

Employer Satisfaction With Engineering Graduates Employability: A Study Among Manufacturing Employers In Malaysia

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Abstract: The purpose of this study is to investigate the employers' satisfaction with the skill of engineering graduates in Malaysia. This study use 195 survey questionnaire distributed to the manufacturing senior manager at Melaka, Negeri Sembilan and Pulau Pinang. Statistical Package for Social Science (SPSS) software version 22.0 have been used to extract the data needed from the survey. Finding indicate that employer are satisfy with the skill equip to the engineering graduates and show that fundamental general skill (FGS) and engineering skills (EgS) are the most essential to employer satisfaction and follow closely by others skills. The results offer important practical implication for engineering graduates to be success in employability. Proper skills a helpful in a race to get employer satisfaction for employability with the necessary skill equip to engineering graduates. It is hope with this data it can be an essential reference for engineering graduates to prepare them self to enter the working environment at today challenging economic situation

Index Terms: Graduate Employability, engineering skill, graduate skill, employer satisfaction, engineering graduate employability, skill preparation, employer perception.

1. INTRODUCTION

INDUSTRIES today are demanding that all new workers be equipped with certain skills to be successful in their job and career "[1]". Employers today are not only looking for good workers with basic academic skills such as reading, writing, listening and oral, communication skills together with a basic knowledge of science and mathematics, but are also looking for employees who have higher order thinking such as creativity, learning skills, reasoning, problem solving and decision making (Latisha & Surina, 2010). Moreover, since the 1980s, employer seeking employees who can adapt to change, especially in term of services, product, process and it's have been a meta characteristic requirement by employers, "[2]". Recently, with the rapid growth of technology and continuous innovations, the competition for employability has become a significant challenge and sustaining both parties appears to be difficult, given the current scenario, without an adequate and proper learning process, "[3]". With the technology evolve rapidly, it is important to innovate and align ourselves to the current situation exactly, "[4]". It is crucial that highly skilled graduates to be produced who can adapt and match to the fast changes in technology today, "[5]". For this reason, leaders in the industrial and government sectors have been calling on fresh graduates to master the employability skills, especially problem solving, communication skills, decision making and teamwork, "[1]".

2. PROBLEM STATEMENT

The skill demand by manufacturing industry must align with the nature of the company need and the skill as the ticket for the engineer to get promotion on the career. Skill is important in helping people adapting with changes and improve career opportunities in the workplaces, "[8]". Employer today require accurate indicator for recruitments purposes for engineer they need, "[7]". At the same time, it will enhance the output of product from the manufacturing company around that area, "[6]". This very important because engineer that have the skill but not accordance to the demand and need of the manufacturing will not being hired because not suitable with the skill need. The consequences from this situation, they will be numbers of engineer jobless and cannot be hired due to lacking of skill that required by the manufacturing sector. This also due to employer expectation and perception play an important role in determining the essential skills needed, "[9]". It means, skill consider important "[7]" equip to the engineer to be hired by the employer. In addition, functional or discipline area skill are considered important "[7]" to certain manufacturing company. Therefore, a skill must accurate with the need of the manufacturing company today and important to determine job opportunity for the engineer. "[27]" found that industry said that engineering graduates in Malaysia have adequate skill, but employer is still not satisfied with the skill pose by the graduates. In addition, "[26]" found that engineering graduate are largely depend on academic qualifications to get job but which less engineering skill required by employer.

