

The Role of Vocational Education as the Key to Economic Development in Indonesia

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Abstract. Vocational education is an education sector that focuses on practical training and skills that suit the needs of industry and the job market. In Indonesia, along with rapid economic development, the role of vocational education is increasingly recognized as a key factor in supporting sustainable economic growth. This research aims to analyze the role of vocational education in the context of economic development in Indonesia. This research uses qualitative education with descriptive methods. The research results show that vocational education plays an important role in Indonesia's economic development. Through a focus on developing practical skills and students' readiness for the world of work, vocational education creates a skilled workforce needed by various industrial sectors. It helps reduce unemployment rates by giving graduates better job opportunities, as well as encouraging entrepreneurship by teaching the elements of business. Apart from that, vocational education also triggers innovation and creativity, helping Indonesia compete in an ever-changing global economy. No less important, vocational education provides a ready-to-use workforce for the industrial world, reducing the burden on companies in training new employees.

Keywords: Vocational Education, Economic Development, Industrial World, Labor, Polytechnic Vocational High School.

1 Introduction

Skilled and competent Human Resources (HR) play a central role in creating and maintaining quality economic growth. In the era of globalization and increasingly fierce global competition, having a highly skilled workforce is the key to success for the industrial sector. [1] A skilled workforce is able to make a significant contribution to increasing company productivity, operational efficiency and innovation. They have the ability to overcome the latest technological challenges and rapid market changes, thereby helping the industry remain relevant and competitive at the international level.

Not only does it provide benefits to the industrial sector, high competence and skills also play an important role in improving the standard of living of society as a whole. Skilled people have more opportunities to obtain better jobs and higher incomes. With relevant skills, they can access jobs with higher salaries and additional benefits such as health insurance, paid time off

and other perks. This not only increases the economic stability of individuals, but also improves the quality of life for them and their families.[2]

Skilled and competent human resources also contribute to national economic growth. They can fill key positions in various economic sectors, create new jobs, and drive innovation that drives sustainable economic growth.[3] Investment in education and training to develop HR skills is a profitable long-term investment for the country, because it creates a strong and competitive workforce base. Economy and education are two very vital aspects for the development of a country. Significant economic development is the hope that is predicted to realize community welfare.

Economy and education are two very vital aspects for the development of a country. Significant economic development is a hope that is predicted to realize community welfare. For this reason, every element of the state works together to create a good economic climate, including by mobilizing the education sector. Adam Smith, a leading economist, once expressed his view that economic development is the result of a combination of population growth and technological progress. This statement remains relevant in the modern context, where education and improving skills play a central role in driving technological progress and maximizing the potential of human resources.[4]

Presidential Instruction Number 9 of 2016 issued by the Indonesian Government shows a strong commitment to bringing about positive changes in the vocational education system. This instruction aims to revitalize partnerships between vocational education institutions and the world of business and industry (DUDI), with the aim of realigning interests and goals between the world of industry and the world of education.

Vocational education in Indonesia has two main pillars that define its uniqueness and great potential in supporting economic development. The first pillar is education, which provides the theoretical foundation and knowledge required by students. The second pillar is training, which places emphasis on developing practical skills and field experience. In vocational education, training has a significant role, with the curriculum composition reaching 40 percent practice, higher than regular academic education.[5]

This difference creates vocational education graduates who not only have a strong theoretical understanding, but also practical skills that are relevant to the industrial world. They are better prepared to directly contribute to the work environment and adapt quickly to the ever-changing demands of the industrial world. In line with the government's commitment to developing the economy, vocational education has become a strategic means for preparing a workforce capable of supporting sustainable economic growth.

The Directorate General of Vocational Education, Ministry of Education and Culture of the Republic of Indonesia brings positive news about the increasing absorption of vocational education graduates by the industrial world. Data shows that around 80 to 90 percent of vocational graduates are successfully placed in the industrial sector in less than one year after graduating. This reflects the suitability between the competencies provided by vocational education and the needs of the industrial world. This confirms that vocational graduates have advantages in finding work and contribute positively to reducing unemployment in this country.

