INTERNATIONAL JOURNAL OF ACADEMIC RESEARCH IN PROGRESSIVE EDUCATION & DEVELOPMENT

OPEN ACCESS JOURNAL

Vol 13, Issue 1, (2024) E-ISSN: 2226-6348

Understanding Employer's Perception of Employability Skills of Polytechnic Graduates in Malaysia: A Case Study

Mohd Izyan Zuhaili Zainudin, Kamalularifin Subari, Muhamad Afzamiman Aripin, Mohd Hizwan Mohd Hisham

Department of Technical & Vocational, Universiti Teknologi Malaysia, Malaysia

Email: p-arifin@utm.my, afzamiman@utm.my, hizwan@utm.my

Corresponding Author Email: mohd_izyan@yahoo.com

To Link this Article: http://dx.doi.org/10.6007/IJARPED/v13-i1/20878 DOI:10.6007/IJARPED/v13-i1/20878

Published Online: 19 February 2024

Abstract

As technology develops, employment has become more competitive and employer is selective towards hiring especially fresh graduates. Graduates produced by the Higher Education Institutions must be able to meet the needs and requirements of employers which includes graduates produced by the Polytechnic. However, it is often questioned whether the skills and knowledge possessed by the graduates able to meet the requirements of employers. This study was conducted to assess the employability skills of Polytechnic students according to the perspective of employers. This study was conducted using an interview protocol on employers who have hired polytechnic graduates in their workforce. A total of seven employers from around Kuala Lumpur, Selangor, Johor Bahru and Ipoh were involved in this study. A total of ten elements of employability skills that have been identified include communication skills, teamwork, leadership, ethics and morals, spirituality, lifelong learning and information management, critical thinking and problem solving, technology savvy, entrepreneurship and social skills. Employers argued that polytechnic engineering students should equipped with high competency in employability skills. Employers are not particularly impressed with polytechnic engineering students' employability when it comes to communication, leadership, critical thinking, problem-solving, technology usage, and entrepreneurship, according to data from interviews.

Keywords: Employability Skills, Engineering Graduates, Polytechnic, Qualitative Method, Malaysia

Introduction

In a rapidly changing global economic landscape, the demand for a highly skilled and adaptable workforce has become more significant than ever. Employability skills, including various attributes such as communication, team collaboration, critical thinking, and problem solving, play an important role in shaping graduates' success in their professional endeavours. This research aims to explore into the specific context of Malaysia, focusing on employers' perceptions of the employment skills possessed by graduates of polytechnic institutions.

Malaysia, as a new hub for technological and industrial advancement, places significant emphasis on the role of education institutions in nurturing a workforce capable of meeting the dynamic demands of the contemporary job market. The quality and competency of graduates in Malaysia has been a central focus area under the human capital development initiatives of the 12th Malaysia Plan (2021-2025) (UPE, 2021). As the country continues to invest heavily in large infrastructure projects to support economic growth, there is an increasing demand for highly skilled graduates equipped with sustainable employability skills to support environmentally responsible development in line with Malaysia's Sustainability Development Goals (SDGs) (Malaysia Prime Minister's Department, 2017). However, numerous studies in recent years have found that many graduates lack the necessary technical skills, practical experience, and soft skills desired by employers to ensure holistic and well-rounded sustainable employability in the 21st century workforce (Awang et al., 2015; Chhinzer & Russo, 2018; Mahmud et al., 2020; Mustapha et al., 2014; Tonnon et al., 2017). The 12th Malaysia Plan specifically emphasizes enhancing technical and vocational education and training (TVET) and lifelong learning to produce a flexible, competitive engineering workforce skilful in emerging areas like green building practices, environmental engineering, resource efficiency, and technological innovation. Developing these well-rounded sustainable employability skills has been identified as a major gap in human capital development that needs to be urgently addressed.

With billions being invested in roads, railways, ports, airports, dams and urban complexes, Malaysia faces a shortage of skilled civil engineers to lead these strategic national projects (Rashidah et al., 2019). The civil engineering workforce is ageing, with many experienced engineers retiring. However, fresh graduates struggle to meet employer demands (Abdul Hamid et al., 2018). This problem can be traced to gaps in university training which focuses more on theoretical knowledge rather than practical skills (CIDB, 2018; Ministry of Education Malaysia, 2018). University-industry collaborations are also lacking (Skov et al., 2016; Syamimi et al., 2020). Rapid technological advancements in the field have also contributed to graduates lacking the latest construction techniques and digital skills (Zaharim et al., 2010). Meanwhile, the boom in infrastructure has led to companies hiring civil engineers from other countries to make up for local shortages (Salleh et al., 2020). If not addressed promptly, deficiencies in local graduate competencies can force Malaysia to rely on foreign engineers in a sector critical for development

Polytechnics in Malaysia plays significant role in producing TVET graduates including skilled and semi-skilled workforce (KPT, 2021). Polytechnic graduates are expected to not only possess technical expertise but also a set of soft skills that enhance their overall employability. Understanding how employers view the employment skills of polytechnic graduates is important for educational institutions, policy makers, and industry stakeholders to ensure that the workforce is aligned with the growing needs of the nation's economy.

