Mathematics Curriculum Evaluation: Challenges And Opportunities In Meeting Global Education Standards (Case: State Junior High School)

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Abstrak

Evaluasi kurikulum matematika merupakan langkah penting dalam menentukan seberapa baik program memenuhi persyaratan pendidikan internasional. Topik matematika sangat penting dalam melatih generasi penerus menghadapi tantangan globalisasi dan peningkatan daya saing. Memastikan bahwa kurikulum relevan, terintegrasi, dan sesuai dengan perubahan standar pendidikan internasional merupakan perhatian utama evaluasi. Tujuan penelitian ini adalah untuk mengetahui potensi tantangan dan peluang dalam memenuhi standar pendidikan global khususnya di SMP Negeri L. Sidoharjo. Dengan menggunakan pendekatan deskriptif kualitatif dan dibantu dengan teknik analisis data, observasi kelas, wawancara dan angket, hasil penelitian menunjukkan bahwa evaluasi juga menawarkan peluang untuk meningkatkan standar pengajaran matematika, menggunakan strategi mutakhir, dan mengidentifikasi bidang-bidang yang memerlukan pengembangan. Standar pendidikan global yang lebih tinggi dapat dicapai dengan menggunakan evaluasi kurikulum matematika sebagai alat yang efektif dengan memanfaatkan teknologi, melibatkan pemangku kepentingan, dan menerapkan teknik yang tepat. Tinjauan kurikulum matematika menghadirkan peluang dan tantangan, dan esai ini membahas keduanya dengan penekanan pada pencapaian standar pendidikan global.

Kata Kunci : Kurikulum Evaluasi, Matematika, Standar Pendidikan Global

Abstract

Mathematics curriculum evaluation is an important step in determining how well the program meets international education requirements. Mathematics topics are essential in training the next generation to face the challenges of globalization and increasing competitiveness. Ensuring that the curriculum is relevant, integrated, and in accordance with changing international education standards is a major concern of the evaluation. The purpose of this study was to determine the potential challenges and opportunities in meeting global education standards, especially at State Junior High School L. Sidoharjo. By using a descriptive qualitative approach and assisted by data analysis techniques, classroom observations, interviews and questionnaires, the results of the study showed that evaluation also offers opportunities to improve mathematics teaching standards, use cutting-edge strategies, and identify areas that need development. Higher global education standards can be achieved by using mathematics curriculum evaluation as an effective tool by utilizing technology, involving stakeholders, and applying appropriate techniques. Mathematics curriculum review presents opportunities and challenges, and this essay discusses both with an emphasis on achieving global education standards.

Keywords: Evaluation Curriculum, Mathematic, Global Education Standards

INTRODUCTION

The curriculum is a system that includes various aspects, such as objectives, material content, evaluation, and other interconnected elements, which are attempted by educational institutions to achieve the desired results, both in the educational environment and outside the school environment.(Arofah, 2021) According to Law No. 20 of 2003 concerning the National Education System, the curriculum refers to a series of plans that regulate the objectives, content, learning materials, and methods used as a guide in compiling the curriculum in each educational unit and compiling its syllabus.(Sasmita et al., 2024)

One of the crucial steps in developing a curriculum is evaluation, which instructors must do in order to assess the program's efficacy. won't be able to know the state of the curriculum in terms of its design, execution, and outcomes without evaluation.(Ibrahim et al., 2024) However, through assessment, we may utilize the findings as input to refine and enhance the program. The purpose of evaluation is to gather, examine, and summarize information for use in decision-making materials concerning curriculum revision or replacement.(Lukita et al., 2020) Both the broad formulation of educational policies and curricular decision-making heavily depend on curriculum evaluation. Curriculum developers and education policy makers can utilize the assessment results to choose and decide on policies for creating the curriculum model (Yazçayır & Selvi, 2020) that will be employed, as well as for developing the education system.(Agustin, 2024) Teachers, principals, and other education implementers can also use the results of curriculum evaluation to better understand and support student growth, choose instructional materials, tools, and resources, as well as other educational facilities. Decisions are made with certain evaluation results taken into account. (Rahayu & Aly, 2023) Teachers, students, parents, principals, inspectors, curriculum creators, and others are the decision-makers when it comes to the execution of education and curricula.(Laksono & Izzulka, 2022) Nonetheless, depending on their position, each decision-maker in the review process essentially has a distinct job to play.(Choy & Dindyal, 2024) A crucial step in the construction of curricula in mathematics, curriculum evaluation presents both opportunities and challenges as efforts to satisfy the rising worldwide standards for education are made.Click or tap here to enter text.One of the foundational subjects that significantly influences how pupils think and develop their intellectual capacities is mathematics.(Mubai et al., 2021)

As a result, it's critical to routinely assess the mathematics curriculum to make sure that children are receiving instruction that is up to date with global standards.(Baqir et al., 2024) Keeping up with advancements in the field of mathematics itself is one of the major issues in reviewing the curriculum for the subject. (Indah, 2024)

State Junior High School L.Sidoharjo, located in L. Sidoharjo Village, Tugumulyo District, Musi Rawas Regency, SMP L. Sidoharjo is one of the government-owned educational institutions. With 17 villages and 1 sub-district, the Tugumulyo District area at the time had very few state educational institutions, which is why this school was built. The village head of L. Sidoharjo, Mr. H. Sutiman, Mr. H. Sudianto, Mr. Hartoyo, Mr. Sunardi, and other prominent educators in the area discussed a proposal to create a State Junior High School utilizing the space of the former SDN 2 and SDN 3 L. Sidoharjo buildings, which were abandoned after the area's elementary schools merged to form one. By releasing a Decree on the formation of the School in 2006, the Musi Rawas Regency administration replied positively to the initiative, thank God, and all of the parties' hard work. The Decree of the Regent of Musi Rawas No. 441 of 2006, which transferred the functions of SDN 2 and SDN 3 Sidoharjo Tugumulyo, founded SMP Negeri L. Sidoharjo in 2006.