In an effort to strengthen vocational education, the composition of the curriculum is specifically designed to direct vocational students and students to be ready to compete in the rapidly developing industrial world. One important initiative is the "link and match" program, which has been participated in by around 2,700 vocational school students as of 2018. This program helps build strong connections between the worlds of education and industry, ensuring that the skills taught match the needs of the job market. Apart from that, the revitalization of 12 Polytechnics is also a significant step in advancing vocational education in Indonesia. This

includes increasing competency certification, lecturer retooling, and lecturer certification, as well as training and apprenticeship. All of these steps aim to ensure that vocational institutions are able to provide relevant and quality education, in line with the demands of the rapidly changing industrial world.

This research aims to investigate and analyze the impact and effectiveness of vocational education programs in Indonesia, especially in the context of the absorption of graduates by the industrial world. This research will explore the extent of vocational education in Indonesia, the extent to which vocational education has met the needs of the job market, the extent to which the composition of the vocational curriculum has equipped graduates with relevant skills, and the extent of efforts such as the "link and match" program and the revitalization of Polytechnics. has had a positive impact in improving the quality of skilled and competent human resources. Apart from that, this research will also analyze the role of vocational education for development in Indonesia.

The results of this research can provide a deeper understanding of the effectiveness of vocational education programs in supporting the absorption of graduates by industry, which can become the basis for further improvement and development in the vocational education system. This research can also provide insight to governments, educational institutions, and industry on how to increase collaboration and partnerships between them to ensure that vocational education remains relevant and responsive to changes in the job market. Finally, this research can also provide useful information for students and vocational students in choosing educational programs that suit their career goals, as well as provide a better understanding of the preparation needed to be successful in the world of work.

2 Method

The research method used in this paper is a qualitative method. The author collected data from various literature sources which were then analyzed objectively and concluded in descriptive form.[6] The data sources in this research are books, journals and other literature obtained from the internet. Then, these sources are sources that can be academically accountable.[7] Apart from that, the materials used from library sources consist of concepts, opinions and ideas that have been selected by the author based on their suitability for the discussion, namely about analysis.

3 Results and Discussion

3.1 Vocational Education in Indonesia

President Joko Widodo has often mentioned on several occasions the importance of vocational schools for Indonesia. Vocational schools are as important as infrastructure. The world has now changed, if the quality of Indonesia's human resources (HR) is not well prepared, Indonesia will be left behind in this changing world. He added that changes are very fast, from the internet to mobile internet, then from mobile to artificial intelligence, robotics, Tesla hyperloop. That is why schools such as polytechnics and

vocational schools are very necessary if the quality of human resources in Indonesia is not to be left behind by other countries.

Vocational schools are vocational education equivalent to polytechnics. Basically, education is more oriented towards the application of knowledge. Graduates must be competent and skilled at work. Likewise, teachers must have professional certification. The vocational school learning model is different from academic education systems such as Bachelor's, Master's or Doctoral levels. If academic education emphasizes knowledge, vocational schools emphasize structured learning and skills that are more driven or directed. According to data from the Ministry of Research, Technology and Higher Education, vocational education in Indonesia consists of 1,365 educational institutions, including 1,103 vocational academies and 262 polytechnics. Vocational education in Indonesia is only 16 percent of all educational institutions in the country. [5] This is very different compared to China, where 56 percent of tertiary institutions are vocational education. In essence, vocational schools are directed at producing graduates who are ready to work according to the needs of the current world of work. For this reason, around 70 percent of the content of the learning program is industrial practice.

