

Mathematics Teachers' Perceptions of Formative Assessment Implementation Based on the Merdeka Curriculum at SMP Negeri 14 Surakarta

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Abstract: This study aims to examine mathematics teachers' perceptions of formative assessment implementation within the Merdeka Curriculum at SMP Negeri 14 Surakarta. Formative assessment requires teachers to continuously monitor students' learning progress and adjust instructional strategies accordingly. A descriptive qualitative approach was employed through interviews, observations, and document analysis. The data sources comprised all mathematics teachers of grades VII, VIII, and IX, selected using total sampling to ensure comprehensive documentation of perspectives. The research focused on three dimensions of teacher perception: cognitive (conceptual understanding), affective (attitudes toward assessment), and conative (classroom practices). The findings indicate that teachers generally hold positive perceptions of formative assessment, reflected in their understanding of its function, openness to innovation, and diverse strategies such as quizzes, observations, assignments, and projects. The implementation of formative assessment still encounters challenges, including limited time, student readiness, and facilities. Teachers address these issues through adaptive strategies such as collaboration and flexible assessment design. These findings suggest that successful formative assessment implementation is influenced not only by policy but also by teachers' perceptions and responses to classroom challenges, thus providing avenues for further research across diverse subjects and educational settings.

Keywords: Teacher Perception; Formative Assessment; Merdeka Curriculum; Mathematics Learning; Curriculum Implementation.

Abstrak: Penelitian ini bertujuan mengkaji persepsi guru Matematika terhadap asesmen formatif dalam Kurikulum Merdeka di SMP Negeri 14 Surakarta. Asesmen formatif menuntut guru memantau perkembangan belajar siswa secara berkelanjutan serta menyesuaikan strategi pembelajaran. Penelitian menggunakan pendekatan kualitatif deskriptif melalui wawancara, observasi, dan analisis dokumen. Sumber data adalah seluruh guru matematika kelas VII, VIII, dan IX dengan teknik total sampling agar perspektif guru terdokumentasi menyeluruh. Fokus penelitian mencakup tiga dimensi persepsi: pemahaman konseptual (kognitif), sikap terhadap pelaksanaan asesmen (afektif), serta tindakan nyata di kelas (konatif). Hasil menunjukkan guru memiliki persepsi positif terhadap asesmen formatif, ditunjukkan oleh pemahaman fungsi asesmen, sikap terbuka terhadap inovasi, serta variasi strategi seperti kuis, observasi, penugasan, dan proyek. Implementasi asesmen formatif masih menghadapi kendala berupa keterbatasan waktu, kesiapan siswa, dan fasilitas. Guru menyikapinya melalui strategi adaptif seperti kolaborasi dan fleksibilitas desain asesmen. Temuan menegaskan bahwa keberhasilan asesmen formatif tidak hanya ditentukan kebijakan, tetapi juga persepsi dan respons guru terhadap tantangan pembelajaran, sehingga membuka peluang kajian lebih lanjut pada mata pelajaran dan satuan pendidikan berbeda.

Kata Kunci: Persepsi Guru; Asesmen Formatif; Kurikulum Merdeka; Pembelajaran Matematika; Implementasi Kurikulum.

INTRODUCTION

Whenever an education system is established, its goal is to enhance the quality of education to align with the advancements of the times. As societal needs and dynamics shift, education must adopt new paradigms. However, changes implemented without adequate preparation for teachers and schools often hinder the optimal achievement of educational objectives. This situation forces teachers and students to adapt quickly, leading to confusion and disrupting structured learning processes. Amalia & Asyari (2023) argue that curriculum reform in Indonesia should address local educational challenges through targeted approaches, not just global trends. To meet these challenges, the Indonesian government introduced the Merdeka Curriculum to ensure relevant, comprehensive, flexible, and responsive learning. Responsive learning not only keeps pace with technological advancements but also fosters opportunities to develop 21st-century skills such as critical thinking, creativity, and collaboration (Jaya et al., 2023).

