



## Reengineering of Health Vocational Programs in SMK/MAK: Integration of Islamic Education, Implementation of Health Law No. 17 of 2023, and Reflections from Thailand's Vocational Education Reform 4.0

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### ABSTRACT

This study explores the reengineering of health vocational high school (SMK Kesehatan) curricula in Kalimantan following the implementation of Indonesia's Health Law No. 17 of 2023, with a comparative analysis of Thailand's vocational education reform under the Thailand 4.0 framework. Using a qualitative case study approach, data were collected through in-depth interviews, observations, and documentation in SMKs located in East, South, and Central Kalimantan. Findings reveal that SMKs in Kalimantan have begun to adjust their curricula by emphasizing medical technology, hospital management, and digital health information systems. However, challenges such as limited facilities, insufficient teacher training, and weak industry partnerships remain significant barriers. In contrast, Thailand has successfully implemented holistic vocational education reform by integrating work-integrated learning, providing high-skilled vocational innovation scholarships, and establishing strong partnerships between schools and industries. Thailand's model also benefits from a robust monitoring and evaluation system that ensures alignment with labor market demands. These findings suggest that SMKs in Kalimantan need to adopt a more holistic and collaborative approach to curriculum reengineering, drawing lessons from Thailand, to produce graduates who are adaptive, innovative, and competitive in the global health sector.

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## 1. Introduction

Vocational High Schools (Sekolah Menengah Kejuruan, SMK) or Vocational Madrasahs (Madarasah Aliyah Kejuruan, MAK) are formal educational institutions that play a crucial role in preparing skilled and ready-to-work personnel. According to the National Education System Law Number 20 Year 2003 Article 15, vocational education is part of secondary education aimed at preparing students to work in specific fields of expertise (Ministry of Education and Culture, 2021). This is reinforced by the Regulation of the Minister of National Education Number 22 Year 2006, which states that vocational education not only enhances intelligence and knowledge but also shapes character and skills for independent and sustainable living (Nurmalasari et al., 2020).

In the context of globalization and the development of the Industry 4.0 revolution, the challenges faced by SMKs have become increasingly complex. The rapidly changing workforce demands graduates who not only possess technical knowledge but are also flexible and capable of adapting to technological changes, work culture, and national policies (Herbert et al., 2020). This directly impacts how the SMK curriculum is designed and how learning is implemented.

One of the expertise sectors facing significant challenges is the health sector. Health expertise programs in SMKs have historically produced many graduates working as health assistant personnel. However, the enactment of Health Law Number 17 Year 2023 has brought significant changes to the position of SMK Health graduates within the national health workforce structure (*UU No. 17 Tahun 2023*, n.d.).

In this recent regulation, health workforce classification is divided into three main groups: medical personnel, health personnel, and health support or auxiliary personnel. This differs from the previous provisions in Minister of Health Regulation Number 80 Year 2016, which explicitly recognized SMK graduates as nurse assistants, pharmaceutical assistants, and so on (*Permenkes No. 80 Tahun 2016*, n.d.)). Currently, SMK Health graduates are only acknowledged under the support personnel category, typically occupying administrative or non-medical positions.

The latest law states that Health Human Resources consist of Medical Personnel and Health Personnel. The minimum educational qualification for Health Personnel is a "Diploma Three" level. Changes have also occurred in the categorization of SMK graduates, who are no longer referred to as Health Assistant Personnel but are included in the category of Health Support or Auxiliary Personnel. This change reflects an adjustment in qualifications and roles of health workers in accordance with recent regulatory developments in the health sector.

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Tabel 1. Changes in the Health Law

	Regulation	Content
OLD	Regulation of the Minister of Health of the Republic of Indonesia No. 80 of 2016 on the Implementation of the Work of Assistant Health Workers	Chapter III Types of Assistant Health Workers Article 2 Types of Assistant Health Workers consist of: a. Nursing Assistant b. Pharmaceutical Assistant c. Dental Assistant d. Medical Laboratory Technician Assistant e. Blood Service Technician Assistant
NEW	Law of the Republic of Indonesia No. 17 of 2023 on Health	Chapter VII Health Human Resources Part One Classification of Health Human Resources Article 197 Health Human Resources consist of: a. Medical Personnel b. Health Workers, and c. Health Support or Auxiliary Workers

Therefore, the analysis concludes that graduates of the SMK Health program are more suitable to occupy positions as Administrative Personnel. Based on the analysis regarding the position of SMK Health graduates in the latest regulation, namely Law No. 17 of 2023 on Health and the Merdeka Curriculum structure, it can be concluded that the human resources produced by SMK Health are now limited to the category of Health Support or Auxiliary Personnel, primarily as Administrative Personnel.

