Revisiting Curriculum 2013: Challenge the Potential Obstacles, Efficacy, and Effectiveness of Former Curriculum in Indonesia

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Abstract
Curriculum changes invariably spark debate, often with proponents and opponents. Before the implementation of the Merdeka Curriculum, the initial deployment of Curriculum 2013 in Indonesia raised concerns among many school teachers nationwide. Revisiting the former curriculum tends to offer benefits in predicting new curriculum implementation in Indonesia. This study employs a narrative review style to examine various relevant academic publications and data from the Programme for International Student Assessment (PISA). The data analysis process, including data selection, presentation, and findings, is conducted using the Miles and Huberman methodology. In conclusion, I argue that Curriculum 2013, as a response to a series of weaknesses in Indonesia’s education system, has the potential to enhance learning outcomes. However, it necessitates significant reforms in a complex socio-demographic country like Indonesia, particularly in terms of assessment, pedagogy, and the readiness of students, teachers, and schools. Concerning potential obstacles to implementing such a curriculum, challenges arise from teacher readiness, student readiness, and school preparedness, including material provision such as books, as well as difficulties in assessing and implementing pedagogy.

Keywords: Curriculum, Curriculum 2013, Efficacy, Effectiveness, Potential Obstacles.

INTRODUCTION
Curriculum change invariably sparks debate, often with proponents and opponents [1]. The implementation of the 2013 Curriculum in Indonesia has raised concerns among many school teachers nationwide Hidayah and Romelah [2] due to the perception that it was introduced prematurely. Prior to the recent gradual implementation of the new Merdeka Curriculum, a sense of uncertainty also surrounded the initial launch of the former curriculum in Indonesia at that time. Revisiting the revised Curriculum 2013, the new format of high-stakes testing integrated with higher-order thinking skills (HOTS) has garnered significant criticism for its sudden implementation and the lack of preparedness among high school students, teachers, and schools in 2018.

The study to examine the effectiveness and potential obstacles of education curriculum implementation is important for several reasons. Firstly, identifying potential obstacles in the previous curriculum, such as planning, execution, and assessment of learning, can serve as a guideline for making decisions or policies for future curricula, involving stakeholders [3], [4]. Additionally, evaluating the effectiveness of educational curricula ensures that educational goals are achieved and that students acquire competencies relevant to their future needs [5]. Ultimately, the need to ensure that educational programs align with intended learning outcomes and effectively meet the diverse needs of learners underscores the importance of curriculum examination and evaluation [6].

In this report, I aim to revisit and critically examine this former curriculum, considering the factors contributing to the substantial criticism of its implementation and assessing its effectiveness. This study will utilize data from the Indonesia Curriculum 2013 Guideline and education policies. Additionally, I will draw upon interviews with two Indonesian teachers at different school levels: one is a junior high school science teacher, and the other is a senior high school physics teacher, both providing insights based on their experiences in this field. I will begin by providing an overview of the Curriculum 2013, outlining the evolution of the Indonesian curriculum over time, and examining its characteristics, implementation, pedagogy, and assessment. Finally, I will evaluate the potential barriers hindering the implementation of this curriculum in Indonesia before presenting implications and conclusions.

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METHOD

The study uses a narrative review style to examine a number of relevant academic publications and data from the Programme for International Student Assessment (PISA). Reputable publications served as the sources for the papers. The data analysis process, which included data selection, presentation, and findings, was carried out using the Miles and Huberman methodology. This model helped to produce a thorough and important research output.

RESULT AND DISCUSSION

The Context and Background of the Curriculum 2013: An Overview of Former Curriculum and the Evolution of the Indonesian Curriculum

Indonesia has undergone a series of curriculum changes since its establishment in 1945 [7], [8]. These curricula include Curriculum 1947, Curriculum 1964 for Elementary Schools, Curriculum 1968 for Elementary Schools, Curriculum 1973, Curriculum 1975 for Elementary Schools, Curriculum 1984, Curriculum 1994, Curriculum 1997 (a revision of Curriculum 1994), Curriculum 2004, Kurikulum Tingkat Satuan Pendidikan (KTSP) 2006, Curriculum 2013, and the most recent one, the Merdeka Curriculum. This investigation report will primarily focus on Curriculum 2013, which was the curriculum in place before the latest one.

