

# Polytechnic Student's Readiness Towards Project Based Employment



Yee, M. H., Mohamad, N. A., IAhmad Zubir, R. A., Kok, B. C., Tee, T. K.

**Abstract:** *Project Based Employment (PBE) is the current trend in employment that is gaining momentum. The growing need for PBE has led to the need for employees with high knowledge and skills as well as good attitude. The aim of this study is to identify the readiness of polytechnic students towards PBE in two Conventional Polytechnic from the southern zone states. This study employed a survey method. A total of 361 students comprised of first, second and third year from Civil Engineering, Electrical Engineering and Mechanical Engineering courses from Politeknik Melaka and Politeknik Port Dickson were selected as study samples. The instrument of this study is a questionnaire with the alpha value .919. Data obtained were analysed using SPSS software version 21.0. Descriptive analysis in the form of mean score was used to identify the readiness of polytechnic students towards PBE. The findings show that polytechnic student's readiness is in high level in terms of knowledge, skills and attitude towards PBE. From the knowledge aspect, polytechnic students know that PBE can provide employers with skilled and knowledgeable employees. Meanwhile, from the employability skills aspect, it shows that polytechnic students have the ability to interact well when working in groups. From the technical skills aspect, polytechnic students can complete their practical work by using the right equipment corresponding with the current PBE demands. From the attitude aspect, polytechnic students are always trying to develop themselves in the field they are involved in. In conclusion, polytechnic students are ready to face PBE in the future and they have initiative to improve their knowledge, skills and attitudes to the higher level to align with current industry demand. Overall, the results of this research have been able to help graduates and other educational institutions to improve and enhance the quality of students in line with the country's demand.*

**Keywords:** *Project Based Employment (PBE), Knowledge, Skills, Attitude*

## I. INTRODUCTION

PBE is an employee who is engaged to accomplish certain tasks for a certain period of time. Most PBE status employees

are taken by a company or industry to take care or assist in completing a project. These employees are usually given a service contract until the projects undertaken by the industry or the company is completed. According to [1], human life is based on income earned from work. Therefore, it is not a wonder if the right to work has been regarded as one of the rights protected under Articles 5 to 13 of the Federal Constitution of Malaysia for fundamental freedoms.

A good worker should have aspects of readiness such as knowledge, skills and attitudes that can help them in the workplace. Every employer in the organisation or industry needs graduates who are prepared. Sufficient physical and mental willingness can help graduates from experiencing culture shock when entering the workforce. Among the readiness are the skills of doing work, willing to accept the workplace environment, physical condition and self confidence in a job. While the factors that influence the readiness of students to enter the workforce are job factors, interest factors, knowledge factors, parent factors and industry and school factors [2].

## II. BACKGROUND PROBLEM

Among the factors that cause anxiety among students nowadays are choosing a career that suits them. Some of them have begun to aspire to serve in the career that they are interested in but failed. Project Based Employment (PBE) is important to be considered by graduates. This is because even with a diploma or degree in hand, it is still not considered as a big ticket that can promise jobs for graduates as most of the positions have been offered openly and contractually.

There are more than 41,000 civil servants who have been appointed by contract in the country and some of them have served for 10 years in the government. However, only 1.5% are absorbed permanently. Polytechnics institutions have provided 35,000 graduates each year across the country to fill job positions in the industry. The increasing number of graduates from polytechnics institutions across the country has been one of the factors in PBE. This is because the industry is incapable of employing permanent employees with a large number of graduates. As a result, most industries have practice PBE.

According to [3], the existence of university students' weaknesses is due to lack of knowledge. This is because they have low academic qualifications. Reference [4] also argues that as a result of an increase in the educational level of Malaysians, it has led to social changes in the labour market. As a result, employers have made changes to the terms of employment selection.

Revised Manuscript Received on December 30, 2019.

