

The Condition of Education in Indonesia in Relation to Sustainable Development Goals (SDGs) and 21st Century Education

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ABSTRACT

This study aims to analyze the literature discussing the state of education in Indonesia in relation to achieving the Education SDGs in the 21st century. The review includes discussions on the basic concepts of SDGs, 21st-century education, the interrelation between the two, the condition of education in Indonesia, the role of teachers in improving education quality, challenges faced, and government efforts to reform the education system. The main challenges in Indonesian education include disparities in access, inadequate infrastructure, and limited resources, especially in remote areas. This research employs a qualitative descriptive approach, collecting data from journals, previous studies, books, and other relevant sources. Data collection techniques involve reading, note-taking, analyzing, and presenting data qualitatively and contextually. The findings highlight the need for continuous education reform and cross-sector collaboration to strengthen the national education system.

INTRODUCTION

The current approach is recognized as a fundamental human right for all individuals. Education plays a vital role in sustaining life's balance, as it is an integral part of human existence. The development and implementation of the education system must align with the social context of society. This is highly influential because education is closely linked to social life; by adapting to societal realities, it can unlock potential to foster innovation and creativity that aligns with the community's identity and cultural values (Safitri, et al., 2022). The emergence of 21st-century education responds to rapid global changes, particularly in the technological, economic, and social sectors. This approach not only focuses on cognitive abilities but also enhances critical thinking, creativity, collaboration, and communication (4C) skills, which are essential for facing challenges in the digital age. The goal is to prepare students to be adaptable, innovative, and ready to compete in an ever-changing job market. Improving the quality of education has now become a primary focus of government programs.

This responsibility does not fall solely on the government; private institutions, educational organizations, and society at large also play an essential role in enhancing the quality of education. Some individuals, recognizing the significance of education, seek the best schools for their children. High educational costs are not a barrier as long as students can attend institutions with adequate facilities and infrastructure, enabling them to become quality graduates (Anggraini & Nugraheni, 2024).

According to a UNESCO report (2020), Indonesia ranks 64th out of 120 countries in global education quality, down from 57th out of 115 countries in 2015. This demonstrates that Indonesia's education standards still lag significantly behind other countries worldwide (Anggraini & Nugraheni, 2024). In 21st-century education, there has been a shift from traditional teaching methods to more collaborative and interactive approaches. Students are encouraged to actively engage in the learning process through technology, learning projects, and real-world problem-solving. This approach aims to equip students with the skills required in the global workforce, where interpersonal abilities and information technology skills are crucial.

The Sustainable Development Goals (SDGs) are global initiatives aimed at improving the quality of life for people worldwide. The SDGs are a governmental project emphasizing the importance of achieving these goals both internationally and domestically (Ramadani & Nugraheni, 2024). Education plays a vital role in human development and sustainability. In Indonesia, the education sector faces various challenges such as disparities in quality between regions, lack of infrastructure, and limited access to quality education in remote areas. To meet the Sustainable Development Goal targets, especially the fourth goal of quality, inclusive, and equitable education, comprehensive reforms must be made by the government and all relevant stakeholders in the education sector in Indonesia.

Modern education must adapt to future demands, including technological, social, and cognitive skills. This initiative not only focuses on

formal education but also includes non-formal education and vocational training to meet local and international job market needs. Achieving high education standards will produce a competent workforce, ready to compete with human resources from other nations (Magfiroh & Nugraheni, 2024).

LITERATURE RIVIEW

The Concept of Education According to Islamic Views and Education Broadly

Acquiring knowledge is a duty for every Muslim, regardless of gender. The Prophet Muhammad SAW urged his followers to attain success in both this world and the hereafter by seeking knowledge. He emphasized the importance of learning in all aspects of life, as reflected in his teachings that encouraged the pursuit of knowledge as a path to success, as stated in his words:

طلب العلم فريضة على كل مسلم و مسلمة (رواه ابن ماجه)

It means:

Whoever wants (to be happy in) this world must be knowledgeable, whoever wants to be happy in the afterlife must be knowledgeable, and whoever wants to be happy in this world and the hereafter must be knowledgeable.

The Qur'an teaches that humans are God's representatives on earth, highlighting that each individual has a responsibility given by Allah, which will be accounted for on the Day of Judgment. As a result, humans are duty-bound to care for, manage, and preserve the universe with sincerity. Every person plays a role as a murabbi, a guardian and educator, tasked with enriching life with values of goodness and a sense of responsibility (Asrori, 2017).

In Arabic, the terms commonly used to refer to education are tarbiyah and ta'lim. Both terms are derived from the root words rabba and 'allam. Dr. Ahmad Syarabashi explains the distinction between the two. Ta'lim focuses more on the process of learning, while tarbiyah encompasses broader aspects of guidance, education, and training. Ta'lim mainly emphasizes intellectual development, memory, and memorization, whereas tarbiyah is more concerned with nurturing the soul, spirituality, and emotions (Asrori, 2017).