The impact of this change can significantly affect the interest of prospective students in enrolling in SMK Health programs, as the expectations of parents and students to attend SMK Health no longer align with current regulations. Regulatory changes like this often urge educational institutions to revitalize curricula and teaching methods. In this context, reengineering study programs becomes a major challenge that needs to be addressed by health vocational schools. How educational institutions adapt and align the curriculum with the evolving needs of health workers is an essential question that must be answered.

Tabel 2. Adjustments in the Qualifications and Roles of Health Workers

Health Support or Auxiliary Workers	Transformation
Work in health service facilities or with other individuals in the health sector	Health Support or Auxiliary Workers include: a. Biological Science Personnel b. Administrative Staff c. Food Service Staff d. Financial Staff e. Mortuary Staff f. Ambulance Staff

This change brings serious consequences not only for students and graduates but also for the orientation and existence of educational institutions offering health study programs (Prihatiningsih, 2023). There is a gap between public expectations regarding the employment prospects of SMK Health graduates and the latest legal provisions that limit the scope of work for SMK graduates. This situation potentially lowers the interest of prospective students in enrolling in this major.

In response to these conditions, educational institutions need to take strategic steps through reengineering of existing study programs. Reengineering in this context refers to the restructuring of curricula, learning approaches, and collaboration networks with business and industry sectors (DUDI) to ensure graduates remain competitive (David et al., 2024). It also involves aligning with national policies and labor market dynamics.

As a comparison, Thailand is one of the Southeast Asian countries that has successfully reformed vocational education through its national program, Thailand 4.0 (Puriwat & Tripopsakul, 2020). This program is designed to respond to economic challenges based on innovation and high technology, emphasizing the crucial role of vocational education in driving growth in strategic sectors, including health.

Thailand, through the Office of the Vocational Education Commission (OVEC), has implemented various strategies such as integrating industry-based curricula, strengthening partnerships between vocational schools and companies, and continuous vocational teacher training (Sudararat, 2024). Vocational education is no longer viewed as a second-tier option but as a premier pathway supported by facilities, scholarships, and job guarantee systems.

One important innovation in Thailand is the launch of the High-Skilled Vocational Innovation Scholarship targeting strategic fields, including technology and health (webmaster, n.d.). This scholarship ensures that students not only receive technical training but also have direct internships in industries along with guaranteed job placement. This approach highlights the importance of synergy between education and the workforce to ensure graduate relevance.

Moreover, Thailand actively involves the private sector in curriculum development through the "Work-integrated Learning" (WiL) program, allowing students to learn while working. This concept is similar to Germany's dual system model and has successfully increased vocational graduates' employability (Behle, 2020). This model could serve as an inspiration for Indonesian SMKs, particularly those facing regulatory pressures such as SMK Health.

Thailand also applies a performance-oriented monitoring and evaluation system for vocational education. Each study program is assessed based on graduate success indicators, industry satisfaction, and local economic impact (Intaraamorn, 2023). With this system, vocational education becomes dynamic and responsive to changes.

Considering the success of vocational reform in Thailand, SMKs in Indonesia—especially SMK Health in Kalimantan—can adopt a more adaptive and collaborative approach in reengineering study programs. This step is crucial to ensure that graduates maintain market value despite national regulations limiting their work scope.

In East, South, and Central Kalimantan, several SMK Health institutions spread across various regencies/cities face challenges in implementing Health Law No. 17 Year 2023. This research is important to explore the reengineering steps undertaken by these

schools. Do they choose to change their expertise spectrum, maintain the old curriculum, or develop new cooperation models with industries?

By adopting a comparative study approach to Thailand's vocational education reform model, this research is expected to provide a more comprehensive picture of the challenges and reengineering strategies undertaken by SMK Health in Kalimantan. More than that, this study is also expected to contribute to the development of a more adaptive, innovative, and industry-driven national vocational education policy.

