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Employer Satisfaction with Polytechnic Graduate: Comparison Between Industry Cluster

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ABSTRACT

Purpose: This paper aims to Employer Satisfaction with Polytechnic Graduate: Comparison Between Industry Cluster**.**
Design/methodology/approach: The method used is statistic-descriptive and the design used is cross sectional.
Findings: 2 hypotheses are while the other is accepted.
Research limitations/implications: This study used two-step analysis: Kruskal-Wallis test was used to identify differences for three industry cluster; mechanical, electrical and civil engineering. Post Hoc test performs to identify the detail differences between each cluster.
Practical implications: Results show that from the 2 hypotheses proposed.
Originality/value: This paper is original.
Paper type: This paper can be categorized as a case study.

Keyword: employer satisfaction, polytechnic graduate, industry cluster

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I. INTRODUCTION

The two biggest concerns of employers today are to identify and train good workers. Although employers would prefer to recruit people who are trained and ready to go to work, they are usually able to provide the advanced, job specific training required for those who lack these skills. The gap between what students learn in institutions of higher education and what they need to know and should be able to do in the workplace is a long-standing issue. To be competitive, Malaysia should have a market driven education system that can produce students who are ready for work.

Looking for workers who have employability or job preparations skills that help them in shape into and remain in the work sorroundings is a actual problem. Employers

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need responsible workers who can solve problems and who have the social skills and attitudes to work with other workers. A joint report by Chavez, Camello, Angelie & Pamplona (2016) noted that employers strongly preferred employees, who are loyal and committed to their works and functions; responsible team members; with strong moral values and high sense of professionalism

A. Previous Study

Kubler and Forbes (2004) describes engineering to be the occupation aimed at qualified practice, through training and professional education in a specific engineering discipline, of a distinctive knowledge based on mathematics, science and technology, incorporated into business and management. Zaharim, Yusoff, Omar, Mohamed, Muhamad and Mustapha (2009) define engineering as the growth, distribution, and management of industry and community infrastructures, goods and services. In other meaning, engineering therefore means someone with certain skills to effectively apply and practice knowledge on the job.

From the point of view of researcher, engineering offers the ability to learn a profound scientific skill, to use a method in the architecture, service and application of technology such as computer systems, equipment, software and engineering instruments. The ability to learn, learn new engineering skills and to be improved is also part of the changing technological change. Thus, industries require all new workers to have certain skills to succeed in their work and careers (Yusoff, Omar, Zaharim, Mohamed & Muhamad, 2012). In other meaning, today employers seek out not only good workers with fundamental academic skills such as reading, writing, listening and oral, communication skills and basic scientific and mathematical knowledge, but also employees who have more intellectual knowledge, including the knowledge of creativity, teaching, reasoning and decision-making (Shafie & Nayan, 2010).

In Malaysia, employers complained of graduate candidates who lack traditional skills but satisfied with engineering graduates' professional skills and technological competence (Johari, Zaini, Zaharim, Basri & Omar, 2011). In addition, Hassan, Zaidi, Zainal, Abdullah, Badrulhisham, Hamid and Zaidi (2007) claim that engineering programs in all fields, in particular in non-technical areas are desperately necessary to improve. Thus, thirteen most relevant basic skills learned in engineering by students were defined in the employability skills system developed by Hassan et al., (2007). The competences of Requirements for Accrediting Engineering Program are determined by requirements of technical competence. Table 1.1 sums up the conclusions regarding engineering skills in terms of the value of the employer-related skills.

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Table 1.1 : Engineering Graduate Skills (Hassan et al., 2007)

Skills	Description
Communication effectively	The ability to communicate ideas in aural, oral and written forms, not only with engineers but with the society as a whole, positive and effective.
Competent in application and practice	The ability to use modern engineering tools, technique and skills
Interpersonal or team working skills	The ability of a person and a company with the ability to be a leader or boss as well as an effective team member
Engineering problem solving and decision making skills	The ability to identify problems, solve problems, devise solutions and apply them.
Apply knowledge of science and engineering principles	the desire to learn and apply engineering knowledge
Competent in specific engineering discipline	the ability to acquire extensive technical expertise in a particular field
Understand professional , social and ethical responsibilities	The perception of a professional engineer's financial, economic, regional and environmental responsibility and a technical and ethical commitment.
Lifelong learning	The ability to consider and maintain the potential to pursue long-term learning
Engineering system approach	Capacity to use a program approach to design and performance assessment
Design and conduct experiments	The ability to plan and execute experiments and the study and interpretation of data.
Knowledge of contemporary issues	The opportunity to develop new ideas, talents and innovations independently.
Competency in theoretical and research	Having the competency in theoretical and research engineering.
Entrepreneurial skills	Having basic entrepreneurial skills.

Problem statement

The need for expertise by the manufacturing sector must fit with the nature of the demands of the business and the ability to promote the engineer's profession as suggested by Rasul, Rauf, Mansor, Yasin and Mahamod (2013). Moreover, employer finding workers who could adapt to change, in particular in terms of services, product, process and has been the employer's meta-characteristic requirement (Grip, Loo & Sanders, 2004) Saleh (2019) also states that recently come up with a challenge to the market for employability, which appears to be difficult to sustain both sides as technical and ongoing developments, are rapidly expanding. Thus, knowledge is critical for adapting workers to changes and enhancing workforce capacity.

