



# Pull and Push Factors of Students' Enrolment in the TVET Programme at Community Colleges in Malaysia

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**Abstract:** Malaysia aims to achieve a high-income economy by 2020. Hence, a highly skilled workforce is essential to achieving this goal through enhancement of its TVET graduates. This study is aimed at identifying the pull and push factors affecting student enrolment in the TVET programme at community colleges in Malaysia. This study employed a questionnaire to collect data. A total of 377 students from 11 community colleges in peninsular Malaysia were randomly selected as study sample. In this study, the mean score was used to determine the tendency of factors that influence student enrolment, while the Mann-Whitney U test was used to measure the difference in the mean score of the main factor. The findings show that all push and pull factors significantly influence student enrolment in TVET institutions. The study highlighted career prospect as the main pull factor, while the main push factors comprise students' interest. The findings also show that there is a significant difference in the mean score of these two factors based on ethnicity. Therefore, students' interest and awareness about the prospect of the TVET programme should be nurtured, especially among non-Bumiputeras, by the relevant parties such as government, teachers, parents, and the community so as to enhance students' participation in the TVET programme.

Keywords: Students enrolment, TVET, community collage

## 1. Introduction

From a historical standpoint, Technical Training and Vocational Education (TVET) was introduced in Europe in the wake of the French industrial revolution in the 1800s to produce new inventions for war purposes (Maclean & Wilson, 2009). Since then, TVET has continued to grow worldwide, thanks to colonisation. At present, the TVET programme is conducted in most countries to acquire knowledge and skills for use in the workplace. Various terms have been used to represent TVET. These include Career and Technical Education (CTE) in the United States, Further Education and Training (FET) in the United Kingdom and South Africa, Vocational and Technical Education (VTE) in China and Nigeria, Vocational Education and Training (VET) in Australia, Technical and Vocational Training (TVT) in Saudi Arabia, Apprenticeship Training (AT) in Germany and Austria, Business, Technical and Vocational Education and Training (BTVET) in Uganda, Professional and Technical Training (PTT) in Mexico, and Education and Training Technical and Professional (ETTP) in France.

In Malaysia, TVET was first introduced in 1906 with the establishment of the country's first technical school, Teacher Technical School, which produced assistant technicians at the Public Works Department, Department of Malayan Railway, and Survey Department (Muhammad, 2001). Since then, TVET has continued to grow to the extent that there are now more than one thousand TVET institutions run by various institutions under seven ministries, state and private skill development centres that offer various skill courses from certificate to degree level. The number of

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TVET students at public institutions now stands at 230,000, and over 50 percent of them are in polytechnics, community and vocational colleges (Ministry of Education [MOE], 2012). That number does not include TVET students in four public universities in the Malaysian Technical University Network (MTUN) and in other higher education institutions which provide TVET programme at diploma and degree levels.

Lately, the government has given serious attention to TVET. To ensure the implementation of TVET in line with the domestic and international economic landscape, the current technological advancement, and the needs of the Industry 4.0 required by the industry at present, the government has invested heavily in the TVET sector as well as various initiatives to ensure its implementation. For example, in the 10th Malaysia Plan, the government has increased the allocation of development expenditure to public TVET institutions from RM1.8 billion in 2010 to RM2.1 billion in 2014 (Economic Planning Unit [EPU], 2010). In Budget 2018, RM4.9 billion has been allocated to seven ministries involved in the TVET programme as well as agencies under it to produce a highly skilled and competitive workforce (Ministry of Finance [MOF], 2017). Additionally, the government is also working to increase the number of TVET graduates, aiming to raise the 164,000 graduates enrolled in 2015 to 225,000 in 2020 by attracting more youths into TVET so that the agenda for skilled labour preparation is achieved as targeted in the 11th Malaysia Plan (EPU, 2015).