\* Correspondence Author

**Yee Mei Heong\***, Department of Engineering Education, Faculty of Technical and Vocational Education, UTHM, Batu Pahat, Malaysia. Email: mhjee@uthm.edu.my

**Nurfarah Aliah Binti Mohamad**, Faculty of Technical and Vocational Education, UTHM, Batu Pahat, Malaysia.

**Raudhah Adibah Binti Ahmad Zubir**, Faculty of Technical and Vocational Education, UTHM, Batu Pahat, Malaysia.

**Kok Boon Ching**, Department of Electrical Engineering, Faculty of Electrical and Electronic, UTHM, Batu Pahat, Malaysia.

**Tee Tze Kiong**, Department of Professional Education, Faculty of Technical and Vocational Education, UTHM, Batu Pahat, Malaysia.

© The Authors. Published by Blue Eyes Intelligence Engineering and Sciences Publication (BEIESP). This is an [open access](http://creativecommons.org/licenses/by-nc-nd/4.0/) article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>)

One of the dimensions of graduate's employability is to have a career shortly after graduation [5]. There are also employers who give negative comments to the graduates and said that graduates lack of appropriate skills and qualifications to meet industry demands. In addition, graduates are said to be lacking in the aspects of employability skills and do not perform well when doing their work [6]. Graduates in Malaysia are also said to be less skilled than graduates from abroad. This is because, PBE requires skilled workers to reduce the cost from sending employees for training.

Today's graduates are too picky in choosing jobs because they assume that the qualification they had is not equal to job offered. Reference [7] also stated that graduates are less interested in the jobs offered because they do not fit into their field of study, while refusing to work with industries that practice PBE and only show interest in industries that offer permanent jobs. Graduates are also said to be overly spoiled because they do not want to start from the bottom and have been accustomed to have it easy. This is because there are graduates who refuse to work on the factors that they do not have their own vehicles. Furthermore, with the attitude of young graduates in today's age who like to insist on starting salary rather than skills. This is particularly alarming with media reports saying that there will be more workers to be dismissed [3].

Hence, a study on the readiness of polytechnic students towards PBE have been conducted to identify their readiness to face PBE and how they will plan their future. The objectives of this study are as follows:

- i. Identify the readiness of polytechnic students towards Project Based Employment in terms of knowledge aspects.
- ii. Identify the readiness of polytechnic students towards Project Based Employment in terms of skills aspects.
- iii. Identify the readiness of polytechnic students towards Project Based Employment in terms of attitude aspects

### III. METHODOLOGY

The research design used for this study is survey method using quantitative approach through a questionnaire as the instrument that was conducted on the sample of the study to obtain the required data. This study was conducted to identify the readiness of polytechnic students in first, second and third year towards PBE in terms of three aspects which are knowledge, skills and attitudes. In addition, the implementation of questionnaire also helps researchers to obtain data to identify the readiness of polytechnic students towards PBE. Methods of questionnaire were carried out by distributing the forms to selected respondents from among the south zone polytechnic students in the first, second and third year

#### A. Population and Sample

In this study, researchers have chosen two polytechnic institution in the south zone as the populations which is Politeknik Melaka dan Politeknik Port Dickson which consists of students from Civil Engineering, Mechanical Engineering and Electrical Engineering courses. These

polytechnic institutions were chosen because they are in the same category of Conventional Polytechnic. This study uses a random sampling method. Based on the table of Krejcie and Morgan (1970), the number of samples in this study are total of 361 students.

**Table 1: Population size and sample (Student Affairs Department, 2019)**

Polytechnics	Population	Sample
Politeknik Port Dickson	4235	268
Politeknik Melaka	1461	93
<b>Total</b>	<b>5696</b>	<b>361</b>

#### B. Research Instrument

The instrument used in this study is questionnaire to obtain the data from the respondents. The questionnaire consists of four sections which is section A is the respondent demographic information using multiple choice questions in collecting background information of the respondent. Section B is about polytechnic student's readiness towards PBE in terms of knowledge aspect. While section C is about polytechnic student's readiness towards PBE in terms of skill aspect which is employability skills and technical skill and lastly section D is related to the readiness of polytechnic students towards PBE in terms of attitudes. The three parts of the questionnaire are using the likert scale involving the variables of knowledge, skills and attitudes. Table 2 shows the description of the questionnaire items of this research.

