



Analysis of curriculum development and accounting learning at SMK Indonesia Raya

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ABSTRACT

The development of the accounting curriculum in Vocational High Schools (SMK) is essential in preparing graduates who are ready to compete in the world of work. However, the dualism of implementing the Kurikulum 2013 and the Kurikulum Merdeka poses a challenge for schools in adjusting the curriculum to the ever-growing industry's needs. A curriculum not in line with industry standards can hinder students' readiness to face the world of work. This study aims to evaluate the implementation of the accounting curriculum at SMK Indonesia Raya and identify its challenges and opportunities. The method used is qualitative, with observation and in-depth interviews with teachers, students, and school management. Data analysis was carried out descriptively to understand the effectiveness of the curriculum implemented. The study results show that the dualism of the curriculum causes differences in learning strategies, teacher readiness, and student understanding of industry-based materials. The Kurikulum Merdeka provides more flexibility, but limited infrastructure and readiness of teaching staff are the main obstacles. In conclusion, the development of accounting curriculum in SMK requires synergy between the government, schools, and industry to ensure relevance to the job market. With an adaptive curriculum, competent teaching staff, and adequate facilities, SMK graduates can be highly competitive in the era of globalization.

ARTICLE INFO

Article History:

Received: 28 Nov 2024

Revised: 2 Mar 2025

Accepted: 5 Mar 2025

Available online: 17 Mar 2025

Publish: 30 Apr 2025

Keywords:

Accounting learning; curriculum development; vocational high school curriculum

Open access

Hipkin Journal of Educational Research is a peer-reviewed open-access journal.

ABSTRAK

Pengembangan kurikulum akuntansi di Sekolah Menengah Kejuruan (SMK) berperan penting dalam mempersiapkan lulusan yang siap bersaing di dunia kerja. Namun, dualisme penerapan Kurikulum 2013 dan Kurikulum Merdeka menimbulkan tantangan bagi sekolah dalam menyesuaikan kurikulum dengan kebutuhan industri yang terus berkembang. Kurikulum yang tidak selaras dengan standar industri dapat menghambat kesiapan peserta didik dalam menghadapi dunia kerja. Penelitian ini bertujuan mengevaluasi implementasi kurikulum akuntansi di SMK Indonesia Raya serta mengidentifikasi tantangan dan peluangnya. Metode yang digunakan adalah pendekatan kualitatif dengan observasi dan wawancara mendalam terhadap pendidik, peserta didik, serta manajemen sekolah. Analisis data dilakukan secara deskriptif untuk memahami efektivitas kurikulum yang diterapkan. Hasil penelitian menunjukkan bahwa dualisme kurikulum menyebabkan perbedaan strategi pembelajaran, kesiapan pendidik, serta pemahaman peserta didik terhadap materi berbasis industri. Kurikulum Merdeka memberikan fleksibilitas lebih, tetapi keterbatasan infrastruktur dan kesiapan tenaga pengajar menjadi kendala utama. Kesimpulannya, pengembangan kurikulum akuntansi di SMK membutuhkan sinergi antara pemerintah, sekolah, dan industri untuk memastikan relevansi dengan pasar kerja. Dengan kurikulum adaptif, tenaga pendidik kompeten, serta fasilitas memadai, lulusan SMK dapat memiliki daya saing tinggi di era globalisasi.

Kata Kunci: kurikulum sekolah menengah kejuruan; pembelajaran akuntansi; pengembangan kurikulum

How to cite (APA 7)

Alivasari, A., Azizah, I., Anggraeni, M. D., & Darpa, M. M. (2025). Analysis of curriculum development and accounting learning at SMK Indonesia Raya. *Hipkin Journal of Educational Research*, 2(1), 123-138.

Peer review

This article has been peer-reviewed through the journal's standard double-blind peer review, where both the reviewers and authors are anonymised during review.



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INTRODUCTION

Teaching and learning are a mutual interaction involving norms and values, which are regulated through the curriculum as the main guide in sustaining the educational process. Teaching and learning are reciprocal interactions that are normative, where the learning and teaching process involves norms. This means that a set of values serves as a guideline to run it well (Ginanjar *et al.*, 2019). In the learning and teaching process, the curriculum plays a crucial role in the sustainability of educational institutions, particularly in vocational schools (Sholeh *et al.*, 2023a). The development of curriculum and learning at SMK Indonesia Raya is a critical topic in the context of national education because Vocational High Schools play a strategic role in preparing a skilled workforce that can meet the needs of the industry and the ever-growing job market (Agustian *et al.*, 2024). SMK Indonesia Raya, as one of the vocational education institutions in the field of accounting, faces challenges in implementing an effective curriculum that is relevant to the world of work. Currently, SMK Indonesia Raya is undergoing a curriculum transition period, with the simultaneous implementation of two different curricula: the 2013 Curriculum and the Merdeka Curriculum, which presents various challenges during the implementation process.

