, 2021; Maimunah, 2024). This is supported by research indicating that value-based learning not only improves academic outcomes but also fosters an inclusive and adaptive mindset (Utami, Rukiyati, & Prabowo, 2023). Thus, it can be concluded that educational policies designed to address the Fourth Industrial Revolution and the digital era as a whole should integrate technical skills, critical thinking abilities, and strong character education. Such a holistic approach will equip students not only with knowledge but also with the competencies needed to become productive and integrity-driven individuals in the future (Ritonga, Nazir, & Wahyuni, 2020; Suryani, Sutoro, & Mukrodi, 2024).

5. Recommendations for Implementing More Effective Policies

Continuous professional development for teachers is essential to support the successful implementation of effective education policies. Training programs that emphasize constructivist approaches and the integration of Pancasila values not only provide theoretical understanding but also equip educators with practical skills that can be directly applied in classrooms to foster more meaningful learning experiences (Putri, Gunawan, Ramadhani, Gistituati, & Rusdinal, 2023; Kusmawan et al., 2020). For instance, ongoing training can empower teachers with problem-based or project-based teaching techniques, enabling students to engage in real-world, context-driven learning that enhances their critical thinking and creativity (Mustakim, Suastra, & Lasmawan, 2024; Langoday et al., 2024; Ritonga, Nazir, & Wahyuni, 2020). Additionally, through such training, teachers can more effectively instill Pancasila-based character education, cultivating a generation with strong national values (Sunariati et al., 2023; Sarkadi, Casmana, Hisyam, & Wardatussa'idah, 2022).

Beyond improving teacher competence, the development of educational infrastructure and technology also serves as a critical enabler for strengthening the implementation of adaptive curricula in the digital age. Investments in technological resources, such as computers, tablets, and expanded internet access in schools, particularly in remote areas, have proven to enhance student engagement in digital learning environments (Firdaus et al., 2023; Langoday et al., 2024). Furthermore, educational technology opens up significant opportunities for online teacher training programs, allowing for a broader reach without geographical constraints (Kemdikbud, 2024). For example, during the COVID-19 pandemic, distance learning became a viable solution that ensured the continuity of teaching and learning activities despite physical barriers; however, it also necessitated capacity building among teachers to optimize the use of these technologies (Mustakim, Suastra, & Lasmawan, 2024).

The integration of technology in education, furthermore, extends beyond merely providing hardware; it also encompasses the development of digital content that aligns with constructivist approaches. Technology-enhanced learning empowers educators to leverage interactive media and e-modules, specifically designed to enrich students' learning experiences (Pribadi, 2014). For instance, the use of interactive and problem-based learning applications can enhance students' comprehension of subject matter while simultaneously fostering their critical thinking skills (Efrizal et al., 2024). Consequently, teachers do not merely function as transmitters of knowledge, but rather as facilitators who encourage students to engage in independent and creative learning ('Azah et al., 2024). Nonetheless, despite various efforts undertaken, challenges in the implementation of educational policies persist. One of the common obstacles is the lack of coordination between central and local governments in providing educational infrastructure (Noor et al., 2024). In addition, resistance to change among some schools also poses a challenge to the adoption of these new approaches (Setiani, 2014). Thus, better collaboration between the government, schools, and communities is required to ensure that all stakeholders are committed to enhancing the overall quality of education (Jalinus et al., 2019).

For long-term success, it is essential that educational policies not only prioritize the development of technical competencies but also strengthen character values as embodied in Pancasila. In this regard, a learning approach that integrates national values with technology can serve as an effective model for cultivating students who are not only academically proficient but also possess strong morals and character (Efendi, 2023; Nuzula, Gusanti, Septyana, & Damayanti, 2024; Dewanti, 2024; Kurniawan, Murny, Mutiza, & Mawaddah, 2024; Dewi, Fauziah, & Faroka, 2024). In conclusion, the implementation of holistic and sustainable policies is crucial to nurturing a generation capable of facing global challenges without losing their national identity (Ige, Kupa, & Ilori, 2024; Jones, O'Brien, & Ryan, 2024; Tian, Yu, Xue, Zhuang, & Shan, 2022; Hariram, Mekha, Suganthan, & Sudhakar, 2023; de Oliveira, Bellezoni, & Shih, 2022).

D. CONCLUSIONS

President Prabowo Subianto's directives concerning educational reform, particularly in the domain of mathematics, underscore a strong commitment to preparing Indonesia's younger generation to meet the challenges of the

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Fourth Industrial Revolution. Mathematics education is being positioned as one of the primary pillars in enhancing foundational competencies, encompassing logical reasoning, analytical skills, and problem-solving abilities, which are crucial in this technology-driven and automated era. Strengthening these competencies, beginning at an early age from Kindergarten through to secondary school, is expected to lay a solid foundation for students to excel in Science, Technology, Engineering, and Mathematics (STEM) fields. Consequently, students will not only be prepared to compete at the national level but will also be equipped to adapt to the rapidly evolving demands of the global landscape.

A pedagogical approach that emphasizes constructivism, along with the integration of Pancasila values, serves as a cornerstone in nurturing students who are not only academically adept but also possess strong character and a high degree of social responsibility. By adopting constructivist-based learning, where students are actively engaged in the learning process through exploration, collaboration, and discovery, this policy aims to enhance critical thinking and innovative capabilities. The incorporation of Pancasila values into the mathematics curriculum seeks to instill knowledge while simultaneously shaping students' character based on principles of nationalism and morality, which are vital in preserving national identity amidst the currents of globalization. Moreover, the implementation of this policy requires substantial investments in digital infrastructure and ongoing teacher training. The utilization of technology as a supporting tool is expected to broaden educational access, particularly in remote areas, thereby making the teaching and learning process more inclusive and aligned with contemporary demands. This effort will, in turn, boost student engagement and overall learning outcomes.

Furthermore, this reform highlights that mathematics education serves not only as a means to enhance cognitive competencies but also as a tool for developing critical and solution-oriented mindsets essential in the future job market. An education system focused on digital literacy and STEM skills is believed to drive innovation and creativity, which are crucial for the nation's progress. With the support of all stakeholders—from the government, educational institutions, to the community—this policy is anticipated to accelerate the transformation of Indonesia's education system. The ultimate goal is to nurture a younger generation that is intellectually superior, of strong character, highly competitive, and ready to contribute to building a more prosperous, inclusive, and sovereign society.

Ultimately, the success of this policy hinges on consistent implementation and cross-sector collaboration. Investments in developing technological infrastructure, teacher training, as well as curriculum adjustments aligned with the needs of the digital era must be prioritized. If all these elements are sustainably integrated, Indonesia can cultivate a future generation that is not only prepared to face global changes but also capable of upholding the national values that define the country's identity. A holistic and future-oriented educational policy has the potential to propel Indonesia towards a more advanced, self-reliant, and competitive position on the global stage.

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