**Table 2: Description of the questionnaire item**

Section	Item	No of Item
A	Demographic of respondent	5
B	Polytechnic student's readiness in terms of knowledge aspect	17
C	Polytechnic student's readiness in terms of skill aspect <ul style="list-style-type: none"> <li>• Employability skills</li> <li>• Technical skill</li> </ul>	11
		5
D	Polytechnic student's readiness in terms of attitudes aspect	13
	Total	51

The instrument validation are conducted by three lecturers of the Faculty of Technical and Vocational Education. The validation has been made regarding content and language. A pilot study was conducted on 40 polytechnic students from technical fields who were not involved in the sample study. Based on the results of a pilot study conducted by researchers using the SPSS software version 21.0, the Alpha Cronbach value obtained for the reliability of the entire questionnaire is .919 which shows that the reliability level for questionnaire items are very high.

#### C. Data Analysis Method

Descriptive statistics are used to describe the characteristics of the variables found in the study and obtain the mean score and standard deviation. According to [8], descriptive statistics provide a preliminary description of the data that has been used and collected in a study. A more detailed data analysis method has been done for each objective and question of the study by using quantitative approaches that is questionnaire and descriptive analysis, mean score and standard deviation.



IV. FINDINGS AND DISCUSSION

In this section, the researcher discusses the findings of the study to answer the three questions of the study

Table 3: Mean score distribution and standard deviation for knowledge aspect

Item	STS		TS		KS		S		SS		Mean Score	Standard Deviation	Readiness
	f	%	f	%	f	%	f	%	f	%			
B1	11	3.0	39	10.8	50	13.9	148	41.0	113	31.3	3.87	1.069	High
B2	4	1.1	32	8.9	50	13.9	154	42.7	121	33.5	3.99	0.965	High
B3	24	6.6	63	17.5	74	20.5	111	30.7	89	24.7	3.49	1.223	Average
B4	8	2.2	37	10.2	49	13.6	148	41.0	119	33.0	3.92	1.035	High
B5	16	4.4	56	15.5	70	19.4	125	34.6	94	26.0	3.62	1.156	Average
B6a	5	1.4	50	13.9	96	26.6	122	33.8	88	24.4	3.66	1.037	Average
B6b	5	1.4	50	13.9	96	26.6	122	33.8	88	24.4	3.66	1.037	Average
B7a	5	1.4	50	13.9	96	26.6	122	33.8	88	24.4	3.66	1.037	Average
B7b	5	1.4	50	13.9	96	26.6	122	33.8	88	24.4	3.66	1.037	Average
B8	4	1.1	42	11.6	52	14.4	157	43.5	106	29.4	3.88	0.996	High
B9	20	5.5	48	13.3	59	16.3	131	36.3	103	28.5	3.69	1.178	High
B10	5	1.4	45	12.5	51	14.1	144	39.9	116	32.1	3.89	1.038	High
B11	16	4.4	46	12.7	49	13.6	133	36.8	117	32.4	3.80	1.154	High
B12	20	5.5	78	21.6	83	23.0	102	28.3	78	21.6	3.39	1.199	Average
B13	11	3.0	43	11.9	46	12.7	135	37.4	126	34.9	3.89	1.104	High
B14	10	2.8	30	8.3	41	11.4	152	42.1	128	35.5	3.99	1.026	High
B15	14	3.9	49	13.6	57	15.8	130	36.0	111	30.7	3.76	1.142	High
Total Number											3.754	0.680	High

A. Polytechnic student's readiness towards PBE in terms of knowledge aspects

The findings show that polytechnic students have a high level of knowledge on PBE which is a mean score overall is 3.75. According to [9], knowledge is very important for an individual and is the necessary asset to place someone at a higher level than anyone else. This knowledge is based on the experience accumulated in the memory of an individual as a result of acceptance and learning. Graduates are said need to have the skills of knowledge workers (k-workers) that make education a basis for acquiring new knowledge [10]. Knowledge of PBE is important to ensure students are prepared to deal with PBE.