Literature Review

Graduate Employability Challenges in Malaysia

The human capital development ecosystem in Malaysia plays important role in the country's economic progress and its ability to remain competitive in the midst of a rapidly developing global environment. However, it faces multiple barriers in generating employment opportunities that require highly skilled labour, bridging the gap between available talent and

required skills, producing graduates that well prepared for industry demands, and retaining skilled individuals in the workforce. Although the country has indeed made significant progress in fostering industries that prioritize knowledge and intellectual capacity (Nesaratnam et al., 2018), the transition from jobs that require low skills to high skills has exhibited a relatively slow rate (Ismail & Abiddin, 2014; Mahmud et al., 2020). The aforementioned situation can largely be attributed to the lack of substantial resource allocation to pursue research and development efforts. Another major obstacle that must be faced is the issue of talent mismatch and skills gap. Although there is an increase in the recruitment of students in institutions of higher education, there is a visible mismatch between the skills possessed by potential employees and those required by employers as explained by (Ali, 2020). This resulting on inconsistency and hindrance to overall economic effectiveness and an obstacle to development and intelligence in various industries. For example, emerging disciplines such as artificial intelligence, data analysis and cyber security face a shortage of skilled professionals (Amiron et al., 2019; MITI, 2018; Siti Rashidah et al., 2019). Lack of assimilation of education growth to rapidly growing industrial demand and lack of effective collaboration between educational institutions and industry are among the main factors contributing to this differences (KPT, 2012, 2021; MITI, 2018).

It has been observed that a large number of individuals who have completed their academic studies often find themselves lacking in the areas of practical abilities, work-related experience, and important soft skills that are considered necessary to meet the expectations set by various industries (Ali et al., 2018; Khazanah Research Institute, 2021; KPT, 2021). The existence of this difference between theory and practice can be attributed to the inherent consequences that stem from the insufficient emphasis on practical training, coupled with the main theoretical orientation of the educational program. Furthermore, the issue of workforce retention presents an enduring challenge within the talent ecosystem. Malaysia is facing with a brain drain phenomenon, where individuals with exceptional skills and talents choose to pursue more promising professional opportunities abroad (CIPD, 2019, 2019; TalentCorp, 2020). The presence of limited career advancement prospects, insufficient compensation, and the absence of balance between the professional and personal spheres collectively contribute to the phenomenon of workforce reduction. The phenomenon of brain drain adversely affects Malaysia's capacity to retain and utilize talent, thus hindering its overall competitiveness.

Qualification and Skills Gap of Graduates

Malaysia's vision to become a developed country and a high-income country can be achieved by developing human capital in producing highly skilled workers. In this effort, the education system plays the most important role in producing quality human resources. This group of human resources can only be utilized by quality graduates produced from higher education institutions, especially technical and vocational education institutions (TVET) in producing skilled and semi-skilled workers. Skilled workers are defined based on high experience and expertise involving complex tasks that require a specific skill set, a specific level of education and training and experience in a specific field (Salleh et al., 2020). Malaysia aims to produce 50 percent of highly skilled workers to achieve the status of a developed country, but in 2020, only 29.1 percent is met (Department of Statistics, 2020). This situation is worsened by the lack of manpower and skills that meet the needs of the industry as found in studies conducted by (Kamaruzaman *et al.*, 2019; dan Arshad *et al.*, 2020). The qualification gap may occur in

two different situations, either the qualification does not meet the requirements of the industry or the field of study does not match the existing job (Jo-yee, 2020). On the other hand, it may also occur in the form of over-qualification or under-qualification. This issue must be given due attention as it has an impact on job vacancies. If the position is not fulfilled, it directly has a negative effect especially in the productivity of the company and prevents the organization from developing and as a whole cannot contribute to the national economy well.

Based on a study conducted by Jo-yee (2020), he found that the situation in Malaysia in 2010, the ratio of highly skilled jobs filled was higher than the ratio of graduates in the labour market. This shows that Malaysia has a shortage of skilled human resources relative to employment. In other words, this is a situation where a lack of education occurs where graduates are unable to meet the minimum job qualifications set by the industry. However, this situation changed drastically in 2013 where the distribution of human resources in Malaysia showed an increasing trend of over-education qualifications. Since then, this ratio has continued to increase until 2020 as shown in Figure 1 below. The ideal situation occurs in 2016-2018 where the ratio between graduates in the labor market and employment is met not too significantly. This change is good because graduates can meet job qualifications and get jobs.

