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Implementation of Skilled Training Programs at Vocational College: A View of the Instructors' Perspectives

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Abstract: The vocational colleges of Malaysia have been running several engineering related programs to certify their students with Malaysian Skills Certificate, Malaysian Vocational Diploma and Malaysian Vocational Certificate. The aim of these programs is to provide competent skilled and knowledge workers for the needs of the local industries in order to foster national development towards achieving developed nation status. To ensure the success of these programs, instructors are expected to be able to conduct training and master the engineering education process. This study was conducted to identify vocational college instructors' views on the implementation of the skill training programs in the aspects of curriculum, infrastructure and industrial training. A total of 116 technical instructors in the fields of engineering skills namely Welding Technology, Automotive Technology, Electrical Technology, Refrigeration and Air conditioning, Electronic Technology, Industrial Machining and Construction Technology participated in this research. The data were analysed to determine the average mean score of the measured variables. Findings showed that the average mean score for curriculum and industrial training aspects were found to be at high level, while moderate level was obtained for the aspect of infrastructure. This finding implies that professional development programs are less crucial compared to facilities required to run the skill training programs. This issue needs to be addressed by the vocational colleges' management and government to ensure successful implementation of these skilled training program at college level.

Keywords: Perspective of instructors, skills training programs, vocational colleges

1. Introduction

The National Economic Transformation Plan 2010 was launched by the Malaysia's government within this decade to further boost the country's economic growth towards achieving a developed nation (MOE, 2011). In a mission towards achieving developed nation status, the government actively trying to attract foreign investment into the country and pursuing various efforts and alternatives to improve the quality and supply of human resources to support local needs especially in engineering fields (JPK, 2019; PMO, 2020). The effort can be seen through the rigorous used of local human capital in all plans and policies (PMO, 2020). The importance of producing more holistically knowledgeable workers has been stated since the Eight Malaysia's Plan, since then, the education and training system will continue to be driven in producing multi-faceted, knowledgeable and versatile workforce (Yunus, 2015).

Generally, a holistic and knowledgeable workers coveted by the government can be described as a competent individual in the technical field, learning methods as well as in the field of humanity and social (Hanafiah et al., 2012; Ramli, 2013). Hence, in realisation of such a desire, the technical education and vocational training system has been designed in parallel with the government's transformation agenda which is to develop independent and highly skilled

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workers (Zazali, 2013). The first step of the processes is by empowering technical and vocational education through the Vocational Education Transformation where the technical school and several college institutions have been gradually upgraded into vocational college started in 2012 (JPK, 2020). As a result, 78 vocational colleges have been established in 2013 by offering various vocational skills and training programs at certificate and diploma level across the country. The goal of establishing vocational college was clearly stated by the Ministry of Education (MOE, 2013), and among the goals are to:

i. produce vocational education graduates with at least certificates or diplomas level certified by professional certification bodies, industries and the government.
ii. producing vocational education graduates that can further their studies or in advanced training to a higher education level.
iii. produce vocational education graduates that are capable to become entrepreneurs.
iv. generate secondary education graduates with certificates recognised by national and government certification bodies.
v. to empower the delivery system of the Ministry of Education to implement the transformation of vocational education.

A specific curriculum for the vocational colleges has also been introduced and implemented. It has specifications and standards accredited by various agencies within and outside the country. This curriculum uses modular and competency-based approaches, which emphasizes on practical and flexible aspects of learning. Specifically, it encompasses elements of creativity and innovation, entrepreneurship, soft skills and technological skills that are embedded with other skills required by industries and professional bodies (Ahad et al., 2021). The curriculum implementation is based on work-based learning orientation. The learning process emphasizes on the group work activities, entrepreneurship and soft skills. The ratio between theory and practice components is 30:70 (JPK, 2016). In addition, there are four elements that become vocational colleges trainees' motto namely knowledge, application, creativity and innovation, across three main domains namely heart-on, mind-on and hands-on.

2. Background of study

The vocational skills training program offered at vocational college are the government's move to create more talents and overcome the problems faced by the industry due to the lack of efficiency among employees (Abdullah Zawawi, 2011; Abu Bakar et al., 2011). The programs are fully conducted by instructors who have previously taught vocational subjects in technical secondary schools. The offering of these program is a major challenge to all vocational colleges specially to run engineering related programs where instructors are expected capable in handling and delivering contents to enable students to get at least Malaysian Skills Certificate or Malaysian Vocational Diploma. Concern raised over their readiness to conduct the programs physically and successfully deliver effective engineering related contents and skills. For example, in order to fulfil competency skills required for Malaysian Skills Certificate Level 3 in industrial machining, students are required to demonstrate their competence in handling computer numerical control (CNC) program and the related processes.

