



The Challenges for Indonesia to Integrate Dual Vocational Education and Training System

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Abstract: The quality of Indonesian graduates from Technical Vocational Education and Training (TVET) programs is low and does not fulfil industry requirements and competencies. This is occurring since the talents or skills required by the sector differ from those accessible on the demand Hence, developing nations require practical VET systems and dual systems. Indonesia has recently attempted to examine the Dual Vocational Education and Training system in greater detail. This study investigates the challenges encountered by Indonesia throughout the implementation of its dual VET system and how they overcame them to ensure effective delivery. Notably, the primary goal of this literature study was to provide theoretically announced and policy-relevant understandings of the obstacles or challenges that every nation would encounter while establishing a dual system. This study combines empirical survey results from Germany and Switzerland to identify significant challenges and critical success criteria for the transfer. The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) were used to guide the conduct of a systematic review. The results show that the direct transfer or implementing present multiple challenges and difficulties that comprise Challenges for The Public Sector and The Public-Private. On the other hand, for a successful transfer of VET tight cooperation between all stakeholders and a shared awareness and deeper knowledge of the contextual conditions in the target nation are paramount. Therefore, the question of whether the dual VET system in German or Switzerland can be directly implemented in another country, without first examining specific challenges and difficulties of each context, must be clearly and systematically considered.

Keywords: TVET, Dual VET system, success factor, training system

1. Introduction

The current social issues and the global economic crisis linked with unemployment, especially the higher youth unemployment rate, have made the cultivation of skills a priority field in many nations (Adely et al., 2021). This is due to the significant interest of policymakers and the strong connections among Vocational Education and Training (VET), economic strength, and employment-related social issues (Ramadhani & Rahayu, 2021). Many governments, for instance, have indicated a strong interest in adopting a dual system in their respective national settings to increase the employability of youngsters and facilitate the transition from school to work (Christopoulou & Ryan, 2009). The current debate has

sparked a tendency to export similar VET systems, or portions thereof, to other countries. Increasing emphasis is being paid to how educational systems might transfer, adapt, and implement the dual system (Birkelund, 2022), primarily concerning the German legacy of dual vocational training, regarded as a successful system (Durazzi & Geyer, 2020). Some studies have found challenges in transferring the model (Eichhorst et al., 2012; Li & Pilz, 2021), others have examined the challenges, conditions, and restrictions that arose during its implementation (Eichhorst et al., 2015; Gessler, 2017).

As a result of its cultural and social integration and the intricate procedural processes necessary for its successful execution, the dual apprenticeship model that has been so effective in countries such as Switzerland and Germany are not easily transferable to other national contexts. The Swiss Agency for Development and Cooperation or called SDC, and the German Agency named short for GIZ have exerted considerable effort to implement the dual VET system in several developing nations. The export of the dual VET system to developing nations has long been the primary objective of German vocational and training cooperation. The failure to export the dual VET system during the 1980s and 1990s has led to the agreement that this VET model cannot be directly exported to other nations. Research in this area has demonstrated that cultural and institutional contexts are essential for successfully implementing dual types of VET systems (Fürstenau et al., 2014; Smith & Barabasch, 2012). Among the requirements recognised for the potent performance of dual forms of vocational education and training are the participation of employers in the provision of training, the institutional capacity to monitor the quality of activity in the workplace, the level of development of the chambers of commerce, the reputation of vocational studies, and the ability to cooperate between social partners.

The quality of Indonesian graduates from Technical Vocational Education and Training (TVET) programs is low and does not fulfil industry requirements and competencies (UNESCO-UNEVOC, 2013). Skills mismatch aggravates this issue. This is occurring since the talents or skills required by the sector differ from those accessible on the demand (Allen, 2016; Di Gropello et al., 2011; Purnagunawan et al., 2017). Hence, developing nations require practical VET systems and dual systems. Indonesia has recently attempted to examine the Dual Vocational Education and Training system in greater detail. In this case, Indonesia must learn from countries with a capable and robust VET system, such as Germany and Switzerland. Internationally, Switzerland and Germany's dual vocational education and training systems are regarded as highly effective. In this approach, learners shall study in more than one location: in class and in industrial spots (Oeben & Klumpp, 2021). Hence, the procedure is established on the joint effort between the industry as local partners and the school. The Indonesian government believes that by implementing this system, the industrial sector will be able to absorb the labor force, especially future generations.