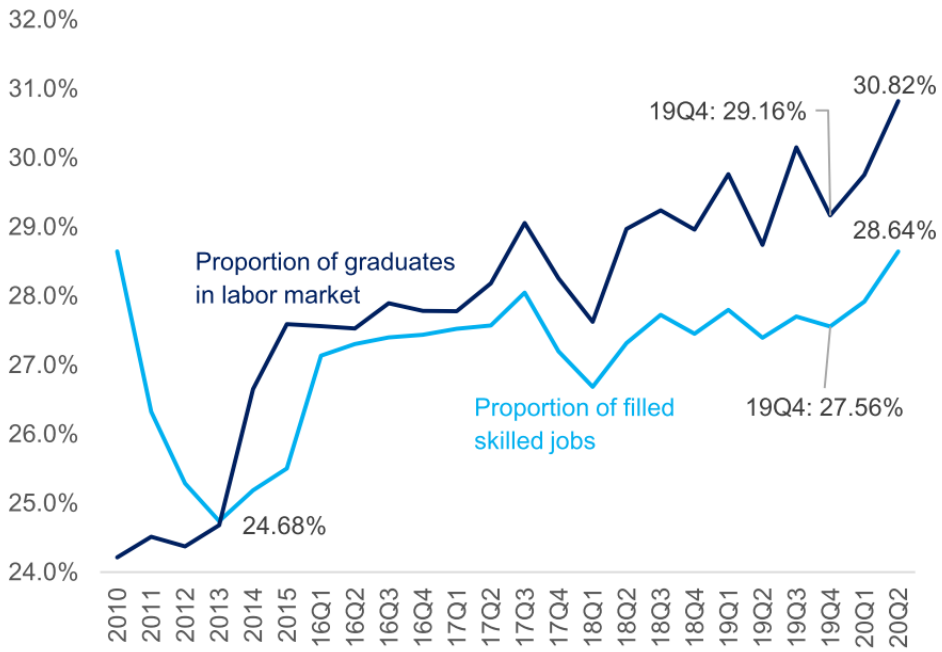

Figure 1: Education gap trends among graduates
Source: (Jo-yee, 2020)

Talent mismatches and skills gaps pose major challenges to the talent and human resource development ecosystem in Malaysia, hindering its potential for economic growth and innovation. A comprehensive and holistic approach is needed to bridge this gap and create a thriving talent ecosystem with adaptability and relevance (Anuar, 2016). This challenge must be given special attention with the cooperation of all parties to close the gap in qualifications and skills of graduates. With measures such as aligning the education curriculum with industry demand, fostering stronger collaboration between academia and industry, and designing targeted training programs (KRI, 2018; Zuhdi et al., 2017; Nadarajah, 2021), Malaysia can

foster a skilled workforce that meets the needs of a growing job market. Empowering individuals with the right skills and knowledge will not only benefit job seekers but also drive the country towards sustainable economic progress.

Methodology

This study adopted a qualitative approach that involves the systematic and in-depth collection of information about specific individual behaviour, social conditions or specific events to find out how individual behaviour or changes in social conditions occur (Johnson & Christensen, 2014). In qualitative data collection, samples are obtained using purposive sampling methods. According to Creswell & Creswell (2018); Creswell & Clark, (2018), purposive sampling is used to select some individuals and their locations to understand a phenomenon in-depth and detailed manners. Because the interview protocol is qualitative data collection, data collection may be sufficient when the data obtained has reached a saturation level (Corbin & Strauss, 2000; Denzin & Lincoln, 2013).

The study participants consisted of seven employers around Kuala Lumpur, Selangor, Johor Bahru and Ipoh consisting of employers in various civil engineering fields namely building constructions, roads & highway and other civil engineering. All employers consist of employers who have provided industrial training or hired fresh graduates of engineering students of polytechnics. To maintain the confidentiality of the participants' identities and to facilitate the analysis, codes M1 to M5 were used to replace the participants' names (Nurulhuda & Ramlee, 2009). The number of case study participants, which is seven people, is considered sufficient for the purpose of this qualitative case study. In addition, the selection of participants was also based on the willingness and willingness of all these employers to engage in this study. This qualitative case study with a small sample size (n = 5) does not aim to generalize the results of the study to any population (Yusof et al., 2014; Vishalache, 2013). Nevertheless, the findings of the study using this design can provide insight, information, explanation, interpretation and in-depth understanding to answer the research questions that have been formed specifically for this study (Nurulhuda & Ramlee, 2009; Vishalache, 2013).