According to Howlett (2023), policy is a general plan designed to carry out the functions and duties of a minister. Existing policies continue to run until new policies are created, usually because the old policies have become inefficient and ineffective or due to a change in officials. The function of policy is to serve as a means to realize the nation's system of values in the life of society, nationhood, and statehood (Karataş, 2022). Based on this function, the characteristics of an appropriate policy are: a) Efficiency, which concerns the question of how much effort is needed to achieve the expected impact; b) Effectiveness, which addresses whether the expected impact has been achieved; c) Sufficiency, questioning how far the achievement of the expected impact has resolved the problem; and d) Justice, which relates to whether costs and benefits are distributed fairly among different groups (Zakirin & Arifin, 2022).

One form of policy that exists and is implemented in society is public policy. According to Riant Nugroho, public policy consists of decisions made by state institutions to achieve the nation's vision and mission. These public policies are formulated by legislative and executive bodies (Tawa, 2019). Thomas Gye (in Widodo, 2021) states that public policy is "whatever governments choose to do or not to do." This definition implies that policies are made by government bodies, not private organizations, and that policy involves choices that must be implemented or not. Hamdi defines public policy as patterns of action applied by the government and manifested in laws and regulations for the administration of the state. From this definition, three main characteristics of public policy emerge: the goal of public policy is to solve public problems; public policy is a pattern of action reflected in programs and activities; and every public policy is always contained in positive law. One example of public policy implemented in Indonesia is education policy.

Education policy is public policy in the field of education, serving as a public policy to achieve the development goals of the country and nation in education as part of the overall development goals of the country and nation (Madani, 2019).

### **Vocational Education**

Vocational secondary education is provided by Vocational High Schools (Sekolah Menengah Kejuruan, SMK) or Vocational Madrasahs (Madrasah Aliyah Kejuruan, MAK). Vocational secondary education is grouped into vocational fields based on developments in science, technology, and/or arts, industry/business sectors, and employment demands at the national, regional, and global levels, except for vocational programs related to efforts in preserving cultural heritage. Vocational secondary education consists of three levels and can also have four levels according to the demands of the workforce.

Vocational education is part of the education system designed to prepare individuals to be more capable of working in a particular occupational group or field than in other fields (Pambudi & Harjanto, 2020). The objectives of vocational education are: a) to meet society's need for skilled labor; b) to increase educational choices for each



individual; and c) to encourage motivation for continuous learning (Kovalchuk et al., 2022).

According to Law No. 2 of 2003 concerning the National Education System (UU Sisdiknas), Vocational Secondary Education prepares students to work in specific fields. Meanwhile, Government Regulation No. 19 of 2005 regarding National Education Standards states that Vocational Secondary Education is education at the secondary level that prioritizes the development of students' abilities for certain types of jobs. Furthermore, according to Law No. 20 of 2003 on the National Education System, secondary education consists of general secondary education and vocational secondary education. Secondary education units include Senior High Schools (SMA), Madrasah Aliyah (MA), Vocational High Schools (SMK), and Vocational Madrasahs (MAK). Vocational secondary education is education at the secondary level that focuses on developing students' skills to perform certain types of jobs so they are ready to enter the workforce. Vocational secondary education is only provided at the upper secondary level, including Economic Senior High Schools (SMEA), Family Welfare Senior High Schools (SMKK), and Technical Senior High Schools (STM). Currently, all of these upper secondary vocational education institutions are collectively known as Vocational High Schools (SMK).

### **Reengineering**

Based on the concept put forward by Hammer and Champy, reengineering refers to the fundamental rethinking and radical redesign of an organization's business processes aimed at achieving dramatic improvements in business performance. From this perspective, reengineering can also be understood as an innovation effort at the process level, involving the redesign of strategic vision and competitive strategy, as well as the development of new business processes aligned with the desired business direction. Hnylianska (2022) process reengineering is a thorough rethinking and radical.

The study by Lee et al., (2022) focuses on how human resource (HR) reengineering and the implementation of entrepreneurial learning can drive organizational revitalization in Malaysia's travel and tourism sector. This study emphasizes that creating or adding value is the essence of the organizational revitalization process. Through reengineering, companies can develop employees who are able to anticipate challenges in the next stage of development and adapt to changes in the business environment.

