



Green Technology: A Must or a Need in TVET Education in Malaysia?

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Abstract: Green Technology is seen as the optimal solution in addressing most of the environmental issues affecting our society today. The movement towards green technology will undoubtedly change the labour market. Although, there were numerous studies been done in regards to green technology but the question remains unanswered when it comes to Vocational Colleges in Malaysia. Therefore, the main goal of this current study is to investigate and develop an in-depth exploration of the need of incorporating Green Technology in one of the most prominent TVET institutions in Malaysia which is the Vocational Colleges. The study uses exploratory sequential mixed method as the research design but only the qualitative approach is being selected to be discussed in this paper. Hence, we report the findings conducted through semi-structured interview by interviewing 7 industrial players in TVET, associated with Vocational Colleges in Malaysia. In relation to the main findings from this study, we found that all 7 participants believe that there is a need to incorporate green technology in the curriculum of Vocational Colleges as to upgrade and fulfill the industry's needs. Taken together, this finding suggests that educational reform may be the most important tool in the future of green technology in Vocational Colleges and by all means it is defined as a need rather than a must.

Keywords: Green technology, TVET, vocational college, qualitative interview

1. Introduction

Technical and Vocational Education and Training (TVET) is understood as combined process of education, training and skills development relating to a wide range of occupational fields, production, services and livelihoods (UNESCO, 2015). TVET is part of lifelong learning includes work-based learning and continuing training and professional development which may lead to qualifications. TVET also involves wide range of skills development and opportunities attuned to a country's national and local contexts. TVET in general has two main objectives, (i) social which is in relation to training and integrating young people within the labour market and (ii) to contribute to the development of economy and employment (UNESCO, 2018).

TVET has a significant role to play in the major pool of labour market and strengthening the economy in most of the Asian countries. Existing research recognizes the critical role played by TVET in Malaysia's economy as industry sector stands as the second top contributors to the Gross Domestic Product (GDP) at 37.8% and dominates 36% of labour force (CIA, 2017). However it is believed that there is a transition in economy as it is moving towards a greener economy and has gained more traction in recent years by most countries across the world (Rosenberg, Lotz-Sisitka, & Ramsarup, 2018). The movement towards a greener economy will undoubtedly change the labour market and extensively such

changes will have unprecedented consequences for teacher training, curriculum and training methods in relation to TVET as a whole (Baumgarten & Kiag, 2016).

A broader perspective has argued that learning process related to green knowledge needs to be associated and aligned with the transitioning of greener economy and thus climate education needs to be incorporated into higher education and work-based learning such as TVET which will then catalyse the required wider cultural changes and transformation in industry dominated country as Malaysia (OECD, 2009; Pavlova, 2012; Asnawi & Djatmiko, 2016; Wall, 2017). UNESCO and UNEVOC, the prominent United Nations agencies respectively responsible for setting a global direction and facilitating consensus for education and training, stated in The Bonn Declaration (2004), *“since education is considered the key to effective development strategies, technical and vocational education and training (TVET) must be the master key that can alleviate poverty, promote peace, conserve the environment, improve the quality of life for all and help achieve sustainable development.”* (UNESCO/UNEVOC 2004, 1).

In Malaysia, there are many prominent TVET institutions across the country that provides education and work-based training and one of it, is Vocational Colleges (SEAMEO VOCTECH, 2019). Although, it only produces 13.2% of TVET graduates in this country, nevertheless it is a gold mine of talent pool and well regarded for skilled and semi-skilled workers among the industry players for its Vocational Education and Training (VET) (Mohd Jalil, Noor Hisham, & Annas Akhmal, 2015). Vocational College is an institution that is placed under the Ministry of Education Malaysia (MOE) and offers variety of courses that fit the industry’s need in providing secondary and tertiary TVET education at certificate and diploma level known as Malaysian Vocational Certificate and Malaysian Vocational Diploma (SEAMEO VOCTECH, 2019).