Employers need an accurate indicator for engineer recruitment purposes (Jackson, 2010). This is because engineers who have the expertise but do not meet market

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demand and needs are not being hired because they are not suited to the need for skills. The implications of this scenario are many engineers are jobless and cannot be employed because the graduates lack the necessary qualifications. In order to stop this, multiple experiments were carried out in order to identify the reasons behind this increment and to solve this problem. One problem is that graduates lack the skills required for their employability (Zaharim, Yusoff, Omar, Mohamed, Muhamad & Mustapha, 2009). This may be true as Saad and Majid (2014) states that employers are still not happy with graduate skills.

Based on the current information of unemployment rate in Malaysia, in the second quarter of 2019, the Statistics Department reported 516,600 unemployed people in Malaysia (Department of Statistics Malaysia, 2020). This figure is somewhat alarming as it can trigger difficulties for graduates who seeking for the job. This is because graduate unemployment has been a concern over Malaysia (Cheong, Hill, Fernandez-Chung & Leong, 2016). Although universities have been called on to work closer with businesses to ensure compliance with skills and jobs, it continues to be a problem. Therefore, the aim of this study is to examine the factor affecting employer's satisfaction among industry cluster with Politeknik Sultan Mizan Zainal Abidin (PSMZA) graduate. It is hoped that this research will provide engineering students with the relevant information to increase awareness of the capabilities of employability and their planning to enter the workforce. Hopefully the findings will help students improve their personal skills before they graduate and go for a job interview.

B. Hypothesis

This study was conducted to compare the employer satisfaction with PSMZA graduate based on engineering discipline.

that influence the employer's satisfaction of the capabilities of the engineering graduate's that have arisen from this analysis

II.METHODOLOGY

A set of questionnaires were distributed through online system in Google form to the company which has registered as an employer for PSMZA graduate. As alternative, this questionnaire also posted to address register by student during convocation. This study used two-step analysis: Kruskal-Wallis test was used to identify differences for three industry cluster; mechanical, electrical and civil engineering. Post Hoc test performs to identify the detail differences between each cluster.

III. RESULT AND DISCUSSION

This study was conducted to examine the satisfaction of employer with graduate from

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PSMZA. A total of 112 companies from three main engineering field contributed in this study where 52 from mechanical, 33 from electrical and 27 from civil engineering. Analysis was separated to four categories which are graduate skills, knowledge, soft skills and employer satisfactions as illustrated in Table 1.2, Table 1.3, Table 1.4 and Table 1.5.

Table 1.2 shows results of graduate skills by different cluster. From seven items included in this category, using computer in processing information is found to be statistically significant between clusters.

Table 1.2: Engineering Graduate Skills (Hassan et al., 2007)

Variables	Cluster	N	Mean Rank	$\chi 2$	*p*-value
Information management skill	Mechanical	52	50.04	4.996	0.082
	Electrical	33	64.89		
	Civil	27	58.69		
Using computer in processing information	Mechanical	52	46.65	11.285*	0.004
	Electrical	33	61.83		
	Civil	27	68.94		
Skill in choosing tools/technology	Mechanical	52	51.48	2.355	0.308
	Electrical	33	61.02		
	Civil	27	58.76		
Skill in innovative thinking	Mechanical	52	52.85	2.098	0.350
	Electrical	33	62.32		
	Civil	27	56.43		
Skill in creative thinking	Mechanical	52	54.20	1.866	0.393
	Electrical	33	62.41		
	Civil	27	53.70		
Skill in decision making	Mechanical	52	57.13	3.758	0.153
	Electrical	33	62.80		
	Civil	27	47.59		
Skill in problem solving	Mechanical	52	56.63	3.081	0.214
	Electrical	33	62.62		
	Civil	27	48.76		

*significant at the 0.05 level

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Table 1.3 shows results of graduate knowledge by different cluster. From four items included in this category, none of the variables are found to be statistically significant between clusters.

Table 1.3: Graduate Knowledge between Cluster

Variables	Cluster	N	Mean Rank	$\chi 2$	*p*-value
Knowledge on technology application	Mechanical	52	55.74	0.430	0.807
	Electrical	33	59.29		
	Civil	27	54.56		
Knowledge on technology application	Mechanical	52	54.38	0.477	0.788
	Electrical	33	58.36		
	Civil	27	58.30		
Knowledge on information management	Mechanical	52	54.06	1.503	0.472
	Electrical	33	61.92		
	Civil	27	54.57		
Knowledge on job scope	Mechanical	52	53.15	1.261	0.532
	Electrical	33	60.29		
	Civil	27	58.31		

*significant at the 0.05 level

Table 1.4 shows results of graduate soft skills by different cluster. From seven items included in this category, proficient in English language and entrepreneurship skills are found to be statistically significant between clusters.