The Merdeka Curriculum offers variations in intracurricular learning, allowing for optimized content delivery so students have sufficient time to grasp concepts and strengthen competencies. Its implementation emphasizes not only flexible learning and the reinforcement of the Pancasila Student Profile but also the improvement of teaching quality across subjects, including mathematics. Mathematics plays a strategic role in shaping intelligent and competitive individuals. Its status as a compulsory subject at all school levels underscores its importance in equipping students to face present and future challenges. According to the National Council of Teachers of Mathematics (NCTM, 2000), mathematics serves as a tool for problem-solving and critical thinking development. However, its successful implementation depends on teacher readiness, the effectiveness of teaching methods, and support from educational stakeholders.

As part of its implementation strategy, the Merdeka Curriculum prioritizes flexible, competency-oriented assessment approaches. Systematically designed assessment can provide a comprehensive picture of students' competency achievement based on various learning activities that have taken place (Amrulloh, 2015). By incorporating diverse types of assessment items, teachers are able to obtain more accurate and comprehensive data regarding students' mastery of subject matter and skills. A key component of this approach is formative assessment. Brookhart (2010) emphasizes that formative assessments should actively engage students and provide specific, actionable feedback. Thus, formative assessments not only as evaluation tools but also as learning strategies that deepen conceptual understanding. Their results are used to generate descriptive, narrative progress reports highlighting holistic learning processes and achievements (Kemendikbud RI, 2021).

Black & Wiliam (2018) found that teachers who properly understand formative assessment concepts and practices are more successful in improving student outcomes. According to Shulman (1987), effective teachers possess not only content knowledge but also pedagogical knowledge, enabling them to select appropriate teaching strategies and tailor material delivery for student comprehension. This knowledge is essential for designing effective formative assessments in mathematics, as teachers must identify student difficulties and craft tasks that gauge conceptual understanding. Teacher perceptions are critical, influencing not only instruction but also the interpretation and utilization of assessment data. Teachers view assessments as integral



to learning will use them not as administrative obligations but as reflective tools to address student needs.

Furthermore, based on pre-research interviews with mathematics teachers at SMP Negeri 14 Surakarta, the implementation of formative assessment is still suboptimal due to low student learning motivation, leading to ineffective evaluations. This aligns with Alotaibi (2018) findings, which indicate that some students remain passive in receiving feedback from formative assessments and require further guidance to utilize it effectively in enhancing their understanding. It was also found that the majority of mathematics teachers experienced difficulties in implementing formative assessment. The problems with implementing formative assessment in the field are not solely due to teachers' conceptual understanding but also involve consistency of execution, technical readiness, and continuous utilization of assessment results. Some teachers feel that the current assessment process does not optimally measure student learning outcomes. This situation is compounded by low student learning motivation and limitations in supporting facilities and classroom time. This ineffectiveness points to the importance of research to delve deeper into teacher perceptions. As the primary implementers of policies in the classroom, teachers play a strategic role in ensuring that formative assessment is truly used to improve the learning process, not merely to fulfill administrative duties.

This problem indicates a significant gap between the principles of the Merdeka Curriculum, which positions formative assessment as an integral part of differentiated learning, and its actual practice in the classroom. If formative assessment is not optimally implemented, its primary function as an adaptive tool for monitoring learning progress will fail to be achieved, directly affecting the effectiveness of mathematics learning that requires continuous conceptual reinforcement. Previous findings have shown that teachers still face structural and technical obstacles in implementing the Merdeka Curriculum, including limited experience and inadequate facilities (Nazara et al., 2024).