Research Instrument

The interview protocol is an instrument used to collect qualitative data. It aims to obtain more in-depth information about students' employability skills from the perspective of students, lecturers and employers. According to McMilan and Schumacher (1984), interviews are a research instrument to measure changes in student behaviour in the classroom as a result of the teacher's teaching. This method can also translate meaning that causes changes in student behaviour. In qualitative data collection, samples are obtained using purposive sampling methods.

Interviews are a method of obtaining data in direct contact with respondents face-to-face, using the telephone or e-mail (Creswell, 2005). Among the advantages of this data is that the researcher will obtain more in-depth and detailed data that cannot be obtained from questionnaires such as behavioural responses, explaining things that are not understood and obtaining unexpected information that can help solve research problems (Najib, 1999). In this study, the researcher used semi-structured interviews by preparing questions and recording and writing the answers given by the respondents to find out the employer's perception of the students' employability skills. In this study, the researcher interviewed respondents

(employers) by asking specific questions to respondents through reading from a list of questions that had been made available. However, the researcher is not only bound by the questions but rather the researcher can submit the questions freely and relevantly during the interview session (Kamaruddin, 2010). Preparing questions in advance will make the conversation more focused and easier to analyse.

Data Analysis and Findings

Interview transcripts were produced based on the interviews conducted. The produced interview transcripts were checked by the respondents to confirm the content of the transcriptions (Tracy, 2013). The interview data was analysed based on the themes found in the interviews to answer the questions posed. Next, the interview data was analysed using the approach of Miles et al. (2014) which involves the process of data reduction, displaying the data and drawing conclusions. Descriptive analysis was conducted on data from interviewing seven employers around the Kuala Lumpur, Selangor, Johor Bahru and Ipoh: employers of civil engineering. The results of interviews on student employability skills given by employers are as follows:

Element of Communication Skills

Employers of polytechnic engineering students think polytechnic students can communicate and carry out instructions. But not yet reach the actual level due to experience factors, for example as follows

> ... but because he has no experience, he may not be up to the level. But that communication is okay. Can take instructions (M4).

The results of this interview also show that employers are satisfied with the communication skills of polytechnic students, but are not satisfied when students make presentations, for example as below:

> ... I think there is no problem in terms of communication. Communication in terms of presentation is less encouraging (M7).

In addition, this interview also shows that the ability to communicate among students depends on the students themselves. Some students can communicate well, but some are quiet or shy as evidenced by the following:

> Communication based on students because some students who come can communicate well, some are semi-shy, not normal so it depends on student (M6).

Some employers think that polytechnic students can communicate well and are able to carry out instructions well. The following example proves it.

> ... when we get back in touch with the workshop bosses, how do they communicate, they say 'ok, everything is settled, normal, no problem'. Average ok, no problem (M5).

Element of Teamwork

Most employers agree that polytechnic students can work together. This is clearly stated in the sample interview below

> It is undeniable that everything is good. I can say that almost everything is good. Working in a team he has no problem (M5).

Employers also think that polytechnic students are also capable of working with anyone as long as they are given guidance such as the following evidence:

> There is no problem because he can work with anyone as long as he is given instructions to do something (M7).

Apart from being able to work well in a team and being able to work with anyone, employers think that students can commit to employers by coming to work on Saturdays or non-working days such as Public Holiday if necessary, as evidenced by the interview below.

> ... even if I tell them to stay back, they can stay back, if there is an emergency, they can come to work on Saturday or Holiday (M2).

Even so, there are employers who think that polytechnic students can work together but need to be improved, for example when giving instructions to more senior subordinate staff, as the results of the interview stated

> ... he moves in a team. It just needs to be improved, needs to be emphasized on the part of technical institutions. When he enters the world of work, we have to disclose because of communication, for example he has a diploma if he enters KTM he will become an officer which means he will take care of many subordinate staff. So with subordinate staff, he cannot give instructions directly, if he is new to work (M6).

Elements of Leadership Skills

Most employers think that polytechnic students have leadership characteristics based on this interview:

> ... most have leadership features only (M7).

Employers think that one of the reasons why polytechnic students do not have leadership power is the level of academic qualifications. The results of this interview prove it.

> No, he can no longer do this at diploma level (M2).

Some employers are of the view that polytechnic students can lead for non-complex jobs such as the following:

> ... there are two people who can lead when given the responsibility. We do easy work. (M5).