The Dual Vocational Education and Training program is a component of Indonesia's plan to build its Industrial Priority Sector by 2035. This study investigates the challenges encountered by Indonesia throughout the implementation of their dual VET system and how they overcame them to ensure effective delivery. Notably, the primary goal of this literature study, was to provide theoretically announced and policy-relevant understandings of the obstacles or challenges that every nation would encounter while establishing a dual system. The investigation began by describing the German, Swiss, and Indonesian dual vocational education and training systems that are currently in place. This research tries to utilize the Ministry of Industry Regulation No. 3/2017 about the "Guidance on Development and Development of competency-based Vocational High School that Link and Match with the industry" and the Memorandum of Understanding (MoU) of 5 Ministries about Development of Vocational Education Based on Link and Match Competency with Industry" (Ministry of Industry, 2017). This study also tries to see the differences between government, training and private agency, and the local authority by using this information.

The authors tried to look at Indonesia's current vocational training system, including preferences, and government rules, and try to describe the funding, training regulation, and challenges in the current Dual VET system. The contribution of this study considers the main challenges and critical success criteria in VET transfer from developed to developing countries and delivers an overview and phenomenon of the challenges that Indonesia will face in adopting dual VET. The Dual VET System in Germany, and Switzerland, will be described. This study focused on the following major questions in line with the research's objective: (1) What are the major challenges to implementing the Dual VET in Indonesia? (2) What are the key success factors of VET element transfer?

1.1 Essential Factors in building the System

The steps to adapt the exceedingly desirable characteristics of the dual system from Germany to nations with insufficient Vocational Education and Training must address the necessity to establish all the similar institutions necessary for its efficient operation. The dual system sets the stage for a close connection between school and workplace, as well as between theory and practice. Dual vocational education and training have proven to be a success. Such systems contribute to the national economy and society by increasing the competitiveness of Small Medium Enterprises (SMEs) on global markets, providing greater employment security for skilled employees compared to unskilled workers, and lowering young unemployment rates (Jackson, 2015). Occupational skills that are relevant to the labor market but not specifically focused on the needs of individual enterprises are created using the dual method. The dual vocational education and training systems in Germany and Switzerland have changed through time and are heavily impacted by the economic environment and the country's historical development process. A system like this also makes the transition from education to job easier and adapts to the labor market's skill requirements.

Winslow et al., (2013) discovered that the organization differs between countries. This arrangement comprises of various components, including the certification system, the emphasis on competencies, apprenticeships, and the ratio of time spent in school and the job. Hoffman, (2011) emphasizes that all stakeholders, including employers, unions, government, professional organizations, licensing programs, educational boards, and individual schools, must collaborate in creating the policy and constructing the legal framework for the vocational system to be implemented. On the other side, Eichhorst et al., (2012) noted that, based on foreign experiences, it is difficult to adopt the dual VET system, despite the fact that this system may appear to be the best system to deploy to integrate education and the industry. Dual VET and VET programs are typically only effective when supported by big actors. For instance, this system will function efficiently if the employer provides structured and systematic training and a current training program. Employers must be involved in the creation of training programs because they have a better understanding of what is required in the workplace. In addition, vocational school may only be effective if students view it as a viable job path.

1.2 Vocational Education in Indonesia

Vocational education serves to organize students to improve their quality of life, develop themselves, and have the expertise and courage to open their own business (Ningrum, 2016). As a special education, vocational education is planned to organize learners to enter the manpower. The learners are prepared to be a productive workforce that can create superior products that can compete in global markets. They are also prepared to be professionals who have a moral quality in their vocational field (Smeby, 2014). In addition, vocational education also serves to prepare students to master science and technology. On the other hand, vocational education aims to equip students with applicable skills and knowledge for daily living in the community. The vocational curriculum includes both general and occupation- or profession-specific information. To promote flexibility, vocational schools must give transportable abilities between occupations (Shavit & Muller, 1998).