The concept of Tarbiyah and Ta'dib

The concept of Tarbiyah and Ta'dib is referenced from Burhan Nudin (2021) of the Faculty of Social Sciences, Islamic University of Indonesia. Education can be understood as an endeavor to guide and direct an individual toward personal growth. Its goal is to foster the optimal and holistic development of the potential bestowed by God on each person. When we think of "education," many often immediately associate it with the teaching and learning process that occurs in schools.

Allah SWT says in Surah An-Nahl verse 78:

٧٨ - تَشْكُرُونَ لِعَلِّكُمْ ۖ وَالْأَفْئِدَةَ وَالْأَبْصَارَ لَسَمِعًا لَكُمْ وَجَعَلَ شَيْئًا تَعْلَمُونَ لَا أَمَهْتِكُمْ بَطُونَ مِنْ أَخْرَجَكُمْ وَاللَّهُ

And God brought you out from the wombs of your mothers knowing nothing, and bestowed for you hearing and sight and intellect, so that you may You give thanks - 78

It means: "*And God brought you out of your mother's womb knowing nothing, and He gave you hearing, sight, and heart, so that you may be grateful.*"

This verse illustrates that every human enters the world without prior understanding, but God grants them the faculties of hearing, sight, and emotion to comprehend life. To fully nurture these abilities, guidance and education aligned with Islamic norms, values, and principles are essential.

In Islam, children's education emphasizes two key concepts: *tarbiyah* and *ta'dib*. *Tarbiyah* involves a nurturing approach aimed at fostering independence, such as teaching children to manage their own achievements and contribute to household tasks. Meanwhile, *ta'dib* focuses on instilling values like discipline, for instance, encouraging children to pray on time and offering appropriate responses to their good or bad behavior.

1. The Role of Parents in Children's Education

In Islam, the family is the main foundation of a child's education. The Prophet SAW said: "*Every child is born in a state of nature, so it is the two parents who make him a Jew, a Christian, or a Magian.*" (HR. Bukhari and Muslim). This hadith emphasizes that children are born pure with the nature to know Allah SWT. However, the environment and parental direction greatly determine the development of beliefs and morals.

2. The Importance of Children's Education from an Early Age

Islam encourages children's education from an early age which covers three main aspects: faith, worship, and morals. This concept is taken from Luqmanul Hakim's advice to his son as mentioned in the Qur'an.

3. Faith Education

Aqidah is the basis of faith in Allah SWT, including the belief that only Allah is worthy of worship. Instilling aqidah can be done by introducing children to Allah, His Messenger, and the greatness of His creation. Aqidah is an important foundation before studying other sciences.

4. Worship Education

Worship is an important element in the life of a Muslim. Children need to be taught how to worship from an early age, such as prayer, ablution, prayer, and fasting. This refers to the word of God in Surah Az-Zariyat verse 56: "*And I did not create jinn and humans except for them to worship Me.*" By accustoming children to worship, they will grow up to be individuals who are obedient to religion.

5. Moral Education

Morals include the attitudes, habits and character that characterize a Muslim. Moral education is carried out through the habit of good attitudes, such as being honest, respecting parents, and being humble. The role of parents as the main role model is very important in shaping children's morals.

6. The Importance of Educational Preparation

Islamic education aims to equip children to become a generation that is intelligent, strong and useful for religion and the nation. This character building process starts from an early age through consistent good habits. Small things done repeatedly will shape a child's positive personality in the future.

Education in General

The term "educational science" combines two concepts: science and education, each with its distinct definition. According to the Indonesian Dictionary published by Balai Pustaka, science refers to systematically organized knowledge in a specific field, developed using particular methods, and applied to explain phenomena within that field (BP, et al., 2022).

Education, in a broader sense, can be seen as the journey of life itself. This perspective highlights that education encompasses all learning processes throughout life, occurring in various places and conditions that positively influence individual growth. Education is not confined to a specific period but continues lifelong, integrating all experiences and learning acquired over time (Presentants, et al., 2022).

High-quality education and the achievement of sustainable development goals (SDGs) are critical to ensuring a sustainable future for upcoming generations (Ariyani & Nugraheni, 2024). The fourth SDG focuses on quality education, emphasizing the government's commitment to providing equitable access to education and ensuring equal learning opportunities for all (Ramadani & Nugraheni, 2024).

METHODOLOGY

This study employs a literature review method (Isma et al., 2023) with a qualitative descriptive approach. Data is collected from various journals and previous studies relevant to the discussed topic (Anggraini & Nugraheni, 2024). Additionally, the researchers utilize books and other reading materials as references in compiling this journal. The data collection process involves reading and note-taking, followed by analyzing and presenting the data qualitatively in a relevant context (Fadil et al., 2023).