The concept of mathematics education is an interactive process involving teachers and students to build a thinking and logistics learning model.(Luzano, 2024) Teachers use methods to ensure that mathematics education develops and grows optimally and that students can learn more effectively and efficiently. (Covitt et al., 2024) Among the sciences that are most significant to human life is mathematics. One of the subjects taught in schools is mathematics, which helps the country achieve its educational objectives and develop into a creative, inventive, perceptive,

and industrious nation. (Syaifuddin, 2020) For students to solve issues and meet real-world demands, mathematics is essential. (Cordova Jr et al., 2024)

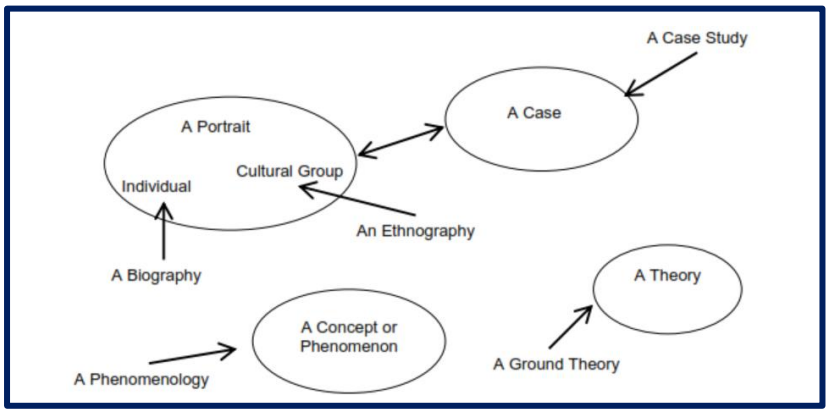
The discipline is always changing, and what should be taught to students is influenced by new findings and paradigm shifts.(Sitopu et al., 2024) As a result, curriculum changes in mathematics are necessary to keep up with these advancements. Making ensuring that the curriculum is kept up to date with the most recent advancements in mathematics needs constant work on the part of educators and those in charge of developing educational policies. Meeting global education standards is further complicated by regional variations in social and cultural norms. The needs and priorities of the mathematics curriculum vary per nation. (Chen, 2024)

As a result, striking a balance between adhering to international norms and taking local demands into account is necessary.(Narayanti et al., 2024) While this can be a challenge, it also presents a chance to advance inclusion and diversity in mathematics education. These days, assessing the mathematics curriculum presents both opportunities and challenges due to technology. Information technology advancements make it possible to use educational software and digital materials that help improve students' understanding of mathematics.(Chiu et al., 2021) But this also calls for more imaginative and participatory mathematics instruction. For teachers to effectively use this technology, they must acquire sufficient training.(Gustian et al., 2024) Opportunities for mathematics curriculum in meeting global education standards include increasing international collaboration, integrating critical and creative thinking skills, and adopting innovative learning methods. Also, the use of technology can expand access and increase student engagement.(Annie Zeng, 2024)

Measuring student learning outcomes is crucial when assessing the mathematics program. Internationally normed assessments, like PISA (Program for International Student Assessment), offer important information about how well children in other nations accomplish the necessary mathematical skills.(Addey, 2017) Critics of these exams point out that there is an excessive emphasis on the cognitive parts of mathematics and not enough emphasis on conceptual comprehension.(Balaj et al., 2024) Despite all of these obstacles, there remains a great chance to advance mathematics education.(Haryadi, 2023) In order to keep up with global education standards, create more relevant curriculum, and get students ready for new challenges, proper and continuous evaluation is essential. Success in curriculum evaluation depends on involving researchers, educators, and other interested stakeholders in the process. Creating a mathematics learning environment that is motivating, inclusive and relevant to changing global needs.(Borch et al., 2020)

METHOD

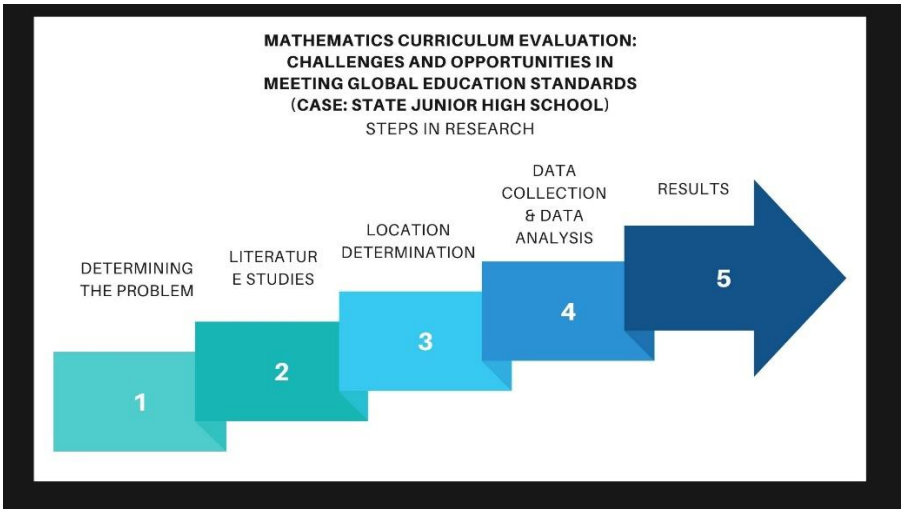
Depending on the goal and setting of the evaluation, a different research methodology, the descriptive qualitative approach with a case study at State Junior High School L. Sidoharjo, may be employed in the assessment of the mathematics curriculum. The technique of analysis is First, document analysis is one of the writing strategies applied in this study. It entails looking through all papers associated with the mathematics curriculum, such as syllabi, textbooks, instructor guides, and other educational resources.