Vocational education in Indonesia has a long history. It even started in the VOC era. In 1737, the VOC founded the first vocational school, namely the sailing academy. However, the school was closed in 1755. Two centuries later, the Dutch colonial government again established a new vocational school. The vocational school is called Ambachts School van Soerabaja or Surabaya Carpentry School, which is intended for Indonesian and Dutch children. During the implementation of ethical politics, the Netherlands also established several vocational schools. Starting from Trade School (Handelschool), Women's Vocational School (Majlis Vakschool), Teacher's School (Kweekschool, Noormalschool), Technical School (Teknic Hoge School), Agricultural School (Lanbouw School), Law School (Recht Hoge School), to Doctor's School Java (STOVIA).

During the Japanese colonization of Indonesia, the focus on Vocational Education changed, namely on women's skills, technical schools and agriculture. The language of education must be Japanese. The education system that had been built was replaced. So it is noted that Vocational Education has collapsed. A good reflection on this era is that without a good system and qualified teachers, the educational process becomes weak. During the Independence Era up to the Reformation, the problems of Vocational Education that occurred during the Japanese Occupation era still could not be resolved. Vocational education has become education that receives little attention, with inadequate teacher quality and facilities, and a system that does not work well.

After reform, the concept of education in Indonesia was changed by the government with a target that the number of vocational education institutions should reach 70%: 30% of general education. This figure is a reversal of the previous figure, namely that vocational education only reached 30%: 70% of general education. According to Suharno, this reversal is an application of Finlay theory which states that in cities where the population of vocational education students is larger, economic development and regional domestic product will be greater. More than that, the fact is that public school graduates who do not continue to university and want to immediately enter the world of work are quite high. In the new education plan, the government set a target percentage in 2009 to reach 60% general: 40% vocational; in 2015, the figure was 50:50; in 2020, the figure will be 40% general: 10% vocational; and the target for 2025 is 30%:70%. The target for Vocational Education institutions to reach 70% occurs by 2025.

Problems in vocational education in Indonesia have become a long-standing challenge. One persistent problem is the negative perception of vocational education graduates, both at the vocational school level and vocational colleges such as universities, polytechnics, institutes, high schools and academies. A strong stereotype in society is the assumption that those who choose the vocational education route are "outcasts" who are unable to enter high school (SMA) or university. Degrading humor such as "going to vocational school is good for other people's children" and sarcasm towards D-1 to D-3 program students at vocational campuses because they are considered to be the result of not being accepted into an undergraduate program, reflect the stigma that they often face. who choose a vocational path. However, we should not completely blame this stereotype, because the problem is often more complex.

Currently, vocational education graduates often face difficulties in finding jobs that match their education. This may be caused by a lack of understanding of the competencies possessed by vocational graduates, as well as a lack of industry involvement in designing curricula that are relevant to the needs of the job market. It is important to remember that vocational education should not be the last resort for those who have been less successful in other formal education pathways. On the contrary, vocational education should be seen as a valid option for those who want to acquire practical skills and are ready to enter the world of work quickly.

The current vocational education system requires deep reform. The concept of "link and match" in the industrial world needs to be changed into a more concrete reality. Vocational schools and campuses must not only focus on creating graduates with a diploma, but must produce individuals who have strong competencies, who are ready to dive straight into the needs of the ever-growing industry. The Director General of Vocational Education said there are five minimum requirements so that *link and match* between vocational education and the industrial world can occur.

Firstly, creating a *link and match* between the vocational and industrial world is the creation of a joint curriculum. Where the curriculum must be synchronized every year with industry. Second, the industry is obliged to provide teachers or guest lecturers. The minimum teaching from lecturers and guest teachers is a minimum of 50 hours per semester. The third condition is to provide internships to vocational school students and vocational students from jointly designed industries. The fourth requirement is competency certification. Competency is very important for vocational graduates. Certificates are needed to show the competency level of vocational graduates. And fifth, commitment to absorb vocational school graduates by industry

Further changes are also needed in terms of the curriculum and choice of courses offered. In an era where technologies such as artificial intelligence, big data, internet of things (IoT), virtual reality, and 3D printing have colored the world, we must be able to keep up with these developments. There needs to be an increase in the curriculum that covers these aspects so that graduates can master the latest technologies and become competent in facing the challenges of an increasingly complex industrial world.

