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CHALLENGES AND INNOVATIONS IN CURRICULUM AND ASSESSMENT MANAGEMENT IN VOCATIONAL EDUCATION: A QUALITATIVE STUDY

Hendi Suhendraya Muchtar[1]✉, Jajat Sudrajat[2], Sartono[3], Richad Dedi Syahbudin Afandi[4], Shofiyullah[5]

[1,2,3,4,5]Universitas Islam Nusantara, Indonesia
Email: [1]hendi@uninus.ac.id, [2]jajat80@gmail.com, [3]sartonouninus@gmail.com, [4]ramaadesta@gmail.com, [5]shofimj76@gmail.com

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Abstract

This study aims to analyze the curriculum management and education assessment system in Vocational High Schools (SMK) and Vocational Aliyah Madrasah (MAK) in Tangerang Banten. Using a descriptive qualitative approach, this study collected data through interviews with principals, teachers, and related education stakeholders, observations at several SMKs and MAKs, and literature studies. The main findings of this study show that although the implemented curriculum is oriented towards the development of practical competencies and tries to be adjusted to industry needs, there is still a mismatch between the existing curriculum and the rapid development of the industrial world. In addition, the assessment system applied in most schools still relies on written exams, with practical and portfolio assessments not yet optimally implemented. The study also found limitations in industry involvement in curriculum development and assessment, as well as challenges in managing practicum assessment in accordance with competency standards. Based on these findings, the study provides recommendations for strengthening school-industry partnerships, improving the competency-based assessment system and updating the curriculum to be more responsive to dynamic industry needs. It also suggests that education policy should be more supportive of innovation in curriculum management and assessment in SMK and MAK.

Keywords: Curriculum Management, Assessment System, Vocational Education, SMK, MAK, Competency, Industry, Tangerang Banten

INTRODUCTION

Background of the Problem

Vocational education in Indonesia, particularly through Vocational High Schools (SMK) and Vocational Aliyah Madrasah (MAK), plays a crucial role in preparing students for the labor market. The primary objective of these institutions is to equip students with technical skills that align with industry demands, thereby enhancing their employability and contributing to the nation's economic development. This alignment is particularly vital as Indonesia faces significant challenges in developing a skilled workforce that meets both national and global labor market needs (Subiyantoro, 2023; Suharno et al., 2020).

The integration of vocational education into the labor market is essential for ensuring that graduates possess the competencies required by employers. Studies indicate that vocational education significantly enhances the employability of graduates compared to their peers from general high schools (Afandi & Wijanarka, 2019; Rahman et al., 2021). For instance, vocational programs often include practical training components, which account for a substantial portion of the curriculum, thereby providing students with hands-on experience that is directly applicable in the workplace (Subiyantoro, 2023; Suharno et al., 2020). This practical orientation is crucial in sectors such as halal tourism, where specific vocational training can lead to better job prospects and economic contributions (Pratama, 2023; Subiyantoro, 2023).

Despite the positive aspects of vocational education, challenges remain in its implementation. The lack of effective partnerships between vocational schools and industries has been identified as a barrier to the successful integration of vocational graduates into the labor market. Many vocational schools struggle to establish connections with relevant industries, which hampers the effectiveness of their training programs (Widayana & Mukhadis, 2018; Nurhadi et al., 2017). Furthermore, the rapid evolution of technology and industry standards necessitates continuous updates to vocational curricula to ensure that they remain relevant (Mutohhari et al., 2021). This dynamic environment requires educators to adapt their teaching methods and incorporate new technologies into the learning process, which can be a significant challenge for many institutions (Mutohhari et al., 2021).

Moreover, the government's policies aimed at revitalizing vocational education, such as the Presidential Instruction Number 9 of 2016, emphasize the need for a "Link and Match" program between vocational schools and industries (Widayana & Mukhadis, 2018; Akhyak et al., 2018). These policies are designed to enhance the quality and competitiveness of vocational education in Indonesia, ensuring that graduates are not only employable but also capable of contributing to economic growth and social inclusion (Nilsson, 2010; Rahman et al., 2021). The successful implementation of these policies is critical for addressing the skills gap in the labor market and fostering a workforce that is adaptable to changing economic conditions (Subiyantoro, 2023; Nilsson, 2010).