Learning in schools must also consider various methods that can increase student motivation and engagement. Active learning methods, such as project-based and collaborative learning, have been shown to improve student learning outcomes (Devega & Suri, 2019). By actively involving students in the learning process, it is hoped that they can better understand the material and develop critical skills needed in the world of work (Ramadhan & Hindun, 2023). The involvement of various stakeholders, including government officials, educators, and the community, is crucial in curriculum development in schools. Cooperation between schools and employment providers can help formulate a more relevant and applicable curriculum (Magdalena, 2021). This collaboration not only provides input on the skills needed but also opens up opportunities for students to gain work experience through internship programs or practical work. Stakeholder involvement is one of the key factors in shaping a curriculum that is responsive to the needs of the world of work (Sholeh *et al.*, 2023b).

Various previous studies have shown that the effectiveness of the curriculum depends heavily on the ability to integrate theory and practice, so that students not only understand concepts cognitively but also are able to apply them in the workplace (Aryawan, 2023). Vocational education in Indonesia faces challenges in creating a curriculum that is relevant to industry needs, so an approach that balances theory and practice is necessary (Hakim & Abidin, 2024). In addition, the competency-based learning approach is a crucial factor in curriculum design, as it provides students with opportunities to master skills relevant to their fields (Suprihartini *et al.*, 2024). In facing the challenges of the Industrial Revolution 4.0, continuous evaluation and curriculum development are imperative to remain in harmony with industrial and technological developments (Kadiyo, 2023; Khaira *et al.*, 2023). Adaptive and innovative education management plays a crucial role in developing a curriculum that produces competitive graduates (Aithal & Maiya, 2023). Therefore, the development of a dynamic curriculum tailored to industrial needs is necessary to ensure students' readiness for the workforce.

Although various studies have been conducted on curriculum development and learning in vocational schools, there has been no comprehensive study that analyzes explicitly the implementation of the dual curriculum (2013 Curriculum and Merdeka Curriculum) in accounting subjects at SMK Indonesia Raya. This research fills the gap by analyzing in-depth the challenges of implementation, the effectiveness of teaching methods, and the role of supporting infrastructure in the specific context of SMK Indonesia Raya. The novelty of this research lies in its holistic approach, which integrates quantitative and qualitative analysis to understand the complexity of implementing a dual curriculum in the context of accounting vocational education, as well as providing practical recommendations that similar educational institutions can implement.

Based on the background and literature presented in this study, several key issues related to the implementation of the accounting curriculum at SMK Indonesia Raya will be examined. First, this study will discuss the challenges faced in implementing the dual policy, namely the 2013 Curriculum and the Merdeka Curriculum, in accounting subjects, as well as how schools encounter differences in approaches and policies between the two curricula. Second, the effectiveness of various teaching methods in accounting education will be studied to understand the extent to which the applied learning strategies can improve students' understanding and skills. Additionally, this research will examine the role of supporting infrastructure, including laboratory facilities, accounting software, and information technology, in facilitating the successful implementation of the accounting curriculum. Finally, the role of educators in supporting accounting learning will be analyzed to examine how competencies, teaching methods, and educator preparedness contribute to the achievement of learning objectives. By examining these aspects, it is hoped that this study can provide comprehensive insights into the factors that affect the effectiveness of accounting learning at SMK Indonesia Raya.

In Indonesia, government policies have a significant influence on the development of school curricula. The National Education System Act, along with various ministerial regulations, provides a framework for developing a more adaptive and responsive curriculum. However, implementing these measures often poses complex challenges. Challenges include a lack of resources, such as insufficient funding to support the learning process, inadequate training for educators to understand and implement the new curriculum, and a shortage of supporting facilities and infrastructure, including laboratories and educational technology (Triarsuci *et al.*, 2024). Therefore, it is essential to examine how this policy is implemented at SMK Indonesia Raya and assess its impact on the quality of education. In the digital era, integrating technology into learning is crucial for preparing students to meet the demands of an increasingly technology-based job market. The accounting curriculum at SMK Indonesia Raya is designed to provide relevant technology skills through hands-on practice in real-world settings. However, the implementation of technology in accounting learning at SMK Indonesia Raya still faces various challenges that need to be overcome.