Furthermore, it is important not to get caught up in monotonous curricula and majors. The world continues to change, and industry needs evolve. Therefore, vocational education must be dynamic, with the ability to adapt to changes occurring in society and the world of work. This may involve opening new courses that suit technological developments and industry needs, as well as giving students the opportunity to acquire skills and knowledge relevant to a rapidly changing world. By carrying out comprehensive reforms in vocational education, we can ensure that vocational graduates

have high competitiveness and are ready to contribute to an economy driven by technology and innovation. This reform will also help Indonesia to remain competitive in a global era that is increasingly complex and rapidly changing.

3.2 The Role of Vocational Education as a Key to Economic Development in Indonesia

Vocational education, often referred to as vocational education, has become a vital educational strategy in Indonesia. In its essence, vocational education focuses on developing practical skills that enable students to be better prepared to enter the world of work. In contrast, general education places more emphasis on developing academic and theoretical aspects. Vocational education graduates, such as those found in institutions such as Vocational High Schools (SMK) and polytechnics, are equipped with skills relevant to industry needs.

Vocational education in Indonesia has objectives that have been officially determined, as regulated in the Decree of the Minister of Education and Culture No. 0490/U/1990. The main goal of vocational education is to prepare students to continue to a higher level of education or expand their basic education. This creates a pathway for those who wish to continue pursuing higher education after completing a vocational program. Apart from that, vocational education also aims to improve students' abilities as members of society who can interact positively with their social and cultural environment. This involves developing positive social and ethical attitudes, enabling students to play an active role in society.

Then, vocational education also aims to improve students' abilities to continue to develop themselves in accordance with developments in science, technology and art. This creates a strong foundation for continuity in learning and adapting to changing times. Last, but not least, vocational education aims to prepare students to enter the world of work and develop professional attitudes. This includes instilling the values of integrity, responsibility, work ethic, and communication skills that are essential for success in a career.

Considering that vocational education is more closely aligned with the economy and especially with employment, vocational education has a very important role in economic development in Indonesia. Following are some of the ways in which vocational education plays a key role in economic development in Indonesia:

3.2.1 Preparing skilled workforce

Vocational education plays a key role in preparing skilled workers who are urgently needed in Indonesia's economic development. The focus of vocational education is developing practical skills relevant to various industrial sectors. Students at vocational institutions such as Vocational High Schools (SMK) and polytechnics are intensively trained in a variety of technical skills, such as machining, vehicle maintenance, information technology, construction, and more. This creates graduates who are ready to immediately contribute to the world of work with proven abilities. They have a strong understanding of the latest procedures, equipment, and technology relevant to their field, so they can fill gaps in industrial sectors that require skilled labor.

Apart from that, vocational education is also responsive to changes in the industrial world. By working closely with companies and industrial organizations, vocational institutions can ensure that their curricula are always updated according to technological developments and job market needs. This

helps produce graduates who are not only skilled, but also relevant to the ever-changing demands of the industry. Thus, vocational education plays a role as the main driver in providing skilled labor that supports sustainable economic growth in Indonesia. Vocational education graduates have high competitiveness in the job market and have the potential to become a driving force in increasing productivity and industrial innovation.

3.2.2 Reducing Unemployment

Vocational education also has an important role in reducing unemployment in Indonesia. This happens because vocational education programs prepare students with skills and competencies that suit the needs of the world of work. As a result, vocational education graduates have a better chance of getting jobs that are relevant to the skills they master. In addition, vocational education also creates alternative career paths for those who may not be interested or able to pursue higher education. This means that individuals who choose a vocational education pathway can enter the workforce quickly after completing their program, without having to be unemployed for long periods of time. In this way, vocational education helps reduce pressure on the unemployment rate in Indonesia by creating human resources who are ready to work. This also creates opportunities for those who may be less fortunate in obtaining formal higher education to continue to play a role in the economy and contribute to the country's development.