Ministry of Education need to focus and take into consideration to transform the current curriculum as it is highlighted in The Malaysian Education Blueprint 2015-2025 (Higher Education) as one of its strategy is to enhance industry-led curriculum by incorporating green technology in the curriculum of Vocational Colleges and must be seen as a revolutionary action (Majumdar, 2012; SEAMEO VOCTECH, 2019). As such, Malaysian Vocational Certificate at secondary level courses in Vocational Colleges should be introduced to green technology (Paryono, 2017). Similarly Paryono (2017), also suggested the idea of green technology should be integrated in the curriculum, learning contents, teaching-learning processes, and also reflected in school policies and practices in relations to TVET. The studies presented thus far suggest, Vocational colleges must create curriculum contents that reflect and promote green technology. The way green technology is defined as the most up-to-date alternative to preserve the natural resources in order to minimize the impact towards environment from human activities says so much why it is very much needed in the curriculum of Vocational Colleges and related to the current workforce (Omar & Ahmad, 2014).

Drawing on extensive range of sources, skilled and semi-skilled workers dominates about 62% of the labour force in Malaysia (Adzmi, Hamid, & Kamin, 2014; World Economic Forum, 2016). It is furthermore concerning that all industry-based jobs are rallying towards green technology and will dictate the economic growth in every country. As the key impetus of the Malaysian TVET strategy underlined in the 11th Malaysian Development Plan 2016-2020 (11 Malaysia Plan) includes improving the efficiency of the labour market to accelerate economic growth, it is pivotal to incorporate green technology into the curriculum of Vocational Colleges and promote life-long learning for the skilled and semi-skilled workers as we facilitate them into the industry with the adequate amount of knowledge and best practices (CEDEFOP, 2010; SEAMEO VOCTECH, 2019).

1.1 Green Technology in TVET

Green Technology is an element under the green curriculum dimension as one of the five dimensions in framework of greening TVET at institutional level proposed by (Majumdar, 2010). It was a holistic framework that was extremely needed to transform TVET institutions in a comprehensive manner that supports green society and green economy. In that manner, green curriculum and technology was designed to meet upcoming skills for clean and green jobs that is required by the global workforce. Moreover, it was also stressed within this framework, the educational processes and program contents can produce desirable technicians and workforce equipped with skills to properly consume and conserve resources.

As stated, introducing new green technology innovation needs substantively modified, or new curricula and this adaptation will be a must and also a challenge for TVET (Baumgarten & Kiag, 2016). There are many benefits that will emerge if green technology is implemented and brought into TVET. Considering all of this evidence, it seems that green technology is likely to increase the employment demand of TVET graduates (Jahonga, Ngore, & Muramba, 2015). It is also said greening TVET enhances problem-solving skills in the daily lives (skills manage life), education in sustainable development in life and entrepreneurship education (Arasinah, Amaruni, Bushra, Normah, & Faizal, 2017; Jahonga et al., 2015). Furthermore, Pavlova and Huang (2013) added that incorporating green technology will bring these benefits such as adding value to life, not harming the environment, holding on to science and technology, working hard, and obeying the law and integrity in carrying out tasks in the daily lives.

The studies presented thus far provide clear evidence that greening TVET by incorporating green technology will provide a useful framework to identify strategy, incorporate green agenda and realize the outcomes and potential benefits in support of green society and economy (Majumdar, 2012). Greening TVET institutions will form as foundation for building the social framework such as the national green growth agenda will form the basis for pursuing environment-

responsible economic framework that incorporates the important role of education sector particularly the technical and vocational education (TVET). Overall, these studies suggest that by incorporating green technology in TVET and particularly Vocational Colleges, it will help to generate high quality TVET graduates in terms of knowledge and skills for sustainable development; and will ensure the products available in the market are responsive to the needs of the industry (Arasinah et al., 2018).

2. Objectives

The present study is designed to investigate and develop an in-depth exploration of the need of incorporating Green Technology in one of the most prominent TVET institutions in Malaysia, the Vocational Colleges. This paper will address the results for the first objective as a part of this research.

3. Methodology

The study uses exploratory sequential mixed method as the research design. In this research design, the substantial qualitative data becomes a means for developing and locating quantitative instruments at later stages of this study (Creswell, 2008). Therefore, only the qualitative approach is being selected to be discussed in this paper. Qualitative approach is used to gain insights into an in-depth exploration of the need of incorporating Green Technology in Vocational Colleges in Malaysia, hence qualitative research approach is adopted. This approach was chosen to enable the researchers to conduct this study in normal setting and explore a detailed and in-depth understanding of thought process and different practices in the area of this study. Furthermore, it has also given the researchers an opportunity to build a complex, holistic picture, naturalistic, dynamic, express experience, create understanding and analyzes verbatim report of detailed views of the participants (Merriam, 1998; Creswell, 2008; Ghazali & Sufean, 2018; Mohamed & Ramlee, 2017; Othman 2018).