This article aims to analyze how the development of the curriculum and accounting learning at SMK Indonesia Raya can be carried out effectively and efficiently, considering various important aspects of the educational process. Specifically, this research focuses on four main objectives. First, identify and analyze the challenges in implementing the dual curriculum, specifically the 2013 Curriculum and the Merdeka Curriculum, in accounting subjects at SMK Indonesia Raya. Second, evaluate the effectiveness of various teaching methods used in accounting education to determine the most effective approach for improving students' understanding and skills. Third, analyze the role of supporting infrastructure, such as accounting laboratories, software, and information technology, in supporting the implementation of the accounting curriculum and fourth, examining the role of educators in supporting the learning process, including educators' competencies, teaching methods, and their readiness to face curriculum changes. Through this analysis, the research is expected to produce strategic recommendations that can enhance the quality of accounting education at SMK Indonesia Raya, thereby increasing the competitiveness of its graduates in the workforce. In addition, the results of this research are also expected to provide insight for educators in adjusting education policies to be more relevant to the needs of the industry and the times.

LITERATURE REVIEW

Definition and History of the Curriculum

The terms "*curir*," which means runner, and "*curere*," which means racetrack, are both terms from the word Curriculum, which comes from the Ancient Greek language. The curriculum is designed systematically, taking into account the initial abilities of students, so that learning materials can be understood gradually and effectively (Hasan *et al.*, 2024). The curriculum is the primary component in the

pedagogical context that guides the teaching and learning process to align with educational goals (Fuad & Iswanti, 2024). Thus, the curriculum is a strategic element that integrates learners' needs, educational goals, and pedagogical approaches to support learning success.

The curriculum is the core or basic guideline of education and is dynamic because it plays a crucial role in ensuring the success of the educational process. Its development can be in accordance with and even relevant to the needs and characteristics of students (Maujud, 2018). Therefore, without an effective and appropriate curriculum, achieving educational goals and objectives will be very difficult. In the context of vocational education, such as in vocational schools, the curriculum plays a crucial role in equipping students with work competencies relevant to the needs of the industrial world, as stated in Government Regulation Number 13 of 2015 concerning National Education Standards.

Changes in the concept of curriculum in Indonesia over time have a significant impact on curriculum development in Vocational High Schools (SMK). One example is the Merdeka Curriculum, which offers hope for educators and students by allowing them to choose learning materials based on students' interests and talents. The Merdeka curriculum aims to create a learning process that is more adaptive, contextual, and oriented towards developing competencies relevant to industrial needs (Rosa et al., 2024). Thus, every revision of the curriculum not only reflects the demands of education in accordance with the times but also has a direct effect on teaching methods and improving the skills of students in vocational schools, so that they are better prepared to face challenges in the ever-evolving world of work.

Curriculum Development Models

The systematic process of curriculum development aims to adjust the content and structure of learning to meet the demands of the times, technological advancements, and the needs of the workforce. (Febriyenti et al., 2023). The curriculum development model developed by Tyler in 1949 divided curriculum development into four main sections. First, educational objectives should reflect the basic competencies that learners desire, such as a fundamental understanding of accounting, the ability to analyze financial statements, and the capacity to apply accounting principles in real-life situations. In accounting learning, this can include simulation of accounting practices, the use of accounting software such as MYOB or ABSS, and industry case studies. Third, subjects must be arranged systematically and sequentially so that students can understand them more easily. Fourth, evaluation is essential to ensure that learning outcomes align with the objectives. In accounting learning, evaluation can be carried out through practical exams, group projects, or portfolio-based assessments that demonstrate students' ability to apply accounting competencies (Wardani et al., 2022). By integrating practical learning experiences and competency-based evaluations, the Tyler model enables learners not only to understand theory but also to apply it in real-world situations, which is especially important in the field of accounting (Hidayat et al., 2020). This model can also be adapted to the needs and contexts of different learners, allowing for adjustments to teaching and assessment according to the development of the accounting world of work (Anggraini et al., 2024). In Indonesia, the vocational high school curriculum is known as the Independent Curriculum, which emphasizes flexibility and the development of modern skills, such as collaboration, creativity, and mastery of technology (Suharyo et al., 2024).