However, despite their strategic role, SMK and MAK often face challenges in managing an effective curriculum and assessment system. The curriculum implemented in SMK and MAK, although regulated by the government through the Ministry of Education and Culture (Kemendikbud) and the Ministry of Religious Affairs (Kemenag), is often not fully able to reflect the evolving needs of the industry. One of the main problems faced is the misalignment between the material taught in schools and the skills required by industry. Rapid technological changes in various industrial sectors, such as information technology, manufacturing and

services, require a flexible and adaptable curriculum. However, the implementation of a curriculum that is too standardized and less responsive to these dynamics makes many SMK and MAK graduates less prepared to face the challenges of the real world of work.

The educational assessment system in Vocational High Schools (SMK) and Vocational Aliyah Madrasah (MAK) in Indonesia has come under scrutiny for its predominant reliance on theoretical examinations. This approach often fails to adequately reflect the practical skills that are essential for students' future employment in their respective fields. The gap between the competencies assessed through traditional written exams and the practical skills required in the industrial sector can lead to a situation where students graduate with high academic scores but lack the necessary hands-on experience to perform effectively in the workplace (Puspitaningratri & Putro, 2021; Albashiry et al., 2015).

Research indicates that assessments focusing primarily on theoretical knowledge do not capture the full spectrum of competencies that vocational education aims to develop. For instance, while theoretical assessments may measure students' understanding of concepts, they often neglect the practical application of these concepts in real-world scenarios (Albashiry et al., 2015). This misalignment can result in graduates who are theoretically knowledgeable but practically unprepared, thereby diminishing their employability and effectiveness in their chosen careers (Puspitaningratri & Putro, 2021; Albashiry et al., 2015).

To address this issue, there is a growing recognition of the need for more comprehensive assessment models that incorporate practical skills evaluation. For example, project-based learning assessments have been proposed as a means to better evaluate students' competencies in a context that mirrors real-world challenges (Soeprijanto et al., 2022). Such assessments not only measure students' theoretical knowledge but also their ability to apply this knowledge in practical settings, thus providing a more holistic view of their capabilities (Soeprijanto et al., 2022). Furthermore, integrating industry representatives into the assessment process can help ensure that the skills being evaluated are relevant to current labor market demands (Khoerunnisa et al., 2020).

Moreover, the implementation of formative assessments, which provide ongoing feedback to students throughout their learning process, can enhance motivation and engagement, leading to better learning outcomes (Leenknecht et al., 2020). By shifting the focus from solely summative assessments to a more balanced approach that includes formative assessments, educators can better support students in developing the practical skills necessary for their future careers (Leenknecht et al., 2020).

The focus of this research is on the challenges faced by SMK and MAK in the Tangerang area of Banten. Tangerang is one of the areas experiencing rapid economic development, especially in the industrial sector, with many companies engaged in manufacturing, technology and services. In this context, the need for skilled labor is very high, but on the other hand, many SMK and MAK in Tangerang still have difficulties in managing curriculum and assessment systems that can accommodate industry needs. This situation indicates a gap between the provision of skilled labor by vocational education institutions and the expectations of the industrial world. Therefore, it is important to explore more deeply how curriculum management and assessment systems are implemented in SMK and MAK in Tangerang, and how these two factors affect the quality of education received by students.

Problem Formulation

This study aims to explore and analyze critical aspects of curriculum management and assessment systems in SMK and MAK in Tangerang Banten. Based on the problems that have been described, the problem formulation in this study can be detailed as follows:

What are the curriculum management practices implemented in SMK and MAK in Tangerang Banten?

This question focuses on how the curriculum at SMK and MAK in Tangerang is designed, implemented and adapted to the development of local industries. How the curriculum development process is conducted, who is involved, and how the industry is involved in providing input to the teaching materials will be very important to analyze.

How is the implementation of the education assessment system in SMK and MAK in Tangerang Banten?

This study will also examine how the assessment system is implemented in SMK and MAK, both in the assessment of academic abilities and practical skills. The main focus here is on how the assessment conducted in SMK and MAK reflects the competence of students in accordance with industry standards, as well as the extent to which the assessment system is able to provide an accurate picture of students' work readiness after graduation.

What is the impact of the curriculum management and assessment system on the quality of education in these schools?