RESULTS

Basic concepts of sustainable development goals (SDGs)



Figure 1. Basic concepts of sustainable development goals (SDGs)

Source: Federal Environment Agency, 2016.

The Sustainable Development Goals (SDGs) represent a progressive development framework that adopts a multi-sectoral, rights-based, and community-centered approach. It unites global efforts to transform development practices through 2030 (Fadil & Alfaien, 2023). The following are key principles of the SDGs:

1. **Universality:** The SDGs apply to all nations, whether developed or developing, with each country bearing responsibility for achieving the goals based on its unique circumstances and capacities.
2. **Integration:** The goals within the SDGs are interconnected, where progress in one area can support or influence the achievement of others. Therefore, a holistic approach is essential to achieve all goals.
3. **Leaving No One Behind:** The SDGs stress the importance of ensuring that everyone, particularly vulnerable and marginalized groups, benefits from development initiatives.

These principles highlight that the SDGs are a universal framework requiring all nations to commit to achieving the targets in line with their capabilities. The interconnected nature of the goals means advancements in one sector can influence others, necessitating a comprehensive approach. Moreover, the SDGs emphasize inclusivity, ensuring that all individuals, especially those in vulnerable situations, can benefit from development and are safeguarded from poverty.

The basic concept of sustainable development goals (SDGs) regarding quality education

In 1987, Harlem Brundtland, the Prime Minister of Norway at the time, introduced the concept of sustainable development through his research titled *Our Common Future*. He emphasized that limited use of scarce human resources is a significant barrier to societal progress. Following the Millennium Development Goals (MDGs), which addressed global challenges, the Sustainable Development Goals (SDGs) were officially adopted on September 25, 2015, by UN member states during a UN meeting as a commitment to international development (Ratnasari & Nugraheni, 2024).

The 4th SDG on quality education focuses on ensuring equitable and quality education for everyone across all levels. Key aspirations under this goal include:

1. **Equal Access for All Children:**
The SDGs aim to provide all children with free, high-quality primary and secondary education to reduce educational disparities worldwide. These gaps are evident between developed and developing nations, urban and rural areas, and socioeconomic groups. Research highlights the persistence of educational inequalities, particularly in rural communities and among economically disadvantaged groups (Ratnasari & Nugraheni, 2024).
2. **Education with 21st Century Skills:**
The SDGs emphasize education that not only imparts basic knowledge but also equips students with critical thinking, problem-solving, communication, and technological skills necessary for the modern era. In

Indonesia, improving the teaching of these skills remains a priority to enhance the quality of education (SDG Center, Brawijaya University, 2024).

3. Inclusive and Gender-Friendly Education:

The SDGs promote inclusive education, ensuring equal opportunities for women, children with special needs, and marginalized groups. Inclusive education helps reduce social and economic disparities. Research underscores the importance of addressing gender discrimination in education to foster equality (Ratnasari & Nugraheni, 2024).

4. Education for Sustainable Development:

The SDGs advocate for integrating sustainability values, such as gender equality, human rights, and environmental awareness, into education. For instance, in Indonesia, curricula are being designed to incorporate sustainability principles (SDG Center, Brawijaya University, 2024).

5. Enhancing Teaching Quality Through Teacher Development:

Achieving the SDGs requires improving teaching quality by providing adequate training for educators. Studies show that professional development for teachers in Indonesia is essential for elevating classroom education quality (SDG Center, Brawijaya University, 2024).

According to UNESCO (2018), the learning objectives for SDG 4, Quality Education, are categorized as follows:

1. Cognitive Learning Objectives

Students should understand the importance of education and lifelong learning (formal, non-formal, and informal) in promoting sustainable development, improving quality of life, and achieving SDG targets. They should recognize education as a fundamental right, understand inequities in educational access, and appreciate the role of culture in sustainability.

2. Social-Emotional Learning Objectives:

Students should enhance their understanding of the value of quality education, inspire others, and recognize its role in personal development and life skills necessary for entrepreneurship.

3. Behavioral Learning Objectives:

Students are encouraged to actively support the implementation of quality education, advocate for gender equality, promote inclusive and quality education policies, and seize opportunities for lifelong learning.

Basic concepts of 21st century education

The globalization era demands intense competition, requiring educators in the 21st century to create an educational environment that fosters critical thinking to support social and economic progress. This involves promoting a global perspective in education and knowledge, aligning with the role of teachers as active participants in the global community (Ramadan, 2023). In this century, both developed and developing nations, including Indonesia, are projected to experience significant advancements in economic, political, and social sectors.