Table 1.4 : Graduate Soft Skills between Cluster

Variables	Cluster	N	Mean Rank	$\chi 2$	*p*-value
Discipline in work task	Mechanical	52	55.02	2.484	0.289
	Electrical	33	63.02		
	Civil	27	51.39		

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Good communication skills	Mechanical	52	55.50	0.123	0.940
	Electrical	33	57.02		
	Civil	27	57.80		
Able to work in a team	Mechanical	52	53.60	0.963	0.618
	Electrical	33	59.48		
	Civil	27	58.44		
Proficient in English Languag e	Mechanical	52	53.49	7.707*	0.021
	Electrical	33	68.33		
	Civil	27	47.83		
Meticulous in task given	Mechanical	52	56.69	0.641	0.726
	Electrical	33	59.14		
	Civil	27	52.91		
Practise moral values	Mechanical	52	52.02	3.032	0.220
	Electrical	33	63.52		
	Civil	27	56.56		
Entrepreneurship skills	Mechanical	52	51.05	5.762*	0.046
	Electrical	33	67.11		
	Civil	27	54.04		

*significant at the 0.05 level

Table 1.5 shows results of employer satisfaction between cluster. From eight items included in this category, none of the variables are found to be statistically significant between clusters.

Table 1.5 : Employer Satisfaction between Cluster

Variables	Cluster	N	Mean Rank	$\chi 2$	*p*-value
Work readiness	Mechanical	52	56.98	0.027	0.987
	Electrical	33	56.06		
	Civil	27	56.11		
Ability to adapt work situation	Mechanical	52	53.54	1.220	0.543
	Electrical	33	57.27		
	Civil	27	61.26		
Fast action in performing task	Mechanical	52	57.12	0.524	0.769
	Electrical	33	58.38		

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	Civil	27	53.02		
	Mechanical	52	55.27		
Shows a good work performance	Electrical	33	58.00	0.185	0.912
	Civil	27	57.04		
	Mechanical	52	53.22		
Ability to prioritize the work	Electrical	33	57.23	1.483	0.476
	Civil	27	61.93		
	Mechanical	52	55.21		
Dependability	Electrical	33	55.70	0.475	0.789
	Civil	27	59.96		
	Mechanical	52	58.07		
Practice good work	Electrical	33	57.08	0.584	0.747
	Civil	27	52.78		
	Mechanical	52	54.26		
Willingness to work hard	Electrical	33	59.45	0.652	0.722
	Civil	27	57.20		

*significant at the 0.05 level

Table 1.6 shows a Kruskal-Wallis test which reveal that there was a statistically significant difference (P<0.05) in variables between the different clusters. The results show that employers in mechanical engineering cluster are less satisfied with PSMZA graduate compared to employers in civil engineering cluster for computer skill in processing information. This study also found that compared to employers in electrical engineering cluster, employers in mechanical cluster are less satisfaction with PSMZA graduate related to proficient in English language. In term of entrepreneurship skill, employers in mechanical cluster found less satisfaction with graduate from PSMZA compared to employers in electrical cluster.

Table 1.6 : Comparison on Significant Variables

Dependent Variable	Cluster (I)	Cluster (J)	Mean Difference (I-J)	Std. Error	Sig.
Using computer in processing information	Mechanical	Electrical	-0.341	0.192	0.223
		Civil	-0.546*	0.171	0.007
	Electrical	Civil	-0.205	0.216	0.716
Proficient in English	Mechanical	Electrical	-0.436*	0.187	0.047

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Language		Civil	0.146	0.218	0.876
	Electrical	Civil	0.582*	0.246	0.043
	Mechanical	Electrical	-0.437*	0.195	0.050
Entrepreneurship skills		Civil	-0.050	0.222	0.994
	Electrical	Civil	0.387	0.249	0.327

*significant at the 0.05 level

Discussion

With respect to the first research objectives, the results indicate that there are three factors that influence the employer's satisfaction of the capabilities of the engineering graduate's that have arisen from this analysis. From the result above, researcher can concluded that a Kruskal-Wallis test showed that there was a statistically significant difference ($P<0.05$) of using computer in processing information variables between the different cluster with a mean rank score of 46.65 for mechanical, 61.83 for electrical and 68.94 for civil. Besides that, a statistically significant difference ($P<0.05$) has been found on proficient in English language between the different cluster with a mean rank score of 53.49 for mechanical, 68.33 for electrical and 47.83 for civil. Lastly, the test also shows a statistically significant difference ($P<0.05$) of entrepreneurship skills between the different cluster with a mean rank score of 51.05 for mechanical, 67.11 for electrical and 54.04 for civil. This study should be able to demonstrate the value of a wide range of skills and abilities for industrial employers in the pursuit and retention of their workers.

IV.CONCLUSION

The study's main contribution was to validate the employer satisfaction assessment of skills of engineering graduates that impact the skills required in engineering fields with a focus on Malaysia. Subsequently, the factors that become important to graduate employability skills were identified as fundamental general skills and engineering skills. It also has the competences that employers need to satisfy the rising demand for higher skills in the area of technology to fulfill the need for higher skills in order to succeed in the current competitive economic industry.

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