A Historical Account of VET Interventions in Indonesia: Which Way forward?

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https://doi.org/10.24191/ajue.v18i2.18185

Received: 16 August 2021
Accepted: 7 February 2022
Date Published Online: 30 April 2022
Published: 30 April 2022

Abstract: The Indonesian labor force remains poorly educated and ill equipped to tackle the growing challenges of meeting contemporary industry requirements. While many countries aspire to equip future generations with the skills, knowledge and attitudes for a future working life, the relationship between the 'world of work' and the current Indonesian education system remains somewhat elusive. In the words of the Minister of Education and Culture, Nadiem Makarim, 'the biggest problem that we have had in education is we have somehow not found the formulae to entice businesses to participate in educational system (Neumann, 2021)' Over the many decades of Vocational Education and Training (VET) interventions in Indonesia, a series of unsatisfactory attempts to reconcile educational approaches with labour market requirements have left Indonesian civil society ill prepared for the future and uncertain of their next response. Furthermore, the uncritical importation of external foreign VET practices into the cultural milieu of contemporary Indonesian society, in an attempt to resolve these dilemmas, may have problematized and exacerbated these issues (Simanjuntak, 2005). This paper examines the Indonesian Government's educational approaches to human capability development from an historical perspective whilst seeking to contribute to an understanding of this complex situation.

Keywords: Human Capability Development, Labour Market, Kampus Merdeka, Vocational Educational and Training, VET

1. Introduction

Since breaking ties with their Dutch colonial past, various Indonesian Governments have focused heavily on developing their workforce through a series of National Vocational Education and Training (VET) interventions. In recent times, throughout the 1970s, 80s and 90s, Governments have worked towards the implementation of nine years of Universal Education. Further in the formative years after National independence in 1945, a staggering 20% of the national budget was allocated to education. Intertwined within those significant investments were a series of VET-focused programs including programs called *Bekerja sambil Belajar (Work and Study)*. This initiative was combined with the introduction of compulsory primary education across all National *Desa* (Villages) (Yeom et al., 2002). Of particular interest

here is that the VET interventions, which were included over three decades in this raft of government investments, have only evidenced limited focus on building job-related initiatives, which has led to a compounding of the many challenges within the current labour market. In particular, there is a lack of attention to structural issues, which acts to reduce development of a qualified and trained workforce, and it is this the paucity of targeted interventions which this paper examines.

The Indonesian economy, like many emerging countries, continuously grapples with high levels of unemployment, with over 3.3 million youths annually leaving the formal education sector of High Schools, Colleges and Universities, to enter the labour market (The World Bank, 2010). That this situation leads to a high unemployment rate may sound counter intuitive, however commentators believe this is a consequence of the mismatch between these graduates' competencies and workplaces' occupational requirements (Sayuti, 2016). However, the tide seems to be changing as the President of the Republic of Indonesia, Joko Widodo, in 2019, announced the recognition of the importance of education, particularly noting a focus on VET which is to be geared to employment outcomes and for preparing Indonesians for the new and emerging sectors of the economy which are being prioritised by the government (Dayaram et al., 2020). The Minister of Education and Culture, Nadiem Makarim, in detailing the new *Kampus Merdeka* policy, describes industry competency development as requiring conscientious academic and industry engagement, suggesting that 'Simulating real industry problems, [and] working together with industry professionals is going to be one of the best preparations to combine academic learning in the university with industry'(Neumann, 2021).

2. History of VET Interventions in Indonesia

The Indonesian VET landscape formally began in the 1970s, and its continuance today is delineated by an array of direct interventions introduced by the Indonesian government (Wilson, 1991). One such intervention, sited within the Junior High School system level, was designed for Primary School graduates and is referred to as the Sekolah Teknik (ST). This technical-based institution was developed to specialize in trade industry sectors such as construction, plumbing, electricity, heavy industry and the automotive sectors, with graduates being trained to perform operational employment responsibilities. At the Senior High School level, known as the *Sekolah Teknik Menengah* (STM), students were prepared for supervisory roles in these same industry sectors. It was, however, recognised that Sekolah Teknik students graduate at the age 15 or 16 years, which is considered to be too young for them to accept employment in relatively high-risk occupational settings. At this time, (in the early 1980s) the Indonesian Government introduced a compulsory nine years of universal education for all students, an edict which required them to complete the equivalent of Junior High School. As a result of this policy change, all the existing Sekolah Tekniks were upgraded to the level of STMs to cater for enrolments from the population of Junior High School graduates. In a parallel development, the Government established several Polytechnic Schools focused on college level education to prepare more highly trained work-ready graduates.