The infrastructure in the vocational college should be completed and sufficient (in this example, enabling safe and efficient application of tools, materials, machines, processes, and technical concepts) to support the learning activities in the workshop. According to Ahmad (2011), conducive teaching and learning environment is one of the elements that influences the effectiveness of the knowledge and skills delivered by the instructors. Therefore, it is deeming important for the institutions to provide sufficient equipment and technical facilities the ensure that learning is not interrupted (Anuar, 2011; Alias, 2012). Instructors are responsible to ensure that the implementation of the program works effectively including preparation for instructors' professional development to equip them with an essential pedagogical and practical skills (Iskandar Wong, 2012). Lecturers and instructors are the key to the successful of our country's education system. As the implementers of all policies and goals set by the Malaysian government, one of the factors that determine the success and failure of a learning and training process is depending on the guidance and training delivered by the instructors Abdul Rahman et al., 2021).

Teachers need to master teaching professional skills to enable them to deliver training more effectively and to play roles in generating knowledge, skills, virtue, noble character, positive attitude, dedication and discipline of the students (Abdullah et al., 2021). According to Asa et al. (2012), technical instructors need to have a variety of knowledge and experience related to technical knowledge, industry, science and technology. They should also possess and master the skills to deliver the contents of the lesson so that the teaching and learning process which emphasizes on practical learning over theory concepts (Md Som et al., 2022), can be conducted in a more effective environment. The integration of competence based and outcome-based curriculum approaches that formed specifically for the entire programs under the vocational colleges should be also clearly understood by their lecturers and instructors.

3. Problem Statement

The Malaysian Government has upgraded secondary technical school to vocational colleges by offering new programs but still using the infrastructure and expertise of existing instructors. These programs are a challenge to

vocational college instructors in terms of their ability to carry out courses and deliver trainings in accordance with established standards of two accreditation bodies in Malaysia namely the Malaysian Qualification Agency (MQA) and Department of Skills Development (DSD). As a pioneer program, successful implementation is expected as an outcome to convincing all parties that vocational college instructors are capable to successfully carry out such courses and produce the desired talent. The government (DSD) initiate the recognition of instructors' experiences through Prior Achievement Recognition and other intensive courses in the process of the transformation (JPK, 2020). Vocational college staffs should be evaluated to inform stakeholders on the readiness of vocational colleges instructors in implementing the vocational skills and training programs. The ability of instructors to mastery the curriculum aspects such as using learning materials and equipment, and demonstrating suitable delivery methods will help the government to identify educators' development programs needed at this stage to support their needs. Therefore, strategies for improving the teaching and learning processes can be proposed and done earlier.

Existing infrastructure aspects in vocational colleges such as workshop facilities, classrooms and machining equipment should also be well-positioned so that the quality of the programs offered is always ensured. Similarly, the cooperation between the vocational college and the industry must be firmly established for the purpose of students' placement of the internship in industry as well as to maintain the job market of the students. Based on the aforementioned discussions, three research objectives are developed to further explore educators' perspective on curriculum, infrastructure and industrial training as identify the perspective of technical instructors on the implementation of vocational skills training programs at vocational colleges based on the curriculum aspect:

i. to identify the perspective of technical instructors on the implementation of vocational skills training programs at vocational colleges based on the aspects of curriculum.
ii. to identify the perspective of technical instructors on the implementation of vocational skills training programs at vocational colleges based on the aspects of infrastructure.
iii. to identify the perspective of technical instructors on the implementation of vocational skills training programs at vocational colleges based on the aspects of industrial training
iv. to identify the different perspectives of technical instructors on the implementation of vocational skills training programs at vocational colleges based on institution.

There were three main aspects to be examined related to the curriculum, infrastructure and facilities, and, industrial training aspects. For the aspect of curriculum, the study focuses on the delivery method of training, teaching materials and teacher development program. For infrastructure aspect, the study focuses on classroom facilities, workshops and tools, equipment used by trainers. For the aspects of industrial training, the focus of the study is on the role of coaches, training schedules and supervision of training made by the industry on trainees.