In line with the 4th Shift in Malaysia Education Development (Higher Education), PPPM (PT) 2015-2025 to improve the quality of TVET graduates, the government has also targeted 2.5 times overall increase in the TVET programme enrolment to 650,000 students by 2025. At the same time, under the 11th Malaysia Plan (RMK-11), 60 percent of the 1.5 million jobs to be created are expected to require TVET-related qualifications. Nonetheless, the supply of labour with TVET qualification is currently inadequate in 10 of the 12 National Key Economic Areas (NKEA) sectors. Besides, these twelve NKEA sectors project a need for 1.3 million TEVT graduates, with 1.6 million TEVT graduates to be required by 2020 (MOF, 2017). The current capacity of TEVT institutes reveals that it is insufficient to meet the needs of the projected economic transformation. Concluding from the current rates of graduation, of the 1.6 million required TEVT graduates, institutes are only able to produce 1.2 million (RMK-11). This leaves a supply-demand gap of 400,000 graduates until 2020. Given the enormous demand for a workforce with TVET skills, various steps need to be taken to enhance student enrolment in technical and vocational streams.

In this regard, this study aims to identify pull and push factors affecting student enrolment in TVET programmes at community colleges in Malaysia. In addition, this study will also identify dominant factors affecting student enrolment in such institutions. Furthermore, this study will also look at the differences among dominant factors of student enrolment in community colleges based on gender, socioeconomic and ethnic levels. This study will complement the existing research in three ways. Firstly, to the best of the authors' knowledge, it appears to be the first study of its kind to utilise the push-pull model on a sample drawn from Malaysian community colleges to determine the factors that influence TVET students' enrolment. Secondly, it also investigates differences in the dominant factors regarding demographic characteristics such as gender, ethnic and socioeconomic levels. Thirdly, it provides recommendations for addressing the issue.

The rest of this paper is structured as follows. The literature on factors influencing students' enrolment in TVET institutions is reviewed in Section 2. The conceptual framework of the Push-Pull Model is proposed in Section 3. The methodology is given in Section 4. Results are drawn and presented in Section 5. The policy recommendations based on the lessons drawn will conclude this paper in Section 6.

## 2. Factors Influencing Students' Enrolment in TVET Institutions

Many factors that influence students' enrolment in TVET institutions have been identified in previous studies, both nationally and internationally. For example, Batterham and Levesley (2011) found that access to TVET institutions in Japan is low because youths there felt that taking vocational courses would narrow the job opportunities and education options open to them. In addition, parents also do not have the confidence to advise their children on vocational career opportunities, as these do not guarantee them a decent job with a high income. Jones and Larke (2001), who examined the factors affecting career choices among African American and Hispanic students at a college of agriculture, found that limited employment opportunities in agriculture have led students to choose other careers. Meanwhile, Needham and Papier (2011) established that some students from urban areas in South Africa felt that vocational qualifications would result in low wages as well as learning paths that exclude them from further studies.

Physical facilities such as classrooms, libraries, tables, and labs have a direct impact on student enrolment in TVET institutions. This is because the availability of physical facilities such as textbooks, labs, workshop equipment and other equipment is essential for effective teaching and learning, while a lack of such facilities would negatively affect enrolment in educational institutions. For example, Buang et al. (2016) as well as Mustaffa and Abd Jamil (2012) in the case of Malaysia; Ngunzo (2011) in the case of Japan; Ebenehi and Baki (2015) in the case of Nigeria. Ronoh et al. (2014), who studied the enrolment rates in polytechnics in the Kericho, Bureti and Bomet districts in Kenya, found that the lack of equipment facilities, boarding facilities, water and electricity facilities has contributed to low enrolment in TVET institutions. This is in addition to other factors such as incompetent trainers, curriculum not aligned with the labour market demand, and a lack of social awareness as to the importance of technical training which they also found to have contributed to the low enrolment.

Many studies also managed to prove that students’ interest, parental influence and peer influence have a significant impact on students’ decision regarding TVET, e.g. Awang et al. (2011) and Buang et al. (2016) in the case of Malaysia; Ayub (2017) in the case of Pakistan; and Munyua et al. (2014) in the case of Kenya. Student interest in participating in the TVET programme is important as it will encourage them to seriously follow the programme and ultimately contribute to a highly skilled Malaysian workforce. In addition, family influence in the form of moral support, advice, financial assistance and the like is also important as families, especially parents, have an enormous influence on the future of their children. Besides parents, peers also influence a student’s behaviour in everyday life as they are only second to parents in being close to students.