The highest mean score of 3.99 shows that polytechnic students know that PBE allows employers to get skilled and knowledgeable workers. According to [11], the quality of the company or organisation can be improved because PBE workers are trained with existing knowledge and skills and can complete tasks more quickly. This is evidenced by the fact of [12] that a high level of understanding and knowledge in a field is based on the skill level that can produce desired learning domains such as cognitive, psychomotor and affective domains.

While the lowest mean score is 3.39 shows that the students are less knowledgeable that employers who use PBE do not provide training to employees. Lack of knowledge about PBE will give a bad impression on students, for example, students are not prepared to fulfill PBE demand in the future as they are lack of knowledge about the current industry demand for industrial workers who execute PBE. This statement is supported by [13] which states that as a cost saving measure in industry, employers are more interested with skilled workers because they does not have to provide training for them.

B. Polytechnic student's readiness towards PBE in terms of skills aspects

The findings show that polytechnic students have a high readiness towards PBE from skills aspects with the mean score overall is 4.40. This is in line with the polytechnic curriculum that has been designed and specified explicitly in the Program Learning Outcomes (PLO) to provide the skills needed by graduates. According to [14], the quality of work is not only in the knowledge but also depends on the readiness of skills based on certain aspects. This fact is also supported by [15] who state that for achieving quality work, knowledge must be accompanied by a good level of skill.

The high mean score, which is 4.22 shows that polytechnic students can do practical work using the right equipment. Early exposure to students regarding the use of equipment will make students more proficient in using the right equipment. This shows that polytechnic students have been exposed to the use of equipment during practical work and make them more skilled and trained. Reference [15] states that the use of practical methods can produce the three domains of learning required the cognitive, psychomotor and affective domain.

While the lowest mean score which is 3.93 shows that most of the students comfortable to communicate with a new people. It is likely that communication skills are less applied to the students through the process of learning, activities and practices. In addition, polytechnic curriculum has set communication skills to be applied and assessed in teaching and learning. This is because, polytechnics have a competence standard to measure the achievement of graduates based on their attitudes and abilities in the workplace because employers who practice the PBE needs workers who can interact well and collaborate with others.

**Table 4: Mean score distribution and standard deviation for skills aspect**

Item	STS		TS		KS		S		SS		Mean Score	Standard Deviation	Readiness
	f	%	f	%	f	%	f	%	f	%			
C1	4	1.1	19	5.3	27	7.5	164	45.4	147	40.7	4.19	0.870	High
C2a	2	0.6	20	5.5	32	8.9	166	46.0	141	39.1	4.17	0.850	High
C2b	5	1.4	17	4.7	31	8.6	167	46.3	141	39.1	4.17	0.874	High
C2c	3	0.8	21	5.8	23	6.4	173	47.9	141	39.1	4.19	0.854	High
C3	5	1.4	20	5.5	32	8.9	158	43.8	146	40.4	4.16	0.903	High
C4	5	1.4	26	7.2	31	8.6	155	42.9	144	39.9	4.13	0.940	High
C5	4	1.1	17	4.7	23	6.4	163	45.2	154	42.7	4.24	0.851	High
C6	6	1.7	21	5.8	19	5.3	173	47.9	142	39.3	4.17	0.894	High
C7	4	1.1	21	5.8	28	7.8	159	44.0	149	41.3	4.19	0.889	High
C8	8	2.2	40	11.1	47	13.0	141	39.1	125	34.6	3.93	1.057	High
C9	5	1.4	28	7.8	32	8.9	155	42.9	141	39.1	4.11	0.952	High
C10	6	1.7	34	9.4	43	11.9	147	40.7	131	36.3	4.01	1.006	High
C11	3	0.8	30	8.3	34	9.4	155	42.9	139	38.5	4.10	0.938	High
C12	6	1.7	28	7.8	29	8.0	155	42.9	143	39.6	4.11	0.963	High
C13	4	1.1	21	5.8	20	5.5	162	44.9	154	42.7	4.22	0.876	High
C14	6	1.7	28	7.8	28	7.8	149	41.3	150	41.6	4.13	0.968	High
Total Number											4.138	0.623	High