Employers also think that there are polytechnic students who can lead but are at an average level. Students need to demonstrate good behaviour to staff as evidenced by the following.

> I see that there also needs to be a change, perhaps the application of values to lead a team or team at work as an example of good morals to the staff, that's what I see. Lead level at intermediate level (M6).

Even so, there are employers who think that polytechnic students can lead. This is clearly stated in the sample interview below.

> Some of that is there, for example when we give a paper that we often do, 'you have a group, I want you to get information from the loco side maybe in terms of the electronic work system in the workshop area'. There we can see the team, 'you lead' then we see how he leads the group. It is possible to lead there (M5).

Elements of Ethical and Moral Skills

Most employers find that polytechnic students can obey the rules, be disciplined and punctual as the results of this interview

> Discipline is no problem; punctuality is no problem. Can follow the rules at work (M7).

Employers also believe that polytechnic students have good morals and are highly committed to work, even if there is no work to be done as evidenced by the following:

> Morally ok. In terms of working time is ok. If there is no work, they come (M1).

According to some employers there are a few polytechnic students who do not follow the rules. Students have given a commitment if monitoring is done, such as the following interview results:

> Coming late is normal. sometimes back early, half a day. That's more about punctuality. Discipline is on us too (M2).

Elements of Spiritual Skill

Most employers give the view that polytechnic students can obey religious teachings well as the interview results below

> ... that religious awareness is indeed, a mere prayer. If the one who does not pray is not (M1).

Apart from offering prayers, employers are also satisfied with socializing and covering the private parts of polytechnic students while undergoing industrial training. Polytechnic students who undergo industrial training in companies practice good company and dress modestly. This is expressed through the following interview

> So far, in terms of covering the aurat there is no problem coming here (M7).

> Their relationship is more about listening. They chat about work (M4).

Polytechnic students also participated during the tazkirah session by presenting hadith. This is clearly stated in the sample interview below.

> We have tazkirah and so on, they sit in front and they are given a part to deliver the hadith, from that point of view it's ok, no problem (M5).

However, there are also employers who are not satisfied with a few polytechnic students in terms of socializing, praying, dressing and talking. Evidence of the employer's opinion is set out below:

> ... only a few are ok, which we see in terms of prayer, socializing with friends, chatting. We can also know the way he speaks, or the way he uses it (M6).

Elements of Lifelong Learning Skills and Information Management

Most employers find that polytechnic students are interested in learning something new while undergoing industrial training as the following interview results show:

> ...the majority are very interested, especially the works near the site. It is more of a comparison between learning theory and real situations (M3).

There are polytechnic students who are interested in learning something new by trying new software, which is no longer available in technical institutions. This student will ask the employer if there are problems that cannot be solved such as this interview:

> ... interest in learning when we provide software that is not available in technical institutions. When we give them a problem to try to solve, they do it. When there is a problem they ask (M2).

However, there are employers who are not satisfied with polytechnic students who are not proactive and just wait for instructions. Polytechnic students just expect and accept whatever is given by the lecturer and have no initiative to learn something new. This is proven by the interview below:

> ...from a proactive point of view, there is no out of box thinking. They will not express their wishes, they just expect instructions and they will do just that (M4).

> ...we here do not practice strictly like in the lecture hall. So it may take some time for them to adapt from the polytechnic itself and here (M7).

...if there is anything he does not understand, to be honest he does not come, refer to us.
Elements of Lifelong Learning Skills and Information Management

In terms of managing work-related information, employers think polytechnic students can manage it but need guidance, such as the following expression

> ...more for encouragement and guidance, for him to get it himself, there might be a little problem, he has to go through guidance (M3).

In terms of information management such as writing log books and industrial training reports, most employers are satisfied as shown in the interview results below:

> I personally checked their reports, and I saw no problem (M5).

Elements of critical thinking and problem-solving skills

The opinion of most employers is rather inclined towards the inability of students to think critically to solve problems during industrial training, as they say:

> ... is still in the academic stage, he is still studying in College. When there are many problems, he is like stuck, unable to do anything, he reports to us (M2).

> ... it is not an approach to come and see us, the problem is that he has a suggestion to give ideas, so far it is not. Never (M4).

> … they never voice anything. Maybe they are afraid or not confident (M9).

However, there are also employers who state that polytechnic students are capable explain ideas through presentation. This is clear through the interview conducted below.

> They do it well...we want the solution to the problem to be done in a slide presentation and we often do it. And we see how they explain those ideas through presentation (M5).

In terms of problem solving, employers think that polytechnic students do not able to solve problems at work. Among the causal factors are lack of experience, not being able to relate between theory and practice and company policy. This is demonstrated by the following interview:

> ... they are still new. This is his first time working with him, so he can't see anything to do with what he learns at work. He can't see (M1).