### 3. The Push-Pull Model of Students’ Choice

The push-pull model was originally developed to explain the factors influencing the movement of people or migration (Lee, 1966), but it has since become the most common tool used by educational researchers to explain the international students’ motivations and decisions. The model has been used to understand international student flows, the decision or motivation to study abroad, and the international students’ choice of country and institution (Chen, 2007). Although the basic push-pull model of international students’ choice is valuable as an explanatory mechanism, it does have limitations (Li & Bray, 2007). Both push and pull factors are external forces that impact students’ behaviours and choices, but the individual preferences and personal characteristics of students are largely unaccounted for. Individual students might react to various push and pull factors differently.

Furthermore, many researchers have built on the basic push-pull model to develop more sophisticated conceptual models on international students’ choice, particularly in Asia (e.g. Li & Bray, 2007; Padlee, Kamaruddin & Baharun, 2010), we are not however aware of any study that has tested the push-pull model specifically on TVET students’ enrolment and more particularly in terms of Malaysia’s community colleges. This study intends to fill this gap. As such, this study will adopt the push-pull model proposed by Mazzarol and Sautar (2002) as its theoretical framework, as their model has been proven effective in categorising students’ motivations and decision criteria in a variety of contexts.

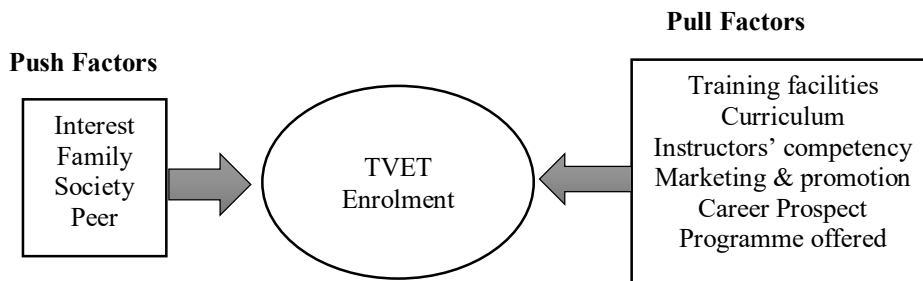


Fig. 1 - The Push-Pull model for students’ enrolment in the TVET programme

From the literature review, the various factors of TVET students’ enrolment form the conceptual framework of this study. According to Mugenda (2003), a conceptual framework helps simplify the proposed interrelationships between variables in the study and shows the same interrelationships diagrammatically. Based on Fig. 1, the two main reasons for students’ enrolment in the TVET programme among Malaysian community colleges can be grouped into pull and push factors. In this study, pull factors are related to the characteristics of TVET institutions such as training facilities, instructors’ competence, curriculum planning, marketing and promotion, availability of the required programme, and a good career prospect. On the other hand, push factors are related to the characteristics of students such as students’ interest as well as the influence of close individuals such as parents or family, friends and society. In the figure, student’s enrolment, which is a dependent variable, is influenced by those pull and push factors.

### 4. Methodology

This study made use of survey design to determine the push and pull factors of TVET students’ enrolment. Primary data was collected using a questionnaire. A questionnaire was used because it was more practical in terms of large populations. The questionnaire designed for this study consists of two parts. The first part comprises 11 questions related to students’ background and demographics. The questions are about the institutional name, level of study, field, gender, race, father’s highest level of education, mother’s highest level of education, education level of guardian, type of job mother/father/guardian holds, and household monthly income. The second part comprises questions related to pull and push factors affecting students’ enrolment in TVET institutions. This section contains 40 items related to pull factors (i.e. facilities, faculty, curriculum, promotion, career prospect, major) and push factors (i.e. interest, family, peer, and society) affecting students’ enrolment in TVET institutions. The five-point Likert scale was used to obtain data about respondents’ approval levels in each item.