During the 1990s, reengineering practices were generally characterized by application to operational processes with a focus on operational metrics such as time, cost, and quality. However, recently there has been a tendency toward more strategic reengineering. This shift aims to go beyond the microscopic concerns of operational strategy and enable organizations to gain much greater value from their reengineering efforts (Nasukah, 2019).

In the context of education, reengineering refers to the fundamental rethinking and radical redesign of educational processes within an institution or education system. The primary goal of educational reengineering is to achieve significant improvements in education quality and learning outcomes. Educational reengineering focuses not only on operational aspects but also on the transformation of concepts, curricula, teaching methods, and the interaction between educators and learners. For example, Presidential Instruction Number 9 of 2016 on the Revitalization of Vocational High Schools (SMK) as an effort to improve the quality and competitiveness of Indonesia's human resources

emphasizes the need for immediate refinement and adjustment of the SMK curriculum to align with the needs of graduates' users (link and match). Presidential Regulation Number 87 of 2017 on Strengthening Character Education further reinforces the view on the desired characteristics of human resources through the education system, especially for SMK graduates entering the workforce. In this regard, reengineering of vocational education programs is necessary by restructuring the Vocational Secondary Education Expertise Spectrum (PMK) to align SMK curricula with labor market demands based on the "demand driven" principle. Moreover, the need for SMK reengineering arises from the demands of 21st-century competencies and the lack of soft skills mastery among SMK graduates. These two factors become unavoidable reasons to make the restructuring of vocational secondary education a systemic and inseparable necessity.

Steps in educational reengineering may involve rethinking the curriculum to be more relevant to labor market needs and contemporary developments. Additionally, redesigning innovative and responsive teaching methods that cater to students' learning styles is an integral part of this reengineering. Evaluation and assessment processes can be modified to reflect deep understanding and practical application of learning materials.

Educational reengineering can also involve the use of information and communication technology to enhance accessibility, efficiency, and effectiveness of learning. The integration of technology opens new opportunities for virtual interactions, online-based learning, and increased student engagement through digital platforms.

In the context of educational reengineering, changes are not limited to academic aspects but also include the development of students' soft skills and character. Character education, strengthening interpersonal skills, and empowering students to think critically and creatively become important components of this reengineering.

While the goal of educational reengineering is to achieve better and more relevant learning outcomes aligned with contemporary demands, these changes may also require broad support from all stakeholders, including teachers, students, parents, and educational administrators. Educational reengineering is not only about structural changes but also about cultural and paradigm transformation in education to achieve a more adaptive and progressive educational vision.

## **2. Method**

This study employs a qualitative approach using a case study method to deeply explore how Health Vocational High Schools (SMK Kesehatan) across several provinces in Kalimantan adapt to regulatory changes stipulated in the Health Law No. 17 of 2023. The qualitative approach was chosen because it can provide a comprehensive understanding of the ongoing social and educational phenomena, allowing the researcher to observe the research subjects holistically and in depth. The case study method is considered relevant in this context, given the research focus on exploring strategic steps and the curriculum reengineering processes undertaken by schools in response to national health regulation changes (Priya, 2021).

Data collection was conducted through three main techniques: in-depth interviews, observation, and documentation. In-depth interviews were carried out with school principals, subject teachers, and policymakers within the Health Vocational High Schools. The purpose This study employs a qualitative approach using a case study method to deeply explore how Health Vocational High Schools (SMK Kesehatan) across

several provinces in Kalimantan adapt to regulatory changes stipulated in the Health Law No. 17 of 2023. The qualitative approach was chosen because it can provide a comprehensive understanding of the ongoing social and educational phenomena, allowing the researcher to observe the research subjects holistically and in depth. The case study method is considered relevant in this context, given the research focus on exploring strategic steps and the curriculum reengineering processes undertaken by schools in response to national health regulation changes (Priya, 2021).

For international comparison, this study also reviews the vocational health education system in Thailand through literature study. Thailand is known for its strong vocational education system integrated with labor market needs, especially in the health sector. The study shows that vocational education in Thailand successfully builds close links between educational institutions and industry, enabling graduates to be absorbed more quickly in the workforce (Chalapati & Chalapati, 2020). With this comparison, the study aims to provide insights into potential adaptation opportunities for Health Vocational High Schools in Indonesia.