3.1 Interview

Interview has been conducted to fulfill the objective of this study, which is to understand and develop an in-depth exploration of the need of implementing Green Technology in Vocational Colleges in Malaysia. A qualitative interview method is selected to ask open-ended questions so that the participants can best voice their experiences unconstrained by any perspectives of the researcher or past research findings in a two-way communication. (Ghazali & Sufean, 2018; Creswell, 2008). In addition, Zelditch (1962) and Patton (2002) demonstrated that interview is the most efficient way to collect in-depth data that involves social interaction from participants to find out from them those things we cannot directly observe as it allows us to enter into the other person's perspective. In this study, the researchers used one-on-one interview to ask questions and to record precise answers from only one participant at a time and was conducted face to face so that the researchers could focus on the information that was given by the participants (Merriam, 2001; Chua, 2011).

Researchers has also chosen semi-structured interview to collect in-depth data from participants. Semi structured interview is being used to add in additional interview questions while interviewing to get more information and to add depth to some of the participants' opinions (Drever, 1995; Gay & Airasian, 2003; Ghazali & Sufean, 2018). The researchers began the interview with main interview questions and add in questions subsequently to seek for in-depth clarification from the participants. The main questions came from the open-ended questions in the interview protocol prepared by the researchers. Open-ended questions were mainly used in this study to authorize the researchers to explore and identify comments by participants that are beyond the responses to the close-ended questions and to control data acquisition (Van den Akker, 1999; Creswell, 2008; Merriam, 2009; Blanford, 2013).

Interview protocol form were designed by the researchers based on extensive reading and meta-data analysis to prepare the core interview questions to address major research questions in the study. The interview protocol contains instructions for the process of the interview, the questions to be asked and space to take notes of responses from the interviewee as it serves the purpose of reminding the researchers and it provides the means for recording notes (Creswell, 2008). The researchers used the qualitative interview protocol sample from Assmussen and Cresswell (1995), to prepare our own interview protocol. The interview protocol prepared help the researchers in many ways including to urge the interviewee to elaborate on their ideas, provide space between questions so researchers can take short notes, memorize the wording and the order questions to minimize losing eye contact allow participants maximum flexibility for responding to the questions.

3.2 Sampling

Maximal variation sampling, which is part of purposeful sampling strategy, was used to carry out this study. Existing research recognizes the critical role played by maximal variation sampling to present multiple perspectives of individuals to represent the complexity of this study as it was aimed at interviewing different participants from various TVET institutions in Malaysia. This strategy assisted the researchers to sample cases and individuals that differ on some characteristics or traits and required the identification of characteristics and then find sites and individuals that display

different dimensions of that characteristics (Creswell, 2008). Results from earlier study also demonstrate strong and consistent evidence that reports sampling should be a combination of characters and heterogeneous rather than homogeneous (Somerville, 2007).

The number of participants involved in this study is 7 participants. Although there is no specific restriction for the number of participants to be selected for a qualitative interview, the researchers applied rule of thumb consisting of 7 participants based on extensive literature findings. The number of participants to be involved in interviews are varied such as Fraenkel and Wallen (2007) suggested 7 to 12 participants, Creswell (2005) suggested 4 to 10 participants, Ghazali and Sufean (2018) suggested 1 to 7 participants and meanwhile Spencer and Spencer (1993) suggested 7 participants. The common idea suggested by (Spencer & Spencer, 1993; Creswell, 2005; Fraenkel & Wallen, 2007; Ghazali & Sufean, 2018) is to keep number of participants in small size so that all the participants fit the sampling criteria. It is believed that small number of sample is sufficient when the objective of the study is clear and focused in-depth (Patton, 1990; Satzinger, Jackson & Burd, 2007). Data from several studies from Worell, Gangi & Bush (2012); Ocampo Ebisa, Ombe & Geen Escoto (2018), suggested that there is a relationship between the number of participants involved and the quality of a study as it is believed that smaller number of participants enhance the quality of a study.