3. LITERATURE REVIEW

"[28]", define engineering as a profession directed towards the skilled application of a distinctive body of knowledge based on mathematics, science and technology, integrated with business and management, which is acquired through education and professional formation in a particular engineering discipline. "[9]", define engineering is directed to developing, providing and maintaining infrastructure, goods and service for industry and the community. Therefore, engineering means someone who have certain skill to help them self-applying and practice the knowledge effectively in

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workplace. Furthermore, “[10]” also defined engineering employability skill as ability to perform engineering related skill, knowledge and personal attributes to gain employment, maintain employment and succeed in the engineering field. “[11]” mention that engineering work is focused on resolving an undesirable condition through the application of technologies, and the technologies involved maybe well establish, nascent or yet unimagined. Engineering work is about problem solving and its affect change in the world, example, modifying process or procedure or introducing new products, technologies or knowledge and unlike scientist, engineer are tasks with being changes agents, “[11]”. Skills have been categorize under the following competencies: problem solving, personal values, decision-making skills, relationship with others, maturity, communications skills, task related skills, job commitment, and health habits and safety. Usually, students need to equip themselves with necessary skills to meet and align with the demands of various jobs upon the graduation “[5] From researcher view, engineering is the ability skill to acquire in depth specific engineering discipline, ability to utilize a system to design, operate, use of technology such as computer technologies, machine and software and engineering tools. It’s also include the ability to learn, gain new knowledge in engineering field and willing to upgrade themselves align with the evolving changing of technology.

4. RESEARCH QUESTION

This study investigate and attempt to answer the specific research questions as given below:-

- What employer satisfaction towards engineers’ skill.
- What the relationship between engineers’ skill ability and employer satisfaction.

5. RESEARCH OBJECTIVES

Objective of this study is to determine the skill factors that are most needed for engineering graduate employability by determine employers’ satisfaction level towards engineers’ skills. The details of the objectives are as given below:-

- To determine employer satisfaction toward engineers’ skill.
- To identify the relationship between engineers’ skill ability and employer satisfaction.

This study aims to provide the empirical data about the satisfaction among the manufacturing employers towards engineering graduates’ employability.

6. METHODOLOGY

For this study, the unit of analysis is at the individual level (senior manager of the company) and the primary data for this study collected through distribution of questionnaire. Respondents’ satisfaction about the variable (Fundamental General Skill, Engineering Skill, Interpersonal Skill, Behavior Skill, Adaptive Skill, and Self-Emotional Intelligence Skill) become the basic for understanding Employer Satisfaction.

7. DATA COLLECTION

This study uses simple random sampling to select the senior manager from manufacturing company around Malaysia. The sample was 477 chosen out of total population of 2457 manufacturing company from the Federation of Malaysian Manufactures (FMM) book 2015. The sample size for this

study is 210 base on the sample size table by Krejcie and morgan, “[29]”. The questionnaire was distributed among senior manager and researcher managed to collect data from 195 respondent. Fifteen question have been rejected due to incomplete answers and few respondents gave excuses that they were too busy to participate in this study.

8. LOCATION OF RESEARCH

This study have been conducted at Melaka, Negeri Sembilan and Pulau Pinang. Reason for choosing employer from this three (3) state because this state have the highest output of manufacturing product according to the Department of Statistic Malaysia (DOSM), 2015, and this make it an ideal setting for this research. After all, it was not practical to conduct a survey on all manufacturing company all around Malaysia and only three (3) state was chosen base on the reason given.

9. FINDING

Multiple regression analysis in Table 1 shows that skills factors had significant relationship with skills of graduate employability with $R = 0.509$. The adjusted R^2 of the model was 0.235, which indicate 23.5 percent of the variation in skills of graduate employability among manufacturing employer was explained by the graduate skills.

TABLE 1

Multiple regression analysis for determining the relationships between the skills factors and the employer satisfaction

Variables (Skills Factors)	Regression Models (Employer satisfaction)		
	Unstandardized Coefficients	Standardized Coefficients	Sig
	B	B	
Constant	1.380		
(H1)Fundamental general skill	0.318	0.330	0.000
(H2) Engineering skill	0.278	0.286	0.000
(H3) Interpersonal skill	0.176	0.166	0.027
(H4) Behavioral skill	0.417	0.271	0.002
(H5) Adaptive skill	0.091	0.093	0.157
(H6)Self-emotional intelligence skill	0.175	0.138	0.048
R		0.509	
Adjusted R2		0.235	