The fundamental functions and objectives of national education are derived from Undang-Undang Republik Indonesia No. 20 of 2003, specifically in verse 3 concerning the national education system. This legislation aims to develop the abilities of students and shape their character and civilization to create a dignified nation. The objectives include developing students' potential to become individuals who believe in and devote themselves to God the Almighty, possess good character, maintain good health, acquire knowledge, develop competence, foster creativity, promote independence, uphold democratic values, and act responsibly. The implementation of Undang-Undang No. 20 of 2003 is further detailed in various government regulations, such as Peraturan Pemerintah No. 19 of 2005 and Peraturan Pemerintah No. 32 of 2013 [9].

In alignment with the advancement of knowledge, technology, and the arts, the Indonesian government introduced a curriculum known as Curriculum 2013. This initiative aims to elevate the quality of human resources and national competitiveness by reforming elementary and secondary education [10]. Implemented in July 2013, the curriculum strives to cultivate well-rounded human resources with competencies encompassing attitudes (religion and social), skills, and cognition [11].

The transformation of the curriculum in Indonesia, leading up to the introduction of Curriculum 2013, was driven by various factors. According to Kemendikbud, these factors include [12]:

1. Social Aspects: This encompasses societal beliefs that the curriculum was overly focused on cognitive aspects, lacked character development, and imposed an unbearable workload on students.
2. Globalization and Technological Advancements: The ever-increasing influence of globalization and advancements in technology and science played a significant role.
3. Economic Considerations: The government recognized Indonesia's economic potential as one of the emerging global economic powers.
4. Addressing Negative Phenomena: Widespread issues such as corruption, cheating, plagiarism, student conflicts, drug-related problems, and social unrest provided the impetus for curriculum reform.
5. PISA Results: The poor performance of Indonesian students in the Program for International Student Assessment (PISA) rankings further accelerated the need for change. Indonesia was ranked 64th out of 65 countries assessed in 2012. Minister of Education and Culture Muhammad Nuh introduced Curriculum 2013 as a solution to address this issue. PISA is an international assessment program conducted by the Organization for Economic Co-operation and Development (OECD) to evaluate the performance of 15-year-old students in reading, mathematics, and science on a global scale [13].

Curriculum 2013: Implementation, Principals, and Characteristics

Curriculum 2013 incorporates character education to instill students with moral values and ethical behavior at the school level [14], aligning with the objectives mentioned earlier. Consequently, Curriculum 2013 exhibits distinct features that set it apart from its predecessor. As outlined in the Ministry of Education and Culture's document (2012), Curriculum 2013 encompasses eight key characteristics, including:

1. Content of curriculum that expands into Core Competences (KI) of subjects then elaborated further in Basic Competences (KD)
2. Core competencies (KI) portray the competencies of students in a particular class, grade, and subject.

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3. Basic Competences (KD) is a competence learned by students in a certain subject.
4. The more basic competencies held by a subject, it means the more competencies of attitude, cognitive skills, psychomotor skills, and knowledge are emphasized.
5. Core competencies are not associated with disciplinary-based curriculum or content-based curriculum. Instead, it has a role as an organizer of competences.
6. The development of basic competencies based on accumulative principles with inter-twined relationships among subjects.
7. Pedagogy is rooted in the effort to master the competencies.
8. Evaluation of learning outcomes covers all aspects of competencies and formative to meet the minimum completeness criteria (KKM/Kriteria Ketuntasan Minimal).

Implementing this curriculum takes synergy for both the national government and regional government. Curriculum implementation strategy consisting of [15]:
1. The enactment of curriculum thoroughly in all schools including primary, junior, and senior high schools. This step is conducted gradually from July 2013 until July 2015 as expected final year to reach all grades;
2. Training for trainers and educators from 2013-2015. This step involves education authorities, lecturers, civil servants (widyaiswara), national teachers, supervisors, and best-achieved headmasters to be trained as master trainers before massive training for classroom teachers;
3. The development and provision of students’ textbooks and manual books for teachers in 2012-2014. Through this strategy, the quality of content is warranted by the government. The complexity of the books also allows educators to encourage creative pedagogy and to provide an assessment process of students’ learning outcomes;
4. Improvement in management, leadership, administration system, and school culture development, starting from January to December 2013;
5. Monitoring and Evaluation to yield possible difficulties, implementation, and solution from July 2013-2016. There are two forms of evaluation: Formative evaluation in one school year from 2015-2016 and Summative evaluation conducted in 2016 for thorough assessment to evaluate the appropriateness of idea, document, and curriculum implementation.