3.2.3 Encourage entrepreneurship

Vocational education also plays an important role in encouraging entrepreneurship in Indonesia. Vocational education programs not only teach technical skills, but also include elements of entrepreneurship in their curriculum. This creates an environment that stimulates students' interest in becoming entrepreneurs. Through entrepreneurship training, students gain an understanding of business aspects, such as business planning, financial management, marketing, and innovation. They are also taught about how to start and manage small and medium enterprises (SMEs). Thus, vocational education creates graduates who are not only ready to work for others, but also have the potential to create their own jobs and contribute to the growth of the SME sector, which is the backbone of the Indonesian economy. In addition, vocational education can also provide easier access to the resources and assistance needed by aspiring entrepreneurs. This includes access to mentors, business networks, and advanced training in business development. All of this helps build a strong foundation for the growth of entrepreneurship in Indonesia, which is an important component in driving sustainable economic growth.[8]

3.2.4 Encouraging Innovation and Creativity

Vocational education also plays a key role in encouraging innovation and productivity in Indonesia. This happens because vocational education not only teaches current skills, but also prepares students to face the latest technological developments and industry trends. Through a responsive curriculum, vocational education students are taught to adapt to changes in the world of work. They learn about cutting-edge technologies, including artificial intelligence, big data, internet of things (IoT), and other advanced technologies that are currently affecting many industrial sectors. This allows them to be leaders in adopting this technology and applying it to their work.

Apart from that, vocational education also encourages students to think creatively and innovatively. They are given the opportunity to develop new solutions to workplace problems, which can increase efficiency and productivity. This capability is invaluable in driving sustainable economic growth, because innovation and high productivity are the main drivers of economic progress. In this way, vocational education not only produces skilled workers, but also individuals who are ready to become agents of change, create innovation, and increase productivity in various industrial sectors. This contributes to Indonesia's economic competitiveness at the global level and helps maintain sustainable economic growth in the long term.

3.2.5 Providing ready-to-use workforce for the industrial world

Vocational education has an important role in providing a ready-to-use workforce to meet the needs of the world of work in Indonesia. Vocational education programs are designed with a focus on practical, hands-on application of the skills taught. Vocational education students are intensively trained in various fields such as automotive, construction, information technology, health care, and many more. The result is a graduate who not only has theoretical knowledge, but also practical skills that can be applied immediately in the work environment. They are familiar with the equipment, machines and work procedures used in a particular industry, allowing them to adapt quickly and contribute directly to production and service.

With vocational education, companies no longer need to spend time and resources on in-depth training of new employees. They can employ vocational education graduates who already have skills that suit the jobs on offer. This also reduces the level of gap between what is taught in educational institutions and what is required by industry. As a result, vocational education provides a ready-made workforce, which helps reduce the time required to start production or services, increases efficiency, and benefits overall economic growth. By providing skilled and work-ready human resources, vocational education plays an important role in supporting sustainable economic development in Indonesia.

4 Conclusion

Vocational education has a key role in Indonesia's economic development. Vocational education graduates have practical skills that are relevant to the needs of the job market, so they are ready to contribute to the world of work quickly. In addition, vocational education programs help reduce unemployment rates by providing better job opportunities for graduates, which in turn reduces pressure on the unemployment rate in Indonesia and creates work-ready human resources. The entrepreneurial approach in vocational education also supports the growth of the SME sector in Indonesia and creates an environment that stimulates students' interest in becoming entrepreneurs. In addition, vocational education encourages innovation and creativity by teaching students to think creatively, adapt to technological changes, and create new solutions to workplace problems. Moreover, vocational education provides a ready workforce for the industrial world, reduces the burden on companies in training new employees, and reduces the gap between education and industry needs. To achieve the full potential of vocational education in supporting economic development, there needs to be deep reform in the

curriculum, relations with industry, and public perception of vocational graduates. With these steps, vocational education can become one of the main pillars in encouraging sustainable economic growth in Indonesia.

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