The vocational education system in Indonesia failed to fulfil industry and employer requirements. It lacked supply-side components like industry-relevant training programs and teacher qualifications. Recent studies demonstrate that manufacturing and current service, for instance, tourism, health, and banking seek more qualified students who have completed vocational training (Indrawati & Kuncoro, 2021). Data on formal sector employment among vocational secondary school graduates and salary premium ratios indicate that vocational students who obtain a job after graduation do better than those with general secondary education in the job market (Allen, 2016).

Table 1 - Ratio of secondary and tertiary graduates' earnings to primary graduates' earnings, 2005-15

Level of educational attainment	2005	2015
General junior secondary school	1.23	1.21
Vocational junior secondary school	1.70	1.51
General senior secondary school	1.72	1.62
Vocational senior secondary school	1.92	1.69
College (1-2 years)	2.25	2.23
Junior college (3 years)	2.51	2.40
University	2.95	3.10

Source: Calculated from Indonesian Labour Force Survey (Sakernas).

According to the findings of the Indonesian Labour Force Survey conducted in 2015 indicate that vocational secondary school graduates earn slightly more than their general secondary school colleagues (Table 1). With the development of the ASEAN Economic Community, the mobility of skilled and better-educated employees is likely to expand (AEC). To capitalize on this potential, Indonesia must increase the quality of its vocational education system.

2. Research Methodology

The objective of a systematic literature review is to offer an overview of the present condition of research on a particular topic and to draw practical or theoretical conclusions from it (Toepper et al., 2021; Xiao & Watson, 2019). This article combines empirical survey results from Germany and Switzerland to identify significant challenges and critical success criteria for the transfer. The following phase, data selection, involves a systematic search and screening for eligibility. The sources and search criteria must be specified, and relevant research must be selected, screened, and reviewed, while ineligible research must be excluded. A multi-step process was used to determine whether relevant sources should be included. Excluded for doctoral dissertations, the following online research databases were utilized: Scopus, Web of Science (WOS), EBSCO, and Google Scholar. These databases are the most widely used online databases for research on vocational education training studies. Additional information is taken from statistical data and from further publications related to VET (e.g., handbooks, studies) including Organization for Economic Co-operation and Development) OECD and Asian Development Bank (ADB).

After evaluating the initial batch of pertinent literature, the authors identified keywords and keyword varieties to discover further pertinent articles. In addition to keyword precision, the usage of the Boolean operators "AND" and "OR"

is critical for a tailored search (Ritschl et al., 2016). The "snowball technique" was used in addition to the systematic literature search to find additional literature to supplement the formally published research (Adams et al., 2017; Waddington et al., 2012). Haßler et al., (2019) stress the significance of having a variety of publication venues, as "many significant activities are not covered in professional publications." Google Scholar was utilized to discover papers of this type and other relevant studies. Search keyword phrases included ("dual system", "dual training", "vocational education and training", "VET", "German dual VET system", "Switzerland dual VET system", "Indonesia dual system", "challenges dual system" and "transfer of VET"). The third phase, data processing, concentrates on critically analyzing the selected literature's quality to exclude inappropriate search results, choose relevant data, and evaluate the (preliminary) selection of sources. Consequently, the next step was to assess the relevancy of the titles and abstracts of the publications identified by the database search. Afterwards, thematically irrelevant papers could be excluded, while those significant for answering the study topic were studied in further detail.

Criteria for article inclusion selection included concurrence with each of the following (1) The articles were published between 2010 and mid of 2022; (2) the articles were that the article had to be full-length and written in English; (3) The articles has been published in a peer-reviewed journal or book or report such as Springer book series, OECD, and ADB; (4) The thematic focus based on theory and/or concept of transfer of dual VET system.

The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) were used to guide the conduct of a systematic review. The selected search terms based on the keywords were input and combined both as keywords and as free text during a systematic literature search, as this strategy proved to be highly effective. Figure 1 presents a flow diagram of the systematic review method. The preliminary literature search yielded 215 studies (articles, books, and reports). Afterwards, reading the titles and abstracts and excluding duplicated research, 122 studies were assessed, of which only 57 were found eligible after reading the complete text and applying the inclusion criteria. A final selection based on relevance after being excluded for some reason are 51 studies.