Picture 1. *Qualitative Type*

Source: (https://dosen.perbanas.id/qualitative-inquiry-and-research-design-studi-kasus , 2024)

This research uses qualitative research with a case study approach at State Junior High School L. Sidoharjo. The steps for this research can be seen in the following chart:



Picture 2. *Steps in Research*

Source: (*Researcher,2024)*

The steps in conducting this research are determining a problem, the problem in this research is finding potential and opportunities in evaluating the mathematics curriculum, the second step is looking for definitions and supporting theories regarding the evaluation of the mathematics curriculum, the third step is determining the location of the research, where this research took place at State Middle Schools. L. Sidoharjo, the fourth step is looking for primary, secondary and other supporting data which is then analyzed. The results of the analysis are described in the form of narrative and photo documentation and conclusions are drawn.

Understanding the content, organization, and achievement of global education standards can be aided by this study. Second, observing in a classroom, specifically Using this approach, researchers go to math classes to see firsthand how the material is being taught. This can assist in determining the degree to which the curriculum is applied appropriately and successfully in real-world settings. Third, interviews, that is, conversations with educators, learners, and school administrators, can shed light on how they evaluate the mathematics curriculum, the difficulties they encounter, and the areas in which they see room for growth. (Tran & O'Connor, 2024) The goal of the evaluation, the resources at hand, and the particulars of the mathematics curriculum under review should all be taken into consideration when selecting a research methodology. Through the application of these diverse techniques, scholars can get a thorough comprehension of the Mathematics curriculum, encompassing the obstacles and possibilities associated with fulfilling worldwide educational requirements.

RESULT AND DISCUSSION

Etymologically, curriculum comes from Greek, namely curir which means runner and curere which means the distance required taken by runners. Based on this understanding, in context with the world of education, giving the meaning of "circle of instruction" is a teaching circle where teachers and students involved in it. Based on this understanding it can be concluded that the curriculum is the foundation sed by educators to guide their students towards goals desired education through the accumulation of a certain amount of knowledge, skills and mental attitudes. In Arabic, the term curriculum interpreted as Manhaj, namely the bright path, or the bright path passed by humans in their areas of life. In context education, curriculum means the bright path traversed by educators/teachers with students to develop knowledge, skills and attitudes as well as values. (Syafril & Zen, 2019)

Curriculum evaluation in mathematics education is very important in facing the challenges and opportunities in meeting global education standards.(Gust et al., 2024) The results of mathematics curriculum evaluation play a key role in determining the effectiveness of an education system in producing students who are competent in mathematics.(Elvi et al., 2024) The results of mathematics curriculum evaluation involve collecting data on various aspects of the curriculum, including teaching materials, teaching methods, available resources, and methods. This data will provide valuable insights into the extent to which the mathematics curriculum meets global education standards.(Hidayat & Abdillah, 2019)

The conversation also aids in determining whether there are notable disparities in the accomplishments of children from different backgrounds and how well the objectives of mathematics instruction have been met.(Rachmawati et al., 2021) The outcomes and discussion of the evaluation of the mathematics curriculum can aid in the development of more potent solutions to the worldwide problems facing mathematics education. Students' ability to compete globally and satisfy international educational standards can be ensured by implementing changes to the curriculum and teaching methods based on evaluation results.(Olivares et al., 2021) From the results of the analysis of learning device documents conducted by researchers at SMP Negeri L. Sidoharjo, 7 documents were obtained, namely time allocation documents, annual program documents, syllabus documents, learning objective achievement criteria documents, semester program documents, learning implementation plan documents and education calendars.

First, the time allocation document is a document containing effective and ineffective time for the learning process. This document explains the time span per week in 6 months or 1 semester. It can be said to be ineffective if there is a 1-week holiday, usually during the even semester holidays. For example, June 24, 2024 - July 6, 2024, where SMP Negeri L. Sidoharjo eliminates the learning process. This week is said to be ineffective in time allocation. According to researchers, this is appropriate. Second, the annual program document is a plan for determining a 1-year time allocation to achieve the goals (competency standards and basic competencies) that have been set. Third, the syllabus is a document that details the learning plan for a subject, including objectives, materials, teaching methods, schedules, assessments, and references. Its function is as a guide for students and teachers to understand expectations and manage time and resources during the learning process. The four documents of learning objective achievement criteria are: The learning objective achievement criteria document sets out success indicators, assessment standards, and evaluation methods to measure student achievement of learning objectives. Fifth, the Semester Program Document is a learning plan that contains time allocation and material distribution for one semester. The process includes a topic schedule, achievement targets, and evaluations designed to ensure that learning objectives are achieved within a certain period of time. Sixth, the Learning Implementation Plan (RPP) is a document that details the teaching steps to achieve learning objectives in one meeting. The RPP includes objectives, materials, methods, activity steps, and assessments used during the learning process. Seventh, the education calendar is a schedule that regulates academic activities during one school year, including learning periods, exams, holidays, and other school activities. This calendar helps schools, teachers, and students plan and manage learning time effectively throughout the year.

From the results of interviews conducted by several sources, namely Eka Agustriani, M.Pd as the Principal of SMP Negeri L.Sidoharjo 2024, Vice Principals, Teachers of SMP Negeri L.Sidoharjo and School Operators as well as students of class VIII.1 SMP Negeri L.Sidoharjo. And some of the results of the interviews produced answers to questions about how to evaluate the results of the mathematics curriculum in terms of challenges and opportunities for global standard education.