The sample consisted of 377 randomly chosen community college students in Peninsular Malaysia. Determination of the sample size for this study was based on tables by Krejcie and Morgan (1970). The validity of the content and instrument language was checked using an expert reference method. In this regard, a panel of experts was asked to evaluate and examine items in terms of content and objectives to be measured. The reliability of the instrument was revised by analysing items in the questionnaire using the SPSS programme to obtain the value of Alpha Cronbach's coefficient after the pilot study was conducted. The Alpha Cronbach's value for each construct is between 0.827 and 0.968; a value above 0.70 indicates that the scale is consistent and reliable. In this study, the mean score was used to determine the tendency of factors that influence student enrolment, while the Mann-Whitney U test was used to measure the difference in the mean score of the main factor.

## 5. Results and Discussion

Based on previous studies, researchers have divided factors affecting students' enrolment in TVET programmes at community colleges into two, namely, pull and push factors. The pull factors comprise six elements, namely training facilities, instructors' competency, curriculum, marketing and promotion, career prospect, and programme offered; while push factors comprise student's interest, family, peer, and society.

### 5.1 Pull Factor

The results show that all pulling factors play an important role in increasing students' enrolment in community college. This is indicated by the mean score for all factors listed in Table 1 which exceeds the value of 3.00. A comparison of the mean score values between career prospect (mean score = 4.05), curriculum (mean score = 4.15), programme offered (mean score = 4.13), instructors' competency (mean score = 4.12), training facilities (mean score = 4.01), marketing and promotion (mean score = 3.73) clearly shows career prospect as the most dominant factor in terms of influence on students' enrolment in Malaysian community colleges. However, the influence of curriculum, programme offered, instructors' competency and training facilities on students' enrolment in such institutions is also huge. This finding is consistent with the results of other studies such as Azubaike (2011); Buang et al. (2016); Mbugua et al. (2012); Muhonja (2011); Rahman & Abdullah (2018); Ronoh et al. (2014); and Simiyu (2009).

**Table 1 - Mean Score for Pull Factor**

Factor	Mean
Career Prospect	4.20
Curriculum	4.15
Programme offered	4.13
Instructors' competency	4.12
Training Facility	4.01
Marketing and Promotion	3.73

To measure the difference in the mean score of the dominant pull factor, i.e. career prospect based on gender, socioeconomic status and ethnicity, the following will be compared: the mean score of career prospects for male and female students, the mean score of career prospects for high socioeconomic status and low socioeconomic status, the mean score of career prospects for Bumiputera and non-Bumiputera students. This will be done by examining the following three null hypotheses:

- $H_{01}$ : there is no difference in the mean score of the career prospect between male and female students.
- $H_{02}$ : there is no difference in the mean score of the career prospect between high socioeconomic status students and low socioeconomic status students.
- $H_{03}$ : there is no difference in the mean score of the career prospect between Bumiputera students and non-Bumiputera students.

**Table 2 - Mann-Whitney U Analysis on Career Prospect Factor Based on Gender, Socioeconomic and Ethnic**

Independent Variable	N	Mean Ranking	Z Value	Asymp. Sig (2-tailed)
Gender	Male	178.70	-1.671	0.095
	Female	197.28		

**Table 2 – (Continue)**

Independent Variable		N	Mean Ranking	Z Value	Asymp. Sig (2-tailed)
Socioeconomic Level	High	289	337.44	-0.118	0.906
	Low	388	339.49		
Ethnic	Bumiputera	343	196.74	-4.446	0.000
	Non-Bumiputera	34	110.93		

Based on the results of the Mann-Whitney U test in Table 2,  $H_{01}$  and  $H_{02}$  failed to be rejected because the asymptotic significant value was greater than 0.05. It shows that there is no significant difference in the mean score for career prospects based on gender and socioeconomic status. However, based on the Mann-Whitney U test in Table 2,  $H_{03}$  was rejected because the asymptotic significant value was smaller than 0.05. This result shows that there is a significant difference in the mean score for ethnicity-based career prospects. This means that ethnic Bumiputeras are more likely to consider their career prospects as their main reason for enrolling in TVET institutions compared to those of non-Bumiputera ethnicity.