Moreover, the transition from the 2013 Curriculum to the Merdeka Curriculum presents new challenges for teachers, particularly in teaching and assessment strategies, requiring them to adapt flexibly in structuring learning content to accommodate student diversity. Similar studies indicate that although teachers generally demonstrate positive perceptions toward educational innovations, their implementation often encounters challenges related to limited pedagogical knowledge and the need for professional development support (Ahyansyah et al., 2025). These pre-research observations therefore highlight problems that are not only technical but also conceptual, making it urgent to investigate them further to gain a comprehensive understanding of teacher perceptions and the concrete strategies needed to optimize formative assessment in classroom practice. Against this background, this study is unique in focusing specifically on mathematics teachers' perceptions of formative assessment implementation, while also examining the constraints and adaptive strategies within the Merdeka Curriculum at SMP Negeri 14 Surakarta.

In previous research, the implementation of assessment within the Merdeka Curriculum still faces various obstacles. A study by Januar & Muzekki (2025) explored teachers' perceptions of using formative assessment in mathematics learning at the junior high school level, highlighting its role as a tool for teachers to monitor student progress and adjust teaching strategies. However, this research did not



specifically examine the implementation of formative assessment within the Merdeka Curriculum, including the constraints and strategies teachers use in its application. Gusmawan & Herman (2023) also found that despite teachers' relatively positive perceptions of the Merdeka Curriculum, difficulties still exist in developing assessments and evaluating learning. Nevertheless, their research did not deeply discuss formative assessment in mathematics learning or explore how teachers overcome implementation barriers. Similar findings were reported by Rizky & Partono (2024), who stated that the implementation of the Merdeka Curriculum, particularly in mathematics, has not been optimal due to limited facilities, administrative burden, and insufficient further training.

These conditions indicate that although formative assessment is recognized as an important component of the Merdeka Curriculum, its classroom implementation still requires deeper understanding and support. Teachers' perceptions are crucial in determining how formative assessment is interpreted and applied in daily learning activities, since they are directly responsible for monitoring students' progress and providing meaningful feedback. Previous studies have largely focused on other subjects, such as English (Indrayani, 2024), or discussed the Merdeka Curriculum in general without specifically highlighting formative assessment (Anggana, 2022). Referring to Dianti et al. (2025), who examined diagnostic, formative, and summative assessments in relation to educational evaluation systems, this study is both urgent and distinctive, as it addresses the research gap by exploring mathematics teachers' perceptions of formative assessment implementation through the dimensions of conceptual understanding, attitudes toward assessment, and classroom practices, while also analyzing the constraints and adaptive strategies experienced within the context of the Merdeka Curriculum at SMP Negeri 14 Surakarta.

METHOD

This study employed field research to collect primary and secondary data. As a descriptive study, it aimed to document, analyze, and interpret existing conditions. A qualitative approach was adopted, with the researcher serving as the key instrument. Data were collected through triangulation using three techniques: observation, interviews, and document studies. This approach aligns with Patton (1999) triangulation principle, which asserts that combining multiple sources and methods enhances the credibility of qualitative data. The research was conducted during the even semester of the 2024/2025 academic year at SMP Negeri 14 Surakarta. The data sources and population comprised all mathematics teachers at the school who taught Grades VII, VIII, and IX. Given the relatively small number of teachers, this study applied a total sampling (census) technique, in which all members of the population were included as research participants to ensure that the perspectives of all teachers were comprehensively represented (Creswell & Creswell, 2017). This inclusive approach ensured comprehensive documentation of teacher perspectives, enabling deeper and more accurate analysis. Data were analyzed using the interactive model by Miles et al. (2018), which involves four stages: data collection, data reduction, data display, and conclusion. The analysis prioritized meaning over generalization (Creswell & Creswell, 2017).