For developing countries, globalization has been a transformative force, altering socio-economic landscapes. Millions in Asia have escaped poverty,

resulting in the emergence of a substantial middle class. The economic rise of Asia is among the most notable developments of the late 2020s (Malik, 2018). This highlights how the core principles of the SDGs and the challenges of 21st-century education complement each other in shaping a responsive and inclusive education system. The relationship can be summarized as follows:

1. **Quality Education for All (SDG 4):**
SDG 4 focuses on ensuring quality and equitable education for every child, irrespective of their socio-economic background or geographic location. Addressing 21st-century challenges includes tackling educational inequalities, particularly in underdeveloped regions. The SDGs aim to bridge these gaps by promoting universal access to education.
2. **21st-Century Skills:**
Modern education must prepare students to adapt to rapid advancements in technology and changes in the workforce. The SDGs emphasize education that develops critical thinking, problem-solving, collaboration, innovation, and digital literacy – essential skills in the era of globalization.
3. **Innovation in Education:**
Overcoming the challenges of outdated teaching methods requires innovative approaches that align with technological progress. The SDGs advocate for integrating digital tools and innovative strategies in education to equip the younger generation for the digital age and the Fourth Industrial Revolution.
4. **Inclusive and Equitable Education:**
The 21st century faces ongoing issues of inclusivity, particularly for marginalized groups such as women, individuals with disabilities, and minority communities. SDG 4 underscores the importance of eliminating discrimination, achieving gender equality in education, and ensuring access for all to address systemic inequities.
5. **Sustainable Education:**
Education in the 21st century should go beyond teaching basic knowledge by incorporating sustainability concepts into everyday learning. The SDGs promote education that emphasizes environmental, social, and economic sustainability, empowering students to contribute to a more sustainable future.
6. **Enhancing Teacher Quality:**
A key challenge in modern education is improving the quality of educators to meet evolving demands. The SDGs stress the need for teacher training and professional development to adopt effective, engaging, and sustainable teaching practices. By addressing these aspects, the SDGs aim to create an education system that is not only inclusive and equitable but also capable of preparing individuals for the demands of a rapidly changing global landscape.

The relationship between SDGs and 21st century education

The connection between the Sustainable Development Goals (SDGs) and 21st-century education plays a vital role in promoting a comprehensive and inclusive educational approach globally. SDGs, particularly Goal 4, highlight

the importance of providing quality education, inclusive opportunities, and lifelong learning for all. This aligns closely with the educational framework of the 21st century, which not only emphasizes the acquisition of knowledge but also fosters essential skills like critical thinking, creativity, collaboration, and digital literacy, commonly referred to as the 4Cs (Unesco, 2018).

The goal of 21st-century education is to equip students with the abilities to tackle dynamic and interconnected global challenges, in harmony with SDG Goal 4, which focuses on developing skills that contribute to sustainable development, such as environmental consciousness, peacebuilding, and global citizenship. Both the SDGs and 21st-century education share a common vision: promoting educational equity and ensuring access to quality education for all, especially in remote areas, regardless of gender, disability, or socio-economic background (Unesco, 2018).

For instance, the SDGs propose various strategies to expand educational access and increase the number of youth and adults acquiring relevant skills, including those in the ICT field, to support educational reforms suited to the digital age. Additionally, SDG targets, such as advancing sustainable development and global citizenship education, align with the necessary curriculum changes in 21st-century education. These changes focus on developing the values, culture, and skills required to adapt to a globalized social environment (SDGs Center, Brawijaya University, 2024).

The current state of education in Indonesia

Currently, the education standards in Indonesia are considered to be somewhat lower compared to other countries. According to the 2018 PISA survey on secondary education systems worldwide, published in 2019, Indonesia ranked 74th out of 79 countries, placing it second to last (Magfiroh & Nugraheni, 2024). Education is regarded as a crucial factor in overcoming poverty, as quality education is expected to improve job prospects and social mobility, indirectly boosting economic conditions and helping people escape poverty.

The quality of education in Indonesia also reflects the limitations in human resource development, which lags behind other countries. This situation is concerning, especially regarding the lack of adequate facilities and infrastructure (Safitri, et al., 2022). The education sector in Indonesia still requires significant attention from the government. In many regions, issues such as dilapidated school buildings, a shortage of resources like books and teachers, continue to be major challenges. Additionally, the relatively high cost of education in certain areas makes it difficult for disadvantaged individuals to access education. As a result, some children are unable to complete their secondary education, and some do not attend school at all. This issue is exacerbated by the unequal distribution of education and an underperforming system (Safitri, et al., 2022).

Despite increased access to education in Indonesia, its quality remains low. Since 2002, the country has planned education reforms with a 15-year target, but improvements in education quality have been slow. Data shows that

Indonesia's illiteracy rate is higher than in many other countries (Nurfatinmah et al., 2022 in D. Anggraini & Nugraheni, 2024). Over 15% of children under 15 in Indonesia cannot read or write well, whereas in other countries, this figure is below 10%. Continued efforts are necessary to improve the quality of education and reduce illiteracy rates in Indonesia (Anggraini & Nugraheni, 2024).