Additionally, during the early years of Independence, the Indonesian Government established several Vocational Training Centres (VTC). By 1979, there were approximately 130 public VTCs operating under the auspices of the Ministry of Manpower (Sayuti, 2016). In addition to these publicly administered VTCs, some privately administered institutions were also established. In the following decade, the Ministry of Manpower introduced an additional 120 VTCs in several Districts across the archipelago, using International donor assistance and finance through The World Bank. In order to support the consequent and significant increase in the operational requirements needed for these new VTC's, in the mid 1980s, the Ministry of Manpower introduced the Manpower Development and Training Project. This project initiated a number of successful activities including (i) The Labour Market and Manpower Planning Information System, (ii) the National Training System, (iii) a Mobile and Open Training Program, (iv) a Management development initiative, and (v) a suite of related Human Resource Development activities including the training of around 2,000 instructors in Indonesia and abroad.

3. Manpower Implications

In respect of the Indonesian Government's Technical and Vocational Education and Training (TVET) policy initiatives, their objectives can be better appreciated by an examination of recent labour force and unemployment data when compared to education levels. This analysis indeed paints an interesting picture as to the importance of creating an impact. The Indonesian labour force has demonstrable 'low levels' of education (Allen, 2016) which inevitably impacts negatively on the availability of quality human resources. Table 1 *Labour force and unemployment rates compared to educational levels in Indonesia,* highlights that more than 38% of Indonesia's total labour force in 2019 reached only Primary Level schooling. Little more than 55% complete Junior High School equivalent, leaving only 12.4% of the total labour force to be college and university trained.

It is relevant to recall that the Indonesian Government, in its introduction of compulsory primary education through the issuing of Presidential Decrees, specifically called for the development of at least one Sekolah Dasar (Primary School) at each *Desa* (Village). This policy initiative was called *Inpress Sekolah Dasar (SD)* and meant that primary students were exempt from paying tuition fees and did not have to meet the costs of required books. Nevertheless, even given the support inherent in these Presidential Decrees, the number of people in the labour force with primary education has not significantly increased. With the fore mentioned policy of *universal education* up to nine years of age, which is equivalent to graduating from Junior High School, the Government has invested heavily in improving education facilities, and again exempted students from all tuition fees. However, once again, this initiative has been unable to stimulate the increase of Indonesian students gaining a Junior High School equivalent education.

Table 1. Labour force and unemployment rates compared to educational levels in Indonesia, 2019

Level of Education	Labour Force		Unemployed (000)	Unemployment Rate (%)
	(000)	%		
Not completed Primary	19,522.9	14.62	383.1	1.96
Completed Primary School	31,895.8	23.88	857.2	2.69
Junior High School	23,747.3	17.78	1,128.0	4.75
General High School	25,185.5	18.86	1,994.8	7.92
Vocational High School	16,568.1	12.40	1,727.2	10.42
Diploma	3,627.0	2.72	217.3	5.99
University Graduates	13,014.4	9.74	738.2	5.67
Total	133,560.9	100.00	7,045.8	5.28

Source: National Labour Force Survey (SAKERNAS), August 2019, page 36.

As indicated earlier, in addition to the policies already described, in the mid 1970s, the Government of Indonesia launched a suite of packages titled *Bekerja sambil Belajar* (Kejar), (Work and Study) a program which involved working while engaged in some form of study. These packages were divided into: Package Kejar A, equivalent to Primary School level; Package Kejar B, equivalent to Junior High School level; and Package Kejar C, equivalent to Senior High School level. More recently (in early 2000), the overall Educational budget has

been set at 20% of the total National Budget, which includes allocations from Provincial and District Budgets. However, notwithstanding this significant commitment, Indonesia has not yet seen any significant improvement in educational participation; on the contrary, the higher the level of education outcomes, the higher the unemployment rate becomes (Table 1).