> ...he is not directly involved in the work process near here because if he does work, if an injury happens, we are afraid...so to be involved directly may not be possible (M6).

There are some employers who think polytechnic students can solve a problem if they are given guidance like this interview.

> We need to guard the example you have to do A, B, C... so everything for that kind of instructions (M5).

Employers also praise polytechnic students for being able to provide input to the company. This is proven by the interview below

> ...he himself is the one who has to do the survey and he will make a presentation to me on how from the point of view of an outsider, i.e. not the railway staff, solve the internal problems of the railway. So far, so good. We get extra ideas from outsiders (M3).

Elements of Skills Using Technology

The ability to use technology among polytechnic students' needs to be improved by providing guidance, as the following employers say:

> They can use technology if they are guarded, but the problem is they don't think 'why', 'how', they just like to be spoon fed (M7)

There are also employers who view polytechnic students as less confident, fearful and not fully proficient in using technology. This was stated by the employer through the following interview:

> …most still have fear or lack of confidence. Not fully proficient, still average (M4).

Employers think that the use of technology such as the use of software depends on the student's interest. Students who are interested in learning about a technology will sooner or later be proficient in using the technology as in the following words:

> ...if the type is not interested, he will indeed be slow. It all depends on one's interests (M3).

There are also employers who are satisfied with polytechnic students in using technology, especially in the use of application software in computers. This is proven through this interview.

> They have skills, so he can do it. Because he accesses us, we let him format it to anything, any computer software (M4).

Elements of Entrepreneurial Skills

Employers find that polytechnic students do not show interest in business, as the employer views below:

> They are interested in working, but they do not see themselves as entrepreneurs (M1).

> ...faced with contractors and so on, there was never a word of wanting to be a contractor or an engineer, never. We asked him to make a quote, he never asked. So they don't think about entrepreneurship (M5).

There are also employers who think that polytechnic students are capable of becoming entrepreneurs if the government provides assistance such as capital, such as the following words:

> ... more than wanting to know, for example, the cause of any situation, he does take it into account, only when we talk about this, capital. Maybe if the government gives a capital boost, it might be possible (M3).

Entrepreneurial skills among polytechnic students can become a reality if students are able to recognize people who are engaged in the field of entrepreneurship. According to the employer, work at the construction site has great potential to succeed in the field of entrepreneurship as the results of this interview:

> ...he can build, he has a context, he learns more sitting on the site. Working on the site, the potential of own work is greater (M2).

Discussion and Conclusion

Several conclusions can be drawn from this study. Overall, the mastery of the employability skills of polytechnic engineering students needs to be improved. Among the elements of employability skills that need to be emphasized are communication skills, leadership, critical thinking and problem solving, technology use and entrepreneurship. Based on interviews with respondents, among the things that need to be improved by polytechnic students in order to achieve a good level of communication, is when making presentations and removing shyness and reticence. As for the leadership element, employers view polytechnic students as less able to lead due to the academic qualifications possessed by the students and are only able to lead on simple tasks. For the elements of critical thinking and problem solving, employers believe that polytechnic students are unable to generate ideas to solve work-related problems. Polytechnic students are capable and proficient in using technology if given guidance and teach. As for the entrepreneurship element, employers believe that polytechnic students are not interested in venturing into the field of entrepreneurship compared to salaried work. Only a few are interested in becoming entrepreneurs on the condition that they need to be given guidance, capital and also have the ability to build contacts in the field of entrepreneurship. The polytechnic management needs to strengthen the polytechnic environment (infrastructural facilities, lecturer interaction and peer interaction) as well as industrial training. Factors contributing to the development of employability skills in technical institutions include the polytechnic environment and industrial training.

Acknowledgement

The authors would like to express their gratitude to the Faculty of Social Sciences and Humanities at Universiti Teknologi Malaysia, for providing funding and unwavering support for this study.

References

Ali, E., Che' Rus, R., Haron, M. A., & Mohammad Hussain, M. A. (2018). Kebolehpasaran Graduan Pendidikan Teknikal Dan Vokasional: Satu Analisis. *Sains Humanika*, *10*(3–3). https://doi.org/10.11113/sh.v10n3-3.1510

Ali, S. H., Vin, T. L., & Jack, C. (2020). *Kepuasan Majikan Terhadap Graduan Politeknik Malaysia: Kajian Di Politeknik Kota Kinabalu, Sabah , Malaysia* (Issue December 2019) [Politeknik Kota Kinabalu, Sabah, Malaysia]. https://www.researchgate.net/publication/342916285_Kepuasan_Majikan_Terhadap_Graduan_Politeknik_Malaysia_Kajian_Di_Politeknik_Kota_Kinabalu_Sabah_Malaysia

Amiron, E., Latib, A. A., & Subari, K. (2019). Industry revolution 4.0 skills and enablers in technical and vocational education and training curriculum. *International Journal of Recent Technology and Engineering*, *8*(1C2), 484–490.