Taba uses an inductive model for its curriculum. It starts with experimentation, theory, and application. This is done to bridge the gap between theory and practice and eliminate the general and abstract nature of the curriculum, which often occurs without experimental activities (Putera & Shofiah, 2021). According to Taba, there are five steps in curriculum development. First, testing experimental units (*Experimental Production of Pilot Units*), at this stage, can be done with eight available steps, namely diagnosis of needs, formulating special objectives, selection of content/material, organizing content/materials, choosing learning experiences, organizing learning, evaluation, and checking the order of balance and consistency

of all elements with each other. Second, *testing of experimental units*. Third, *revising and consolidating*. Fourth, *developing a framework*. Fifth, *installation and dissemination of the new units* (Nafi'ah, 2019).

Curriculum development is a learning plan that aims to bring about changes in students in the desired direction and assess how these changes impact them. The change plan that is implemented must be tailored to the physical and specific needs of students (Heryanti *et al.*, 2023). As an educator, one has an important role in developing and researching the goals and learning materials for students, as well as the strategies and methods employed to measure their success rate (Fatmawati, 2021).

Project-Based Learning (PjBL) and Its Implications

During the learning process, students participate in inquiry-based activities to acquire new knowledge (Muhazira *et al.*, 2024). *Project-Based Learning* (PBL) is a pedagogical approach that puts students at the center of the learning process. This method emphasizes the active involvement of learners in real-world projects that solve problems, as well as the application of skills and concepts learned in a practical context. PjBL not only aims to improve students' academic understanding but also to develop critical thinking, collaboration, communication, and creativity skills that are needed in the world of work and daily life (Asy'arie *et al.*, 2025).

PjBL is student-centered, where students become the leading actors in learning by actively participating in various exploratory and investigative activities. Students are also faced with problem-solving tasks that require analysis and solution, and are encouraged to work collaboratively in groups to share ideas, discuss solutions, and carry out projects together. The learning process also includes reflection on the results obtained as well as evaluation of the effectiveness of the solutions developed (Aji & Rosiana, 2024). The implications of applying PjBL in education encompass various aspects. For students, this method increases learning motivation because they feel they have an active role in learning. In addition, PjBL helps develop 21st-century skills, such as critical thinking, communication, collaboration, and creativity, while also improving understanding of concepts through hands-on experience in completing projects. Learners are also strengthened in time management skills and responsibility in completing assigned tasks (Sari *et al.*, 2024). For educators, PjBL requires them to be facilitators who guide students in completing projects, demands creativity in designing relevant and challenging projects, and requires evaluation of different strategies, such as project-based and portfolio-based assessments. Meanwhile, in terms of curriculum and education policy, PjBL requires curriculum adjustments to be more flexible, allowing for the integration of projects across subjects. In addition, the implementation of PjBL also requires the availability of resources and infrastructure that support the development of projects and policies, as well as the enhancement of educators' skills in effectively implementing this method (Al-Kamzari & Alias, 2025).

PjBL is highly relevant to be applied in the Vocational High School (SMK) curriculum because it emphasizes practical experience that aligns with the needs of the industrial world. The implementation of PjBL in vocational schools can be done through industry-based projects, where students work on real tasks from partner companies, entrepreneurial activities, where students design and run small businesses as part of learning, and cross-disciplinary collaboration, where students from different majors work together on a single project to create more comprehensive solutions (Abdillah & Puspitasari, 2025). While it has many benefits, the implementation of PjBL also faces some challenges, such as time constraints, as the project takes a considerable amount of time to complete. Additionally, resource constraints, including limited facilities, tools, and materials required for the project, also pose obstacles. Difficulties in evaluation also pose a challenge because learning outcomes cannot always be accurately measured with conventional tests. PjBL is an effective method in improving students' academic and non-academic skills. With the proper application, PjBL can enhance students' learning motivation, critical thinking skills, and readiness for the world of work (Sudarsono *et al.*, 2022). However, its implementation requires support

from various parties, including educators, schools, and education stakeholders, so that the existing challenges can be overcome and maximum benefits can be obtained (Dewi *et al.*, 2025).

Merdeka Curriculum in the Context of Accounting Education

The previous Merdeka curriculum was known as the prototype curriculum, which was an improvement over the 2013 Curriculum. The Merdeka curriculum has the main characteristics expected to restore post-pandemic learning, namely project-based learning, focusing on essential materials, and educators' flexibility in conducting learning in accordance with students' abilities (Rahmadhani & Istikomah, 2023). On the other hand, the Merdeka curriculum aims to continually encourage learning that aligns with students' abilities, providing more opportunities to develop character and foundational competencies. Therefore, learning is divided into several phases of development that students experience (Indriani & Suryani, 2023). The Merdeka curriculum in accounting learning is an industry and world of work standard that aligns with the interests and talents possessed by students. This curriculum can also be beneficial in enhancing students' motivation for future employment (Ma'rufiati *et al.*, 2024). The Merdeka curriculum of learning in accounting in vocational high schools is implemented through a project-based approach that is relevant to the world of work, authentic practice-based assessments, strengthening the ability to use accounting technology, the incorporation of the Pancasila Student Profile Strengthening Project (P5), and learning flexibility that can be adjusted to the interests and needs of students (Triani *et al.*, 2025).