4. Informal Sector

The informal, or unregulated sector of the workforce, represents the largest fraction of the population engaged in employment in Indonesia today (Allen, 2016). The formal sector of the economy absorbs less then 50% of the labour force, and, exacerbating this problem, emerging graduates of General High Schools and Vocational Schools generally look for jobs in this formal sector. Table 1 illustrates that almost two million General High School graduates and 1.7 million Vocational School graduates in 2019 were registered as unemployed. Likewise, the majority of Diploma and University graduates also seek employment in the formal sector, but cannot be absorbed due to the lack of employment opportunities. Around 750,000 graduates from colleges and universities were unemployed in 2019, indicating that there is a significant mismatch between the demands of industry and the capabilities of graduates (Burgess et al., 2020). Larso and Saphiranti (2016) reveal that most of these graduates are very much dependent on the jobs of the formal sector and are not pursuing other employment options, including those of self-employment (Larso & Saphiranti, 2016).

5. The Role of Vocational Education and Training

The world of education, particularly Primary school and Junior High school, is generally intended to prepare students with basic knowledge such as reading, writing and simple calculation abilities or mathematics. After finishing Junior High school, the students have an option to continue with general education at a General Senior High School or to prepare for entry into the labour market through vocational training. Therefore, I would appear logical that Vocational Training should play an important role in bridging the world of education with the world of work (Fairman, 2018), and that some new initiatives need to be trialled to assist in the melding of required abilities in the two areas.

Akter (2020) believes for organizations to gain a competitive edge within the marketplace it requires suitably killed personnel. In this respect, the world of work generally requires human resources with specific competency requirements consisting of three elements. These are (i) broad insights regarding underpinning knowledge areas, (ii) an understanding and ability with relevant practical skills and (iii) an appropriate attitude to the world of economically driven work issues (Fairman et al., 2020). In an attempt to produce students with a balanced awareness of these three workplace components, the Indonesian Government, in the early 80s, introduced Kuliah Kerja Nyata (KKN). This policy encouraged university students, who had finished their academic course work, to undertake experience in practical work for several months at businesses and companies or within relevant community organisations. Today, the Kampus Merdeka (Emancipated Campus) policy extends this 'engagement' with industry by encouraging companies to offer work placements that are accredited by Universities across Indonesia (Kodrat, 2021). In addition, the curriculum in Universities is expected to 'simulate the working environment that reflects reality'. Despite these Government of Indonesia policy initiatives, many College and University graduates still remain unprepared for the world of work, and thus not easily absorbed into the world of economic endeavour. As noted in Table 1, 217,300 College graduates and 738,200 University graduates were unemployed, revealing a rate of unemployment of 5.99% and 5.67% respectively. The Minister of Education, Nadiem Makarim noted that exiting university students 'weren't ready to work, no matter how brilliant they are'(Neumann, 2021). For example, University students have not had experience conducting meetings, have never worked collaboratively on projects under tight deadlines, have seldom been expected to work in teams, and as a consequence have had no experience or understanding of working in a professional workspace.

The Indonesian Government, in recent years, has also promoted the development of Vocational Education through pre-professional high schools focussing on vocational curriculum issues, which are known as Sekolah Menengah Kejuruan's (SMK) and, together with Polytechnics, focus on specific industry sectors and professions. Vocational Education has emphasised the incorporation of the element of practical work and training into the educational system (Misbah et al., 2019)., but whilst this has resulted in the practical learning of vocational training being valued equally with other aspects of general knowledge in the Vocational Education system, it is currently restricted and impacted by insufficient numbers of providers having enough training equipment and consumable training materials to mirror learning in the workplace.

Nevertheless, recent data from the Ministry of Education shows some promising trends in SMK outcomes. In 2018/19, there were 14,064 SMKs, consisting of 3,578 public SMKs and 10,486 private SMKs, which provide around 1.47 million graduates to the Labour Market every year (Table 2).

Table 2. Vocational High School statistics in Indonesia, 2018/2019

Item	**Public**	**Private**	**Total**
Schools	3,578	10,486	14,064
New Students	783,827	985,812	1,769,639
Total Students	2,185,796	2,823,469	6,009,265
Graduates	629,873	842,130	1,472,003
Drop Outs	7,902	17,455	25,357
Teachers	146,630	166,038	312,668
Class Rooms	66,188	96,889	165,077

Source: SMK Statistics, Ministry of Education and Culture, 2018/19, page 1.