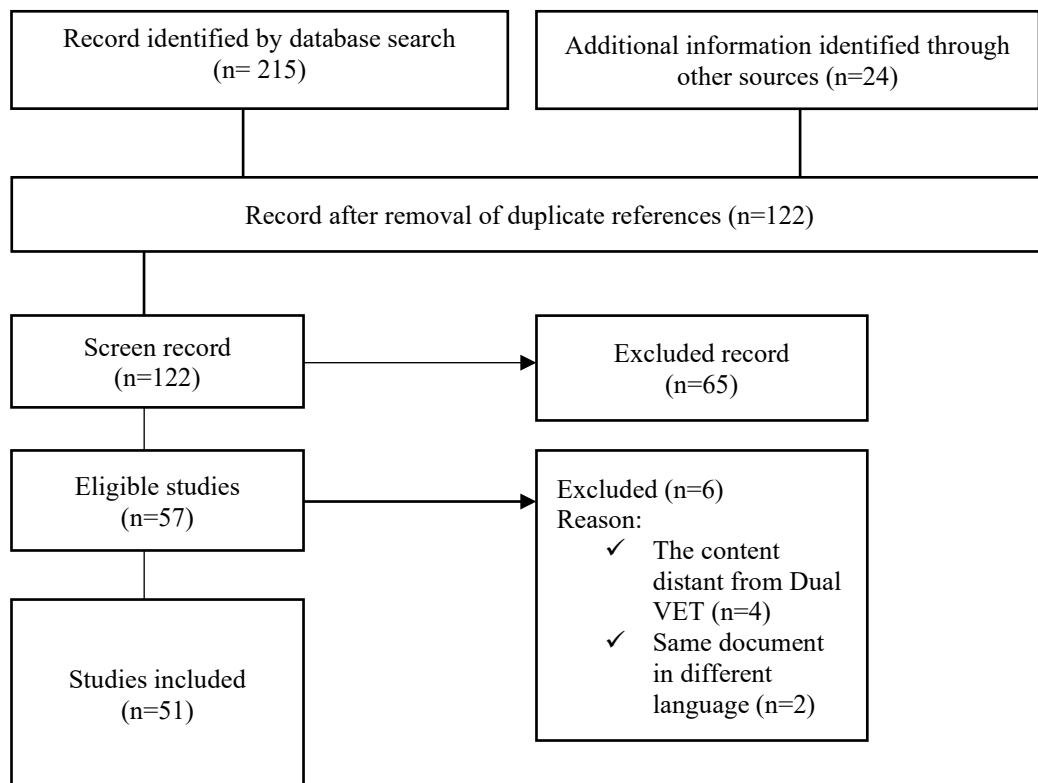


Fig. 1 - Flowchart of articles selected on the systematic review
Source: Prepared by authors

3. Results and Discussion

Several nations have implemented dual vocational training systems due to the support of several international organizations, like the OECD and the European Union. They have endeavoured to transfer the model traditionally developed by Germanic countries. As pointed out by Eichhorst et al., (2015), dual apprenticeship programs in Germany and Switzerland share key institutional elements. These elements include a) A high level of formalization; in other words they provide training in centrally approved professional qualifications; training materials are regularly tailored to work market needs; b) substantial engagement of social actors in the creation and upkeep of the curriculum at the governmental and federal levels, as well as in the application and oversight of the curriculum at the regional levels; c) This training is

subsidized by the government and is provided through vocational colleges that teach dual apprenticeship's classroom portion, which includes general education and skill-specific training; d) to offer apprenticeships, businesses must meet specific technical requirements and cover the costs of in-house training.

3.1 Major Challenges

Cooperation between the numerous actors engaged in a dual VET programme's governance (essentially, public institutions, the corporate world, and labour unions) is one of the primary challenges to the successful introduction and growth of such a programme. Numerous studies (Bolli et al., 2018; Coletti, 2019; Deissinger, 2015; Lange, 2012; Mongkhonvanit, 2017; O'higgins, 2001) have highlighted the need to develop the capacity for organization, participation, and cooperation among all the agents involved to address the relationship between demand and supply of skills in the labour market.