METHODS

This study employs a qualitative method with a descriptive approach to gain an in-depth understanding of the implementation of the curriculum at SMK Indonesia Raya. The selection of this method is based on the need to explore the complexity of applying criteria in a real-world context. Qualitative research enables researchers to capture the nuances and dynamics of curriculum implementation that are difficult to quantify. The research location is SMK Indonesia Raya, situated on Jl. Surya Sumantri Number 33/B, Sukawarna, Sukajadi, Bandung. For the educator category, those involved in the curriculum development team were selected, especially those who teach productive accounting subjects. The Vice Principal, who is chosen as an informant, is responsible for overseeing the curriculum and student affairs. Meanwhile, for library staff, those actively involved in managing learning resources are selected. To anticipate the possibility of rejection or unavailability of informants, the researcher prepared a backup list of informants who met the same criteria.

Data collection in this study utilizes various sources, including both primary and secondary sources. Primary data were obtained through direct observation of the learning process, semi-structured interviews, and documentation of activities. The use of semi-structured interviews is because they provide a means to gather a certain amount of in-depth information while maintaining the research focus. Meanwhile, secondary data includes school curriculum documents, syllabi, lesson plans, learning modules, and student achievement data. The research instrument was developed through a series of stages that began with the analysis of research variables based on a literature review, followed by the preparation of grid instruments and the development of interview and observation protocols. This instrument was then validated by two education experts and tested on two educators and one vice principal from different schools as part of the validation process. The revision of the instrument was carried out based on *feedback* from the pilot test, prior to finalizing the research protocol.

Data collection was conducted from November to December 2024. Data analysis utilizes Miles' interactive model, which encompasses data condensation, data presentation, and the drawing of conclusions. The

analysis process began with the transcription of interviews using NVivo 14 software, followed by thematic coding to identify patterns and themes, as well as data categorization based on an analysis *framework* developed by Ornstein and Hunkins.

To ensure the continuity of the research, several data validity techniques are employed, including triangulation of sources, methods, and time. Triangulation is a crucial technique for ensuring reliability in qualitative research. Member checks are carried out through the verification of interview transcripts by informants and the confirmation of the initial interpretation with participants. *Peer debriefing* is also carried out through discussions of findings with peer researchers and reviews of analysis by education experts. The entire peer review process is systematically documented to ensure research transparency and integrity.

This research adheres to the principles of educational research ethics by implementing strict informed consent procedures in accordance with the educational research ethics guidelines from BSNP (2019). Each participant was provided with a written explanation of the research and asked to give voluntary consent to participate, with the right to opt out guaranteed at any time. The protection of participants' privacy is carried out through the use of pseudonyms and the storage of encrypted data. Data management is carried out by storing data on a protected server to maintain the privacy and integrity of research data.

RESULTS AND DISCUSSION

Based on data obtained through semi-structured interviews, direct observations, and document analysis at SMK Indonesia Raya, this study identifies three main themes related to curriculum implementation, namely: 1) challenges of curriculum implementation; 2) the effectiveness of teaching methods; and 3) the role of supporting infrastructure. The analysis was conducted using an interactive model that included data condensation, data presentation, and conclusion.

Challenges of Curriculum Implementation at SMK Indonesia Raya

The results of the data analysis indicate that SMK Indonesia Raya faces significant challenges in implementing the curriculum, particularly in addressing the dualism inherent in the current curriculum. Based on an interview with F.I. (Deputy Principal for Curriculum),

"Saat ini kami menghadapi situasi di mana Kelas 12 masih menggunakan Kurikulum 2013, sementara Kelas 10 dan 11 sudah beralih ke Kurikulum Merdeka. Transisi ini terjadi karena keterlambatan informasi dari pengawas mengenai pendaftaran perubahan kurikulum." (F.I., personal communication, 2024).

Observations of the learning process carried out during November-December 2024 confirmed that there are differences in teaching approaches between classes with different curricula. Educators must adapt their teaching strategies to accommodate both curricula, which often leads to inconsistencies in the learning process.