July, 26th 2024 Interview with the Principal – Mrs. Agus Triana, M.Pd

July, 26th 2024 Interview with Fellow Teacher – Mrs. Elvy Aridae, M.Pd

July, 26th 2024 Interview with Fellow Teacher – Mrs. Sri Lukita, M.Si

Furthermore, dialogues involving all stakeholders in mathematics education would facilitate robust cooperation in attempts to raise the standard of mathematics education overall.(Tanjung et al., 2023) State Junior High School L.Sidoharjo has the potential in implementing mathematics curriculum evaluation both in terms of the challenges faced and the opportunities to meet global education standards.

The following are the potential challenges and opportunities faced by SMP Negeri L. Sidoharjo in fulfilling global education standards with mathematics curriculum evaluation.

1. Potential Challenges Faced By State Junior High School L.Sidoharjo In Fulfilling Global Education Standards With Mathematics Curriculum Evaluation
   a. Human Resource Quality: Limited training and understanding of teachers on appropriate assessment can hinder effective implementation.
      1) Limited Training

         Accessibility of Training: Many teachers do not have access to adequate training on the latest evaluations. Existing training often does not cover relevant aspects of practice or evaluation methods that are aligned with global standards. Limited Time: Teachers often have a high workload, and therefore do not have enough time to undertake additional training. According to the results of interviews with the Principal, it is known that the school has provided teaching training which is often held by MGMP.

      2) Diverse Understanding of Curriculum

         Different Interpretations: Different understandings of curriculum and evaluation can lead to inconsistencies in classroom teaching and assessment.(Moses et al., 2024) Teachers may have different educational backgrounds, which affects how they understand and implement the curriculum. Lack of Understanding of Global Standards: Without a clear understanding of global education standards, teachers may struggle to integrate these elements into their evaluations.

      3) Lack of Supporting Resources. Learning Materials: The availability of appropriate learning materials and evaluation tools is also a constraint. Without access to adequate resources, teachers struggle to design effective evaluations. - Lack of Guidance: Many teachers do not receive guidance or support from their principals or supervisors, who can help them understand and implement appropriate evaluations.

      4) Resistance to Change

         Old Habits: Teachers may be accustomed to traditional evaluation methods and find it difficult to adapt to new methods that are more in line with global standards. Uncertainty: Uncertainty about the effects of changes in evaluation methods can lead to uncertainty and hesitation among teachers.

      5) Impact on Students

         Inaccurate Evaluations: If teachers do not understand how to implement effective evaluations, evaluation results can be inaccurate, which can impact student performance measurements. Student Motivation: Inappropriate assessments can affect student motivation and engagement in learning(Buker & Niklason, 2019)

      Possible Solutions

      1) Ongoing Training Programs: Developing ongoing training programs that cover the latest evaluation methods and best practices.(Reid O'Connor & Norton, 2024)

2) Developing a Professional Community: Encouraging the formation of a professional community among teachers to share experiences and strategies.
3) Adequate Resources: Ensuring access to resources, tools, and materials that support effective evaluation implementation.

Oct, 2th 2024
Documentation of Mathematics Training on Independent Curriculum regarding the socialization of driving teachers in October 2024

b. Technology Infrastructure Limitations: Unequal access to technology in schools can hinder the use of modern assessment tools.
1) Unequal Access
Urban vs. Rural Disparities: Urban schools often have better access to technology and the internet than rural schools. This creates a significant gap in the use of modern assessment tools. Private vs. Public Schools: Private schools often have more resources to invest in technology than public schools, resulting in a disparity in the quality of assessments implemented.
2) Device Constraints
Device Availability: Many schools do not have enough devices (such as laptops or tablets) to support the use of modern assessment tools in the classroom. Device Quality: Existing devices are often outdated or not functioning properly, limiting the effectiveness of the assessment tools used.
3) Internet Connectivity
Connection Speed and Stability: Slow or unstable internet connections can hinder teachers and students' access to online learning and assessment platforms. Access Cost: In some areas, the cost of internet access is still high, making it difficult for schools and students to access the resources they need.
4) Lack of Technical Support
Limited IT Staff: Many schools do not have enough IT staff to provide technical support in the use of technology tools. This makes it difficult for teachers to implement technology effectively. Technology Training: Without adequate training on how to use technology, teachers may not feel confident implementing digital assessment tools.
5) Impact on the Evaluation Process
Limitations on Types of Assessment: Without adequate technology, assessments are often limited to traditional methods, such as paper-based tests, which may not accurately reflect student competency. Inefficient Data Collection: Using manual methods to collect and analyze assessment data can slow down the process and reduce the effectiveness of decision-making.

6) Resistance to Change

Discomfort with Technology: Teachers and students who are not familiar with technology may have difficulty adapting to modern assessment tools, resulting in dissatisfaction or frustration.

Possible Solutions

1) Investment in Infrastructure: Governments and educational institutions need to invest in technology infrastructure in schools, especially in remote areas.
2) Teacher Training Programs: Conduct trainings that focus on the use of technology in learning and assessment.
3) Collaboration with the Private Sector: Encourage partnerships between schools and technology companies to provide the necessary tools and support.

Learning Process in class VIII.1 SMP Negeri L.Sidoharjo

c. Assessment Standardization: Difficulty in designing assessments that are in line with global standards, given the diversity of local contexts.(Pak et al., 2020)

1) Diversity in Local Contexts

Cultural and Social Variations: Different regions have different cultural and social backgrounds, which affect how students learn and interact with content. Effective assessments must reflect these contexts to be relevant and equitable. Diverse Economic Conditions: Students from diverse economic backgrounds may have different access to educational resources, which affects their ability to succeed on standardized assessments.