The major challenge to the development of dual vocational education and training systems in each government is that corporations are not used to hiring and training apprentices. Companies are unwilling to invest in young people's education. Most talented graduates quit the organization after graduation because skilled professionals are in high demand in the labour market. Other academics have also addressed the difficulties in implementing the VET system. The problems of VET in Indonesia were identified by Kadir & Bachrul, (2016). Most Indonesians still have a negative perception of vocational schools. Other issues include 1) Funding; 2) The quality of vocational professors and educators; 3) Industry participation in vocational education; 4) Inter-agency collaboration. The geographical peculiarities of Indonesia also make it difficult for the country to provide the same educational facilities in cities and distant locations.

3.1.1 Challenges for The Public Sector

A particular challenge for policymakers is determining whether or not it is feasible to implement such a program in their various contexts and the need for prior planning. Before changing a vocational training system, it is vital to analyze the existence of educational culture and industry to determine which parts need to be modified and which successful initiatives from other nations might serve as models (Rego Agraso et al., 2015). In addition, a sociological understanding of the purpose of vocational training in society is required (Cebrián, 2018) The public sector must endeavour to understand the diverse necessities and requests of every industry and to determine where dual programs could or could not help the progress of the educational and productive systems (Marhuenda-Fluixá et al., 2019; Molina, 2016). This would prevent the geographical diversity of each nation from causing an imbalance between each region's producing sector and its vocational training system (Deissinger & Gonon, 2016).

In the case of Indonesia, the government must collaborate with industry and vocational education to improve labour competence and address the issue of uneven TVET (Technical and Vocational Education and Training) institution distribution across the country. Recent government actions include the establishment of a Memorandum of Understanding (MoU) between The Ministry of Manpower and The Indonesian Chamber of Commerce in 2016 regarding the development of labour competence through an apprenticeship in companies, with over 2500 companies currently participating in this program. The government has also created a memorandum of understanding between 49 enterprises and 200 vocational high schools in the province of East Java to improve the quality of vocational training and reduce the country's unemployment rate. In addition, improved collaboration amongst national authorities is a crucial success factor. As a nation with a decentralized government structure, Indonesia must establish cross-cutting policy priorities for remote areas with high wage disparity or unemployment rates in response to growing regional skills mismatch in the labour market (Asian Development Bank, 2018). The government might collaborate with the private sector to update policies for increased market relevance of education and certification procedures.

3.1.2 Challenge for The Public-Private

In this section, the authors evaluate the issues posed by the collaboration of both sectors, which is important to the concept of corporative governance illustrated by the dual vocational training system. Due to its unique nature, the collaboration between the public and private sectors presents significant challenges.

3.1.2.1 Public-Private Funding

Vocational colleges in Germany provide this government-funded training for the part of dual apprenticeship taught in schools, including general education and skill-specific training. To offer apprenticeships, organizations must also meet specific technical requirements and cover in-house training costs. However, higher education institutions accept conditionally any governmental subsidies for the promotion of these activities. Particularly, the funding from the Bavarian Ministry of Education and Research has been supplied to 17 Bavarian Fachhochschulen or familiarly called technical colleges for the development of dual study programmes in collaboration with local entrepreneurs and corporate entities, thus integrating central funding with the decentralised establishment of employment (Weich & Kramer, 2016). Financial support from Ministry institutions is principally used to establish the quality assurance processes, take the initiative to collaborate with

local chambers and employers, and advance the exchange of knowledge and experiences among Fachhochschulen participants (Ertl, 2020). Actually, Germany has supplied more development assistance (ODA) funding for VET than the European Union or the World Bank. Emerging nations need VET programs to fulfill the need for well-trained workers (Oeben & Klumpp, 2021).

In the meantime, a proposal in Switzerland led to an 1884 decision by the Confederation - Switzerland's central government - that vocational education and training institutions would get financial support. The cantons, who exercised sovereignty in educational matters at the time, began to implement apprentice regulations in 1890; this was a significant additional VET development in Switzerland. According to the Directorate General of Vocational Education's strategic plan for 2020-2024, work units are funded by the State Budget named APBN, the Local Budget named APBD, and the Corporate Social Responsibility of global corporate partners refers to business and industry (Directorate General of Vocational Education, 2020). The legal requirement that the government invest 20 per cent of the state budget to education demonstrates the dedication of Indonesia to global access to education. The participation of the private sector should be promoted to lower the government's funding load, with the government offering reciprocity in the form of tax breaks, lenient loans, and other benefits. In addition, Indonesia can offer significant financial incentives for education, such as tax breaks for books and incentives for research and development as well as vocational training (Indrawati & Kuncoro, 2021).