Hence, all participants involved in the interview were meticulously selected from institutions related to Technical Vocational and Educational Training (TVET) educational institutions and industry as a the only common characteristic shared between them. The institutions involved were Vocational Colleges, Malaysian Technical University Network (MTUN), Centre for Education and Training in Renewable Energy, Energy Efficiency & Green Technology Malaysia (CETREE), Construction Industry Development Board Malaysia (CIDB) and Technical and Vocational Education Division, Ministry of Education Malaysia (MOE). The number of participants involved in the interview is 7 participants (N=7). All of the participants involved in this study have vast experience in their field of work ranging from 10 to 30 years of experience and considered expert. This is in line with Berliner (2004b) that someone is regarded as an expert when they have gathered 5 years of experience in their field of work.

Table 1 - Institutions and participants involved

CODE	INSTITUTION	GENDER	EXPERIENCE
P01	Centre for Education and Training in Renewable Energy, Energy Efficiency & Green Technology Malaysia (CETREE)	Male	12 Years
P02	Malaysian Technical University Network (MTUN)	Male	10 Years
P03	Construction Industry Development Board Malaysia (CIDB)	Male	22 Years
P04	Technical and Vocational Education Division, Ministry of Education Malaysia (MOE)	Male	30 Years
P05	Vocational College	Male	27 Years
P06	Vocational College	Female	22 Years
P07	Vocational College	Female	25 Years

3.3 Data Analysis

After the interview, audio recordings from the voice recorder were transcribed into transcripts. Merriam (2001) and Othman (2018) have identified transcripts as the best database for qualitative interview. The transcripts then analyzed using Computer Aided Qualitative Data Analysis (CAQDAS) software namely ATLAS.ti (version 8). ATLAS.ti was used to help the researchers to code, annotate and compare segments of information while rapidly search, retrieve and browse all data segments and notes relevant to an idea and importantly built unique networks that allows to connect visually selected passages, memos, and codes in a concept map in accordance to attain answers to the research questions (Creswell, 2008; Othman Talib, 2019). Thematic analysis was carried out in accordance with the recommendations of Braun and Clarke (2006) as shown in Figure 1.

The researchers adapted Braun and Clarke (2006) thematic analysis phases in this study to interpret the data retrieved from the transcripts of the interview. In phase 1, we get ourselves familiarized with the text in the transcripts where the audio recordings were listened repeatedly to form an understanding before we transcribe and code to conduct a comprehensive analysis. Then, researchers used Microsoft Word to log all raw data and convert it into pdf documents that was subsequently analysed in ATLAS.ti (version 8). As suggested by Braun and Clarke (2006), researchers repeatedly read through the transcripts to find and look for patterns at least 3 times before coding so that we will be more familiar with all aspects of the data.

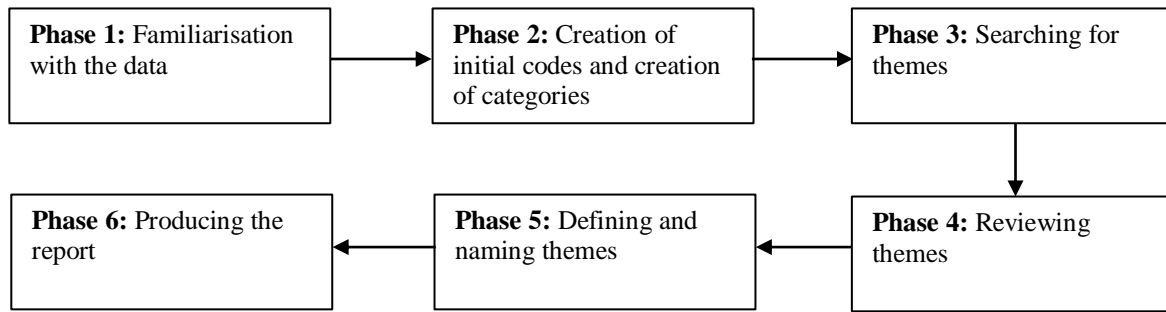


Fig. 1 - Thematic analysis phases (adapted from Braun and Clarke, 2006)

The second phase begins after the researchers have read and familiarized with the data by having ideas about the insights of the data. In this phase, researchers keep revisiting the data to simplify and focus on specific characteristics of the data. Researchers identified important sections of text and highlight it as citations to index them as they relate to a theme or issue in the data while using ATLAS.ti. We worked systematically through the entire data set and gave full equal attention to each data item and identify interesting aspects in the data that formed the basis of themes across data set. Boundaries and coding framework were created to ensure that codes are not interchangeable or redundant.