**Table 5: Mean score distribution and standard deviation for attitude aspect**

Item	STS		TS		KS		S		SS		Mean Score	Standard Deviation	Readiness
	f	%	f	%	f	%	f	%	f	%			
D1	12	3.3	36	10.0	35	9.7	145	40.2	133	36.8	3.97	1.080	High
D2	7	1.9	17	4.7	22	6.1	165	45.7	150	41.6	4.20	0.895	High
D3	8	2.2	30	8.3	26	7.2	153	42.4	144	39.9	4.09	0.998	High
D4	4	1.1	22	6.1	23	6.4	153	42.4	159	44.0	4.22	0.895	High
D5	2	0.6	34	9.4	39	10.8	152	42.1	134	37.1	4.06	0.951	High
D6	3	0.8	33	9.1	39	10.8	153	42.4	133	36.8	4.05	0.957	High
D7	7	1.9	44	12.2	51	14.1	135	37.4	124	34.3	3.90	1.068	High
D8	5	1.4	29	8.0	28	7.8	163	45.2	136	37.7	4.10	0.945	High
D9	7	1.9	23	6.4	28	7.8	157	43.5	146	40.4	4.14	0.945	High
D10	5	1.4	18	5.0	22	6.1	161	44.6	155	42.9	4.23	0.875	High
D11	4	1.1	25	6.9	27	7.5	161	44.6	144	39.9	4.15	0.911	High
D12	3	0.8	20	5.5	17	4.7	160	44.3	161	44.6	4.26	0.850	High
D13	1	0.3	14	3.9	19	5.3	165	45.7	162	44.9	4.31	0.766	High
Total Number											4.130	0.653	High

**C. Polytechnic student's readiness towards PBE from attitude aspects**

The findings show that polytechnic students have a high readiness towards PBE from attitude aspect with the mean score overall is 4.13. Attitude is an important aspect for a student to be better prepared to face the PBE. According to [16], attitude is one way to control themselves while undergoing responsibilities, functions and special tasks. Employers today need workers who are positive. This statement is supported by [17] which states that a positive attitude can affect the organisation's operating system and can affect the achievement of an organisation.

The high mean score which is 4.26 which shows that polytechnic students have initiative to improve their skills in the fields that they involved. This shows that the students have the attitude to work much more to increase their knowledge and skills in their respective fields. Students who have the initiative to improve their knowledge in a particular field will be able to form themselves into a better direction [18]. Based on studies conducted by [18], [19], student's readiness is influenced by the attitude in doing something.

While the lowest mean score is 3.97 shows that most of students are not willing to work overtime. Most of the

students who never worked had thought they only needed to work from 8am until 5pm. However, PBE need employees who are willing to work overtime. According to a study conducted by [20], the industries that are bound by the contract require the willingness of their employees to work overtime to pursue the timeframe until the project is completed. In addition, employment in the construction industry is also very challenging because it requires a very high commitment to the industry, especially when they use PBE. According to [21], employees who have great attitude will make it easier for all parties to deal with them.

**V. CONCLUSION**

Based on the first, second and third research questions can be concluded that polytechnic student readiness towards PBE in three aspect which are knowledge, skills and attitudes are at a high level. As a result, the researchers can conclude that polytechnic students are ready to face PBE in the future.



In addition, the researcher also hoped that the results of the study will help graduates and polytechnics to improve the quality of their students in line with the country's demand.

Based on the results obtained, the researcher have state a few suggestions for improvement purposes for the parties involved. It is hoped that this proposal will benefit the parties involved in the effort to help students prepare for the PBE. Polytechnic students need to be together to help prepare themselves with high knowledge, technical skills, good employability skills and positive attitudes towards the PBE. As for lecturers, they can introduce PBE to students through briefings, activities or programs that can improve students' knowledge, skills and attitudes towards a better. Lecturers need to ensure students are always informed about the PBE especially for students who will work in the construction sector. The polytechnics may organise appropriate activities or programs for example such as workshop or invite outside industry to brief on the things that need to be emphasised before students enter their career life.