The implementation of Curriculum 2013 is guided by six core principles essential for achieving its impact and realizing national objectives. These principles include:
1. Graduation competency standards (Standar Kompetensi Lulusan) based on 21st Century Competencies, Indonesia's demographic bonus, the potential for economic growth, and the nation's contribution to world civilization.
2. Content standards derived from the graduation competency standards through core competencies within subjects.
3. Subjects that promote students' attitudes, skills, and knowledge.
4. The integration of all subjects into core competencies.
5. Curriculum alignment in terms of content, learning processes, and assessment competencies [3], [16].

Curriculum 2013: The-Intertwined Relationship in Pedagogy and Assessment in Practice

1. Pedagogy Implied by the Curriculum

Pedagogy in Curriculum 2013 should encourage active student participation. This pedagogical approach is outlined in the teacher manuals and is designed to assist educators in delivering the learning process [13]. However, during my interview with a senior high school teacher, she expressed that despite the textbooks being labeled as Curriculum 2013, she perceived no difference between implementing KTSP 2006 and Curriculum 2013. She continued to use the same pedagogical approach to teach her students, stating, 'No matter what the curriculum is, the pedagogy remains the same.' (Teacher 1, interviewed in November 2019).

This suggests that Curriculum 2013 has not influenced her teaching practices. This contradicts the idea of Curriculum 2013 as a reform in curriculum, pedagogy, and assessment compared to the previous KTSP 2006 Curriculum. Therefore, I believe that the pedagogical approach in Curriculum 2013 remains unclear and may potentially pose a barrier to achieving meaningful impacts.

According to Suhardin et al., she emphasizes in her study the need to adopt an effective pedagogy that encourages active student participation, known as CORE pedagogy [17]. CORE pedagogy was initially introduced by Giray [3], and is believed to align with the objectives of Curriculum 2013, emphasizing values such as connection, responsiveness, and empowerment in the student-learning process.
2. Assessment Carried Out by the Curriculum

Not only implement considerable reform in the curriculum cohort, but Indonesia also adopted a new system in the pedagogy and assessment process. Ta et al. [18], highlight the keyword of assessment used in Curriculum 2013 namely authentic assessment. Although there is no exact actual definition of authentic assessment, Ahmad and Husaini perceived authentic is widely used as the mirroring of real-world tasks or expectations [19].

Based on Permata et al., there are four criteria integrating into the authentic assessment: context; problem-solving skills, higher order thinking and production of knowledge; task factor stimulating a broad range of active participation; and a series of indicators containing indicators of learning, achieve validity and reliability [20].

Taking the idea of the aforementioned principles of authentic assessment, in implementing Curriculum 2013, regulation has been set by the government to meet the criteria through the Regulation of the Minister of Culture and Education of the Republic of Indonesia Number 81 Year 2013 which is revised into the Regulation of the Minister of Culture and Education of the Republic of Indonesia Number 104 Year 2014. The four competencies that will be assessed in Curriculum 2013 are as follows: spiritual, social attitude, knowledge, and skill (Menteri Pendidikan dan Kebudayaan, 2013; Menteri Pendidikan dan Kebudayaan 2014 as cited in Rahayu [21]). In response to this, based on the interviews, the two teachers agreed that authentic assessment complexity is not difficult to conduct regardless of the high number of students in one class.

Nevertheless, this assessment workload is slightly different from the student’s perspective. For twelfth graders, there are two different summative assessments which are appeared as high-stakes testing namely the School-based final Examination and the National Examination set by the Department of Education and Culture through the National Education Standards Board [22]. However, the Curriculum 2013 assesses complex aspects including attitudes, cognition, and skills through authentic assessment [23]. Converse with the idea of authentic assessment, these high-stakes stakes testing indicates to measure only the cognitive aspects of students which has an inclination to deteriorate other cohorts. Likewise, this phenomenon is highlighted by Eisner (2000 as cited in Afandi et al. [24]) reckons that assessment practices highly likely are not aligned with the desired learning outcomes. In addition, high-stakes testing is likely to misconstrue pedagogy, constrain the curriculum, and lessen students’ educational experiences [25].

In addition, this assessment also evoked controversy among students and teachers’ side as Higher-Order Thinking Skills (HOTS) is for the first time embedded in the National Examination from 2018 while the curriculum itself is yet to be settled thoroughly. In line with this, with the implementation of both curricula, KTSP 2006 and 2013 Curricula in several schools, will gain criticism since the same assessment is implemented regardless of the curriculum that prevails Malbranque et al. [26] due to the not evenly distribution of the new brand curriculum at that time.