In third phase, after all the data was highlighted as citations and have been initially coded, a list of different codes identified across the data set has been developed. In this phase researchers sorted and collated all the potentially relevant coded data extracts into themes. The themes were initially generated inductively from the raw data. Inductive analysis is the process of coding the data that was used by the researchers, so that we will not fit it into a pre-existing coding frame or the researchers' analytic preconceptions. In this sense, this form of thematic analysis is fully data-driven (Braun & Clarke, 2006). The researchers reviewed the coded data extracts for each theme and consider if it appears to form a coherent pattern in the fourth phase. In this phase, inadequacies in the initial coding and themes were revealed and required various changes. The researchers inserted new code when they identified a relevant issue in the text not covered by an existing code and deleted the code when the researchers found no need to use a code or if it substantially overlapped with other codes. By the end of this phase the researchers had a good idea of the different themes and the overall understanding about the data.

During the fifth phase, researchers determined aspects of the data each theme captures. For each individual theme, researchers conducted and wrote a detailed analysis, identifying the story that each theme tells (Braun & Clarke, 2006). As suggested by Braun and Clarke (2006), researchers came out with theme names that are punchy so that it will immediately give a sense of meaning about the theme. At this stage, researchers fit the themes into the overall story about the entire data set in relation to the research questions (Braun & Clarke, 2006).

In the final phase, researchers fully established the themes and began final analysis and write-up of the report. The write-up of the thematic analysis is provided with a concise, coherent, logical, non-repetitive, and interesting account of the data within and across themes (Braun & Clarke, 2006). Researchers took direct quotes from participants as an essential component of the final report. Short quotes were included to aid in the understanding of specific points of interpretation and demonstrate the commonness of the themes as was suggested by (King, 2004).

The summary of thematic analysis phases which was adapted from Braun and Clarke (2006) is designed in a flow chart below to demonstrate the process conducted while coding, themes generation and producing final report in this study. This flow chart is to give a clearer picture on how the process looks like to establish trustworthiness during each phase of thematic analysis that was used while conducting this study.

4. Findings

The findings of this paper will be very much answering the research question that was prepared in regard to this study.

Research Question: What is your opinion regarding the importance of green technology to be part of the curriculum in Vocational Colleges and if you are given the opportunity to design and develop curriculum for the Vocational Colleges will you consider incorporating green technology in its curriculum?