To develop indicators for perception, Ajzen's (2020) Theory of Planned Behavior (TPB) was used as an initial framework. Although TPB does not explicitly



discuss the internal structure of perception, it provides a foundation that perception is closely related to an individual's tendency to act. As the primary theory, this research adopted the three-component approach to perception proposed by Baron & Byrne (1994) and Myers (2012), which consists of three main indicator aspects: cognitive, affective, and conative components. The cognitive aspect encompasses the extent to which teachers understand the concepts and objectives of formative assessment and how it can be used to improve student learning. Indicators in this aspect include understanding formative assessment, knowledge of implementing assessment, and the relevance of assessment to learning objectives. The affective aspect refers to teachers' attitudes or feelings toward the implementation of formative assessment. These attitudes are shaped by the teachers' existing knowledge and how positively they view the benefits of formative assessment. Indicators in this aspect include positive or negative perceptions of formative assessment, perceptions of the benefits of formative assessment, and teachers' readiness for change. Finally, the conative aspect focuses on teachers' intentions or tendencies to take action related to formative assessment, which ultimately leads to the application of assessment in teaching and learning activities. Indicators in this aspect include the intention to use formative assessment, the frequency of formative assessment implementation, the diversity of assessment techniques, and control over assessment implementation.

RESULT AND DISCUSSION

All findings from this study were analyzed and elaborated based on the results of technical triangulation, referencing three main instruments: observations, interviews, and documentation. Based on the observations, interviews, and document studies with mathematics teachers at SMP Negeri 14 Surakarta, the research findings crystallized into three consistent main themes of teacher perception: conceptual understanding (cognitive), attitudes and acceptance (affective), and actual actions (conative). These dimensions reflect the psychological structure of perception and behavior, which includes cognitive, affective, and behavioral components that influence individuals' responses to a particular object or practice and shape their intentions and actions in professional contexts (Baron & Byrne, 1994; Myers, 2012; Ajzen, 2020). These themes not only align with the research objectives but also strengthen the interpretation of how teacher perceptions influence formative assessment practices in the field.

A. Teachers' Cognitive Perceptions of Formative Assessment in Mathematics Under the Merdeka Curriculum

The cognitive understanding of teachers regarding formative assessment is a critical foundation for implementing the Merdeka Curriculum. As part of a teacher's perception, their conceptual understanding of the definition, purpose, and relationship of formative assessment to learning determines how this policy is translated into classroom practice. Teacher knowledge and understanding of instructional concepts are widely recognized as key elements influencing teaching practices and classroom decision-making (Shulman, 1987). This section deeply examines the cognitive perceptions of mathematics teachers at SMP Negeri 14 Surakarta concerning formative assessment. The findings indicate that teachers' cognitive perceptions are not merely about mastering terminology but also about how they map the role of formative



assessment within the student learning cycle, as explored in the following two sub-themes.

Table 1. Data Triangulation Results for Theme I

Subtheme Code	Observation Findings	Interview Findings	Document Analysis	Triangulation Notes
A1. Understanding and Definition of Formative Assessment				
A1a	Formative are more varied, with teachers emphasizing process over final outcomes	Teachers demonstrate awareness of terminology shifts in assessment approaches	Teaching modules explicitly structure formative assessment components	Valid
A1b	Teachers focus on monitoring learning processes rather than just end results	Teachers explain formative assessments help students understand learning processes, not just outcome	Modules state formative assessment purposes as tools for learning process reflection	Valid
B1. Primary Goals of Formative Assessment				
B1a	Teachers record student responses in class to gauge understanding	Teachers state assessments evaluate comprehension early	Learning outcomes linked to assessment results to measure absorption	Valid
B1b	Teachers adjust methods based on assessment results	Teachers reflect to improve teaching strategies	Modules include reflective activities for teachers and students	Valid
B1c	Teachers adapt classroom activities based on prior results	Teachers use assessments to plan next steps	Modules reference assessments for activity flow and strategies	Valid