Is Curriculum 2013 the right curriculum before the Merdeka Curriculum? Examining the efficacy and effectiveness

To examine the efficacy and effectiveness of Curriculum 2013, using the government perspective, I will elaborate on the PISA result before and after the implementation of Curriculum 2013. To begin, the PISA results in 2012 from 65 nations of OECD members show that Indonesia in the bottom two, falls into 64th place, one position above Peru in terms of performance in mathematics, reading, and science (Figure 1).

Three years later, in the PISA 2015 test, Indonesia’s position leveled up to 62nd position from 70 participants (Figure 2) with Singapore outperforming all the countries assessed. The improvement of Indonesia’s result has been shown in all aspects of assessed subjects, significantly in Science performance from 382 in mean score in PISA 2012 to 403 in 2015. Reading is the least in terms of increasing, with only 1 point from 396 to 397 by 2015. Mathematics average score slightly raised from 375 to 386 in three years.

However, the results in 2018 marked a significant reversal, as the PISA scores for Indonesia exhibited a notable decline across all three criteria. Indonesia was ranked 75th out of 79 participants (Figure 3). The reading scores experienced the most significant decrease, dropping from 397 in 2015 to 371. Following this pattern, the Science scores declined to 389 from 403 in 2015. Similarly, the Mathematics scores in 2018 stood at 379, showing a 7-point decline from three years ago. These results reflect Indonesia’s position, which remained below the OECD average score. These findings indicate a disparity in PISA results related to the implementation of Curriculum 2013 in schools.

According to the background from the establishment of Curriculum 2013 as mentioned in the beginning, the PISA score indicates but is not limited to, as the only tool to draw the conclusion of the Curriculum 2013 efficacy because PISA only measures three abilities while there are more subjects to assess in order to draw the conclusion of
effectiveness and efficacy. Other possibilities should be taken into account in examining the effectiveness and efficacy of this curriculum.

Given this drawback, a proper tool to measure the efficacy and effectiveness of a curriculum should be established. Daryanto [27], in her study, uses fidelity of implementation to interpret the outcomes of K-12 Curriculum intervention. She admitted although there are too few sources in guiding to examine the fidelity of implementation that can assess the curriculum efficacy and effectiveness in relation to students’ outcomes, the researcher managed to assert the definition, conceptualization, and measurement of fidelity of implementation. Nurdyansyah and Fahyuni [28], compile the researchers’ definition of fidelity of implementation, “…is traditionally defined as the determination of how well an intervention is implemented in comparison with the original program design during an efficacy and/or effectiveness study.”

To make it clearer, Chevalier et al., elaborates the efficacy and effectiveness examination definition [29]. On the one hand, efficacy measures the thoroughness and level of program implementation. On the other hand, effectiveness interprets the evidence of effectiveness generally and observes the implementation in the real field. In
her further review, she implied five criteria for measuring fidelity of implementation of a curriculum, as follows: (1) adherence; (2) duration; (3) quality of delivery; (4) participant responsiveness; and (5) program differentiation.

Figure 3. PISA 2018 Result: Indonesia in 75th place of 79 countries participant [13]

Since the Curriculum 2013 is revised due to the changing of the minister of education, I perceive, that fidelity of implementation can be beneficial to see to what extent the interventions of curriculum from the previous curriculum (KTSP 2006) and the latter curriculum (Curriculum 2013) in improving learning outcomes of students. However, in several regions of Indonesia, both of these curricula are used at the same time due to the process of alteration and interim curriculum cessation as the consequences of the minister of education changing. Because it is uncommon for a country to have two different curricula prevails at one time, unavoidably the difference in the use of curriculum will influence the desirable different input [23]. Thus, stakeholders should evenly distribute one curriculum first, before conducting the fidelity of implementation in order to evaluate and develop certain curricula to form uniformity.

Potential Barriers to Implementing the Curriculum 2013 in Indonesia

Highly likely impediments in the commencement of Curriculum 2013 are from teachers, students, and school unreadiness in terms of materials provision including books, and the difficulties in assessing and implementing pedagogy. All of these factors will be examined below.