In a similar manner, Polytechnic Schools have expanded considerably. In 2017, there were 190 Polytechnics, consisting of 43 public Polytechnics and 147 private Polytechnics. Recently, these Polytechnics received around 62,000 new students and produced around 45,000 new graduates per year entering the labour market (Table 3).

Table 3. Polytechnic school statistics in Indonesia, 2017

Item	Public	Private	Total
Schools	43	147	190
New Students	38,948	23,149	62,097
Total Students	149,180	98,672	247,852
Graduates	25,859	19,470	45,329
Lecturers	7,568	5,772	13,340

Source: Educational Statistics, Indonesia, 2017, page 15

Despite these encouraging increases in the provision of Vocational Education at SMKs, Polytechnics and Diploma programs, the labour force data does not reveal increases in successful graduate outcomes. As shown in Table 1, the rate of unemployment among SMK graduates was 10.42%, and amongst Diploma graduates around 6%. A possible explanation for these results may be a lack of employment opportunities, but it is suggested that problems more likely arise as a result of delivery and interventions in the Vocational Education system. These should therefore be reconsidered, particularly in relation to;

I. Rigidity of curriculum design;
II. Budget allocations, particularly in relation to consumable materials required for practical works; and
III. Pedagogy and learning approaches that enable critical thinking, innovation and creativity (Sayuti & Mujiarto, 2018)

As illustrated in Table 4 below, almost 30% of the workers were in the agriculture sector, 23% in the trade sector, and 17% in the services sector. This shows that around 70% of the Indonesian workforce were employed in these three sectors alone and they are characterised by low levels of education and rudimentary technologies.

Table 4. Indonesian Workers in various sectors of the economy, 2017

Sector	**Workers (x1000)**	**%**
Agriculture	35,923.9	29.69
Mining	1,391.7	1.15
Manufacture	17,008.9	14.05
Electricity and Gas	393.9	0.33
Construction	8,136.6	6.72
Trades	28,173.6	23.28
Transport	5,759.7	4.76
Financial Institutions	3,752.3	3.10
Public Services	20,481.9	16.92
Total	121,002.4	100.00

Source: National Labour Force Survey (SAKERNAS), August 2017,page 13

As previously noted, Table 1 revealed that the unemployment rate amongst people with low-level educational levels were lower than those of higher educational levels, even if this work appeared mostly in the informal sector. This suggests that the university sector has an important role to play in developing the relevant competencies of their graduates which are required in the formal sector.

6. The University Sector's role in developing graduate outcomes

The role of the University sector was originally to conduct education suitable for the *sarjana* or graduate level, through increasing knowledge in a specific field. It was assumed that by finishing a graduate study, every graduate was automatically able to apply their knowledge to the world of work. As the tertiary education system further developed, Universities today have been characterized by learning and research methods based on multi-discipline, inter-discipline and trans-discipline understandings (Oey et al., 2017). In line with this perception, every *sarjana* is expected to have critical thinking, creativity and innovation skills, not only suitable to work with current digital technologies and automation, but also to evidence improved imagination, invention, and entrepreneurship capabilities, with the added ability to apply digital technologies to an optimum level.

Kampus Merdeka acknowledges that these competencies are critical and that Industry needs to be involved in their development. However, according to Minister Nadiem Makarim 'we have not found the formulae to entice businesses to participate in the educational system' (Neumann, 2021). The Ministry of Education is trialling various manifestations of this 'formulae' through the Kampus Merdeka policy that encourages industry to conduct the training program, determine the relevant content and to recognise the competencies achieved in the workplace. The expectation is that industry training will be able to simulate the competencies required in the 'real world' or at least meet the expectations required in their respective industry.