Given these conditions, the Indonesian government should look to successful models from other countries that have improved their education quality and met the Sustainable Development Goals (SDGs) in education. Enhancing the quality of education in Indonesia is currently a reality only in some provinces, so policies are needed to ensure the equitable distribution of education quality across regions. Additionally, strategies from countries that have successfully achieved SDGs education targets can be adapted. Quality education and equitable access are essential for developing superior human resources, which will ultimately contribute to the nation's development and a brighter future (Ramadani & Nugraheni, 2024).

We believe that raising education standards in Indonesia will significantly help achieve more of the 17 global SDGs, especially in improving the quality of life index. The education system must be designed to incorporate engaging and enjoyable teaching approaches that motivate students to reach their full potential and achieve higher quality standards. Today's young generation, particularly Gen Z, has grown up in the era of globalization and is familiar with various learning methods through social media, which enriches their access to and understanding of information (Ariyani & Nugraheni, 2024).

The Role of Teachers in Improving quality education

The role of teachers is becoming increasingly crucial in optimizing the educational landscape of the 21st century. Teachers play a vital part as guides, mentors, and trainers, imparting wisdom, knowledge, and experience to students. If teachers fail to keep pace with current developments, they risk falling behind, which would hinder their ability to effectively carry out their duties and profession. Teachers today exhibit different characteristics from those in the past. Some of these qualities include:

- a. A strong work ethic and professional spirit, coupled with deep faith and devotion.
- b. The ability to use technology in ways that align with the needs and culture of their community.
- c. A commitment to professionalism in carrying out their roles.
- d. An open-minded approach, with a broad understanding of future challenges and an ability to avoid narrow thinking.
- e. Exemplary moral values and a refined sense of aesthetics.
- f. An ability to foster both collaboration and healthy competition. (Pujiriyanto, 2019 in Imaniyati, 2022).

The critical role of teachers in education requires a higher standard of professionalism. According to research by Desilawati and Amirizal (2014, cited in Elitasari, 2022), 21st-century professional teachers should possess strong character, expertise in their subjects, and a drive to inspire students to pursue science and technology while continually improving their skills. Educators need

to be skilled in human resource development and adapt their teaching methods to the characteristics of modern education. They must be flexible and ready to keep up with ongoing developments.

Teachers play a fundamental role in education, contributing to curriculum changes aimed at enhancing the quality of education in Indonesia. The curriculum is a crucial tool that guides the implementation of education and the learning process in schools. Curriculum adjustments are necessary to keep up with current developments and address the challenges and opportunities of the modern world. Suhandi & Robi'ah (2022) note that the success of education heavily depends on teachers' efforts to provide quality learning. Elitasari (2022) emphasizes that teachers influence classroom dynamics with their ideas and teaching approach, leading some to argue that teachers also serve as the "curriculum" within the classroom.

Changes in the curriculum from the 2006 to the 2013 version require adjustments to primary and secondary education standards. Four out of eight educational standards have been revised, specifically in graduation standards, the learning process, curriculum content, and assessment. These changes aim to help students develop spiritual and social attitudes, knowledge, skills, and creativity necessary for both national development and global competitiveness. New curriculum content standards are carefully crafted to balance competencies in attitudes, knowledge, and skills (Mahanal, 2014).

Teachers' roles in this curriculum include guiding students based on their abilities and development. Teachers are encouraged to actively participate in the Merdeka Belajar platform, collaborate, share knowledge, and enhance their skills in implementing independent learning through the Merdeka Mengajar platform. To support the Merdeka curriculum, teachers should be equipped with various programs, such as the Teacher Mobilization program (Suhandi & Robi'ah, 2022).

In the 21st century, teachers are expected to be more adaptive, professional, and innovative in guiding students through contemporary challenges. Modern educators must possess skills such as work ethic, faith, broad knowledge, professionalism, and adaptability, especially in light of continuously evolving curricula like the 2013 Curriculum and the Merdeka Curriculum. Enhancing teacher competencies is crucial to producing high-quality, relevant education that aligns with community needs and technological progress. This aligns with the SDGs 2030, particularly Goal 4, which emphasizes the importance of skilled and adaptive teachers in achieving inclusive, equitable, and quality education.

The SDGs highlight the need to provide education that prepares students for global challenges. Teachers' professional roles are crucial in delivering a curriculum that reflects these values, while equipping students with essential skills such as critical thinking, technological literacy, and social skills. Therefore, improving teachers' roles and quality will directly support the achievement of the SDGs, empower the education system, and enhance the quality of human resources in Indonesia.

Challenges and factors that hinder education in Indonesia

According to Law Number 20 concerning the National Education System, Article 20 outlines that learning is a deliberate effort aimed at creating an environment that encourages students to actively develop various aspects of themselves, such as spirituality, self-control, personality, intelligence, good character, and the skills required for personal, community, national, and state interests. This underscores the importance of awareness and systematic planning in the learning process to ensure an effective educational environment (Raharjo, 2012; A.). Research by Safitri et al. (2022) also highlights this need.