2) Alignment with Local Curriculum

Material Alignment: Developing assessments that align with global standards often requires adapting materials to fit local curricula, which can lead to confusion and mismatches. Flexible Curriculum: Curricula that lack flexibility can make it difficult for teachers to integrate elements of global standards.

3) Differences in Assessment Methods

Diverse Evaluation Techniques: Project-based assessments, formative assessments, and summative assessments may not be accepted or understood equally in all contexts, making it difficult to develop standardized assessments. Difficulty in Metrics: Measuring diverse competencies objectively and consistently is challenging, especially when global standards set metrics that may not be appropriate for local contexts.

4) Teacher Preparation and Training

Lack of Understanding: Teachers may not have sufficient understanding of global standards and how to integrate them into assessments, resulting in assessments that do not meet the expected criteria. Resistance to Change: Some teachers may be reluctant to change traditional assessment methods that they have been using for a long time, resulting in difficulties in adopting new approaches that are more in line with global standards.

5) Impact on Students

Emotional Well-Being: Students may feel pressured by assessments that do not reflect their context, which can negatively impact their motivation and well-being. Inaccurate Results: Non-standardized assessments can produce inaccurate data about students' abilities and achievements, making it difficult to make informed decisions.
Possible Solutions

1) Developing Adaptive Pedagogies: Building assessment models that are flexible and adaptable to local contexts while still considering global standards.
2) Teacher Training and Support: Provide training programs that help teachers understand and apply global standards in local contexts.
3) Community Engagement: Involve parents and communities in the assessment development process to ensure relevance and support.

d. Curriculum Flexibility: Sometimes, rigid curricula are difficult to adapt to the needs and challenges of dynamic global education.
   1) Rigid Structure: Standardized curricula often do not accommodate the specific needs of students or the latest developments in science and technology. This hampers innovation in teaching.
   2) Diverse Local Contexts: Indonesia has diverse cultures and social conditions that influence how students learn. Curricula that are not adapted to the local context can make teaching materials less relevant.
   3) Competition with Global Education: With global education standards constantly evolving, curricula must be able to compete and be relevant internationally, which is often difficult to integrate into existing frameworks.(Tuna & Başdal, 2021)
   4) Limited Teacher Training: Many teachers have not received sufficient training to implement more flexible and innovative approaches to teaching. Without the right skills, curriculum adaptation becomes a major challenge.
   5) Complicated Bureaucratic Processes: Curriculum changes are often hampered by lengthy and complex administrative processes, thus hampering rapid response to dynamic educational needs.
   6) Inadequate Facilities and Resources: Schools in remote areas may not have the infrastructure or resources to implement a more flexible curriculum, potentially creating inequities in education.
   7) Inflexible Assessment: Rigid assessment methods often do not reflect the full range of student abilities, hindering opportunities to explore more creative and interactive learning.

   Possible Solutions

   1) Curriculum Revision: Conduct periodic evaluation and revision to ensure the curriculum remains relevant to global and local developments.
   2) Teacher Training: Provide ongoing training for teachers to develop innovative and flexible teaching skills.
   3) Local Context Approach: Integrate cultural elements and regional needs into the curriculum by involving local communities.
   4) Simplify Bureaucracy: Accelerate the curriculum decision-making process for faster response to change.
   5) Assessment Diversification: Develop a variety of assessment methods, including project-based and formative assessments.
   6) Increase Resources: Allocate more resources to schools, especially in remote areas, to implement flexible curricula.
   7) Technology Integration: Leverage technology to support interactive learning that is tailored to students' needs.
   8) Collaboration: Build partnerships with educational institutions and other organizations for innovation in curriculum development.

e. Holistic Competency Measurement: Ensuring that assessments do not only focus on academic aspects, but also social and emotional skills.

1) Limitations of Assessment Methods: Many assessment systems still focus on academic aspects, such as test scores, while social and emotional skills are difficult to measure in the same way. This ignores the importance of character development and soft skills.
2) Broad Definition of Competence: Holistic competence encompasses multiple dimensions, including social, emotional, and character skills. Difficulty in formulating clear and measurable standards for all of these aspects is often a barrier.
3) Quality of Teacher Training: Many teachers have not been trained to conduct holistic assessments. They may not have sufficient skills or understanding to evaluate non-academic aspects.
4) Lack of Valid Assessment Tools: The availability of assessment tools or instruments that can accurately measure social and emotional skills is still very limited, making evaluation inconsistent.
5) Emphasis on Academic Outcomes: The highly competitive educational environment often leads to a greater focus on academic outcomes than on the development of other skills, affecting the way assessments are conducted.
6) Differences in Perception: There are differences in the perspectives of educators, parents, and students regarding the importance of social and emotional skills compared to academic aspects, which can affect the implementation of holistic assessments.
7) Bureaucracy in the Education System: Complicated administrative processes in the education system can slow down the adoption of more comprehensive and holistic assessments.

Posibble Solutions

1) Assessment Tool Development: Create valid and reliable assessment instruments to measure social and emotional skills, such as observation rubrics and portfolio-based assessments.
2) Teacher Training: Provide intensive training for teachers on holistic assessment, including how to effectively evaluate non-academic skills.
3) Curriculum Integration: Design curricula that integrate academic aspects with social and emotional skills, so that assessments can cover all of these dimensions.(Foster et al., 2024)
4) Use of Formative Assessment: Implement more frequent formative assessments to provide feedback to students, focusing on skill development rather than just end results.
5) Collaboration with Parents and Communities: Engage parents and communities in the assessment process to reinforce the importance of social and emotional skills.
6) Educational Paradigm Shift: Encourage a cultural shift in education that emphasizes holistic values, not just academic outcomes, through awareness campaigns.
7) Flexibility in Policy: Develop educational policies that support holistic assessment, allowing for innovation in assessment practices.