### ACKNOWLEDGMENT

The authors would like to thank the Ministry of Higher Education, Malaysia, for supporting this research under the research fund E15501 and Geran Penyelidikan Pasca Siswazah (GPPS) VOT No. H330. In addition, the authors also wish to thank the staff and students of the Politeknik Melaka and Politeknik Port Dickson, who had given their full cooperation to ensure the success of this study.

### REFERENCES

1. Jaafar, H. J., Abdul Wahab, H., & Yaacob, N. (2017). Amalan Pengurusan Pekerja Kurang Upaya dalam Sesebuah Organisasi Berdasarkan Undang-Undang di Malaysia. *Jurnal Pengurusan* 51. 20 pages.
2. Ahmad Zanzali, N. A. & Rahmat, N. (2013). *Faktor-Faktor Yang Mempengaruhi Pemilihan Kerjaya Perguruan Di Kalangan Pelajar-Pelajar Fakulti Pendidikan* (Tesis Sarjana). Universiti Teknologi Malaysia, Johor Bahru, Johor
3. Ahmad, A. (2017, April 12). *Cabaran Industri 4.0 Mahasiswa Abad Ke-21*. Dicapai daripada <http://www.sinarharian.com.my/kampus/cabaran-industri-4-0-mahasiswa-abad-ke-21-1.658360>
4. Makhbul, Z. M., Yussof, I., Awang, A. H., & Agus, A. (2011). Kriteria Pengambilan dan Pemilihan Graduan Dari Perspektif Pengurusan Sumber Manusia. *Persidangan Kebangsaan Sains Sosial 2011: Pembangunan ke Arah Masa Depan Yang Mapan 20-21 April 2011*. Universiti Malaysia Sarawak.
5. Ahmad, S., Ali, N. & Hamzah, M. F. (2011). Kebolehpasaran Graduan UKM: Satu Kajian Perbandingan Antara Graduan Disiplin Sains Dengan Bukan Sains. *Universiti Kebangsaan Malaysia: Jurnal Personalita Pelajar*. Bil 14: 81-9.
6. Ismail, R., Yussof, I., & Lai, W. S. (2011). Employer Perceptions on Graduates in Malaysian Services Sector. *Medwell Journals*, 5(3):184-193.
7. Ismail, N. A. (2011). Graduates' Characteristics and Unemployment: A Study Among Malaysian Graduates. *International Journal of Business and Social Science*, 2 (16), 94.
8. Idris, N. (2013). *Penyelidikan dalam Pendidikan* (Edisi Ke-2). Selangor: McGraw-Hill Education (Malaysia) Sdn. Bhd.
9. Ee, A. M. (2005). *Kursus Perguruan Lepas Ijazah (KPLI) : Ilmu Pengetahuan dan Keterampilan Ikhtisas*. Shah Alam: Fajar Bakti.
10. Mohd Pauzan, F. A. (2016). *Kesediaan Pelajar Kolej Vokasional Bidang Teknikal Terhadap Keboleah Pasaran Kerja*. Universiti Tun Hussein Onn Malaysia, Batu Pahat, Johor.
11. Suhaizi. (2017). 5 Sebab Kukuh Kenapa Anda Perlu Upah Pekerja Kontrak Untuk Majukan Startup Anda. *Majalah Niaga*. Dicapai daripada <http://www.majalahniaga.com/5-sebab-kukuh-kenapa-anda-perlu-upah-pekerja-kontrak-untuk-majukan-startup-anda.html>