By combining field data and literature study, this research is expected to offer a comprehensive understanding of the challenges, strategies, and opportunities faced by Health Vocational High Schools in Kalimantan in adapting to the new regulation. The results are anticipated to serve as a reference for policymakers and educational practitioners in developing curricula and learning strategies that are more adaptive, innovative, and aligned with the needs of the national and global health sectors. One of these interviews was to gather information related to challenges faced, adaptation strategies implemented, and evaluations of the new regulation's execution in vocational health curricula. This technique was selected because it can provide rich and detailed data regarding the perceptions and experiences of research subjects (Bazen et al., 2021).

### **3. Finding and Discussion**

The implementation of Health Law No. 17 of 2023 in study programs at Health Vocational High Schools (SMK Kesehatan) in Kalimantan has the potential to optimize students' competencies in the health sector. Health Law No. 17 of 2023 stipulates that health workers are divided into medical personnel and health personnel. One of the major changes regulated is that the minimum educational qualification for health workers is now a Diploma Three. Meanwhile, graduates of Health Vocational High Schools who were previously classified as Health Assistant Personnel are now categorized as Supporting or Auxiliary Health Personnel. This change reflects an adjustment in the recognition of the roles and qualifications of health workers in Indonesia.

The change in health worker qualifications according to Health Law No. 17 of 2023 significantly impacts the curriculum structure at Health Vocational High Schools. Previously, students were prepared to become medical assistant personnel who were more involved in direct service delivery. However, with this change, their roles are more directed toward support tasks that assist medical personnel. This curriculum adjustment aligns with the work-based competence theory, which focuses on strengthening practical skills and general knowledge in the health field without compromising service quality.

Reengineering of study programs at Health Vocational High Schools in Kalimantan is carried out to align the curriculum with the demands of the new Health Law. Interviews with program heads reveal that the primary reason for this reengineering is to ensure that graduates possess skills that correspond with developments in medical



technology and the latest competency standards. Programs that previously focused on basic health worker training now emphasize mastery of medical technology, hospital management, and the use of more complex health information systems.

This transformation process involves not only a revision of learning materials but also the addition of laboratory practicums and technology-based teaching methods. Teachers are required not only to master the content but also to be capable of transferring technical skills that can be directly applied in the workforce.

These findings are consistent with changes in health worker regulations reflecting a global trend toward raising qualification standards for both medical and non-medical personnel. In several countries, the supporting personnel category has also undergone changes, and Indonesia follows this trend to develop a more professional and standardized health workforce.

The change in graduate categories signals a paradigm shift in health education at the vocational high school level. Previously, Health Vocational High School graduates were regarded as personnel directly involved in medical processes; however, with this adjustment, they function more as support staff facilitating the smooth operation of health facilities. This change affects the learning approach, which must now focus more on managerial knowledge, health data processing, and the application of medical technology.

On the other hand, this adjustment can also be seen as an opportunity to introduce students to the rapidly advancing health industry based on technology. As Socha-Dietrich, (2021) stated, this change enables a curriculum transformation that is more relevant to the labor market demands in the health sector, which is increasingly integrated with digital technology and health information systems.

The study results show that although the readiness of Health Vocational High School students for the workforce has increased, the adaptation process to the new curriculum, which is more oriented toward support personnel, requires time. This is understandable because the change not only affects the students' technical competencies but also transforms their roles within the health system. According to outcome-based competence theory, changes in student competencies resulting from this curriculum bring long-term benefits in meeting labor needs in the health sector (Kogo, 2022).

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However, limitations in facilities and teacher training remain major obstacles. As expressed by the majority of respondents, although the curriculum changes emphasize strengthening supporting skills, the availability of resources such as health technology devices and more intensive training for teachers still present significant challenges. The school administration acknowledges the importance of training for teachers and educational staff to prepare them for the implementation of Health Law No. 17 of 2023. According to interviews with the Principal, socialization and workshops are routinely conducted to provide understanding about the new curriculum and the regulatory changes. Some training programs even involve teachers from other schools and experts from the health industry who have experience in applying medical technology in work environments.

Through this training, it is expected that teachers not only update their knowledge about the latest health policies but also learn how to integrate technology into the teaching process, so that students gain not only theoretical knowledge but also practical skills needed in the field.

The reengineering of the study program at Health Vocational Schools (SMK) in Kalimantan involves significant changes in curriculum structure. The Head of the Study Program explained that curriculum adjustments were made by integrating technology training such as the use of electronic medical records, hospital information systems, and technology-based care. Emphasis on practical skills and the use of medical technology is one of the main changes implemented in this program.