Anuar, A. R. (2016). *Addressing Skills Gap in Small-sized Enterprises: Malaysian Case Study*. 717–722. https://doi.org/10.15405/epsbs.2016.08.101

Arshad, A. A., Jidin, R. M., & Mhd Radzi, M. F. (2020). Curriculum framework for employability readiness skills: sustainable industry engagement. *Journal of Counseling and Educational Technology*, *3*(1), 6. https://doi.org/10.32698/0841

Awang, A. H., Yusof, I., Agus, A., & Makhbul, M. Z. (2015). Kebolehpasaran graduan IPT tempatan: Penilaian dari perspektif majikan. *Institut Penyelidikan Pembangunan Belia Malaysia*, 77–92.

Chhinzer, N., & Russo, A. M. (2018). An exploration of employer perceptions of graduate student employability. *Education and Training*, *60*(1), 104–120. https://doi.org/10.1108/ET-06-2016-0111

CIDB. (2018). *Construction industry review and prospect 2018/2019.* https://doi.org/9789670997186

CIPD2019. (2019). Future of talent in Malaysia 2035. *Chartered Institute of Personnel and Development*, *January*, 1–58. https://www.cipd.asia/Images/future-of-talent-malaysia-report_tcm23-53251.pdf

Corbin, J., & Strauss, A. (2000). Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory. *Management Learning*, *31*(4), 521–523. https://doi.org/10.1177/1350507600314007

Creswell, J. W., & Creswell, J. D. (2018). *Research Design Qualitative, Quantitative and Mixed Methods Approaches* (Fifth Edit). SAGE Publications, Inc.

Creswell, J. W., & Plano Clark, V. L. (2018). *Designing and Conducting Mixed Method Research Third Edition* (Third Edit). SAGE Publications, Inc.

Denzin, N. K., & Lincoln, Y. S. (2013). *Collecting and Interpreting Qualitative Materials-SAGE Publications,* (p. 710).

Skov, E. D. G. M., Arne, B., & Hansen. (2016). Industry 4.0 and digitalization call for vocational skills, applied industrial engineering, and less for pure academics. *5th World Conference on Production and Operations Management, 2016*, 0–10. https://core.ac.uk/download/pdf/50716395.pdf

Ismail, A., & Abiddin, N. Z. (2014). Issues and Challenges of Technical and Vocational Education and Training in Malaysia Towards Human Capital Development. *Middle-East Journal of Scientific Research*, *19*, 7–11. https://doi.org/10.5829/idosi.mejsr.2014.19.icmrp.2

Jabatan Statistik Malaysia. (2020). *Labour Market Review, Malaysia Fourth Quarter 2020*. 1–38. https://www.dosm.gov.my/v1/uploads/files/1_Articles_By_Themes/Labour Market/Labour Market Review Q3 2020/Labour Market Review%2C Malaysia%2C Q3

2020.pdf

Jo-yee, Y. (2020). *Covid-19 Set to Aggravate Malaysia's Skills Mismatch*. *November*, 1. https://penanginstitute.org/publications/covid-19-crisis-assessments/covid-19-set-to-aggravate-malaysias-skills-mismatch/

Johnson, B. R., & Christensen, L. (2014). *Educational Research Quantitative, Qualitative and Mixed Approaches*.

Khazanah Research Institute. (2021). *Kebolehpasaran Graduan Cabaran fasa pemulihan krisis*. *April*, 1–6.

KPT. (2012). *The National Graduate Employability Blueprint 2012-2017*.

KPT. (2021). Pelan Strategik Kebolehpasaran Graduan IPT 2021-2025. In *Kementerian Pengajian Tinggi, Putrajaya.*

KRI. (2018). The School-to-Work Transition of Young Malaysians. In *Khazanah Research Institute* (Issue December). http://www.krinstitute.org/Publications-@-The_School-To-Work_Transition_of_Young_Malaysians.aspx

Mahmud, R., Boroh, R. P., Mail, R., Abdul Basir, M. H., Fabeil, N. F., Mohidin, R., & Pazim, K. H. (2020). The Relationship between Human Capital and Employability: Issues from the Firms' Perspective. *Asian Journal of …*, *2*(3), 40–47. http://myjms.mohe.gov.my/index.php/ajrbm/article/view/10709

Malaysia Prime Minister's Department, E. P. U. (2017). Malaysia Sustainable Development Goals Voluntary National Review 2017. In *High-level Political Forum*.