12. Nizar, N. (2011). *Ketrampilan Kemahiran Teknikal Graduan Institusi Kemahiran Belia Negara (IKBN)* (Tesis Sarjana). Kolej Universiti Teknologi Tun Hussein Onn.
13. Rusmin, R. (2015). 4 Kemahiran Sasaran Utama Majikan. *My Metro*. Dicapai daripada <https://www.hmetro.com.my/node/64995>
14. Hassan, H. (2012). *Ciri-Ciri Kualiti Pelajar Untuk Keperluan Pekerjaan Pada Masa Ini*. Seminar Antara Industri dan Institusi Pendidikan Awam. UTM: Bangi.
15. Barkhaya, M. & Maziah, N. (2013). *Kesediaan Pelajar Memiliki Kemahiran Teknikal Tambahan: Satu Kajian Di UTHM*. Universiti Tun Hussein Onn Malaysia, Batu Pahat, Johor
16. Nasir, N., Adam, S. B., Rosli, N. N., Abdullah, M. S., & Azman, M. N. A. (2017). *Kompetensi Pembimbing Jalan Sistem Latihan Kemahiran Dua Hala: Satu Sorotan Literatur*. *Sains Humanika* 9:59-66.
17. Norman, H., Zainon, R., Md Jenil, S. Z., & Yahya, R. (2017). *Personaliti Graduan Yang Menjadi Tarikan Organisasi*. *Journal of Business Innovation*, 2(1): 53-61
18. Kamro, M. (2012). *Kesediaan Menceburi Bidang Kerjaya Kejuruteraan Binaan Dalam Kalangan Pelajar Jurusan Binaan Bangunan Di Sebuah Sekolah Menengah Vokasional* (Tesis Sarjana). Universiti Tun Hussein Onn Malaysia, Batu Pahat, Johor.
19. Arsat, M. & Rasid, N. A. (2010). *Faktor Kesediaan Pelajar Kejuruteraan Elektrik dan Elektronik dalam Pembentukan Kerjaya* (Tesis Sarjana Fakulti Pendidikan). Universiti Teknologi Malaysia, Johor Bahru, Johor.
20. Cicmil, S., Lindgren, M., & Packendorff, J. *The Project (Management) Discourse and Its Consequences: On Vulnerability and Unsustainability In Project-Based Work*. *New Technology, Work and Employment*. 2016. 31(1) : 58-76
21. Abd Razak, M.N. (2010). *Employability skills development: strategy, evaluation and impact*. Dicapai dari: <http://www.emeraldinsight.com>

### AUTHORS PROFILE



**Yee Mei Heong**, was born in Sarawak, Malaysia. She obtained her first bachelor degree of technology with education (civil engineering) at the Faculty of Education, Universiti Teknologi Malaysia, Skudai, Johor, Malaysia in 2002. She completed her Master's degree in technical and vocational education at Universiti Teknologi Malaysia, Skudai, Johor, Malaysia in 2003. She obtained her Ph.D. in technical and vocational education from Universiti Tun Hussein Onn Malaysia, Batu Pahat, Johor, Malaysia in 2015. Her Ph.D. research was focused on higher order thinking skills and learning styles. Her working experiences include secondary school teacher, subject matter expert and tutor at Open University Malaysia (OUM), industrial practicum supervisor, subject matter expert and examiner in Technical and Vocational Education courses, professional consultant for Multiple Intelligent Tests and Learning Styles Inventory, instrument construction workshop and programme coordinator of Ph.D in Education at Universiti Tun Hussein Onn Malaysia. She is now serving the Department of Engineering Education, Faculty of Technical and Vocational Education, Universiti Tun Hussein Onn Malaysia as senior lecturer (Email: [mhyee@uthm.edu.my](mailto:mhyee@uthm.edu.my)). Her current research interests are thinking skills, thinking tools, self-instructional modular approach, learning styles and inventive problem-solving skills. Dr. Yee is a Professional Technologist of Malaysia Board of Technologist (MBOT), member of Malaysia Technical and Vocational Education Association, member of Malaysia Design Council (Majlis Rekabentuk Malaysia (MRM)), TRIZ level I instructor and Alumni member of Universiti Teknologi Malaysia and Universiti Tun Hussein Onn Malaysia.