3.1.2.2 Vocational Education and Training Research Capacity

Technological developments that so fast have a significant impact on the world of work, a job skill may be extinct because of innovations that benefit employers. Innovation is a natural law that cannot avoid, so research related to innovation must be able to predict the possible impacts that occur when the latest innovation is applied. The German system has institutionalized VET research capacity and thus nation's human resources are prepared. (Anderson et al., 2003; Boak et al., 2008; Curtain, 2004; Gresham & Clayton, 2011; Olde Hartman et al., 2008; Orme & Powell, 2008; Suhua & Guiping, 2012).

Applied research is no longer optional; it is now required for Indonesian's vocational schools to solve existing difficulties and forecast future industrial demands. The Ministry of Education, Culture, Research, and Technology's Directorate General of Vocational Education has lately started the Domestic Applied Scientific Research Program-Vocational College Lecturers for all vocational individuals across the country. This initiative is driven by demand, which means that it is established on needs and requests to tackle genuine difficulties in business and industry (DUDI), markets, and society. The Education Fund Management Institute (LPDP) has allocated IDR 25.5 billion to this program (Directorate General of Vocational Education, 2021). According to Wikan Sakarinto, Director General of Vocational Education at the Ministry of Education and Culture, "research development is an important capital in creating the globe of vocational education." However, he emphasized that the research conducted was not merely a formality.

In addition, Pambudi & Harjanto, (2020) outlines numerous issues with the Indonesian research ecosystem. These problems include a deficiency of concurrence on the significance of the research, unclear institutional strategy and coordination, the absence of a culture of peer review, and inflexible administrative rules regulating research funding, an inability to secure funding from private sources, and a research incentive system that focuses on quantity rather than quality. Pambudi & Harjanto, (2020) identifies these problems as follows: For instance, in Indonesia, researchers receive more credit for having their work featured as the first author of an article published by a lesser-known local journal than they would for having their work featured as the fourth author of work featured in a top tier journal.

The R&D institutions of the Ministry of Industry and the research institutes controlled by the Ministry of Research and Technology comprise Indonesia's public research system. The Indonesian Institute of Sciences (LIPI) and the Agency for the Assessment and Application of Technology (BPPT) are the two primary government research institution (Lakitan et al., 2012). Their operations are constrained by their budgets and are not necessarily correlated with industry demands. Due to their lack of money and bureaucracy, these institutes typically work less effectively than comparable R&D institutions in developed nations. Government research institutes must strengthen their organizational culture, create linkage with industry, and implement professional management to increase performance (Maninggar, 2019).

3.1.2.3 Collaboration Across a Network

The government prioritizes collaboration between Technical Vocational Education and Training institutions and industrial partners to increase the excellence. Each vocational high school is being encouraged by the Ministry of Education and Culture (MoEC) to collaborate with industry for the purpose of promoting public-private relationships towards enhancing the rate of warranty of technical vocational education and training facilities and preparing young creators or innovators in vocational schools with the ability to create future work skills and competencies that harness the complete capacity of Information and Communication Technology (ICT) (Triyono & Moses, 2019).

In addition, Indonesia focuses on establishing partnerships between public with private at the nationwide, provincial, and multinational levels to improve the quality of Technical Vocational Education and Training. The Partnerships of Public and Private in Technical Vocational Education and Technical with industries shall accept diverse formats, including trainee internship arrangement, institutional innovation support, "train-the-trainer" courses, and design of the curriculum creation to assure the implementation of demand-driven Technical Vocational Education and Training programmes. The development of demand-driven programs is focused explicitly on the notion of "link and match." This notion stresses the necessity to match Technical Vocational Education and Training programs with labour market needs to make them relevant (Widiastuti et al., 2021). One of the several forms of implementation techniques for link and match is introducing a dual system of education that systematically combines and synchronizes educational programs in schools with skill acquisition programs earned via direct job experience. In Indonesia, there are currently no formalized public-private partnerships; nevertheless, as part of the link and match initiative, each vocational school is encouraged to collaborate with the industry depending on its location and needs (Ali et al., 2020).