In addition, changes also include the addition of work-based practicums conducted through internships at hospitals and community health centers (puskesmas), allowing students to directly experience the challenges and demands of the working world. All these changes are carried out to ensure that the curriculum applied meets the competency standards stipulated in the Health Law and strengthens the position of SMK Health as an educational institution relevant to the development of the medical field. Designing and revising the curriculum to accommodate the Health Law is not an easy task. Teachers and the Head of Study Program identified several challenges, including the lack of facilities to support advanced technology training and limited time available for practical learning. To meet the new competency standards, schools must allocate more time for practical training and technology-based medical teaching, which requires special equipment that may not yet be fully available in the schools. Furthermore, teachers who were initially accustomed to conventional curricula found it difficult to adapt to more advanced technology. Nevertheless, through intensive training and collaboration with industry parties, schools have managed to overcome most of these challenges.

The level of alignment between the material taught and the Health Law No. 17 of 2023 regulations is considered quite high. Teachers and the Head of Study Program emphasized that they have conducted thorough evaluations and adjustments of teaching materials to ensure that the competencies mastered by students are relevant to the standards set by the law. The material taught not only covers theory but also integrates practical skills and technical abilities in the medical field. However, teachers admitted that there is a time gap between the newly enacted policies and the schools' readiness to fully implement technology-based materials, such as the use of electronic medical records and hospital management systems. Health Law No. 17 of 2023 has had a significant impact on the quality of learning at SMK Health. Teachers and Principals agree that curriculum changes have positively influenced students' competencies. With the addition of technology-based training and real-world practice, students are now better prepared to face challenges in the workforce. Students who were previously less familiar with medical technology now better understand how to use advanced medical devices, such as electronic medical records, which are part of the new curriculum. SMK Health students also feel more confident with the skills they have acquired during more applied learning.

Student learning outcomes have also shown improvement, particularly in mastering practical skills and understanding health technology. According to interviews with several students, they feel more prepared and capable of adapting to the needs of the health industry. This is reflected in improved practical exam results and better

internship assessments, where students demonstrate more mature abilities in applying health knowledge in work environments.

However, despite the improvements, some students expressed the need for more time to adapt to the new technology-based materials. One of the biggest barriers in implementing the reengineering of study programs is the limited facilities, especially regarding medical equipment and technology needed to support student practice. To overcome this, schools collaborate with hospitals and health clinics to provide more complete practice facilities.

In addition, the lack of teacher readiness in adapting to new technology is also a challenge. To address this, schools conduct ongoing training for teachers and collaborate with the health industry to enhance understanding of the latest medical technology. The evaluation process for the success of the Health Law implementation is carried out through competency tests, practical assessments, and feedback from students and parents. Based on evaluation results, schools plan to improve facilities and allocate more time for technology-based practicums and internships at hospitals. The Principal also suggested that teacher training programs focus more on the use of the latest technology and improving teaching quality.

### **Spectrum of Choices in Reengineering Study Programs at Health Vocational Schools (SMK) in Kalimantan**

From the interview results, it is evident that there is a spectrum of responses among schools in facing the new health regulations. More anticipatory schools, such as SMK Isfi Banjarmasin and SMK Negeri 17 Samarinda, tend to view regulatory changes as opportunities to broaden their educational scope. By adding majors beyond specific health fields, they strive to produce graduates who are more resilient in a dynamic job market and reduce dependency solely on the health sector.

The diversification approach to study programs, as practiced by SMK Isfi Banjarmasin, shows that schools can see policy changes as opportunities rather than merely challenges. By expanding the range of skills offered, schools reduce dependence on a single sector—in this case, health—that is vulnerable to regulatory changes, market trends, and labor demands. This approach strengthens the position of the vocational school within the educational ecosystem because graduates possess more flexible and adaptive skills.

The steps taken by SMK Negeri 17 Samarinda further demonstrate that educational decision-making cannot be separated from labor market analysis. Although the health sector remains promising, it can still experience fluctuations due to government policy changes or health industry dynamics. By venturing into fields such as logistics and digital business, the school secures its position as an institution capable of preparing cross-sectoral workers. As a result, graduates will not only be able to work in the medical sector but also understand supply chain management and broader business ecosystems.