Furthermore, Oey et al. (2017) concluded that in facing future increased levels of digital technology and automation, every university graduate should develop several key attributes. These are:

a. The capability for critical thinking, creativity, innovation and sensitivity within a range of challenging circumstances, and be able to respond with an inter-disciplinary and multi-disciplinary approach;

b. The ability to apply information communication technology, including basic computer familiarity with word processing, spread sheet usage, and PowerPoint presentation, in addition to having basic research abilities;
c. The ability to be inclusive of cultural divergence and receptive to values of various cultures of other ethnic groups, races and religions;
d. The capability to develop teams and conduct negotiations including sharing knowledge with others;
e. The ability to communicate effectively by using various forms of information technologies;
f. The capability to think globally whilst acting locally and collaborating internationally:
g. The ability to collect, process and analyse data in order to support quality decision making; and
h. The ability to exhibit citizenship in an Indonesian context, understanding the history and goals of national identity in Indonesia, including its various diversities of local wisdoms, traditions and cultures (Oey et al., 2017).

Adding to the dilemma faced in introducing these graduate capabilities and 'soft skills' in the curriculum (Siswati, 2019), Tikly et al. (2003) described the central importance of 'citizenship' skills in an agrarian society. Currently, society is going through significant social and political reconstruction, making the task of selecting appropriate skills even more challenging.

In parallel with this priority, universities must be able to produce qualified teachers for the Primary Schools, Junior and High Schools, together with qualified lecturers for Diploma Programs and Polytechnics. It is clear that the quality of graduates from these Schools will very much depend upon the quality of their teachers and lecturers, as is the case with university graduates. It is our understanding that currently, there is an *ad hoc* recruitment system applied to the selection of lecturers for universities in Indonesia, particularly in relation to private universities. Most universities still focus on recruitment of permanent staff to satisfy the Government of Indonesia's minimum requirements of lecturers for every study program. Anecdotal evidence from our experience reveals that in many University *Magister* (Master) study programs we find that qualified Doctors and Professors are on the lists of Lecturers, even though they may rarely attend and only deliver a minimal number of classes, as small as two to three times per semester. It is a common practice in some Indonesian universities that more senior academic staff deliver a minimum of lectures, the majority of the teaching being carried out by Masters level assistants, which has clear implications for the quality of the university education Indonesian graduates receive.

These Master level lecturers undertake largely teaching duties (lectures and tutorials), with little time for academic research, enquiry and publications. As a result of this bias towards teaching commitments, most of these lecturers do not have enough time to conduct research, write texts and to improve the quality of their teaching material. It is a sad reality in Indonesian universities that most of the teaching materials are old and not up-to-date; they do not reflect new working conditions, technologies, and Government policies. The Indonesian university sector would benefit from the development and implementation of specific plans and programs to improve the quality and competency of all lecturers, particularly when facing the era of digital technology. This is the vision of Kampus Merdeka as described by the Minister of Education and Culture, Nadiem Makarim as: 'Giving the freedom and autonomy to educational institutions, and freedom of bureaucratization, lectures freed from bureaucracy and students are given the freedom to choose their preferred field (Prahani et al., 2020)'.

There are arguments that the essential role of education is not only for preparation for work, since it also includes building skills for living, enjoyment of learning, and provides improvements in literacy and numeracy. It is therefore not surprising that the education system and the world of work are not aligned, with some arguing that the gap is widening. As previously noted, the data indicates that there is an inverse relationship between the level of education and the likelihood of being employed as a percentage of overall labour force statistics Table 1.

It is suggested that since the Indonesian school system, particularly at the secondary/tertiary level, is not responding well to the training needs for the world of work leaving a widening gap between 'schools' and the 'world of work', there should be a consideration of some form of transition. This could be described as a bridging exercise, where 'vocational training' would supply the content, equipping the school graduates with specific work-ready skills in order to be qualified to perform the job according to industry requirements (Abdullah, 2014).

A cautionary note is that, in attempting such a process, because more than one third of the labour force has a very low level of education, it is unlikely that any educational intervention will be able to engage workers already in the area in formal schooling. Second, the labour force data indicates a high unemployment rate among Junior and Senior High School graduates, and to some extent among the graduates of Colleges and Universities. There are many explanations for this, and it is assumed that a low level of competency and mismatch with job requirements plays an important role here. Third, the graduates within the Indonesian educational system generally have a limited capacity to develop their creativity and innovation skills (Larso & Saphiranti, 2016). They generally seem to be very slow to adapt and respond to a rapidly changing globalised economy. Finally, there will be consequences of the application of disruptive technologies, where many workers may lose their jobs because they will be replaced by automation. Those displaced workers will need to be trained with new skills in order to remain productive within the changing economy (Chang et al., 2016).