Today, education faces various challenges, including curriculum changes, unequal quality of education, and mental health issues. Indonesia's education system continues to struggle and requires significant improvement, spanning from early childhood to higher education. One major issue is the curriculum format, which demands students to absorb vast amounts of material, often relying more on theoretical explanations and imagination rather than practical application (Anggraini & Hudaidah, 2021).

These challenges stem not only from external factors but also from internal ones, particularly the teaching staff. Teachers today face greater pressures than before, dealing with a diverse student body, increasingly complex learning content, higher expectations for educational standards, and the demand to develop students' higher-level thinking skills. Consequently, teachers must possess not only intellectual capabilities but also creativity and emotional intelligence (both hard and soft skills). In the era of the Industrial Revolution 4.0, education must shift from practical to creative thinking, adapting to changing times and producing graduates with the necessary skills to compete in the global workforce (Nurlaila et al., 2022).

Another significant challenge is the influence of Information and Communication Technology (ICT) on education. For instance, electronic reports have replaced traditional methods of accessing information. Teachers must stay updated on ICT developments as these tools can help improve the quality of learning. The integration of ICT in education is crucial for providing Generation Z students with an effective and efficient learning experience (Fadil et al., 2023).

Research by Rusdin, N.M., & Ali, S.R. (2018) cited in Ramadan (2023) identifies several key obstacles in applying 21st-century learning, such as:

- a. Resource limitations: The lack of adequate resources for various classes hinders the implementation of 21st-century learning, especially when a teacher is required to teach multiple subjects across different grade levels.
- b. Time constraints: Teachers face time limitations, which restrict their ability to fully implement 21st-century learning, thereby affecting the learning process.
- c. Insufficient knowledge: Many teachers struggle to master the knowledge and skills required for effective 21st-century learning. Some feel that assessments of students' understanding remain limited, and others find it challenging to integrate modern learning concepts with their subjects.

Addressing these challenges requires identifying the root causes. Research by Nurfatimah et al. (2022) and Nasution (2008) points out that one

contributing factor to Indonesia's low education level is the imbalance in teacher distribution between urban and rural areas. In remote regions (3T areas: frontier, outermost, and underdeveloped), there are often only 3-4 teachers available, creating a shortage, while urban areas tend to have an overconcentration of teachers.

Teacher welfare also plays a crucial role in the quality of education. To improve education in Indonesia, a key priority must be to ensure teachers' welfare is adequately addressed. While teachers are not the sole factor in educational success, their role is critical in influencing learning outcomes. Poor student achievement can be attributed to various factors, including inadequate facilities, low teacher quality, and poor welfare, all of which negatively affect student performance (Nurfatimah et al., 2022). Additionally, the high cost of education is another factor contributing to a decline in overall educational quality. Agustang et al. (2021), cited in Nurfatimah et al. (2022), argue that quality education requires substantial investment, but the education costs in Indonesia often do not align with the average income of its citizens.

Government efforts to improve education in Indonesia

Recognizing the importance of quality education, the Indonesian government has undertaken various strategic measures to enhance the national education system. With strong determination, it has launched a range of programs and policies to ensure that every child in Indonesia has access to education that is both decent and of high quality (Ariyani & Nugraheni, 2024).

The government plays a crucial role in improving education quality in Indonesia by ensuring equal educational standards across all regions, thus ensuring that each area has access to education of comparable quality. Each region in Indonesia has its own unique characteristics, which should be leveraged as indicators of the success of educational equality. Local wisdom and regional distinctiveness are fundamental factors that support success and differentiate the educational system in the country (Alifah, 2021).

To ensure inclusive, equitable education and increase lifelong learning opportunities for all, several targets need further focus in order to achieve quality education, such as:

1. Zoning Program

Zoning is applied to schools run by local governments, with a rule that at least 90% of students must come from the local area. The determination of zones takes regional conditions into account, including the available capacity of the school in accordance with study group regulations (Safarah & Wibowo, 2018).

2. Improving Teacher Welfare

For Indonesia's education system to function effectively, teachers must be able to fulfill their duties as prescribed by Law Number 20 of 2003. Ensuring teachers' welfare is critical for this, as it is closely linked to their professionalism. A lack of teacher welfare is evident in the many teachers who take on side jobs to supplement their income (Kulla, 2017; Kurniawati, 2022).