**Nurfarah Aliah Binti Mohamad**, was born on November 27, 1994 in Hospital Muar. She is from Muar, Johor. She received her early education in Sekolah Rendah Kebangsaan Sungai Abong Muar, Johor and received her secondary education at Sekolah Menengah Kebangsaan Convent Muar, Johor. She continue her education in Diploma at Polytechnic Melaka for three years. Subsequently, in 2016 she pursued her Undergraduate studies at Universiti Tun Hussein Onn Malaysia (UTHM) in Parit Raja, Johor. At UTHM, she followed Undergraduate studies in Vocational Education (Building Construction). She was also actively involved in the curriculum activities at UTHM as Publicity and Promotion Bureau of the UTHM Sekretariat Angkatan Mahasiswa Anti Rasuah (AMAR) club.



**Raudhah Adibah Binti Ahmad Zubir**, is a postgraduate student in Technical and Vocational Education at Universiti Tun Hussein Onn Malaysia (UTHM). She studied at Politeknik Ungku Omar (PUO) and obtained a Diploma in Civil Engineering in 2014. She then pursued a Bachelor of Vocational Education (Building Construction) degree with honors at Universiti Tun Hussein Onn Malaysia (UTHM) in 2018.



**Prof. Madya Ts. Dr. Kok Boon Ching**, obtained his Bachelor's degree (Electrical Engineering), Master's degree (Electrical Engineering) and Doctor of Philosophy (Electrical Engineering) respectively in 1998, 2002 and 2009 from Universiti Teknologi Malaysia (UTM). From 1998 to 1999, he served in the Engineering Department, Likom Technology Sdn. Bhd., As a Product Engineer. He also served at TNB Research Sdn. Bhd. (TNBR) as a researcher from 2001 to 2003. He has been in the field of higher education since 2004 at the Department of Electrical Engineering (JEK), Faculty of Electrical and Electronic Engineering (FKEE), University of Tun Hussein Onn Malaysia (UTHM). He currently serves as an Associate Professor at UTHM. His areas of expertise include electrical power systems, renewable energy, energy harvesting systems, Continuous High Voltage (HVDC) and revenue-based education (OBE). He has been providing OBE related advisory services to the Vocational College (KV), National Youth Skills Institute (IKBN) and Southern University College since 2015. He has published more than 70 articles / journals / teaching modules / book chapters in his area of expertise. He has been a registered member of the Board of Engineers of Malaysia (BEM) since 1998. Currently, he is also a member of the IEEE international professional body and a graduate of the Malaysian Institute of Engineers (IEM). Email: [bckok@uthm.edu.my](mailto:bckok@uthm.edu.my)



**Tee Tze Kiong**, was born in Melaka, Malaysia on the 25<sup>th</sup> of April, 1979. He obtained his first degree in bachelor of technology with education (civil engineering) at the Faculty of Education, Universiti Teknologi Malaysia, Skudai, Johor, Malaysia in 2002. In 2003, he completed his Master's degree in technical and vocational education at University Teknologi Malaysia, Skudai, Johor, Malaysia in. At the year 2013, he obtained his Ph.D. in technical and vocational education at Universiti Tun Hussein Onn Malaysia, Batu Pahat, Johor, Malaysia. His Ph.D. research focuses on higher order thinking skills and Buzan Mind Mapping. His working experiences include; secondary school teacher, subject matter expert, e-tutor, e-grader, proctor for final examination at Open University Malaysia, industrial practicum supervisor, undergraduate project, master and Ph.D. thesis supervisor, undergraduate, master and Ph.D. examiner, subject matter expert and examiner in Technical and Vocational Education courses, professional consultant for Multiple Intelligent Tests and Learning Styles Inventory, instrument construction workshop, senior lecturer and head of department of Engineering Technology at Sultan Idris Education University. Now, he is a lecturer in the Department of Professional Education, Faculty of Technical and Vocational Education, at Universiti Tun Hussein Onn Malaysia. (Email: [tktee@uthm.edu.my](mailto:tktee@uthm.edu.my)). Current and previous research interests are thinking skills, thinking tools, self-instructional modular approach, learning styles and inventive problem-solving skills. Dr. Tee is a member of Universiti Teknologi Malaysia Alumni, Universiti Tun Hussein Onn Malaysia Alumni, Malaysia Technical and Vocational Education Association and TRIZ level I instructor.