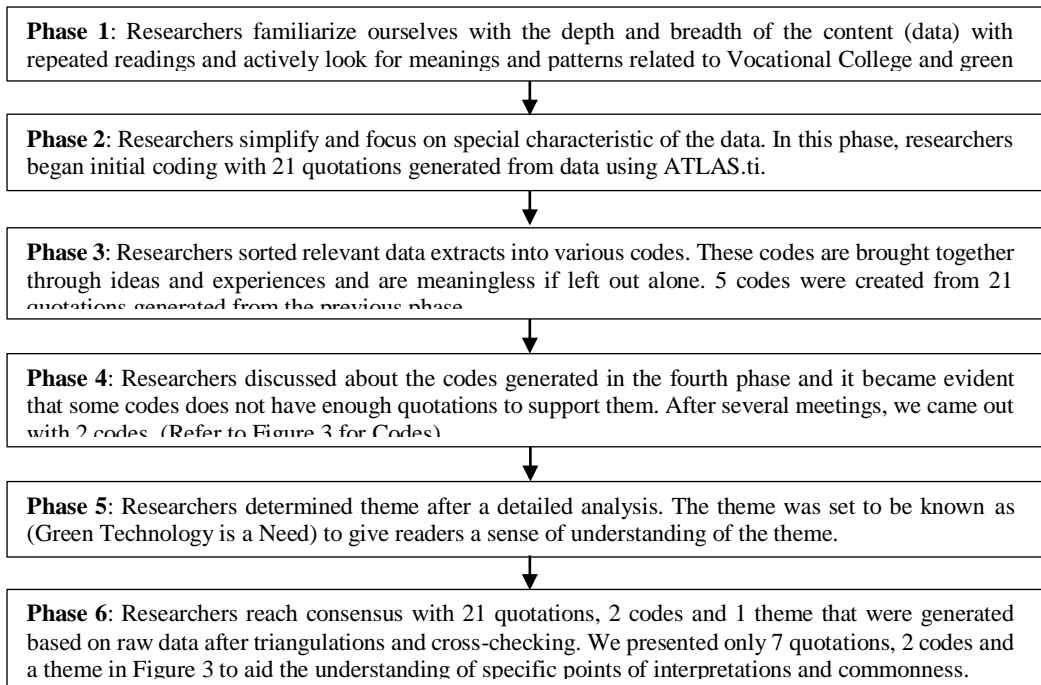


Fig. 2 - Researchers process of thematic analysis (adapted from Braun & Clarke, 2006)