The dualism of the curriculum at SMK Indonesia Raya, where Grade 12 still applied the 2013 Curriculum while Grades 10 and 11 had switched to the Merdeka Curriculum, created obstacles in the learning process. Educators must adapt their teaching strategies to accommodate the two different curricula, which often results in inconsistencies in the delivery of materials and evaluation methods. This dualism aligns with research that has found a fragmented education system can impact the quality and accessibility of learning (Mukhlisin, 2021). The implementation of the Merdeka Curriculum at SMK Indonesia Raya faces

obstacles in terms of the educators' readiness and the availability of supporting facilities. The curriculum presents challenges in learning, allowing learners to tailor the material to their interests and talents; however, implementation difficulties persist, including a lack of training for educators and limited infrastructure. This is also supported by research that shows the effectiveness of the Merdeka Curriculum can be hampered without adequate support (Ramadani et al., 2025).

Curriculum transition management at SMK Indonesia Raya requires more mature strategic planning to ensure a smooth implementation of the learning process. Changes in the curriculum that are not properly managed can cause difficulties for educators in adjusting their teaching methods and evaluations, thereby impacting students' learning achievements. These findings are supported by research that emphasizes the importance of planning and supervision in implementing the Merdeka Curriculum, enabling a more effective and organized transition (Yusril et al., 2024). Furthermore, the challenge in implementing the Merdeka Curriculum lies not only in planning and supervision, but also in the involvement of educators in the curriculum development process.

Data triangulation through interviews with educators of productive accounting subjects revealed low participation of educators in curriculum development training. D.A.N. (Accounting Teacher) stated,

"Meskipun ada beberapa guru yang mengikuti pelatihan, tujuan pelatihan tidak tercapai karena mereka tidak aktif mengikuti materi. Sebagian besar dari kami hanya hadir secara fisik tanpa keterlibatan berarti." (D.A.N., personal communication, 2024).

The analysis of training attendance documentation showed that only 60% of educators attended the entire training session, and of these, only 35% actively participated in discussions and practical activities. This suggests a lack of collaboration among educators in enhancing their professional competence, which can ultimately affect the quality of teaching in the classroom. These findings align with research indicating that educators' professionalism, including their participation in ongoing training, significantly contributes to learners' learning outcomes (Sam & Sulastrri, 2024).

Additionally, educator leadership in the teaching and learning process plays a crucial role in creating an effective learning environment. Educators with strong leadership skills tend to be more effective in encouraging student engagement and enhancing the quality of learning. However, low participation in training can hinder the development of these skills, thereby impacting the motivation and participation of students in the classroom. Previous research has confirmed that effective educator leadership can improve the overall quality of learning; however, this can only be achieved if educators possess sufficient readiness and skills to implement innovative learning methods (Arsyam, 2024).

Another challenge identified is budget constraints. The results of the interview with F.I. showed,

"Kegiatan seperti pembinaan pengajar atau pembelian buku seringkali terhambat lantaran tidak disetujui oleh pihak yayasan. Kami harus memprioritaskan kegiatan yang benar-benar mendesak." (F.I., personal communication, 2024)

Analysis of school budget documents confirms that the allocation for curriculum development is less than 5% of the school's total operating budget. These findings reinforce the results of a study on education funding in Indonesia, which shows that schools with below-average curriculum development budget allocations tend to have difficulty implementing curriculum changes effectively (Al-Faiza et al., 2025).

Effectiveness of Teaching Methods

The analysis of the effectiveness of the teaching method was carried out through direct observation of the learning process in six accounting classes and in-depth interviews with educators and students. The results of the observations show significant differences in the teaching approach between the 2013 Curriculum and the Merdeka Curriculum, with a special focus on project-based learning methods. Project-

based learning (PBL), the primary approach in the Merdeka Curriculum, presents unique challenges for accounting education. Based on an interview with C. (Accounting Teacher),

"Metode berbasis proyek kurang efektif untuk mata pelajaran akuntansi karena terbatasnya bimbingan yang dapat kami berikan, terutama dengan jumlah guru yang terbatas. Konsep akuntansi membutuhkan penjelasan terstruktur dan latihan berulang." (C., personal communication, 2024).

Classroom observation during 12 learning sessions confirmed that 60% of students had difficulty understanding accounting concepts independently. Analysis of student learning outcome documents revealed that the corporate financial management simulation project was completed by only 45% of students without additional support from educators.

These findings confirm the results of a study that evaluated the effectiveness of PBL in accounting education. The application of innovative models, such as PjBL with a STEAM approach and PBL assisted by interactive media, has been proven to have a positive impact on improving students' learning skills in vocational schools. Documentation of learning outcomes shows that project-based learning methods and problem-solving can significantly improve students' understanding of concepts and critical thinking skills. This is supported by research that found that the application of STEAM-based PjBL in online learning improves students' critical thinking skills more effectively than conventional learning methods (Syukri *et al.*, 2022).