## 5.2 Push Factor

Based on Table 3, it is found that all push factors (i.e. student interest, family, peer, and society) play an important role in increasing students' enrolment in the TVET programme at Malaysian community colleges. This is indicated by the mean score of all factors which exceeds the value of 3.00. When the mean score value was compared to other push factors, it was found that the students' interest (with mean score = 4.23) was the most dominant push factor in terms of influence on students' enrolment in the TVET programme at community colleges. This finding is consistent with the results of other studies such as Agodini et al. (2004); Ayob (2017); Aynmike (2014); Azubaike (2011); Buang et al. (2016); Ngugi & Muthima (2017); Mokri (1999); Najib (2002); and Ronoh (2014).

**Table 3 - Mean Score for Push Factor**

Factor	Mean
Interest	4.23
Family	3.84
Society	3.71
Peer	3.60

To measure the difference in the mean score of the dominant push factor, i.e. students' interest based on gender, socioeconomic status and ethnicity, the following will be compared: the mean score of students' interest for male and female students, the mean score of students' interest for high socioeconomic status and low socioeconomic status, the mean score of students' interest for Bumiputera and non-Bumiputera students. This is done by examining the following three null hypotheses:

- $H_{04}$ : there is no difference in the mean score of the students' interest between male and female students.
- $H_{05}$ : there is no difference in the mean score of the students' interest between high socioeconomic status students and low socioeconomic status students.
- $H_{06}$ : there is no difference in the mean score of the students' interest between Bumiputera students and non-Bumiputera students.

**Table 4 - Mann-Whitney U Analysis on Career Prospect Factor Based on Gender, Socioeconomic and Ethnic**

Independent Variable		N	Min Ranking	Z Value	Asymp. Sig (2-tailed)
Gender	Male	168	190.79	-0.289	0.773
	Female	209	187.56		
Socioeconomic Level	High	71	187.76	-0.112	0.910
	Low	301	189.31		
Ethnicity	Bumiputera	343	193.13	-2.361	0.018
	Non-Bumiputera	34	147.34		

Based on the Mann-Whitney U test results in Table 4,  $H_{04}$  and  $H_{05}$  failed to be rejected because the asymptotic significant values were greater than 0.05. This proves that there is no significant difference in the mean score for gender-based interest and socioeconomic factors. However, the Mann-Whitney U test results in Table 4 also show that  $H_{06}$  was rejected because the asymptotic significant value was smaller than 0.05. This result shows that there is a significant difference in the mean score for ethnicity-based interest factors, meaning that ethnic Bumiputeras in Malaysian community colleges are more interested in TVET programmes than non-Bumiputera ones.

## 6. Conclusion and Recommendation

In order to increase the enrolment of students in TVET programmes at Malaysian community colleges, the strong influence indicated by career prospects, curriculum, programme offered, instructors' competencies, training facilities and interests should be noted. By comparison, TVET institutional characteristics (pull factors) seemed more important than student characteristics (push factors) in enhancing students' enrolment in TVET. In addition, our findings also suggest that non-Bumiputera students tend to consider the field of TVET as having fewer career prospects compared to Bumiputera students. Besides, non-Bumiputera students also show less interest in participating in TVET programmes than their Bumiputera counterparts.

Based on the aforementioned findings, the following recommendations can be proposed. Firstly, since the perception of students and their community is that graduates of TVET have a good chance of getting a job, furthering their education at a higher level and earning a higher income remains to be proven. In this regard, the government should intensify its efforts such as joint ventures with higher educational institutions and the private sector to enhance the opportunity for further studies in the TVET field, add more jobs in the field of TVET through collaboration with government-linked investment companies (GLICs), government-linked companies (GLCs), statutory bodies and private companies, and create more jobs with high incomes for TVET graduates who are highly skilled to encourage increased productivity and ultimately the development of the national economy.

Secondly, TVET providers, or more specifically the community college management, should ensure that adequate, up-to-date facilities and equipment are made available as well as a variety of courses offered that are appropriate to the needs of the industry. In addition, the quality of instructors at community college needs to be enhanced through training and attachment scheme with the industry. Finally, interest and awareness about the prospects of the TVET programme should be nurtured among school students, especially among non-Bumiputeras, by the various relevant parties such as government, teachers, parents, and the community so as to enhance students' interest in participating in the TVET programme.

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