3. **Application of Inquiry-Based Learning**
Inquiry-based learning, as defined by the National Research Council (2000) and cited by Mahanal (2014), refers to the scientific method of investigating nature by seeking explanations based on evidence. This approach involves asking questions, investigating problems, and using multiple sources to find solutions. Students then draw conclusions and revisit them for improvement, fostering further exploration and generating new questions. This method helps students combine new knowledge with prior understanding, enhancing their learning process.
4. **Equalization of Educational Opportunities**
Access to education in Indonesia remains limited to elementary school levels. Data from the Ministry of National Education's Research and Development Agency in 2000 shows a high Net Participation Rate (APM) for elementary school-age children at 94.4%. However, the Net Enrollment Ratio (NER) for junior secondary education is still low at 54.8%. Moreover, early childhood education services are still insufficient, hindering overall human resource development. Therefore, policies to address these inequalities are crucial (Agustang et al., 2021).
5. **Pedagogical Improvement**
Pedagogical competence refers to a teacher's ability to manage the learning process, which includes understanding students, planning and implementing lessons, assessing learning outcomes, and fostering student development to help them reach their full potential (Nurlaila et al., 2022).
6. **Calistung Program**
Calistung, which refers to reading, writing, and arithmetic, represents essential skills for effective communication. Many experts believe that mastering these fundamental skills is vital, as they are typically acquired through formal education (Hj Arfenti Amir & Akhiruddin, as cited in Anggraini & Nugraheni, 2024).
7. **SM3T (Remote and Underdeveloped Bachelor Program)**
The SM3T program, initiated by the Ministry of Education and Culture, aims to accelerate educational development in remote and underdeveloped areas, known as 3T regions. This program prepares prospective teachers to become professionals, contributing to the progress of education in these areas. It also provides opportunities for teacher candidates to develop professionalism, nationalism, empathy, problem-solving skills, and a sense of responsibility towards national development (Magfiroh & Nugraheni, 2024).
8. **Teacher Professional Program (PPG)**
Aligned with the SM3T program, the Teacher Professional Program requires participants to engage in professional teacher education to support education in the 3T areas. Beyond classroom teaching, SM3T teachers often conduct extra classes focusing on basic skills like reading, writing, and arithmetic, often held at their homes or other locations (Ariyani & Nugraheni, 2024).

In their 2024 research, Magfiroh & Nugraheni examine the implementation of the Sustainable Development Goals (SDGs) as part of efforts to enhance the quality of education in Indonesia. Their study focuses on evaluating the policies and programs the government has introduced to improve education quality and assesses their effectiveness in addressing various challenges. These challenges include macro-level issues such as curriculum complexity, unequal access to education, uneven teacher distribution, low teaching quality, high educational costs, and monotonous learning patterns. At the micro-level, challenges include student disengagement, limited infrastructure, and low academic performance.

Safitri et al. (2022) also explore strategies for achieving the SDGs to improve education quality in Indonesia. Their findings highlight that the state of education in Indonesia remains unsatisfactory and uneven across regions. The strategy to achieve the SDGs in education focuses on ensuring equal learning opportunities for all ages and promoting lifelong learning. However, these efforts have been implemented only in a few provinces, leaving many areas in Indonesia yet to benefit from these initiatives to enhance education quality.

Additionally, Anggraini & Nugraheni (2024) investigate the SDGs' implementation in education and identify barriers that hinder education quality in Indonesia. Their study discusses several programs aimed at achieving SDG goals, including initiatives like the one-roof program, calistung program, school zoning, the Smart Indonesia program, teacher professionalism, and efforts to equalize educational access across the nation.

Research by Isma et al. (2023) identifies the primary issues facing 21st-century education in Indonesia, such as infrastructure, curriculum quality, teaching staff, and distance learning. Through literature review, they found that these factors significantly influence educational effectiveness, emphasizing the need for innovation and collaboration to prepare a generation capable of facing future challenges.

In 2018, Malik's research explores the impact of globalization, ICT, and the explosion of knowledge on education, stressing that developing countries need fundamental educational reforms, including curricula aligned with 21st-century skills. Similarly, Ripped et al. (2019) evaluate the effectiveness of teaching tools in 21st-century history learning, suggesting that more relevant and contextual curriculum changes could increase student engagement and make history lessons more engaging.

Alifah (2021) discusses Indonesia's efforts to improve education quality and access to catch up with developed nations, noting that while PISA data shows Indonesia lagging in education quality, adapting the education system to local conditions could help optimize strengths and mitigate weaknesses. In the context of zoning, Safarah & Wibowo (2018) analyze the school zoning program as a strategy for improving education equality across Indonesia. Their research indicates that the program is effective in enhancing educational equality.

Ramadan's (2023) study on strategies used by teachers to address 21st-century educational challenges finds that teachers are utilizing various

strategies such as collaborative, integrated, and project-based approaches to foster critical skills like communication, collaboration, creativity, and critical thinking. This research suggests that these strategies enable teachers to effectively navigate challenges and prepare students for an increasingly complex future. Kurniawati (2022) examines the low quality of education in Indonesia and proposes solutions to improve it, emphasizing the need for better educational practices to enhance human resources and contribute to national progress.