The study conducted by Sofiana, N., Mubarok, H., & Yuliasri, I. (2019) shows the data that assessing is well implemented in Jepara, Central Java, with educators referring to graduate competency standards by using an authentic approach that assesses the readiness, the process, and the learning outcomes of the students. However, other studies have shown the opposite result. Conversely, Al-Salami et al. [30] in their studies found that in assessing, the educators' partial understanding of the system; difficulties in developing the instrument of attitude; using authentic assessment; designing the indicators and assessment rubric for soft skills; collecting the total score from multiple measurement technique; and failure to yield the feasible application to interpret students' learning achievement.

As stated in the objectives and background of Curriculum 2013, in the first sub-heading, through implementing such curriculum, the Indonesian government intends to encourage and strengthen economic competitiveness. However, converse with the idea of this objective, Fuadi et al. [31] through his study in Vocational High Schools in East Java found that Curriculum 2013 has the inclination to lower and even decrease the
entrepreneurial spirit of students such as the aspects of creativity, attitudes towards risk, initiative, responsibility, and leadership due to the lack of material changes in attitude and inadequacy of the school management in making major policy changes associated with the newborn curriculum implementation.

Different from KTSP 2006, in the 2013 Curriculum, science subject for Junior High School is integrally held in one subject as the fusion of physics, chemistry, earth science, and biology. However, this practice is not supported in the area of the availability of materials, and teachers’ particular subject qualifications only cover physics or biology, thus the educators with biology qualifications will face obstacles in delivering physics and vice [32].

Werdingsih et al. [33], in their study conducted in the western part of Seram District in Indonesia, discovered that the lack of handbooks for teachers and students is an inhibiting factor in implementing Curriculum 2013. Nevertheless, although textbooks and teachers’ manual books are essential, teachers should only use these sources as supplements and more focus on their creativity in delivering the subject to adjust to learners’ needs and teaching context. In addition, the interviewee’s opinion argued that previous curriculum books (KTSP 2006) are more complete compared to those of the manual books of Curriculum 2013.

Despite the fact that Fransiska et al. [34] found that the implementation of Curriculum 2013 in English subjects in Central Java Schools is well executed in accordance with the principles of Curriculum 2013, it is different from the findings of other researchers. Habiburrahim [35] highlight the mental readiness of teachers and students is one of the potential obstructions. This result was yielded after examining the Seram District schools in Maluku. The contradictory findings imply the imbalance of Curriculum 2013 implementation in Indonesia.

The lack of school facilitation relating to media-related learning materials is also perceived as the inhibiting factor to implementing this curriculum [7]. This factor is pivotal to concern the government, especially for the rural and remote schools in Indonesia where the schools’ facilitation is not as good as in the urban area. This finding is in line with my interview result with a science teacher in a junior high school in Lombok, Indonesia. She addressed the lack of laboratory tools to conduct the practice, “Sometimes, it is difficult to do a (science) practice because there is no laboratory equipment!” (Teacher 2, Interviewed November 2019). As a consequence, she faced difficulties in assessing students’ skills which is one important aspect of authentic assessment.

CONCLUSION

In general, although there was a fluctuate result in PISA 2012, 2015, and 2018, Curriculum 2013 is relatively well-implemented supported by various research studies. Notably, PISA results, which measure only science, reading, and mathematics cohorts, cannot comprehensively assess the efficacy and effectiveness of an entire curriculum. There are other subjects and aspects that require attention besides these three skills. Therefore, the government needs appropriate tools to measure and evaluate Curriculum 2013 as it will be reflect on the implementation of the Merdeka Curriculum as well.

A study conducted by Rusman (2015) assessed three criteria: teachers’ response to the curriculum implementation (resulting in a positive rating), planning activities (falling into a very positive category), and curriculum evaluation (also in a positive category). Nonetheless, research studies have shown an uneven implementation of Curriculum 2013 in Indonesia. While it is well-implemented in certain areas, educators in other regions encounter difficulties. This suggests that, despite the efficacy of Curriculum 2013, its distribution in a complex socio-demographic country like Indonesia requires more effort.

Regarding potential obstacles to implementing such a curriculum, challenges arise from teacher readiness, student readiness, and school preparedness in terms of material provision, including books. Difficulties in assessing and implementing pedagogy also play a role. In conclusion, while Curriculum 2013 shows promise in addressing the shortcomings in Indonesian educational outcomes, it still requires significant reforms in assessment, pedagogy, and the readiness of students, teachers, and schools to maximize its impact and achieve its objectives.

REFERENCES


Author declaration

Author contributions and responsibilities

The authors made major contributions to the conception and design of the study. The authors took responsibility for data analysis, interpretation and discussion of results. The authors read and approved the final manuscript.

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All data is available from the author.

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