Based on the research findings, it can be concluded that mathematics teachers at SMP Negeri 14 Surakarta have achieved an adequate cognitive understanding of formative assessment within the Merdeka Curriculum. This understanding is not merely theoretical; it has evolved into a reflective awareness, as evidenced by one teacher's statement referring to formative assessment as a tool for mapping student learning needs. Such findings indicate that teachers' understanding of assessment concepts plays an important role in shaping instructional practices and enabling teachers to monitor student learning and adjust teaching strategies accordingly (Black & Wiliam, 2018). This transformation in understanding from a mere assessment tool to an integral part of the learning process, clearly addresses the main research problem regarding teachers' perceptions of formative assessment implementation. Tangible evidence of this implementation is seen in several aspects: the development of teaching modules that explicitly integrate formative assessment, daily diagnostic practices through question-and-answer sessions and classroom observation, and the use of assessment results for student grouping and the formulation of differentiated learning strategies. These findings also align with the view that effective assessment practices depend on teachers' pedagogical understanding about assessment (Shulman, 1987).



B. Teachers' Affective Perceptions of Formative Assessment in Mathematics Under the Merdeka Curriculum

Beyond conceptual understanding, the success of formative assessment is strongly determined by how teachers perceive its benefits, evaluate its feasibility for sustainable implementation, and anticipate future improvements. A notable finding emerged: while most teachers acknowledged the system's utility in monitoring student progress, they simultaneously raised concerns about additional workload. This ambivalent attitude reflects both an awareness of formative assessment's importance and apprehensions about increased administrative burdens, offering a realistic portrait of the dynamics surrounding educational policy implementation at the school level. Similar findings have been reported in previous studies showing that teachers' perceptions of the usefulness and practicality of formative assessment influence their willingness to adopt it in classroom practice (Alotaibi, 2018). Through this affective perception analysis, we gain deeper insights into teachers' cognitive evaluations of formative assessment, their emotional responses, and their underlying expectations.

Table 2. Data Triangulation Results for Theme II

Subtheme Code	Observation Findings	Interview Findings	Document Analysis	Triangulation Notes
A2. Evaluation of Formative Assessment Effectiveness				
A2a	Teachers grow accustomed to daily assessments	Adaptation requires time but is deemed effective	Transition from lesson plans (RPP) to teaching modules	Valid
A2b	Students are more active; teachers reflect more	Assessments help teachers detect issues	Modules guide assessment implementation	Valid
B2. Expectations for Future Development				
B2a	Teachers implement assessments despite not being mandatory	Assessments hoped to become cultural and compulsory components	Modules don't yet mandate assessments but point in that direction	Fairly valid (Observation data less explicit)
B2b	Teachers continue despite no strict regulations	Teachers hope for sustainability without frequent changes	Policies provide guidance but aren't explicit	Fairly valid (Document data is general)
C2. School and PMM Support				
C2a	Limited teacher forums available	School allows flexibility with informal discussions	Not all schools provide official forums	Fairly valid (Not all teachers receive explicit support)
C2b	Teachers persist despite inefficiencies	PMM helps but is burdensome	Certificates collected; training not always applicable	Valid

Data triangulation shows that teachers generally consider formative assessment to be an effective and feasible approach worth continuing, but it needs to be supported by adequate policies and training. This finding supports the argument that teachers' positive attitudes toward formative assessment can strengthen their commitment to implementing it consistently in classroom practice (Ajzen, 2020). This study finds that teachers' belief in formative assessment grows gradually through real classroom



experiences. Many teachers admit that they only truly appreciate this system after seeing firsthand how formative assessment enhances active student participation, facilitates learning progress monitoring, and helps adjust teaching methods. Evidence of this attitude change can be seen from the increasing frequency of teachers providing direct feedback during learning, deeper communication methods with students, to teaching method adjustments based on class needs. This attitude change process is not simple. On one hand, teachers become more convinced of the benefits of formative assessment when seeing the results. On the other hand, they also continue to improve their implementation methods. In the data triangulation process, specifically in the fairly valid categories (subthemes B2a, B2b, C2a), the absence of data from one instrument does not reduce the validity of the findings because no contradictions were found between sources, and the differences that emerge more reflect the dynamics between expectations and policy realities. Teachers' views on formative assessment are complex, adapting practices through experience and strengthening commitment to improvement.