It should also be recognised that, in Indonesia, vocational training is conducted in several forms, including formalized training at the Vocational Training Centres, apprenticeship training, and 'on the job' training in industry. In the past, the Ministry of Manpower managed and operated more than 300 Vocational Training Centres (VTC), but under the Indonesian policy of 'decentralisation' in 2000, most of these VTCs were transferred and administered by Autonomous District Governments (Sayuti, 2016). In addition, several other Ministries also conduct vocational training centres to supply trained employees in their respective Ministry, as well as providing opportunities for these trainees avail themselves for industry and the labour market. This is a level of complexity which needs to be taken into account when designing any new policy.

Accredited companies in cooperation with the Government of Indonesia also conduct apprenticeship training. Apprenticeship training is expected to supply graduates to the respective companies in addition to supplying labour to the market. In addition, several companies conduct 'on the job' training for their own personnel. In lieu of a wide complement of training institutions and vocational training programs, significant numbers of the existing labour force have participated in training programs. For example, through its VTCs in 2018, the Ministry of Manpower trained 383,132 members of the labour force, and through apprenticeship training an additional 149,064 workers including job seekers. In 2019, the Ministry of Manpower planned to train 660,476 members of the labour force through VTCs and another 360,864 workers including job seekers through apprenticeship training programs (Table 5).

Table 5. Graduates from Vocational Training

Year	Training	Apprentice	Certification
2015	92,236	31,915	158,315
2016	171,902	62,382	390,277
2017	259,742	133,474	862,366
2018	383,132	149,064	1,346,559
2019	660,476	360,864	1,875,748

Source: Ministry of Manpower, 2019

Table 5 illustrates that Indonesia has a significant and growing number of vocational training centres and programs owned and managed by public or private institutions. However, the implementation of these vocational training programs have not been well coordinated,

according to the National Vocational Training Regulation No 31-2006 ("National Vocational Training Regulation," 2006). Indeed, it is unclear whether graduates from those vocational training programs can be easily absorbed into the existing employment market. While awaiting the identification of training needs, particularly in respect of disruptive technologies, the Government of Indonesia needs to develop policies and programs in order to:

a. Coordinate all vocational training institutions and programs, owned and managed by the Government and/or private organisations, including training programs arranged by companies to make sure that all of them are operated according to the Presidential Regulation No. 8 Year 2012 on Framework of National Qualification (*Kerangka Kualifikasi Nasional Indonesia* - KKNI);
b. Implement vocational training based on workplace competency requirements, through selected pilot programs in all vocational training institutions;
c. Introduce VTCs, run by the Ministry of Manpower, with the authority to function as a centre:
    - To develop programs and curriculum of vocational programs,
    - To develop training modules,
    - To develop training supporting elements,
    - For instructor training,
    - For innovation and the development of vocational training,
    - To develop quality assurance of the implementation of every vocational training program; and
d. Establish, in the near future, a national institution to coordinate vocational training as it has been mandated by Verse 28 of Law No. 13 Year 2003 on Manpower, and Verse 10 of Government Regulation No. 31 Year 2006 on National Vocational Training System (Sayuti, 2016).

7. Conclusion

The Indonesian labour force remains poorly educated and ill equipped to tackle the growing challenges of meeting contemporary industry requirements. The relationship between the ‘world of work’ and the current Indonesian educational system’s ability to produce graduates ready for the ‘real world’ remains a real and urgent challenge. The initiatives under Kampus Merdeka of ‘simulating real industry problems, working together with industry professionals and combining academic learning with industry’ (Neumann, 2021) have yet to materialize. This giant leap forward in bundling higher education with industry is a bold and audacious policy direction worthy of further research and analysis. This paradigm shift in pedagogy provides a timely warning in regard to the uncritical importation of external VET practices into the cultural milieu of contemporary Indonesian society (Simanjuntak, 2005).

8. Co-Author Contribution

The authors affirmed that there is no conflict of interest in this article.

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