The main objective of this research is to find out how good curriculum management and an appropriate assessment system can improve the quality of education, especially in terms of graduates' readiness to work in the industrial world. What are the impacts on students, both in terms of technical skills and work character, as a result of the implementation of the existing curriculum and assessment system.

Research Objectives

The purpose of this study is to provide a comprehensive overview of the curriculum management and assessment system implemented in SMK and MAK in Tangerang Banten. This study aims to analyze the effectiveness of the existing curriculum implementation in preparing students to face challenges in the world of work, as well as to explore whether the assessment system implemented is relevant enough in measuring students' practical competencies. In addition, this study also aims to identify best practices that can be used as models for other SMK and MAK, as well as to provide recommendations on improving the curriculum and assessment system to improve the quality of vocational education in Indonesia.

Problem Limitation

This study is limited to SMK and MAK located in the Tangerang area of Banten. This region was chosen because it has diverse industrial characteristics, thus providing a very relevant context to examine the challenges faced by vocational education institutions in preparing work-ready graduates. The main focus of this study is on two important variables, namely curriculum management and education assessment system. This study will not discuss

other factors that influence the quality of education, such as infrastructure, education budget policies, or the quality of teaching human resources, although these factors may be related to the outcomes of curriculum management and assessment.

Research Benefits

This research is expected to contribute significantly to the understanding of best practices in curriculum management and assessment systems in SMK and MAK. In particular, this study can provide deeper insights into the gap between the curriculum taught in SMK and MAK and the demands of the industrial world, as well as how the assessment system can be better adjusted to assess students' practical skills more objectively and accurately. In addition, the results of this study are expected to serve as a reference for education policy makers, school principals, and other managers of vocational education institutions to design better policies and programs to improve the quality of vocational education. With recommendations based on the research findings, it is expected to create positive changes in curriculum management and assessment systems that are more relevant to the development of the industrial world and labor market needs.

Curriculum Management Theory

Curriculum management in vocational education can be understood as a process that involves planning, implementing, monitoring and evaluating the curriculum to ensure that the education provided is in accordance with the objectives set. This management is not only related to the organization of teaching materials, but also involves learning strategies, teaching methods, and assessment systems used to assess the achievement of student competencies. In the context of vocational education such as SMK and MAK, curriculum management has a main focus on developing technical skills that are relevant to industry needs and preparing students to work in the world of work immediately after graduation. Therefore, curriculum management in vocational education should be based on the principles of flexibility, relevance and continuity.

The basic principle of curriculum management in vocational education emphasizes the relevance of the curriculum to the demands of the industrial world. The curriculum implemented in SMK and MAK must be able to provide the skills needed by the rapidly growing industry, as well as provide opportunities for students to learn through practical experiences that are directly applied in the world of work. Therefore, the curriculum must be developed by involving stakeholders, especially the industrial world and experts in their fields, in order to produce graduates who have competencies that match the needs of the labor market.

One of the curriculum management models implemented in SMK and MAK is the Competency-Based Curriculum model. This model focuses on developing students' skills and abilities to achieve certain competencies needed in the industrial world. In this model, the curriculum is built based on clearly defined competency units, and students must master certain skills before they can graduate. This competency-based model is particularly relevant for vocational education as it directly measures the extent to which students can apply their knowledge and skills in the world of work.

In addition, there is also the project-based curriculum model (Project-Based Learning) which prioritizes learning experiences that are more authentic and based on real problems. In

this model, students are exposed to projects that require team problem-solving, real simulations of situations they will face in industry. Thus, this model not only develops practical skills, but also critical thinking, collaboration, and communication skills that are essential in the world of work.

Education Assessment System

Educational assessment has a very important role in determining the quality of education provided to students. Assessment not only aims to measure the extent to which students master the teaching material, but also to determine the extent to which students can apply this knowledge in real situations, especially in the context of vocational education. Appropriate assessment can provide constructive feedback to students and educators, as well as provide useful information on the effectiveness of the learning process applied. In theory, basic principles in educational assessment include validity, reliability, objectivity and fairness.

Validity in assessment refers to the extent to which the assessment instrument measures what it is supposed to measure, namely competencies relevant to the industrial world. Reliability refers to the consistency of assessment results, so that the assessment can be trusted as an accurate reflection of students' abilities. Objectivity in assessment means that the assessment process is carried out without any bias or subjective influence from the party conducting the assessment. Fairness ensures that every student gets an equal opportunity to demonstrate their competence, without discrimination.