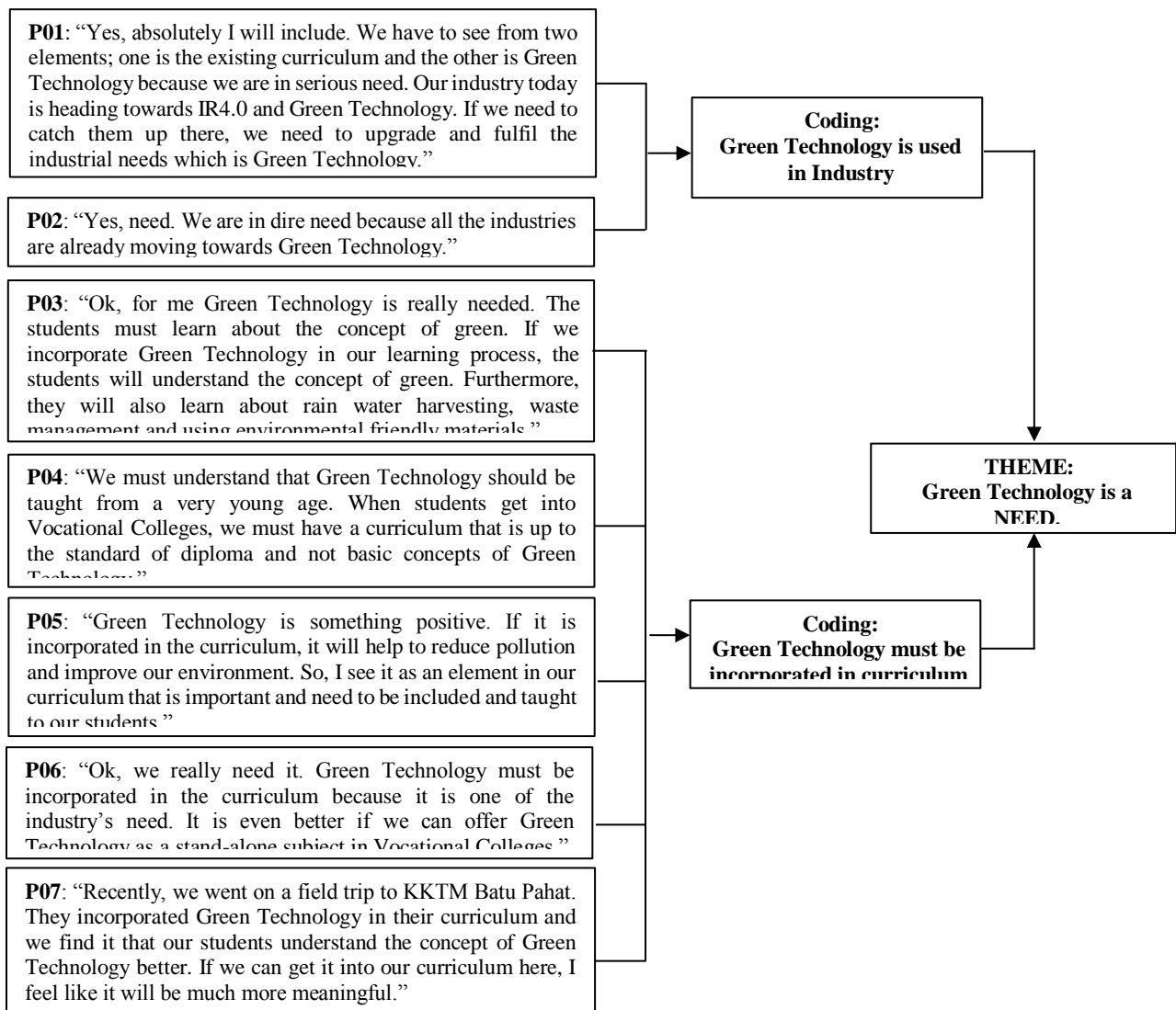


Fig. 3 - Interview findings

5. Discussion

One of the main findings from this study is that five participants from various TVET institutions related to Vocational Colleges agreed that green technology is a need and must be incorporated in the curriculum and is in line with (Zsoka et al., 2013; Vicente-Molina et al., 2013; Jahonga, Ngore, & Muramba, 2015; Arasinah et al., 2018; Dagiliūtė, Liobikienė, & Minelgaitė, 2018). Based on the previous studies conducted, it is appropriate to instill green technology in curricula of TVET institutions. It is said that when students, inculcated with green elements, progress to a higher level of education and later in workforce, they will be able to apply what they have learned to activities and processes that will produce a green product (Arasinah et al., 2017, 2018). Hence, TVET and Vocational Colleges particularly needs to introduce knowledge and skills that are sought after in the world of globalization such as utilization of renewable energy from biomass and solar power, and change the usage of nature such as land and forestry and all these elements of green technology works best if it is being incorporated in the curriculum (Jagannathan, 2013).

Meanwhile, a small number of participants emphasized that industry today is heading into green technology and the 4th Industrial Revolution (IR4.0). This also accords with our earlier observations, which showed that jobs in various sectors of industry, both the services and manufacturing, are now beginning to be oriented towards green technology (Asnawi & Djatmiko, 2016). The evidence reviewed here seems to suggest adaption to a new philosophy in regards to green technology and the 4th Industrial Revolution (IR4.0) should be implemented in Vocational Colleges to supply human resources in parallel with the job market demand (Asnawi & Djatmiko, 2016). In addition, the rapid development of economies in the Association of Southeast Asian Nations (ASEAN) region has also resulted in the necessity of permanent, economic, structural change and a great need for a highly-qualified skilled labour force which leads to the job competence that emphasize green technology (Baumgarten & Kiag, 2016). This further reiterates that renowned TVET educational institutions such as Vocational Colleges acknowledges the need to revamp the curriculum which is more supportive of green technology and the 4th Industrial Revolution (IR4.0).

Previous study reported by Ajzen & Fishbein (1985) argued through their theory of reasoned action the importance of knowledge in determining behaviour. It has been conclusively shown that attitude change will deliver behaviour change and therefore appropriate knowledge transfer must take place for attitude change for students in Vocational Colleges. Therefore, Ajzen and Fishbein (1985) critically debated that explanation of the importance of knowledge transfer would likely to succeed in changing attitude and behaviour if the knowledge convinces the students to move their intention to change. Recent evidence suggests the knowledge that students seemed to have about the environment is mainly related to nature rather than procedural such as "*knowledge about the environment*" rather than "*knowledge on how to work for the environment*" (Yencken, Fien & Sykes, 2000). It is essential for students in Vocational Colleges to be exposed to procedural knowledge regarding green technology in order to satisfy the demand of competent workforce. Collectively, these studies outline redesign and broadening the curriculum to become more real life oriented across all disciplines by establishing connections with industry and other institutions so that students especially from Vocational Colleges and TVET institutions explore the many possible ways to support sustainability and green technology with their own skills and actions and contribute to a greener and a better world (Fien, Teh, Yencken, Sykes & Treagust, 2002; Tilbury, 2011).

Existing curriculum greening model recognizes the critical role played by education to incorporate green technology in its curriculum. It has been suggested that Curriculum Greening of Higher Education Model or ACES emphasized that learning institutions must be committed to offer and provide their students with specific green knowledge needed for their professional future and must be done from the very beginning of their studies in every level of a particular learning institution such as TVET institutions (Geli De Ciurana & Filho, 2006; Adam, Jibrin, Shuaibu, Dahiru, & Jaja, 2018; Tasdemir & Gazo, 2020). The importance and originality of this model is that it explores and focuses on a defining concept of curriculum greening, designing and implementing practical actions aimed at incorporating green in its curriculum as it can also be used in Vocational Colleges. This provides a necessary action to incorporate green in curriculum as it is seen important for Vocational Colleges' students to study reality and to resolve the social and environmental problems that the real world has generated before they are in the workforce as it was also suggested by the interview participants (Hidalgo & Fuentes, 2013). This model shed new light on education as it has been far too long have not paid enough attention to environmental consequences and in order to implant this view on students' psyche, it is important to inculcate green across its curriculum (Bodlalo, Sabbaghan, & Jome, 2013).