Conversely, SMK Borneo Lestari adopts a “wait and see” stance, preparing diversification options only if public interest in health majors declines. This attitude reflects the school’s acknowledgment of market and regulatory uncertainties but without taking concrete steps until there is clear evidence of reduced demand.

In this context, SMK Borneo Lestari reflects a type of educational institution that bases strategic decisions on public response. If market demand for health competencies remains stable or grows, they will maintain existing study programs. Conversely, if

interest and job opportunities in the health sector weaken, shifting focus to more favored majors such as beauty care becomes a realistic option. Such an adaptive approach can prevent stagnation and ensure that offered programs align with student aspirations and labor market demands.

Meanwhile, SMK Muhammadiyah Palangkaraya and SMK Geweh represent schools that remain confident in the relevance and appeal of the competencies they have long developed. They choose to maintain focus on existing study programs, possibly based on their belief in the stability or specificity of those skills in the health labor market despite regulatory changes.

SMK Muhammadiyah Palangkaraya, focusing on Pharmaceutical Technology, and SMK Singa Geweh, also oriented toward Pharmaceutical Technology, seem to rely on steady labor demand in the pharmaceutical sector. Despite shifts in health regulations, the demand for skilled workers in drug handling, laboratories, and general pharmacy services likely remains high. Thus, these schools do not feel an urgent need to alter their program directions immediately but instead focus on sharpening core competencies they have long pursued.

The variety of approaches taken by different SMKs in Kalimantan confirms that reengineering study programs is not a one-dimensional response. Some schools choose diversification, others wait for market signals, and some continue to trust the strength of their established core competencies. These decisions reflect the flexible and diverse nature of vocational education environments and highlight the complexity of educational policy-making amid government regulations and labor market dynamics.

In conclusion, each SMK considers different factors when designing their reengineering strategies. For schools that respond quickly, diversification is a way to expand employment opportunities for graduates and reduce the risks associated with policy changes. Those who choose to wait may be influenced primarily by resource limitations or confidence in market stability. Those sticking with existing programs focus on strengthening competencies and reputation, hoping new regulations do not diminish the graduates' relevance.

Therefore, the interview findings and analysis underscore the importance of local context, resource potential, school leadership vision, and industrial support in the reengineering process of SMK study programs. There is no single strategy that is absolutely right or wrong; all depend on the conditions and challenges faced by each institution. Ultimately, the primary goal is to ensure that SMK graduates remain relevant, adaptive, and competitive in an ever-changing workforce, so that SMKs continue to fulfill their role as providers of skilled labor essential to national development demands.

### **Reengineering Vocational Study Programs: Lessons from Thailand**

The vocational education reform in Thailand through the Thailand 4.0 program provides a concrete example of how a country can comprehensively and purposefully reengineer its curriculum (Puriwat & Tripopsakul, 2020). The main focus of this program is to position vocational education as the spearhead in facing the era of innovation- and technology-based industry. In the context of health education, Thailand prioritizes the integration of medical technology, health management systems, and learning practices directly connected to industry needs (Teerawattananon et al., 2023). This differs from the situation in Indonesia, particularly in Kalimantan, where Health Vocational Schools (SMK Kesehatan) are still struggling with curriculum adjustments that are more administrative in nature due to the enactment of Health Law No. 17 of 2023.



One of the main innovations in Thailand's vocational curriculum reengineering is the implementation of the work-integrated learning (WiL) model. Through this system, students not only receive theoretical instruction but also directly participate in practice at hospitals, clinics, and health laboratories. This concept allows learners to gain real-world experience during their studies so that upon graduation, they not only master technical skills but also have mental readiness and professionalism aligned with global health industry standards (Jewpanya et al., 2023). In Indonesia, a similar concept is still limited to short-duration fieldwork practice programs (PKL), resulting in suboptimal impacts on graduate work readiness.

Besides WiL implementation, Thailand has also launched the High-Skilled Vocational Innovation Scholarship program, which plays a vital role in curriculum reengineering (webmaster, n.d.). This program provides full support for high-achieving students in strategic fields such as health technology. The scholarship not only covers education costs but also grants access to modern facilities, intensive mentoring from industry practitioners, and guaranteed job placements after graduation. Such systemic support ensures that curriculum reengineering is not merely an update of teaching materials but also guarantees continuity of graduate competencies with industry demands.