Ramadani & Nugraheni (2024) focus on the SDGs' role in improving education quality, finding that Indonesia still faces significant challenges, and the SDGs program is essential to address regional disparities. Similarly, Fadil et al. (2023) review the Independent Learning Curriculum as a tool to improve basic education quality in line with the SDGs, providing insights for future policy implementation. Yani et al. (2023) explore the "Lecturer Goes to School" initiative, which aims to motivate students to pursue higher education, contributing to the SDGs in education. This program has been recognized for its positive impact on students' interest in further studies.

Lastly, research by Nurfatima et al. (2022) highlights the importance of improving education quality in Indonesia, identifying factors that contribute to its current state and recommending active teacher involvement in professional development to address these challenges. Research by Suhandi & Robi'ah (2022) and Imaniyati (2022) also underscores the vital role of teachers in adapting to new curricula and technologies to improve education in the 21st century.

These studies highlight several gaps in the current research, such as:

1. Limitations in SDGs Implementation

Several studies, such as Ramadani & Nugraheni (2024), reveal that SDGs have not been uniformly implemented across Indonesia, particularly in remote areas, suggesting a gap in understanding the barriers to SDGs implementation in these regions.

2. Technology in 21st Century Education

Despite acknowledging the importance of technology (Fadil et al., 2023), there is a lack of research on how specific technologies (e.g., AI, distance learning platforms) can be applied to address educational challenges in both rural and urban settings.

3. Teacher Challenges in Remote Areas

Although research such as Ramadan (2023) highlights the role of teachers in developing 21st-century skills, there is insufficient focus on the unique challenges teachers face in remote areas with limited resources.

4. Effectiveness of the Independent Curriculum

There is a lack of empirical research on how the Merdeka Belajar curriculum is implemented in lower education levels, particularly in elementary schools, to support SDG goals, especially in fostering basic literacy and critical thinking.

5. Stakeholder Engagement in Education Reform

While many studies emphasize collaboration between the government, educators, and communities (e.g., Fadil et al., 2023), there is a need for

deeper analysis of how these stakeholders actively contribute to supporting education reforms, particularly in terms of training, teacher capacity development, and facility provision in various regions.

DISCUSSION

Our research group focuses on exploring the implementation of 21st century education through the SDGs (Sustainable Development Goals) education program, aiming to enhance the quality of basic-level education. This approach addresses social and environmental issues, promoting more inclusive, technology-driven learning while prioritizing the development of skills necessary for a better life. Within the SDGs framework, education is expected to contribute to reducing inequalities, improving the quality of life, and fostering sustainable social transformation.

This research examines how SDGs education programs can be applied in elementary schools to deepen children's understanding of global challenges, including climate change, inequality, and equitable access to education. By integrating technology with value-based learning, this educational model aligns with the growing digitalization of today's world.

The literature sources referenced in this study highlight the importance of adopting digital strategies in 21st century education. A technology-driven approach makes education more adaptable and responsive to student needs, enables distance learning, and supports the development of essential skills such as problem-solving, creativity, and collaboration. However, challenges such as limited access to technology in certain regions must also be addressed to ensure equitable implementation of the program.

This research is supported by various journals and sources discussing the impact of digitalization in education and the application of SDGs in the global educational context.

CONCLUSIONS

In conclusion, while various efforts have been made to enhance the quality of education in Indonesia, numerous challenges remain in achieving fair, high-quality, and equitable education in line with the SDGs. The central, provincial, and local governments have initiated several programs, but the actual changes observed are still limited. As a result, the researchers have decided to conduct a deeper investigation into the government's initiatives to improve education quality through the SDGs and 21st-century education, drawing on the findings from the journal review. Future research will concentrate on the implementation of SDGs in underdeveloped areas, the role of technology in education, strategies for teacher development in resource-limited regions, and an evaluation of the Independent Curriculum in basic education. The researchers aim to explore local challenges in greater detail and suggest that the government consider local adaptations to national programs, tailored to regional needs and priorities, such as improving educational access in remote and rural areas. Based on these conclusions, the researchers plan to develop this topic further in their thesis research.

To enhance the quality of education in Indonesia in line with the SDGs and the demands of the 21st century, it is crucial to strengthen the role of teachers, particularly in remote areas, through digital literacy training and welfare support. The government must ensure equal access to technology to facilitate technology-driven learning, which fosters critical thinking, creativity, and collaboration. The curriculum also needs to be revised to better address local challenges and integrate sustainability values and digital literacy. Furthermore, multisector collaboration, including partnerships with communities and the private sector, is essential for accelerating progress toward quality education. Existing initiatives, such as zoning and calistung, should be assessed to improve their effectiveness and inclusivity, particularly for marginalized groups. Ongoing research is necessary to evaluate current policies and identify more focused solutions.

FURTHER STUDY

This study provides a basis for the authors to explore the state of education in Indonesia in the context of the Sustainable Development Goals (SDGs) and 21st-century education. Future research could further investigate the implementation of SDGs in education, the effects of government policies, and other external factors like economic stability and social issues that affect the quality of education in Indonesia.

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