The others suggested that green technology is very much applied and practiced in the industry and therefore TVET institutions such as Vocational Colleges must be able to provide manpower who fit into the skill and knowledge needed in the workforce as it relies so much on them (Ramlee, 2015). Overall, the findings basically go in parallel with research findings mentioned in the introductory section of this paper and several other studies that mentioned that green technology is needed by all sectors such as industry, education, construction and at all levels of the work force. It is also added that the core problem in most young people employed in the developing and future markets of Asia are low numbers unskilled or under-qualified and often without access to training related to green technology and renewable energy (Baumgarten & Kiag, 2016; UNESCO-UNEVOC, 2017). Regarding to this pertaining issue, Pavlova and Huang, (2013); Asnawi & Djatmiko, (2016); Ramlee, (2015) also agreed that green technology need to be incorporated in TVET institutions to produce professional and knowledgeable workforce to be in the industry. Thus, it is highly suggested that elements of

green technology to be included in the curriculum to provide manpower who are conscious and able to handle natural resources responsibly.

These findings add to a growing body of literature on green technology and Vocational Colleges across Malaysia if we fail to address the dire need of economy and industry's needs for highly-qualified skilled labour force. If this situation does not change with immediate real actions then it will further widen the gap between the competencies qualifications required by industry in various sectors and the competency profiles of graduates from Vocational Colleges. The ball is now in the court of Vocational Colleges to make the changes deemed necessary to inculcate green technology into their curriculum to be more of industry driven.

6. Conclusion

The findings revealed that green technology need to be incorporated in the curriculum to have a fully functional Vocational College as a TVET institution. Criticism of the TVET is not something uncommon. It is quite alarming that green technology is not incorporated in the curriculum of Vocational Colleges, as it is one of the TVET institutions in the country to produce semi-skilled and skilled workers into the workforce. In this 21st century, economy and technology are changing rapidly and that affects the way society works and lives. TVET must be able to anticipate and response accordingly by offering relevant courses, suitable curriculum, and new ways of teaching-learning and assessing the students in regards to green technology. Vocational Colleges must be able to create awareness, be the agent that promotes green technology, create workforce that support green technology, and develop and implement regulatory or monitor tools to assess the green practices.

As we learn from the findings that Vocational Colleges has yet to implement green technology in their curriculum, it has to be a major concern to everyone associated with the prominent TVET institution in Malaysia. It is contrary with the developed countries where green technology has been their practices in almost in every level of education system and every aspect of their daily lives as they have realized the importance and benefits for themselves as well as the future generations. With the rises of pollution and increases of the greenhouse effect globally, actions must be taken to prevent the current problems become even worse. Educational reform will always be the only way to educate the young generations to realize and appreciate the importance of natural resources, resource efficiency, avoiding waste and waste management, knowing about the potential environmental impact and not repeating the same mistakes made by the previous generations. Overall, there seems to be some evidence to indicate that to incorporate green technology into the Vocational College curriculum is more of a need and must.

7. Implications

TVET training institutions such as Vocational Colleges are slow to respond to new requirements and higher standards for training and education. Any variation in knowledge gap between students and the industry's need should be seen as a positive challenge in transforming the curriculum. Given the interrelationship between green technology in TVET and market demand for greener services and products, the function of TVET will be limited especially in regards to the transfer of technical knowledge for new job profiles in areas such as renewable energy. Therefore, great efforts should now turn the tides towards transferring green technology to students who can implement this in their present and future work force.

8. Future Recommendations

The findings from this study found that there were suggestions given by the participants involved in the interview to develop a relevant structured framework as cross-curriculum approach to fulfill the need of the industry regarding Green Technology. Therefore, the researchers will come up with subsequent study to develop a curriculum framework that is intended to be the bridge between the Vocational Colleges and the industry to produce knowledgeable workers in regards to Green Technology.

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