3.1.2.4 Vocational Educators and Trainers

In this feature, both Germany and Switzerland are well organized (Esmond, 2021; König et al., 2016; Korber & Oesch, 2019) to produce competent workers; it seems that difficult to adopt in Indonesia even though it has the opportunities in the future. There is a deficiency of educators with occupational training and experience in the formal vocational education system, which is a disadvantage to those with only academic degrees, for example, bachelor's or master's degrees (Suharno et al., 2018). As previously stated, The Indonesian vocational system of education did not fulfil industry and employment demands and missed supply-side features, in particular educator credentials and industry-relevant training programs (Di Gropello et al., 2011). To solve this, an urgent need exists for a national program to enhance current instructors' technical competence and skills. This approach might begin by "training the trainer," i.e., by inviting the most excellent educators in all of Indonesia to instruct other instructors in refresher courses. Mentoring provides robust support for maintaining excellent educators and revitalizing the teaching workforce; therefore, Indonesia must adopt strategies and natural processes to establish and maintain mentoring programs (Martinez, 2004). This can be accomplished through expanding the teaching knowledge base, rewarding mentors, enhancing information technology, and expanding the teaching knowledge base.

In addition, the majority of school laboratories and equipment are obsolete. These flaws show that the accreditation requirements for vocational schools, which are essentially identical to those for general secondary schools, do not effectively address the unique characteristics.

3.2 The Key Success Factors

The literature also discloses the success factors of VET element transfer in addition to the challenges mentioned above. Research in this area has demonstrated that cultural and institutional contexts are essential for successfully implementing dual types of VET (Maurer & Gonon, 2014). In this case, Hoffman, (2011) emphasizes that in a dual VET system, all stakeholders, including employers, government, unions, professional organizations, licensing programs, educational boards, and individual schools, must work collaboratively in creating the policy and constructing the legal framework to implement the VET system. It means a necessity for the successful execution of VET is tight cooperation between all stakeholders and a shared awareness and deeper knowledge of the contextual conditions in the target nation are paramount, as well as trust in the intended transfer initiative. Education in schools and on well-established employer groups and labour unions play an active role in assuring the high quality and relevance of on-the-job training.

Furthermore, the participation of employers in the provision of training, institutional capacity to monitor the quality of activities in the workplace, the level of development of the chambers of commerce, the reputation of vocational studies, and the ability to cooperate among social partners (Pilz, 2012). Another success factor consists of the dialogue among employers, unions, and the government that has been formally established through various institutions at the federal and regional levels, ensuring that all interests are represented in the governance of the system. The success factors of the dual VET system in many of these countries can be attributed to the collective representation of employers, unions, professional organisations, and social arrangements (Kammermann et al., 2011). Given the large number of actors involved in VET transfer, organisational structures and task distribution must be presented transparently to create binding framework conditions for the dual system.

4. Conclusion

The success of the dual vocational training system in Germany and Switzerland has been the subject of numerous studies. This success has been adopted by a number of European nations and Asian developing nations. Expectedly, the Dual VET system's components can also be applied in developing nations and are not exclusive to industrialized nations. However, not all aspects can be incorporated because each country's education system has unique qualities. Obviously,

it would be difficult to adopt the dual VET system in Germany and Switzerland in another country, particularly Indonesia, due to variations in historical backgrounds and conditions across nations.

However, examining the dual VET systems in Germany and Switzerland will give several policymaking and implementation lessons for countries seeking to enhance the quality of TVET and satisfy labor market demands. The level of institutional and normative prerequisites in the education system and job market is extremely high and has evolved over a very long time period. Additionally, the successful implementation of the dual system requires close cooperation between the industry, the government, and the social partners (public and private).

From each case studied in each country, the effectiveness of each implementation depends on the interaction design with the social and economic context in which it will occur, as well as the level of consensus and conversation between government and social actors. Therefore, the question of whether the dual VET system in German or Switzerland can be directly implemented in another country, without first examining specific challenges and difficulties of each context, must be clearly and systematically considered.

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