Additionally, the effectiveness of the problem-based learning model is strengthened through the integration of interactive learning media. The use of Adobe Flash Professional CS6 as an auxiliary medium in PBL has been shown to significantly improve student learning outcomes, as evidenced by the difference in higher pretest and posttest scores in the experimental group compared to the control group. Furthermore, the response of students to this method is also very positive, indicating that the use of technology in learning can enhance overall student engagement (Rosyiddin *et al.*, 2023).

Furthermore, the results of previous studies also showed that the effectiveness of PBL in accounting subjects was greatly influenced by a smaller educator-student ratio and intensive guidance (Yao *et al.*, 2023). If project-based learning is done without adequate support, students' conceptual understanding levels may decrease compared to more conventional structured approaches (Tian *et al.*, 2023). Therefore, the implementation of PBL and PjBL in vocational schools requires careful planning and effective teaching strategies to achieve optimal learning outcomes (Deliana & Waskito, 2020). These findings confirm that the success of project-based learning in accounting subjects is highly dependent on a smaller educator-to-student ratio and intensive tutoring. When learners lack sufficient direction, their understanding of complex concepts can decrease significantly. This aligns with observations that show students struggle to understand the material when relying solely on independent exploration without direct support from educators.

Triangulation of data through interviews with 15 students supports these findings. One of the 11th-grade students stated,

"Kami membutuhkan bimbingan lebih intensif dalam proyek berbasis akuntansi. Beberapa konsep sulit dipahami hanya dengan membaca dan mencari informasi sendiri." (Grade 11 students, personal communication, 2024).

Analysis of learner responses showed that 75% of learners preferred a learning approach that provided clear structure and guidance for accounting subjects. These findings reinforce the argument that the characteristics of specific subjects, particularly those of a procedural and technical nature, such as accounting, necessitate modifications to project-based learning approaches with more scaffolding and direct guidance from educators (Afiani & Faradita, 2021).

The Role of Supporting Infrastructure

Analysis of library inventory documents and direct observation revealed the limitations of the supporting infrastructure at SMK Indonesia Raya, particularly in terms of the availability of learning resources relevant to the Merdeka Curriculum.

The results of the interview with F.U. (Library Manager) show that,

"Buku yang relevan dengan Kurikulum Merdeka belum tersedia secara lengkap, baik untuk jurusan akuntansi maupun bidang lainnya. Keterbatasan anggaran menjadi kendala utama dalam pembaruan koleksi perpustakaan." (F.U., personal communication, 2024).

Observations in libraries over a two-week period confirmed that only 30% of learners had regular access to relevant textbooks. Of the 120 accounting book titles available, only 28 titles (23%) align with the Independent Curriculum, while the rest still refer to the 2013 Curriculum or the previous curriculum, highlighting the importance of adequate infrastructure for curriculum success (Triarsuci *et al.*, 2024). For example, SDN Pasar Lama 1 has invested in digital infrastructure, increasing students' access to learning resources through digital libraries and integrated computer laboratories (Rosmiati *et al.*, 2025). Likewise, SDN Luwungbata 02 has successfully integrated technology into teaching by providing intensive training to educators on the use of educational software (Antika *et al.*, 2024).

Data triangulation through interviews with students revealed that 40% of students reported difficulty accessing digital resources due to limited access to technology. One of the 10th-grade students stated,

"Banyak dari kami yang membeli buku tambahan jika ingin mendalami materi lebih lanjut. Tidak semua keluarga mampu membelinya, sehingga beberapa teman kesulitan mengikuti pelajaran." (Grade 10 students, personal communication, 2024).

Further analysis revealed that of the 120 computers available in the computer lab, only 65 units (54%) were functioning properly and could be used to access digital learning resources. This is far from the ideal 1:1 ratio standard (one computer to one learner) recommended by IFLA to support digital-based learning.