2. Potential Opportunities Faced By State Junior High School L.Sidoharjo In Fulfilling Global Education Standards With Mathematics Curriculum Evaluation
   a. Technology Integration in Learning

      Application of Digital Tools: Utilizing math applications and online learning platforms to provide students with access to independent and interactive learning. Hybrid Learning: Combining face-to-face learning with online methods, so that students can learn in a more flexible way and according to their learning style.
   b. Development of Contextual Learning

      Local Context: Linking math concepts to real situations in the student's environment, for example using local data in a statistics project. Case Study: Applying relevant case studies to help students understand the application of math in everyday life, such as financial management or budget planning.
   c. Teacher Training and Professional Development

      Workshops and Seminars: Holding workshops for math teachers to update teaching methods and understand the latest trends in math education. Mentor Program:

Collaborating with experienced teachers or education experts to mentor young teachers in effective math teaching.(Hayden et al., 2024)

d. Implementation of Competency-Based Assessment

Formative Assessment: Using formative assessments that provide continuous feedback to help students understand the concepts being taught. Assessment Rubric: Reading a clear assessment rubric to initiate problem-solving skills and understanding of mathematical concepts.(Karakus, 2021)

e. Collaboration with Other Educational Institutions

Partnership with Universities: Collaborating with universities to develop curriculum and learning programs that are in accordance with higher education standards. Knowledge Exchange: Holding knowledge exchange programs or joint training with other schools to share best practices in mathematics teaching.

f. Interesting Extracurricular Programs

Math Club: Establishing a math club that holds competitions, seminars, and other activities to increase students' interest in mathematics. Math Competition: Participating in or organizing math competitions to hone students' abilities and provide real-life experience in applying mathematical concepts.(Supriani et al., 2022)

g. Parent and Community Involvement

Socialization with Parents: Holding meetings with parents to discuss the importance of mathematics and how they can get involved in supporting their children's learning. Joint Activities: Holding community activities that involve students, parents, and teachers to learn together, such as calculation workshops or applications of mathematics in everyday life.(Manzi & Moreeng, 2024)

h. Curriculum Evaluation and Reform

Student Engagement: Involving students in the curriculum evaluation process to gain input on materials and teaching methods they find effective. Curriculum Piloting: Piloting various teaching and evaluation approaches before full implementation, to ensure effectiveness and relevance.

Posibble Solutions

a. Technology Integration

Technology Usage Training: Provide training to teachers on the use of digital tools and learning applications. Device Availability: Ensure access to technology devices, such as tablets or computers, to support interactive learning.

b. Contextual Learning

Teaching Material Development: Design materials that link mathematical concepts to local contexts, such as projects involving real-world data from the community.

ractical Activities: Organize activities outside the classroom, such as visits to markets or managing small projects that require mathematical applications.

c. Teacher Training

Regular Workshops: Hold regular workshops for teachers to introduce new teaching methods and share good practices. Professional Development Programs: Support teachers to attend relevant mathematics education training and seminars.(Kilpatrick, 2020)

d. Competency-Based Assessment

Implement Formative Assessment: Implement assessments that provide continuous feedback and focus on skill development. Clear Rubrics: Create easy-to-understand assessment rubrics to evaluate various aspects of mathematical competency.

e. Collaboration with Other Institutions

Partnership with Universities: Collaborate with universities to gain resources, training, and support in curriculum development. Exchange Programs: Organize exchange programs with other schools to share knowledge and teaching methods.

f. Extracurricular Programs

Math Clubs: Form math clubs that hold interesting activities such as competitions and seminars to increase student engagement. Competition Organization: Participate in local or national math competitions to provide students with real-world experiences.

g. Parent and Community Engagement

Parent Information Sessions: Host meetings with parents to discuss the importance of math education and how they can get involved. Community Activities: Engage parents and the community in collaborative learning activities, such as workshops or seminars.(Altalib et al., 2024)

h. Curriculum Evaluation

Student Feedback: Involve students in curriculum evaluations to get feedback on materials and methods they find effective.(FADLI et al., 2024) New Method Piloting: Pilot new approaches to teaching before widespread implementation to ensure their effectiveness.(Wang, 2022)

CONCLUSION

Mathematics curriculum has great potential to improve the quality of education by developing students' analytical and problem-solving skills.(Syayidah & Kurniawati, 2024) However, challenges such as rigidity in curriculum structure, limited resources, and excessive focus on academic outcomes can hinder the achievement of this goal. On the other hand, opportunities such as technology integration, contextual learning development, and ongoing teacher training pave the way for creating more holistic and relevant learning experiences. By leveraging these opportunities and addressing the challenges, mathematics curriculum can be optimized to meet global education standards, preparing students for future challenges.

REFERENCES

Addey, C. (2017). Golden Relics & Historical Standards: How The Oecd Is Expanding Global Education Governance Through Pisa For Development. *Critical Studies In Education*, *58*(3), 311–325.

Agustin, R. (2024). Evaluasi Kurikulum Merdeka Menggunakan Model Cipp Pada Sekolah Dasar. *Cendekia Pendidikan*, *3*(1), 19–29.

Altalib, H., Abusulayman, A. A., & Altalib, O. H. (2024). *Parent-Child Relations: A Guide To Raising Children (Revised Edition)*. International Institute Of Islamic Thought (Iiit).