Fundamental general skill ($B=0.330$, $p=0.000$) showed significant relationship with the employer satisfaction. Thus, H1 was supported. While, engineering skill ($B=0.286$, $p=0.000$) showed significant relationship with the employer satisfaction. Thus, H2 was also supported. Skill factors found two (2) positive relationships with the employer satisfaction, which were fundamental general skill (FGS) and engineering skill (EgS). These two skills are essential in organizations in order to successful engineering practice and technical skills to achieve career expectations. From the result also, it show that manufacturing employer in Malaysia are satisfied with the FGS and the EgS of engineering graduate. Interpersonal skill factor ($B=-0.166$, $p=0.027$), behavioural skill ($B=0.271$, $p=0.002$) and self-emotional intelligence skill ($B=0.138$, $p=0.048$) showed a significant relationship with Employer satisfaction. So, H3, H4

and H6 supported. While, adaptive skill ($B=0.093$, $p=0.157$) indicated insignificant relationship with the employer satisfaction. Thus, H5 not supported. Interpersonal skill, behavioural skill and self-emotional intelligence skill was significant towards employer satisfaction. The results explained that graduates do not only need to acquire good academic results but, at the same time, they need to have a positive attitude towards the job. Without the proper skills, employers will face problems in dealing with work and the workers in the company. Table 2 shows ANOVA for determining the relationship between the skill factors and the Employer satisfaction whereby ($F=10.954$, $p=0.000$) indicated that the results of the regression model could occur by chance. However, the significance of ANOVA and p-value of coefficients must indicate $p<0.05$. Hence, the model was significant with 0.000 significant value

TABLE 2
ANOVA^B for determining the relationships between the skills factors and employer satisfaction

Model	Sum of Squares	df	Mean Square	F	Sig.
1. Regression	16.257	6	2.709	10.954	.000 ^a
Residual	46.502	188	0.247		
Total	62.759	194			

10. STUDY HYPOTHESES

H1: There is positive significant relationship between Fundamental general skill and Employer satisfaction A positive relationship between fundamental general skill and employer satisfaction known as H1. The results have shown FGS ($B=0.330$, $p=0.000$) was significant relationship with the employer satisfaction. In essence, this result are consistent with past studies by “[8]”, which general skill revealed that graduate need to be skilful in communicating with people from a variety of ethnic backgrounds and placed different emphasis on the different forms of communication. Employers need employees who could not only read and write but also be able to explain in a manner easily understood for complex concepts. H2: There is positive significant relationship between engineering skill and Employer satisfaction A positive relationship between engineering skill and employer satisfaction has hypothesized as H2. The findings in this study shown relationship EgS with employer satisfaction was significant with $B=0.286$ and $p=0.000$. However, this result inconsistent with other studies on the importance of engineering skill in the employment in industries such “[12]” and “[13]” has argue that engineering careers do not seem to be attractive especially with the emergence of other disciplines cause greater confusion and affect students’ expectancy and plans about their engineering skills. “[14]” reported that 77% of the manufacturers thought that the lack of skilled engineers was the biggest barrier to future growth. H3: There is positive significant relationship between interpersonal skill and employer satisfaction A positive relationship between interpersonal skill and employer satisfaction suggested as H3. Based on the findings, interpersonal appeared as a means of providing sufficient information with the significant value $B=0.166$ and $p=0.027$. This result is inconsistent with “[15]” and “[16]” which indicate that the importance of interpersonal skill is not sufficient to influence Employer satisfaction. In particular, “[17]” mention that an individual must possess a certain personal and interpersonal competency so they can