C. Teachers' Conative Perceptions of Formative Assessment in Mathematics Under the Merdeka Curriculum

In the process of implementing formative assessment based on the Merdeka Curriculum, teachers are responsible not only for understanding assessment concepts but also for applying them strategically and contextually in the classroom. Interview results indicate that mathematics teachers at SMP Negeri 14 Surakarta have developed diverse assessment techniques, such as spontaneous quizzes, participation observation, and small projects, tailored to their classroom dynamics. However, some differences in technical approaches were also identified, particularly in the utilization of assessment methods and classical strategies. In conducting formative assessment, teachers inevitably face various technical and contextual constraints that affect the optimization of its implementation in the classroom. In behavioral perspectives, individual actions in professional are often influenced not only by intentions but also by situational constraints and available resources (Ajzen, 2020). These obstacles appear in various forms and require adaptive responses from teachers to consistently adhere to the principles of formative assessment. These factors directly impact the implementation process of formative assessment and the quality of feedback that can be provided. This section will elaborate on the concrete actions taken by teachers in applying formative assessment. Each point is structured based on direct quotes from informants to illustrate the variety of strategies genuinely implemented by teachers.

Table 3. Data Triangulation Results for Theme III

Subtheme Code	Observation Findings	Interview Findings	Document Analysis	Triangulation Notes
A3. Assessment Techniques and Methods				
A3a	Teachers use observation, Q&A, quizzes	Varied techniques: quizzes, projects, discussions, peer tutoring	Modules include diverse assessment techniques	Valid
A3b	Teachers assign extra homework if time is insufficient	Tasks adjusted based on student situations	Modules suggest follow-up tasks as additional assessments	Valid



Subtheme Code	Observation Findings	Interview Findings	Document Analysis	Triangulation Notes
B3. Teaching Module and Lesson Plan Development				
B3a	Classroom activities follow learning outcomes	Teachers mention alignment of ATP, activities, and assessments	ATP and assessments systematically arranged in modules	Valid
B3b	Teachers adapt methods based on class conditions	Teachers note flexibility in designing modules	Modules are flexible but guided by CP & ATP	Valid
C3. Processing Assessment Results				
C3a	Teachers use assessment data for report cards	Assessment scores integrated with summative evaluations	Assessment components included in learning reports	Valid
C3b	Students differentiated by results; given tailored tasks	Students receive enrichment/remediation based on assessments	Modules specify follow-ups according to assessments	Valid
D3. Challenges in Formative Assessment Implementation				
D3a	Learning disrupted by extracurricular activities	Time insufficient due to school activities	Busy schedules hinder assessment continuity	Valid
D3b	Students bring own phones; uneven LCD distribution	Limited IT facilities; teachers use personal devices	Modules don't specify tools, but teachers improvise	Fairly valid (Supporting document data not explicit)
D3c	Passive students; uneven discussions	Students less active, unprepared	Varying student readiness across classes	Valid
E3. Efforts to Overcome Challenges				
E3a	Informal collaboration and direct supervision	Teachers utilize P5 hours and peer discussions	Not all document collaborative strategies	Fairly valid (Supporting document data not explicit)
E3b	Group discussions and homework as alternative assessments	Teachers adapt methods to student abilities	Modules flexible based on student needs	Valid

Based on the triangulation results of interviews, observations, and documentation, it can be concluded that the implementation of formative assessment by Mathematics teachers at SMP Negeri 14 Surakarta reflects a positive conative perception and is oriented towards concrete actions in the classroom. In the perspective of behavioral theory, conative aspects refer to the tendency of individuals to translate attitudes and intentions into observable actions in certain contexts (Ajzen, 2020; Baron & Byrne, 1994; Myers, 2012). Triangulation of several findings reached a sufficient level of validity (subthemes D3b and E3a) through the convergence of two data sources. In all these cases, the gap between document data and the other two sources did not indicate contradictions, but rather reflected the flexible nature of learning practices that are not always formally documented. Teachers not only carried out assessments technically but also demonstrated creativity in developing alternative strategies such as peer tutoring, project-based assessments, and the use of digital platforms. In practice, assessments were not limited to written instruments but took