Annie Zeng, S. (2024). Walking The Talk? Exploring Curriculum Implementation In The International Baccalaureate In The Australian Context. *Globalisation, Societies And Education*, 1–15.

Arofah, E. F. (2021). Evaluasi Kurikulum Pendidikan. *Jurnal Tawadhu*, *5*(2), 218–229.

Balaj, M., Henson, C. A., Aronsson, A., Aravkin, A., Beck, K., Degail, C., Donadello, L., Eikemo, K., Friedman, J., & Giouleka, A. (2024). Effects Of Education On Adult Mortality: A Global Systematic Review And Meta-Analysis. *The Lancet Public Health*.

Baqir, H., Dayana, N. D., & Adillah, F. (2024). Analysis Of The Merdeka Curriculum And Curriculum 13 On Mathematics Learning In Junior High School. *Proceeding International Conference On Islam And Education (Iconie)*, *3*(1), 2452–2463.

Borch, I., Sandvoll, R., & Risør, T. (2020). Discrepancies In Purposes Of Student Course Evaluations: What Does It Mean To Be "Satisfied"? *Educational Assessment, Evaluation And Accountability*, *32*(1), 83–102.

Buker, M., & Niklason, G. (2019). Curriculum Evaluation & Improvement Model. *Journal Of Health Administration Education*, *36*(1), 37–55.

Chen, M. (2024). The Value Of Us College Education In Global Labor Markets: Experimental Evidence From China. *Management Science*, *70*(2), 1276–1300.

Chiu, T. K. F., Meng, H., Chai, C.-S., King, I., Wong, S., & Yam, Y. (2021). Creation And Evaluation Of A Pretertiary Artificial Intelligence (Ai) Curriculum. *Ieee Transactions On Education*, *65*(1), 30–39.

Choy, B. H., & Dindyal, J. (2024). The Singapore Mathematics Curriculum: Influences And Confluences. In *Research Handbook On Curriculum And Education* (Pp. 534–549). Edward Elgar Publishing.

Cordova Jr, N., Kilag, O. K., Andrin, G., Tañiza, F. N., Groenewald, E., & Abella, J. (2024). Leadership Strategies For Numeracy Development In Educational Settings. *Excellencia: International Multi-Disciplinary Journal Of Education (2994-9521)*, *2*(1), 58–68.

Covitt, B. A., De Los Santos, E. X., Lin, Q., Morrison Thomas, C., & Anderson, C. W. (2024). Instructional Practices In Secondary Science: How Teachers Achieve Local And Standards-Based Success. *Journal Of Research In Science Teaching*, *61*(1), 170–202.

Elvi, M., Izzati, N., Siregar, N. A. R., Liana, M., & Prastowo, A. Y. (2024). Peningkatan Kompetensi Guru Matematika Smp/Mts Kota Tanjungpinang Dalam Mengembangkan Modul Ajar Kurikulum Merdeka. *Jurnal Abdimas Ilmiah Citra Bakti*, *5*(3), 770–780.

Fadli, S., Supratman, M. O. H., & Mahyuni, S. (2024). Implementasi Model Evaluasi Cipp Pada Pelaksanaan Pembelajaran Matematika Dalam Program Merdeka Belajar Di Sekolah Dasar. *Science: Jurnal Inovasi Pendidikan Matematika Dan Ipa*, *4*(2), 154–163.

Foster, C., Woollacott, B., Francome, T., Shore, C., Peters, C., & Morley, H. (2024). Challenges In Applying Principles From Cognitive Science To The Design Of A School Mathematics Curriculum. *The Curriculum Journal*.

Gust, S., Hanushek, E. A., & Woessmann, L. (2024). Global Universal Basic Skills: Current Deficits And Implications For World Development. *Journal Of Development Economics*, *166*, 103205.

Gustian, D., Marzuki, M., Nukman, N., Purnama, Y., & Abdurrahman, D. (2024). Synergies In Education: Integrating Character, Literacy, And Technology For Enhanced Outcomes: Current Perspectives From Global Education Experts. *International Journal Of Teaching And Learning*, *2*(2), 498–512.

Haryadi, H. (2023). Problematika Penguasaan Kompetensi Pedagogik Dalam Pembelajaran Matematika Berbasis Literasi. *Media Pendidikan Matematika*, *11*(1), 94–102.

Hayden, S. M., Gubbins, E. J., Cody, R. A., & Boldt, G. T. (2024). Teachers' Perceptions Of Differentiation Following A Math Curriculum Implementation Study. *Journal For The Education Of The Gifted*, *47*(1), 3–29.

Hidayat, R., & Abdillah, A. (2019). *Ilmu Pendidikan: Konsep, Teori Dan Aplikasinya*.

Ibrahim, I., Sintia, D., Pardika, R., Sari, N. E., & Tesva, S. (2024). Evaluasi Kurikulum Merdeka Di Man 2 Palembang. *Jurnal Ilmu Pendidikan*, *1*(1), 1–7.

Indah, F. (2024). Evaluasi Kurikulum Matematika Dalam Konteks Peningkatan Kompetensi Mahasiswa. *Jurnal Dunia Ilmu*, *4*(3).

Karakus, G. (2021). A Literary Review On Curriculum Implementation Problems. *Shanlax International Journal Of Education*, *9*(3), 201–220.

Kilpatrick, J. (2020). What Works? In *Standards-Based School Mathematics Curricula* (Pp. 471–488). Routledge.

Laksono, T. A., & Izzulka, I. F. (2022). Evaluasi Pengembangan Kurikulum Pendidikan. *Edukatif: Jurnal Ilmu Pendidikan*, *4*(3), 4082–4092.