The assessment system in SMK and MAK involves various types of assessments designed to comprehensively measure students' competency achievement. The assessment used in vocational schools is not only limited to theoretical exams, but also includes assessment of students' practical skills. Formative assessment , which is conducted during the learning process, aims to provide continuous feedback, assist students in improving their understanding, and inform teachers of areas that still need improvement. These can be small tests, quizzes, project assignments, or presentations that require students to demonstrate their understanding in a more practical context.

Summative assessments , on the other hand, are conducted at the end of a learning unit or semester to assess overall student achievement. This assessment often takes the form of a final exam that tests both theoretical knowledge and practical skills. Practical or skills assessment is very important in vocational education as it measures students' ability to apply their skills in more realistic situations. These assessments can take the form of hands-on practical exams in laboratories, workplace simulations, or through internships that allow students to work in industry and get direct feedback from professionals.

Portfolio as a type of assessment is also gaining popularity in vocational education. A portfolio is a collection of students' work that reflects their development over time. In portfolios, students can show a range of completed assignments, projects undertaken, as well as self-reflection on the learning they have experienced. These portfolios have become particularly relevant for measuring students' competencies in vocational education, as they reflect their practical skills and progress in their field of study.

Context of Education in SMK and MAK

SMK and MAK have a very strategic role in the Indonesian education system, especially in preparing a competent workforce that is ready to enter the industrial world. Their role is crucial, given the development of the world of work which increasingly requires skilled and professional personnel in various sectors. SMK and MAK graduates are expected to be able to meet the needs of the industry by mastering technical skills that are in accordance with their chosen field of work. Therefore, education in SMK and MAK emphasizes the development of practical skills and the application of knowledge learned at school in real-world situations (Chaerunisaa et al., 2023; Tūtlys & Spöttl, 2017).

However, the biggest challenge faced by SMK and MAK is the gap between the curriculum implemented in schools and the needs of the industrial world. The ever-growing and changing industrial world requires the curriculum in SMK and MAK to be more flexible and adaptable to technological developments, market trends, and labor market needs. This is where the role of effective curriculum management is important to ensure that the curriculum taught is not only based on theoretical knowledge, but also includes practical skills that can be directly applied by students after they graduate.

In addition, the assessment system used in SMK and MAK must be able to reflect the competencies needed in the industrial world. Assessments that focus more on students' technical abilities in workplace situations, through practical exams or internships, will provide a more accurate picture of students' readiness. This kind of assessment will also provide useful feedback for students in improving their skills, as well as for school administrators in evaluating the effectiveness of the curriculum and learning system implemented.

Previous studies on curriculum management and assessment systems in SMK and MAK show that there are various challenges to be faced. For example, Rahayu (2018) in her research revealed that many SMKs face difficulties in developing a curriculum that is relevant to industry needs, due to the lack of industry involvement in the curriculum development process. Similarly, research by Sutrisno (2019) found that an assessment system that is still too focused on theoretical exams makes students less prepared to face the challenges of the world of work. The lack of evaluation of practical skills needed in the industrial world is a major obstacle to developing the quality of education in SMK and MAK. These studies show the importance of reforms in curriculum management and assessment systems to improve the work readiness of SMK and MAK graduates.

METHODOLOGY

Research Design

This study uses a descriptive qualitative approach, which aims to describe in depth the phenomena that occur related to curriculum management and assessment systems in SMK and MAK. The qualitative approach was chosen because this research does not aim to test hypotheses or measure variables in the form of numbers, but rather to understand the practices that occur in the field, as well as to explore the perceptions, experiences, and views of various stakeholders in SMK and MAK. This research aims to provide a more holistic and comprehensive picture of curriculum management and assessment systems, which will be very useful in formulating policy recommendations or best practices in vocational education.

This qualitative method allows researchers to gain deeper and more contextual insights into how curriculum is implemented and how assessment is conducted in SMK and MAK, and how these two elements relate to the quality of education produced. By using a descriptive qualitative research design, the researcher can explore and describe the social dynamics, processes and interactions that occur in the curriculum management and assessment process at SMK and MAK in Tangerang Banten. This approach also allows the researcher to be more flexible in interacting with informants, as well as enabling the researcher to understand the contextual factors that influence the implementation of curriculum and assessment at the school level.