The Role of Educators in Supporting Learning

Analysis of interview and observation data revealed the condition of educators at SMK Indonesia Raya that affected the implementation of the curriculum. Currently, the accounting department has only two active educators out of the previous four. Based on an interview with A.C. (Head of the Accounting Study Program):

"Tenaga pendidik di jurusan kami diharuskan mengajar maksimal enam hari dalam seminggu untuk menutupi kekurangan. Ini memberikan beban kerja yang cukup berat." (A.C., personal communication, 2024)

Analysis of teaching schedule documents reveals that the average teaching load for accounting educators is 32 hours per week, significantly exceeding the optimal standard of 24 hours recommended by the Ministry of Education. Accounting education at SMK Indonesia Raya is considered adequate, despite the limited number of educators. Now, only two educators are majoring in accounting who are actively teaching, down from the previous four. Therefore, educators who teach at SMK Indonesia Raya are required to teach a maximum of six days a week. This places significant pressure on educators; if not balanced with proper time management and support, it can impact the quality of the teaching process.

On the other hand, the Merdeka curriculum, which prioritizes independent learning, poses a significant challenge in the field of accounting, as it essentially requires more intensive guidance from educators. This curriculum requires students to search and understand the material independently; however, this method is less effective to apply due to limited resources, diverse student backgrounds, and the low skills of students at SMK Indonesia Raya. The limited number of educators has a significant impact on the learning

process, especially in skills-based subjects such as accounting. Limited supervision and guidance result in a lack of effectiveness in the use of LKS and PBL methods, leading to insufficient guidance for students. Additionally, a shortage of educators limits the variety of teaching methods and individualized support, which can hinder students' understanding of the material. The PBL model, which requires active interaction between educators and students, is also an obstacle, reducing students' opportunities to discuss and solve problems collaboratively (Nurhayati *et al.*, 2015).

Interviews with educators reveal their views on the Independent Curriculum. D.A.N. stated,

"Kurikulum 2013 lebih sesuai untuk pembelajaran akuntansi karena sifatnya yang tepat sasaran dan terstruktur. Pendekatan yang dipimpin oleh guru terbukti lebih efektif dibandingkan pembelajaran mandiri, terutama untuk mata pelajaran teknis seperti akuntansi." (D.A.N., personal communication, 2024).

Analysis of lesson plan documentation and classroom observations shows that educators who lack a good understanding of the curriculum often have difficulty implementing effective learning strategies. In the observation of 12 learning sessions, it was identified that 35% of educators still apply the 2013 Curriculum approach even though they teach in classrooms that should use the Independent Curriculum. These findings reinforce the results of research that show that educators' understanding of the philosophy and curriculum framework is the main predictor of successful curriculum implementation (Sointu *et al.*, 2023).

CONCLUSION

The implementation of the dual curriculum at SMK Indonesia Raya faces various significant challenges that need to be overcome to increase the effectiveness of accounting learning. The dualism of the 2013 Curriculum and the Merdeka Curriculum causes inconsistencies in the learning process which has implications for teaching and evaluation strategies. Poorly managed curriculum transitions, low participation of educators in curriculum development training, and limited operational budgets are the main inhibiting factors. Regarding teaching methods, project-based learning that is the core of the Independent Curriculum is less effective for accounting subjects that require intensive explanations and intensive guidance. The procedural and technical characteristics of accounting require a more targeted and structured approach with a smaller educator-student ratio.

The supporting infrastructure at SMK Indonesia Raya also needs significant improvement, especially in the availability of learning resources in accordance with the Merdeka Curriculum and increased access to learning technology. The limited number of educators, with only two active accounting educators left from the previous four, led to an overload of 32 hours per week. This condition has an impact on the quality of teaching and curriculum implementation. The perspective of educators who consider the 2013 Curriculum to be more in line with accounting because of its structured nature shows the need for learning adjustments in the application of the Merdeka Curriculum for technical subjects such as accounting.

For further research, it is recommended to examine a hybrid learning model that combines the strengths of the 2013 Curriculum and the Merdeka Curriculum specifically for accounting subjects. Comparative studies on the implementation of the Merdeka Curriculum in various vocational schools with different backgrounds and resources can also provide valuable insights. In addition, research on the development of technology-based interactive learning media that is in accordance with the characteristics of accounting subjects will be very useful to support the implementation of the curriculum. Finally, a longitudinal study to see the long-term impact of the implementation of the Merdeka Curriculum on the ability of vocational school graduates in the world of work needs to be conducted to provide a comprehensive picture of the effectiveness of the curriculum.

AUTHOR'S NOTE

The author states that this article is an original work made without the practice of plagiarism in any form. All the content of the article, concepts, and arguments developed are the result of the author's original thinking supported by literature studies and field research conducted with high academic integrity. Any use of other parties' works, ideas, or quotes has been supplemented with citations and references in accordance with the applicable scientific writing rules. The author has conducted a thorough verification of the entire content of the article to ensure the authenticity of the work and avoid any form of duplication or unauthorized taking of the intellectual works of others.

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