Lukita, C., Suwandi, S., Harahap, E. P., Rahardja, U., & Nas, C. (2020). Curriculum 4.0: Adoption Of Industry Era 4.0 As Assessment Of Higher Education Quality. *Ijccs (Indonesian Journal Of Computing And Cybernetics Systems)*, *14*(3), 297–308.

Luzano, J. (2024). A Scoping Review Of The Professional Practices And Standards In Mathematics In Higher Education. *Journal Of Harbin Engineering University*, *45*(3), 1–6.

Manzi, W. I., & Moreeng, B. B. (2024). Curriculum Leadership And Support For Enhanced Economics Curriculum Implementation. *African Perspectives Of Research In Teaching And Learning*, *8*(1), 23–38.

Moses, C., Nghipandulwa, L. L., & Abed, K. O. (2024). Exploring Curriculum Implementation Challenges In The Teaching Of Subsidiary Mathematics In Oshakati Circuit, Oshana Region: A Phenomenological Study. *Open Journal Of Social Sciences*, *12*(2), 604–622.

Mubai, A., Jalinus, N., Ambiyar, A., Wakhinuddin, W., Abdullah, R., Rizal, F., & Waskito, W. (2021). Implementasi Model Cipp Dalam Evaluasi Kurikulum Pendidikan Teknik Informatika. *Edukatif: Jurnal Ilmu Pendidikan*, *3*(4), 1383–1394.

Narayanti, P. S., Pranajaya, S. A., Sucianti, I., Rifky, S., & Hajerina, H. (2024). Values Education In The Era Globalization: Preparing Students To Face An Increasingly Competitive World. *International Journal Of Teaching And Learning*, *2*(3), 615–626.

Olivares, D., Lupiáñez, J. L., & Segovia, I. (2021). Roles And Characteristics Of Problem Solving In The Mathematics Curriculum: A Review. *International Journal Of Mathematical Education In Science And Technology*, *52*(7), 1079–1096.

Pak, K., Polikoff, M. S., Desimone, L. M., & Saldívar García, E. (2020). The Adaptive Challenges Of Curriculum Implementation: Insights For Educational Leaders Driving Standards-Based Reform. *Aera Open*, *6*(2), 2332858420932828.

Patrinos, H. A., & Psacharopoulos, G. (2011). Education: Past, Present And Future Global Challenges. *World Bank Policy Research Working Paper*, *5616*.

Rachmawati, D. W., Al Ghozali, M. I., Nasution, B., Firmansyah, H., Asiah, S., Ridho, A., Damayanti, I., Siagian, R., Aradea, R., & Marta, R. (2021). *Teori & Konsep Pedagogik*. Penerbit Insania.

Rahayu, V. P., & Aly, H. N. (2023). Evaluasi Kurikulum. *Journal On Education*, *5*(3), 5692–5699.

Reid O'connor, B., & Norton, S. (2024). Exploring The Challenges Of Learning Quadratic Equations And Reflecting Upon Curriculum Structure And Implementation. *Mathematics Education Research Journal*, *36*(1), 151–176.

Sasmita, P., Hidayati, A., & Amsal, M. F. (2024). Implementasi Kurikulum Merdeka Dalam Pembelajaran Matematika Kelas Vii Di Smp Negeri 1 Pariaman. *Jurnal Pendidikan Tambusai*, *8*(1), 7431–7445.

Sitopu, J. W., Khairani, M., Roza, M., Judijanto, L., & Aslan, A. (2024). The Importance Of Integrating Mathematical Literacy In The Primary Education Curriculum: A Literature Review. *International Journal Of Teaching And Learning*, *2*(1), 121–134.

Supriani, Y., Meliani, F., Supriyadi, A., Supiana, S., & Zaqiah, Q. Y. (2022). The Process Of Curriculum Innovation: Dimensions, Models, Stages, And Affecting Factors. *Nazhruna: Jurnal Pendidikan Islam*, *5*(2), 485–500.

Syafril, M., & Zen, Z. (2019). *Dasar-Dasar Ilmu Pendidikan*. Prenada Media.

Syaifuddin, M. (2020). Implementation Of Authentic Assessment On Mathematics Teaching: Study On Junior High School Teachers. *European Journal Of Educational Research*, *9*(4), 1491–1502.

Syayidah, N., & Kurniawati, Y. (2024). Evaluasi Peran Guru Dalam Penerapan Kurikulum Merdeka Pada Pembelajaran Matematika. *Jurnal Karya Pendidikan Matematika*, *11*(1), 42–50.

Tanjung, B. N., Dongoran, F. R., & Elfrianto, E. (2023). Efforts To Improve The Quality Of Madrasa Graduates Through Curriculum Management In Islamic Boarding School Kh Ahmad Dahlan Sipirok. *Edukasi Islami: Jurnal Pendidikan Islam*, *12*(01).

Tran, D., & O'connor, B. R. (2024). Teacher Curriculum Competence: How Teachers Act In Curriculum Making. *Journal Of Curriculum Studies*, *56*(1), 1–16.

Tuna, H., & Başdal, M. (2021). Curriculum Evaluation Of Tourism Undergraduate Programs In Turkey: A Cipp Model-Based Framework. *Journal Of Hospitality, Leisure, Sport & Tourism Education*, *29*, 100324.

Wang, L. (2022). Establishment Of Curriculum Evaluation System Based On Obe Concept And Employment Oriented. *Wireless Technology, Intelligent Network Technologies, Smart Services And Applications: Proceedings Of 4th International Conference On Wireless Communications And Applications (Icwca 2020)*, 243–247.

Yazçayır, N., & Selvi, K. (2020). Curriculum Evaluation Model-Köndem. *Elementary Education Online*, *19*(1), 343–356.