determine and responsive to the view their constituents while conveying the impression that they are self-confident and sure of their own agendas to achieve reputations effectiveness. “[8]” indicate planning and organizing skills is important, employees need to be independent and good at time management and manage priorities in order to survive because they know when to work alone and when to ask for support. However, these researchers’ results differ from other published studies, such as “[15]”. Hiring applicants, who have personal and interpersonal skills, is key factor for an organization to gain or maintain a competitive advantage. Some researchers note that interpersonal, i.e. those attributes that characterize a person’s relationship with others, are the most important skills at all levels of a job. H4 : There is positive significant relationship between behavioral skill and employer satisfaction The positive relationship between behavioural skill and employer satisfaction was presented as H4 where $B=0.271$ and $p=0.002$. The findings signify that behavioural skill will lead to positive Employer satisfaction when behaviour skill does not practices to engineering graduate as part of their skills to develop their employability skills in conjunction with their subject knowledge, the employee will not satisfy with local requirement and global criteria to reach a job, “[16]”. These skills are very important for new engineers as well as for engineers to succeed in their profession and being promoted for their own career path and future. H5 : There is positive significant relationship between adaptive skill and Employer satisfaction A positive relationship between adaptive skill and employer satisfaction hypothesized as H5. H5 indicated insignificant relationship with the employer satisfaction where $B=0.093$ and $p=0.157$. Due to that H5 have been reject. The results are similar with other studies. “[18]”, “[19]”, “[20]”. The results can be explained may be that graduates who perceive themselves as highly efficacious have higher expectations about their jobs, so that they tend to negatively assess the quality of their current jobs because these jobs do not meet their expectations. H6 : There is positive significant relationship between self-emotional intelligence skill and Employer satisfaction. A positive relationship between self-emotional intelligence skills with employer satisfaction a hypothesized as H6. The results show the relationship with employer satisfaction where $B=0.138$ and $p=0.048$. In essence, this result are consistent with those of past studies conducted by “[21]” and “[22]”, which collectively recognize that the graduate ability to perceive, understand and regulate their emotions and those if those others, and in their ability to integrate these with their own thoughts and actions. “[23]”, findings indicate that the ability to understand and manage emotions in self and others enhances a graduate’s ability to solve problems and influence their juniors’ emotions, thus enabling the graduate to grasp opportunities, address issues, introduce change and promote effectiveness at all employers of an organization. “[24]”, indicated that the emotional intelligence skill had been developed, but needed building and reinforcement. This attributes reflect graduate’s personality and their commitment towards employable which will assist them in building their good work history. “[25]” also found that emotional intelligence skills was effective in increasing graduate empathic skills.

11. DISCUSSION

Regarding the first and second research question, as for the evaluation of manufacturing employers' satisfaction of graduates' capability in the key factor skills that emerged from this study, the results indicated that employer are satisfied with the engineering graduate skills. In other word, employer satisfied with the skill mention in this study accept adaptive skill. Descriptive statistics revealed that although skills ability in our survey assessed highly all the emerging skill factors, manufacturing employers evaluated somewhat higher in fundamental general skill and engineering skill meanwhile behavioural skill and interpersonal skills followed closely. This concluded that Malaysian manufacturing employers evaluated highly all employability skills gathered through employer satisfaction. Most importantly, there is general agreement between graduates and employers on the importance of the specific skills used in the survey, there was much less agreement on the possession of these skills. In general, this research confirm that manufacturing employers assess as important a wide range of skills and competencies when seeking and retaining their employees.

12. CONCLUSION

The main contribution of this study was validating the evaluation of employer satisfaction of skills from engineering graduates that influences employability skills needed by manufacturing firms, focusing on Malaysia. Subsequently, the factors that becomes important to graduate employability skills were identified as fundamental general skills and engineering skills. Nonetheless, this research has specified the factors leading to employability skills and employer satisfaction. It is imperative for Malaysian organizations, especially those in the manufacturing industry, to apprehend the importance of graduates employability skill due to the acquire best of talent. It also competences that employers demand in technology to meet the growing need for higher-level skills in order to survive in cutthroat competition in today rival economic industry situation.

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