Thailand's success also lies in the active role of the Office of the Vocational Education Commission (OVEC) in overseeing and evaluating vocational study programs. Each curriculum is assessed based on graduate success indicators, industry satisfaction levels, and local economic impact (Mongkhonvanit & Choomnoom, 2022). With strict monitoring systems, study programs can be promptly improved if they fail to meet expected targets. This approach contrasts with Health Vocational Schools in Kalimantan, which are still limited to internal evaluations without comprehensive external monitoring systems.

Thailand has also successfully changed public perceptions of vocational education. Through curriculum reengineering relevant to industry needs, vocational education is no longer seen as a second-tier option but as a prestigious pathway supported by modern facilities and promising job opportunities (Manowaluilou et al., 2023). On the other hand, Health Vocational Schools in Kalimantan continue to face challenges due to declining student interest caused by the limited job scope for graduates following the enactment of Law No. 17 of 2023. This regulation positions SMK Health graduates as support personnel, so public expectations do not fully align with the actual prospects available.

In terms of industry partnerships, Thailand demonstrates consistency in involving the private sector in curriculum development and implementation. Close collaboration allows for intensive internship programs and flexible curricula that adapt to technological developments and market needs (Lhakard, 2024).. In Kalimantan, some Health Vocational Schools have begun establishing cooperation with hospitals and clinics, but the scale and intensity remain limited. The absence of strong government support systems, such as scholarships or job guarantees, means that their achievements cannot yet match Thailand's.

Learning from good practices in Thailand, it can be concluded that the success of vocational health curriculum reengineering heavily depends on synergy between regulations, facilities, teaching staff, and industry involvement (Sakdapat, 2024). To remain competitive, Health Vocational Schools in Kalimantan need to adopt similar



approaches by strengthening industry partnerships, providing more technology-based practical facilities, and creating integrated monitoring mechanisms. These steps are crucial so that graduates maintain competitiveness in the labor market, even though their category is limited by regulation to health support personnel. With such strategies, Indonesian Health Vocational Schools can emulate Thailand's success in facing global challenges in the health sector.

#### 4. Conclusion

Overall, the implementation of Health Law No. 17 of 2023 has driven the reengineering process. The reengineering of study programs carried out by Health Vocational Schools (SMK Kesehatan) in Kalimantan generally focuses on changes in teaching materials that are more skills-based, such as the use of medical technology and hospital management. Programs that previously emphasized only basic skills are now oriented toward the development of technical expertise in accordance with the standards set by Health Law No. 17 of 2023. However, significant challenges arise in designing curricula that comply with this regulation, particularly concerning the availability of facilities supporting student practice and the rapid adaptation of technology. The current curriculum is sufficiently aligned with the regulation, though it still requires further adjustments following advancements in medical technology.

Thailand's success in reengineering vocational education, especially in the health sector, offers valuable lessons for Health Vocational Schools in Kalimantan. Through the Thailand 4.0 program, the country has been able to build a vocational education system integrated with industry needs, technology-oriented, and supported by a work-integrated learning mechanism that ensures graduates' readiness for the workforce. Innovations such as the High-Skilled Vocational Innovation Scholarship and the strengthening of partnerships between schools and industry demonstrate that curriculum reengineering extends beyond academic aspects to systemic support guaranteeing the sustainability of graduates' careers (Puriwat & Tripopsakul, 2020; Jewpanya et al., 2023).

Compared to the situation in Kalimantan, Health Vocational Schools are still in the regulatory adaptation phase due to the enactment of Health Law No. 17 of 2023. Although reengineering efforts have begun, especially in the integration of medical technology and health management, limitations in facilities, teaching staff, and government support have resulted in suboptimal outcomes. The most notable difference with Thailand lies in the lack of intensive partnerships with the industry and the absence of a comprehensive monitoring and evaluation system.

Therefore, Thailand's experience indicates that successful reengineering of vocational health curricula must be holistic, including improvements in teaching quality, provision of modern facilities, scholarship support, and close collaboration with business and industry. Health Vocational Schools in Kalimantan can draw inspiration from this approach to enhance graduate competitiveness, even though their job scope is limited to support personnel categories. If these strategies are consistently implemented, Indonesian Health Vocational Schools will be able to produce graduates who are adaptive, innovative, and competitive both nationally and globally.

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