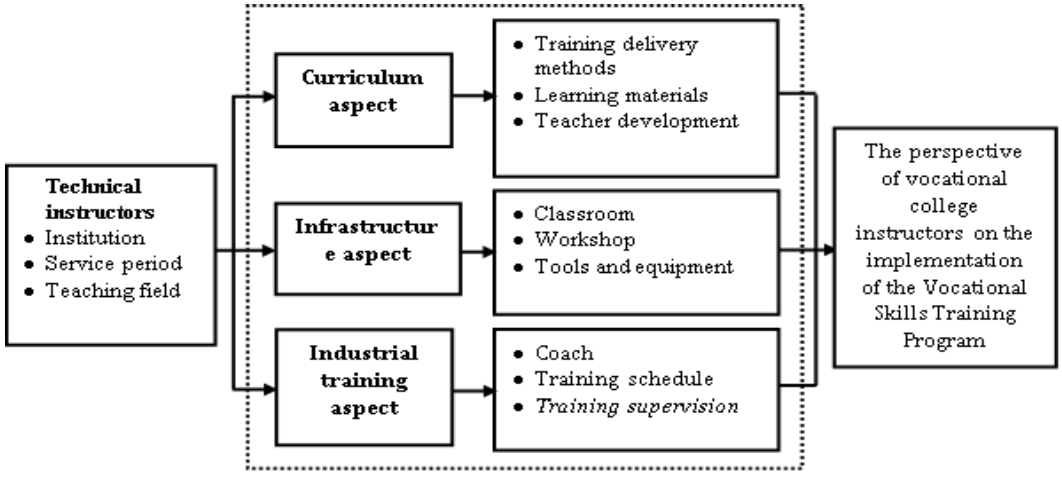

Fig. 1 - Research framework

4. Research Methodology

This study was conducted using quantitative approach (Idris, 2013), where questionnaire surveys were distributed as an instrument to get the data. Participants were vocational colleges' educators (lecturers and instructors) at four institutions namely Kluang Vocational College, Batu Pahat Vocational College, Muar Vocational College and Segamat Vocational College, all of which located in the Johor state of Malaysia. Table 1 shows the number of respondents based on institutions. These lecturers and instructors teach technical subjects in seven areas namely Welding Technology,

Automotive Technology, Electrical Technology, Refrigeration and Air Conditioning, Electronic Technology, Industrial Machining and Construction Technology (Table 2).

Table 1 - Number of survey respondents based on institutions

Institutions	Frequency (N)
Batu Pahat Vocational College	30
Kluang Vocational College	35
Muar Vocational College	24
Segamat Vocational College	27
Total	**116**

Table 2 - Number of respondents based on teaching field

Teaching field	Frequency (N)
Industrial Machining	24
Welding Technology	21
Automotive Technology	21
Electronic Technology	16
Electric Technology	15
Refrigeration and Air Conditioning	11
Construction Technology	8
Total	**116**

5. Result and Discussion

Table 3 shows the perspectives of the educators on the implementation of vocational skills training programs based on institutions. Their perception on curriculum aspects were found to be at high level, particularly for method of training delivery and teacher development (Table 4). This finding is supported by [9] in their study which stated that the ministry has been working on providing training to trainers in preparing them for the transformation of TVET and the implementation of a new curriculum for vocational colleges. They are also eligible to be recognised in terms of experience through Recognition of Prior Achievement (RPA). If the educators has a lack of credit hours or lack of pre-requisite for the award of the RPA, they are required to attend the course (for that item) to complete the requirements of the RPA (JPK 2016). For this reason, most vocational colleges instructors have at least Malaysia Skills Certificate level 2, as reported by PMO (2020) and JPK (2020).

Table 3 - Instructor's perspective min score on the implementation of vocational skills training programs based on institutions

	Batu Pahat VC	Kluang VC	Segamat VC	Muar VC
Curriculum	M=3.75, SD=0.34	M=4.13, SD=0.48	M=3.95, SD=0.56	M=4.03, SD=0.55
Infrastructure	M=3.74, SD=0.47	M=3.50, SD=0.79	M=3.50, SD=0.70	M=3.33, SD=0.68
Industrial Training	M=4.04, SD=0.41	M=3.65, SD=0.67	M=3.66, SD=0.57	M=3.54, SD=0.57

In terms of learning materials, the findings show that learning materials related to technical and practical learning are still lacking in the vocational colleges libraries. This is because the facilities available at vocational colleges will be gradually completed as the establishment of vocational colleges is still at an early stage. It is a major constraint to fully equip the entire institutions with the facilities and equipment needed for each program which requires a highly cost and time constraint to complete all at a time. These findings provide supported to a report by Mohamad Noor (2019) and Taha et al. (2022), which stated that the government strives to provide a huge allocation for TVET in an effort to enhance and empowering the technical education system of the country. Instructors' perspectives on the implementation of the program from the aspect of the infrastructure are at a moderate level. Infrastructure included under this investigation were classroom, workshops and other tools and equipment.