Data Collection Techniques

In this study, data were collected through three main techniques, namely key personal interviews, direct observation, and literature study. Each of these data collection techniques complemented each other to provide a more complete picture of curriculum management practices and assessment systems in SMK and MAK.

Key Personal Interview

Key person interviews were the main technique for data collection in this study. Interviews were conducted with school principals, subject teachers, and other education stakeholders involved in the learning process and curriculum management at SMK and MAK. The selected informants have a central role in decision-making regarding the curriculum, learning implementation and assessment system in the school. The interview procedure was conducted using a semi-structured interview guideline, where the researcher had prepared the main questions but still provided space for respondents to express their views more freely and in depth. The interviews were conducted face-to-face to allow for a more intimate interaction and to explore more in-depth information about the daily practices in the school.

Through these interviews, researchers hoped to identify how the curriculum is developed and implemented in SMK and MAK, how the assessment process is carried out, and what challenges are faced by educators and school management in managing the curriculum and assessment. The interviews are also expected to explore the views of principals and teachers on the suitability of the taught curriculum with industry needs and the effectiveness of the assessment system in measuring students' competency achievement.

Observation

Direct observations were conducted in several SMK and MAK to obtain empirical data on how the curriculum is implemented in the classroom and how the assessment system is implemented. This observation aims to obtain information about learning practices, interactions between teachers and students, and the application of the existing assessment system. Researchers observe how teachers deliver subject matter, how students engage in learning, and how assignments or practical exams are carried out. Observations will also be made on the implementation of internship or field work activities for students, which is an integral part of vocational education.

In addition, observation also includes monitoring the evaluation and assessment process in the classroom. The researcher will note how the assessment is conducted, whether it focuses

more on cognitive aspects or also includes students' practical skills. These observations are important to gain an understanding of the implementation of an assessment system that should reflect the competencies required in the world of work, as well as to understand the challenges faced by teachers in assessing students' practical abilities. The data collected through these observations will be used to complement and deepen the findings obtained from the interviews.

Literature Study

The literature study was conducted to obtain a strong theoretical foundation on curriculum management and assessment systems in vocational education, as well as to compare the findings of this research with relevant previous studies. The references used in this literature study include scientific journals, articles, textbooks and research reports that discuss various curriculum models, assessment types and vocational education implementation in Indonesia and other countries. The literature study aimed to provide a broader context of challenges and best practices in curriculum management and assessment and to enrich the analysis of data obtained from interviews and observations.

Location and Research Subjects

This research was conducted in several SMK and MAK located in Tangerang, Banten. Tangerang was chosen as the research location because this area has a number of SMKs and MAKs that represent the diversity of vocational education types in Indonesia. This location was also chosen because it has its own challenges in managing vocational education, especially related to the connection between the world of education and the world of industry. This study focuses on schools that have vocational programs with various fields of study, such as engineering, business and hospitality, which are directly related to the needs of the labor market.

The research subjects consisted of principals, teachers, and other education stakeholders, such as managers of expertise programs, field work practice coordinators, and those involved in curriculum preparation and assessment implementation at the school. Principals were selected because they have a central role in making decisions regarding curriculum and assessment policies, while teachers were selected based on the subjects or expertise taught, both in theory and practice. Other stakeholders involved in this study included representatives of industry or school cooperation partners that were related to providing internship places or evaluating students' skills.

Data Analysis

Data obtained from interviews, observations, and literature studies will be analyzed using a thematic analysis approach. This data analysis technique is used to identify the main themes, patterns, and relationships that emerge from the various data sources. In this analysis, researchers will read the interview transcripts and observation notes in depth to find general patterns regarding the implementation of the curriculum and assessment system in SMK and MAK. The results of this analysis will be grouped into specific themes, such as competency-based curriculum management, challenges in practical assessment, and industry involvement in vocational education.

The literature study will also play a role in this data analysis process, by comparing the research findings with theories and findings from previous studies. This will provide a broader

and deeper perspective on the practice of curriculum management and assessment systems in SMK and MAK, and provide a strong basis for drawing conclusions and recommendations from the research results. By using thematic analysis, this study aims to present findings that can provide a more comprehensive understanding of the dynamics of curriculum management and assessment in SMK and MAK in Tangerang Banten.