various participatory and contextual forms adapted to student conditions and learning dynamics. This finding is consistent with the view that formative assessment should be integrated into classroom learning processes and can be implemented through diverse strategies that actively involve students in monitoring their learning progress (Black & Wiliam, 2018). Overall, teachers' implementation actions in formative assessment illustrate a strong intention to maintain learning continuity through integrated learning process evaluations that are responsive to student needs. The data also show that the main challenges in implementing formative assessment include time constraints, student readiness, and inadequate supporting facilities. Teachers complained about limited learning time due to P5 activities or other school agendas but were able to address this by assigning follow-up tasks at home or utilizing time outside of core class hours.

The research findings indicate that mathematics teachers at SMP Negeri 14 Surakarta hold positive perceptions of formative assessment within the Merdeka Curriculum, reflected in their sound conceptual understanding (cognitive), openness to innovation (affective), and varied implementation (conative). Teachers recognize that formative assessment extends beyond written evaluations to include reflection, discussion, and continuous assignments that provide immediate student feedback. This suggests their pedagogical understanding has evolved in line with Pedagogical Content Knowledge theory (Shulman, 1987), where content mastery and assessment strategies are integrated. These findings reinforce the Theory of Planned Behavior (Ajzen, 2020) framework, demonstrating that teachers' positive perceptions influence their intentions and actions in implementing assessments. However, data also reveal challenges such as time constraints, limited technological resources, and uneven student readiness. Despite this, teachers exhibit strong adaptive strategies, including utilizing P5 hours, modifying assessments, and peer collaboration. These results contrast with Rizky & Partono (2024) claim that formative assessment primarily burdens teachers administratively and is rarely implemented flexibly.

Compared to prior studies, this research highlights uniqueness by focusing on formative assessment in mathematics with comprehensive data triangulation. While Black & Wiliam (2018) and Gusmawan & Herman (2023) found that many teachers conflate formative with summative assessments or rely on written tests, this study reveals teachers' use of diverse techniques like peer tutoring, open reflection, and project-based assessments. Its novelty further lies in documenting how assessments are embedded as integral components of teaching modules and learning activities, not mere formalities. Thus, this study addresses a critical gap in contextual Merdeka Curriculum-based formative assessment implementation and offers practical insights for teacher training policies and instructional material development.

CONCLUSION

Overall, mathematics teachers' perceptions of formative assessment within the Merdeka Curriculum reflect a combination of adequate understanding, positive attitudes, and adaptive practices in addressing real challenges in the classroom. However, the study also identifies several obstacles in implementation, indicating that although teachers' perceptions of formative assessment are generally favorable, its application still requires guidance and adjustments to the learning context. Thus, while teachers demonstrate positive perceptions overall, there remain challenges that warrant



attention. Therefore, systematic efforts are needed from schools and policymakers, such as providing training, strengthening teacher community forums, and improving assessment-related facilities. In addition, aligning national policies with school-level dynamics is essential to ensure that formative assessment becomes an integral part of a contextual and meaningful learning process for students.

Based on the findings of this study, several recommendations can be proposed to strengthen the implementation of formative assessment within the Merdeka Curriculum. Teachers are encouraged to continuously enhance their competencies in designing, implementing, and evaluating formative assessment through reflective and contextual practices that align with students' characteristics and classroom conditions. Schools are recommended to provide stronger institutional support by facilitating professional learning communities, offering flexible time allocation, and ensuring adequate assessment-related resources. At the policy level, education authorities should prioritize practice-oriented training programs and conduct periodic evaluations to ensure that formative assessment policies remain responsive to school-level realities. Future research may further explore formative assessment practices across different subjects or educational levels, or examine their impact using mixed-method approaches to provide broader empirical evidence.

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