As shown in Table 5, the infrastructure aspects are of concern for the entire engineering programs and especially for Refrigeration and Air conditioning program. The Ministry of Education Malaysia have spent large amount of

money to support technical and vocational programs. Given that, there are many vocational colleges that offer similar programs across the country, a huge amount money has to be allocated to fully equip the institutions. To sustain the entire vocational colleges in Malaysia, certainly require high costs and expenses to equip workshops and laboratory with all the infrastructure needed. Therefore, it is proposed that Ministry of Education Malaysia should spend more allocation to setup the equipment and facilities based of demand of each program. Programs that involve development of knowledge and skills require sufficient infrastructure to ensure an effective learning. Vocational colleges could also plan strategies to share facilities with any nearest institutions or as an alternative, program can be offered according to technical areas by state. Since, the nature of the learning process emphasised on the development of technical skills and knowledge, having a fully equipped workshops and laboratory are highly desirable.

Table 4 - Instructor's perspectives on the implementation of vocational skills training programs based on institutions

Aspect		Batu Pahat VC	Kluang VC	Segamat VC	Muar VC
Curriculum	Delivery method	High	High	High	High
	Learning materials	Moderate	Moderate	Moderate	Moderate
	Teacher development	High	High	High	High
Infrastructure	Classroom	High	Moderate	Moderate	Moderate
	Workshop	Moderate	Moderate	Moderate	Moderate
	Tools and equipment	Moderate	Moderate	Moderate	Moderate
Industrial training	Coach	High	High	High	High
	Training schedule	High	Moderate	Moderate	Moderate
	Training supervision	High	Moderate	Moderate	Moderate

According to Tee et al. (2022), other than the teaching and learning factors, the environment in which teaching and learning takes place also has an important impact on the teaching and learning process. The process of teaching and learning should take place in a conducive environment so that students can learn without any interruption and the instructor can teach well without having to think about problems that might arise as a consequence of insufficient skills and infrastructure. Therefore, to have sufficient equipment and facilities is seen very important to facilitate the training and learning processes.

Table 5 - Educator's perspectives on the implementation of vocational skills training programs based on the programs

Programs		Curriculum	Infrastructure	Industrial Training
Welding Technology	Mean	3.89	3.40	3.81
	Std. Deviation	0.48	0.83	0.64
Automotive Technology	Mean	3.73	3.49	3.64
	Std. Deviation	0.63	0.69	0.59
Electrical Technology	Mean	4.05	3.71	3.65
	Std. Deviation	0.54	0.59	0.59
Refrigeration and Air conditioning	Mean	4.18	3.19	3.79
	Std. Deviation	0.44	0.38	0.60
Electronic technology	Mean	4.00	3.72	3.80
	Std. Deviation	0.31	0.65	0.50
Industrial Machining	Mean	4.10	3.54	3.80
	Std. Deviation	0.39	0.68	0.59
Construction technology	Mean	3.80	3.55	3.36
	Std. Deviation	0.48	0.66	0.60

Findings in Table 3 also shows that the perspective of the vocational colleges' educators on industrial training aspects (coach, and, training schedule and supervision) is at a high and moderate level. Table 5 shows that the entire institutions are moderately satisfied with the opportunity that their students (for each program) get to have sufficient trainings from technical experts in industries. The results of this study found that instructors were able to supervise students who had undergone training in the local industries. Similarly, instructors themselves are prepared to work with industry management. Although the study of Hamsan (2013) and Abd Aziz et al. (2022), stated that cooperation between the industry and the skilled institutions is still unsatisfactory, but the government remains strongly promoting and collaborating with the industry, with the number of trainees joining the National Dual Training System every year. This is supported by the study of Shafie et al. (2013) and Taat et al. (2012), which states that 2,696 small and medium-sized enterprises have collaborated with local training institutions throughout the country in 2013.

6. Conclusion

Based on the findings of this study, it is suggested that the vocational colleges' management should take serious action to any suggestions made by the educators as they are the anchor of the programs who play significant role to the successful implementation of the technical programs. The technical educators should be given sufficient time to become an expert and to adapt themselves with any changes in the vocational curriculum. The burden borne by the educators should be also shared with the management. While we prioritizing students' achievements, we should also aware to some of the constraints that exist in implementing technical programs at vocational colleges. Since programs at vocational colleges are expected to supply semi-workers for local market, support given by the government and local industries are crucial to ensure the continuity of the programs. The previous transformation from technical secondary schools to vocational colleges, have transformed the working environment of educators and provide some challenges to the institutions. Challenges such as increasing workload, changes mode in the curriculum, teaching/learning approaches and quality of assessment are another concerns that should be investigated in future research. The Ministry of Education Malaysia can also conduct further research based on the findings obtained from this study in their effort to strengthen the implementation of vocational skills training programs throughout Malaysian institutions.

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