RESULTS AND DISCUSSION

Curriculum Management in SMK and MAK

The findings of this study reveal that curriculum management at SMK and MAK in Tangerang Banten has generally been designed to meet the demands of vocational education that is oriented towards the mastery of practical skills. The curriculum implemented in most of these schools refers to the competency-based curriculum, which aims to ensure that graduates have skills that are relevant to industry needs. The implementation of the curriculum in SMK and MAK is done by involving various stakeholders, including school principals, teachers, and industry partners who are invited in the process of curriculum development and updating.

However, despite efforts to create a curriculum that is relevant to the world of work, this study found some significant problems in its implementation. One of the key findings was the mismatch between the curriculum and the rapid development of the industry . For example, in some schools, while the curriculum teaches specific technical skills, industry needs for new technologies such as automation, artificial intelligence and the internet of things (IoT) have not been fully accommodated. On the other hand, fast-growing industrial sectors often require more specific and high-tech skills, which are sometimes not accommodated in the curriculum of SMK and MAK.

The process of adjusting the curriculum to industry needs is also hampered by internal school factors. Some schools admit to having limitations in modernizing the equipment and facilities used for practical learning, which causes the updated curriculum to theoretically not be applied optimally in the field. Most schools still use old equipment that no longer reflects the latest industry needs. To overcome this challenge, some schools are trying to improve their partnerships with the industry through internship programs and other collaborations, although the intensity and scope of these partnerships are inadequate in many schools.

Another challenge is the limited involvement of industry in curriculum development . Although some schools in Tangerang have tried to invite local companies or industries to play a role in curriculum development, the number of industries involved is still very small and limited to certain sectors. Most schools still focus on the curriculum set by the government and have not made significant adjustments to suit the needs of the local industry sector. In this case, the presence of industry as a partner in the curriculum process is still limited, so that the preparation and revision of the curriculum still tends to be top-down, not based on direct input from the industrial sector that will accommodate these graduates.

Education Assessment System

This study also found considerable variation in the type and implementation of the assessment system in SMK and MAK. Some schools have developed a more integrated and practical competency-oriented assessment system through a combination of written exams, practical exams, portfolio assessment and project-based evaluation. Written exams are still the

main assessment method to assess students' understanding of theory, but in SMK and MAK, practical assessment and more applicable skills in the field are also very important elements. Practical assessments are conducted through hands-on exams in workshops or laboratories that are directly related to the technical skills students are learning, such as automotive engineering, hospitality, and multimedia.

However, the main challenge found in the assessment system is the lack of standardization and transparency in practical assessment. In some cases, practice assessments are not conducted using clear rubrics, so there is a lack of clarity in terms of assessment criteria and indicators. This could potentially lead to unobjective assessments and be prone to bias, especially in situations where the assessor (teacher) has different perceptions of the student's performance on the practical task. Although some schools have tried to use more systematic assessment rubrics , there are still many schools that do not have standardized measurement tools, so students' practical competencies are often assessed based on each teacher's personal interpretation.

In addition, portfolio-based assessment is one method that has begun to be applied to provide a more holistic picture of students' skill development. However, the implementation of these portfolios has not been optimal in all schools. Some schools experience difficulties in managing and evaluating portfolios due to limited time, resources and uneven understanding among teachers on how best to organize and assess them. Some teachers find it difficult to provide sufficient time to observe and assess students' work in depth, especially due to the heavy workload outside the main exam. Therefore, while portfolio-based assessment offers great potential to evaluate students' skills more thoroughly, its implementation requires careful planning and adequate support from schools.

Linkages between Curriculum and Assessment

The relationship between curriculum and assessment system in vocational education in SMK and MAK is crucial to ensure that students can gain learning experiences that are in line with the set learning objectives. Based on the research findings, the competency-based curriculum implemented in many SMKs and MAKs should lead to the development of students' practical skills that can be tested through relevant and applicable assessments. However, in many schools, there is a mismatch between the curriculum that focuses on technical skills and the assessment system that still prioritizes written exams.

Some schools in Tangerang have started to implement competency-based assessment which is more directed towards testing practical skills through practical exams and portfolios, which better reflect the competencies that should be taught in the curriculum. However, in many schools, the implementation of this assessment is not yet fully in line with what is envisioned in the curriculum. One of the main findings in this study is that theory-focused curriculum still dominates most learning in SMK and MAK, despite the greater emphasis on practical skills in many vocational programs. As a result, students often have to face written exams that assess their mastery of theoretical material, while their practical skills are not evaluated in a comprehensive way.