Miles, M. B., Huberman, M. A., & Saldana, J. (2014). *Qualitative Data Analysis: A Methods Sourcebook* (Third).

Ministry of Education Malaysia. (2018). TVET 4.0 Framework 2018 - 2025. In *Department of Polytechnic and Community College Education Ministry of Education Malaysia*.

MITI. (2018). Industry 4WRD National Policy on Industry 4.0. In *Ministry of International Trade and Industry*. https://www.miti.gov.my/miti/resources/National Policy on Industry 4.0/Industry4WRD_Final.pdf

Kamaruzaman, M. F., Hamid, R., Mutalib, A. A., & Rasul, M. S. (2019). Comparison of engineering skills with IR 4.0 skills. *International Journal of Online and Biomedical Engineering*, *15*(10), 15–28. https://doi.org/10.3991/ijoe.v15i10.10879

Mustapha, R., Husain, M. Y., Malik, S. A., & Mohamad, S. (2014). Persepsi majikan kejuruteraan terhadap kemahiran employabiliti pelajar kejuruteraan: satu kajian kes. *EDUCATUM Journal of Science, Mathematics and Technology*, *1*(2), 41–55.

Nadarajah, J. (2021). Measuring the Gap in Employability Skills Among Malaysian Graduates. *International Journal of Modern Trends in Social Sciences*, *4*(15), 81–87. https://doi.org/10.35631/ijmtss.415007

Nesaratnam, S., Karan, S. P., & Von, F. Y. (2018). Conceptualisation of a Graduate Employability Framework from a Malaysian Perspective. *International Journal of Human Resource Studies*, *8*(4), 112. https://doi.org/10.5296/ijhrs.v8i4.13813

Abdul Hamid, R. A., Khazid, I. M. N., Yunus, R., Halim, H. A., & Abdul Razak, R. A. (2018). The emerging of employment gap in the Malaysian construction industry. *Journal of Physics: Conference Series*, *1049*(1), 0–8. https://doi.org/10.1088/1742-6596/1049/1/012033

Salleh, N. M., Lop, N. S., Mamter, S., & Abidin, Z. Z. (2020). Preliminary Survey on Availability of Local Skilled Construction Workers at Construction Sites. *International Journal of Academic Research in Business and Social Sciences*, *10*(3), 618–632. https://doi.org/10.6007/ijarbss/v10-i3/7077

Siti Rashidah, M. N., Humphrey, J. V., & Anizahyati, A. (2019). Essential Skills for Civil

Engineering Graduates Towards Industry Revolution 4.0. *Proceedings of the 2019 IEEE 11th International Conference on Engineering Education, ICEED 2019*, *1*, 137–140. https://doi.org/10.1109/ICEED47294.2019.8994951

Syamimi, F., Ros, C., Mohd, S., Syed, Y., Mohd, H., Mohamed, R., Manusia, T., Institut, J. T. M., Perindustrian, L., & Sandakan, I. L. P. (2020). *Kebolehpasaran Graduan Wanita TVET ILJTM Zon Sabah Dalam Pemilihan Kerjaya*. 1–7.

TalentCorp. (2020). Critical Occupations List 2018/2019. *Ministry of Human Resources*, *March*, 1–176.

Tonnon, S. C., Van Der Veen, R., Westerman, M. J., Robroek, S. J. W., Van Der Ploeg, H. P., Van Der Beek, A. J., & Proper, K. I. (2017). The Employer Perspective on Sustainable Employability in the Construction Industry. *Journal of Occupational and Environmental Medicine*, *59*(1), 85–91. https://doi.org/10.1097/JOM.0000000000000913

Tracy, S. J. . (2013). Qualitative Research Methods: Collecting Evidence, Crafting Analysis, Communicating Impact. In *John Wiley & Sons* (Vol. 43, Issue 1). https://doi.org/10.5613/rzs.43.1.6

Unit Perancang Ekonomi Malaysia. (2021). 12th Malaysia Plan (2021-2025). *UPE*, 1–532. https://rmke12.epu.gov.my/bm%0Ahttps://rmke12.epu.gov.my/about-us

Zaharim, A., Omar, M. Z., Yusoff, Y. M., Muhamad, N., Mohamed, A., & Mustapha, R. (2010). Practical framework of employability skills for engineering graduate in Malaysia. *2010 IEEE Education Engineering Conference, EDUCON 2010*, *April*, 921–927. https://doi.org/10.1109/EDUCON.2010.5492478