This misalignment between theoretical curriculum and practical assessment often leads to gaps in student competency achievement. Curricula that are structured to meet competency standards are often not supported by an assessment system that is able to precisely measure the

level of mastery of students' practical skills. On the other hand, theory-based assessment, which is still used in some schools, is not sufficient to assess the quality of graduates in the context of vocational education that emphasizes practical work skills.

Impact on Education Quality

Overall, the curriculum management and assessment system implemented in SMK and MAK in Tangerang Banten has a significant impact on the quality of education and student learning outcomes. Schools that successfully integrate a competency-based curriculum with practice-based assessment show better results in preparing students for the world of work. Students who learn in a system that supports the development of technical and non-technical skills through internships , practical projects , and practical tests tend to be better prepared to face the demands of the industry, with better mastery of skills.

On the other hand, schools that face constraints in curriculum management and assessment tend to produce graduates who are less employable, especially in terms of technical and applicative skills. These schools are often hampered by lack of industry support , limited facilities , and unaligned curriculum and assessment (Zhong et al., 2021). For example, some schools that still prioritize written exams and do not adapt practical assessments well, produce students who have adequate theoretical knowledge but lack the skills to apply that knowledge in the world of work.

This impact is very evident in the quality of graduates produced. Schools that successfully implement curriculum that is relevant to industry needs and assessments that match the competencies taught tend to have a higher success rate in preparing students for careers in relevant industries. Conversely, schools that experience difficulties in the implementation of these two elements show a lower quality of education, where students are often unprepared for the challenges of real work. This suggests that synchronization between curriculum and assessment largely determines the quality of education students receive at SMK and MAK.

CONCLUSION

This research has revealed important findings related to curriculum management and assessment systems in SMK and MAK in Tangerang Banten. Overall, the curriculum implemented in these schools is generally designed to meet the needs of industry and focuses on practical competencies. However, despite efforts to continuously update the curriculum to match industry demands, this study shows that there is still a mismatch between the existing curriculum and the rapid development of the industry. This is particularly evident in the limited curriculum development that involves the industry in greater depth, as well as the lack of rapid adjustment to the evolving needs of the industry, such as in the technology and digitalization sectors.

On the other hand, the assessment systems implemented in SMK and MAK vary, with some schools prioritizing written exams while others emphasize practical exams and portfolio-based assessments. Although practical assessment is considered important to measure students' technical skills, the implementation of this assessment system still encounters a number of obstacles, especially in terms of inconsistent standardization of assessment and lack of resources to effectively manage practical assessment. This indicates that despite efforts to

improve the quality of assessment, there are still major challenges in ensuring that the assessment system truly reflects the competencies taught in the curriculum.

The findings have theoretical implications , where the importance of a close relationship between curriculum and assessment in vocational education is increasingly emphasized. Competency-based curriculum must go hand in hand with an assessment system that prioritizes practical and standardized assessments to produce graduates who are ready to face the world of work. This research also shows that the implementation of curriculum management and assessment systems in SMK and MAK needs to pay more attention to the changing needs of the industry dynamically.

A policy recommendation for provincial and national education policymakers is to provide more support for industry integration in vocational education. Policymakers need to strengthen regulations governing the relationship between education and industry and provide incentives for schools that innovate in curriculum and assessment management. In addition, policies that support teacher capacity building in managing competency-based assessments should be strengthened, both through continuous training and the provision of teaching materials that are relevant to the latest industry needs. In addition, policies that facilitate provision of more modern practicum equipment in SMK and MAK need to be considered so that schools can teach skills that are truly needed by industry.

Suggestions for further research include several focuses that could further develop this topic. One of them is more specific research on industry integration in vocational education , especially related to how industry can play a more active role in the learning and assessment process at SMK and MAK. This research could explore more effective partnership models between schools and the industry sector, and how the sustainability of these partnerships can be maintained to provide long-term benefits for both parties. In addition, further research could also focus on a comprehensive analysis of the success of SMK and MAK graduates , both in terms of technical and soft skills, and how this affects their competitiveness in the world of work. This will provide a more holistic picture of the factors that influence the success of vocational education in Indonesia.

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