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Lecturers perception of the soft skills of engineering students in Malaysian Polytechnics

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Abstract

Soft skill is one of the skills needed by graduates to be effective and efficient as the preparation to joining the working environment apart from technical skills. Lack of skills among graduates reported as a reason for employers uninterested to hire them. Therefore, this study was conducted to explore the application of soft skills of engineering students in Malaysian polytechnic based on lecturers' perception. Questionnaire was distributed to 475 lecturers from selected polytechnics and was analysed using descriptive statistics. Finding show that soft skills level of engineering student was high and lecturers state that teamwork skills was the highest soft skills applied by students. This study also found that there is no significant difference of soft skills level of student based on engineering courses and region. The high level of soft skills applied by engineering student should be maintained to increase the employment rate of engineering graduates.

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Keywords: Soft skills, engineering courses, Malaysian polytechnics, lecturer perceptions

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Introduction

The development of economic in the era of globalization requires employers and the industry to hire workers with various skills(Hamzah, Bakar& Kazilan, 2006; Nordin, Abd Hamid & Jabor, 2005 and National Centre for Vocational Education Research (NCVER), 2003) . According to Cox & King (2006), employers are not satisfied with the quality of graduates who lack skills for the current job market. Mohd Noor & Abd Sukor (2010) in their study state that productivity in the work should be enhanced in order to produce a quality human capital. Thus, highly skilled human capital with ability to create, innovate, develop technology, produce and applying new knowledge should be improve to reduce the unemployment of engineering graduates.

Excessiveness of graduates with excellent academic achievement caused employers to outlines several additional skills as job requirements. This was supported by Abu, Kamsah & Razzaly (2008); Yusoff, Ismail & Sidin (2008) and Ibrahim (2004) that academic achievement and graduation in specific areas solely still not guarantee graduates for employment. According to Nair, Patil & Mertova (2009), high academic achievement does not guarantee employment for graduates without having good soft skills and possess severellanguage skills. The competitiveness of job market demand employers to hired employees with complete package of skills (McQuick & Linsay, 2005).

Soft Skills is a non-technical skills that reflect the attitudes and behaviors that can not be seen with visual but equally important with the technical skills required by employers (Ibrahim, Mastor, Mohd Salleh & Sulaiman, 2010). According to Rasul & Mustapha (2009) soft skills is an employment skills that as important as technical skills. In order to improve the soft skills among graduates,lecturersshould implement it directly or indirectly during the teaching and learning process to the students.

Education systems play a big role in implement soft skills to graduates. Regarding to that, the curriculum should be designed by enhancing both technical and soft skills so that graduated will have a solid foundation and skilled in their fields of work.

Research Background

Unemployment among graduates is not anomalous in the current world. According to Yusoff, Ismail & Sidin (2008), unemployment among graduates is a waste because the cost covered by government for education and training fees not parallel with the quality of graduates.Unskilled Graduates in both technical and soft skills are the main reason of unemployment among graduates. Bracey (2006) in his study found that 69% of employers indicated that one of the factorsthey do not hired graduates due to lack of soft skills. Employers nowadays are not only looking for employees who are good at technical skills but prefer to graduates with additional skills as their prospect employees (Raftopoulos, Coetzee&Visser, 2009; Maniam & Liong, 2007 and Raybould & Sheedy, 2005).

The emphasis on theoretical concepts during studies lead graduates to lack in thinking skills, analysing, language skills and social skills (Abdul Halim, 2007). Possessing various additional skills is an advantages for graduates to attract employers. Raybould & Sheedy (2005) states that employers require employees who are able to work under pressure, ability to make decisions, communication skills, teamwork skills, self-confidence, self management skills and learning skills. This statement also supported by Heimer (2010) through his study agreed that soft skills should be possessed by employees.

In general, graduates should possess variety of skills for them to withstand the challenging working worlds. Accordingly, educational institutions play an important role in applying soft skills to students to ensure they meet the industrial requirements (Rasul & Mustapha, 2009 and Nair, Patil & Mertova, 2009). Smith & Katz (2005) also stated that the application of soft skills during teaching and learning process provide basic preparation to students for future employment.

Objective

- a) Identify the level of soft skills of engineering students based on lecturers' perception.
- b) Identify differences in the level of soft skills of engineering students between engineering courses
- c) Identify differences in the level of soft skills of engineering students between regions.

Methodology

This study used a descriptive survey method which involving 475 lecturers of engineering courses from nine selected polytechnics. Selection was performed randomly on polytechnics representing north, central, south, east coast and east. The study involves seven elements of soft skills: communication skills, teamwork skills, problem solving skills, leadership skills, lifelong learning, entrepreneurship skills and moral and professional ethics. These skills are reviewed together with the current needs of graduates in enhancing their employability as stated in the graduates' tracer study 2011. Data from the questionnaires were analysed by means of descriptive statistics and inferential statistics using SPSS 20.0. The values of score mean interpreted into three level of tendency which is low, moderate and high level (Landell, 1997). Table 4.1 show the analysis methods used in this study.

Table 4.1: *Data analysis methods*

No	Research question	Analysis method
i.	What is the level of soft skills of engineering students based on lecturers' perception?	Descriptive statistical test (mean score)
ii.	Are there differences in the level of soft skills of engineering students between engineering courses?	Inferential statistical test (One-way ANOVA Test)
iii.	Are there differences in the level of soft skills of engineering students between regions?	Inferential statistical test (One-way ANOVA Test)

Result And Discussion

Research question

1: What is the level of soft skills of engineering students based on lecturers' perception?

The analysis of data shows that mean scores for the level of soft skills of engineering students was at high level. Teamwork skills is the highest element of soft skills applied while the least element of soft skills applied is lifelong learning and information management. Table 5.1 shows the level of soft skills based on the perception of the engineering students.

Table 5.1: *Level of soft skills of engineering students*

Soft skills	Mean score	Level
Communication skills	3.54	Moderate
Lifelong learning & information management	3.46	Moderate
Leadership skills	3.59	High
Teamwork skills	3.77	High
Problem solving skills	3.52	Moderate
Entrepreneurship skills	3.55	Moderate
Moral and professional ethics	3.65	High
Average	3.58	High

The finding is consistent with findings obtained by Mohd Noor & Abd Shukor (2010), Ahmad Anuar & Esa (2010), Abdul Razzaq, Md. Yunos, Hashim & Sawah (2010), Ibrahim, *et al.* (2010) and Suratman & Mohd Rosli (2010) that the level of soft skills among students in technical and vocational education was at high level. However, the findings differs from studies conducted by Mohd Noor & Borhan (2010), Abu, *et al.* (2008) and Buntat (2004) that the level of soft skills of engineering students was at moderate level.

Soft skills element should always be practiced and implemented by the lecturer to their students as stated by John (2005), skills will growth during learning and training based on persons wills. According to Hussein & Mokhtar (2009), lack of knowledge and awareness of

soft skills by lecturers caused the moderate or low level of soft skills of engineering students although its strongly required by the employers and industries.

In conclusion, researcher believes that the application of soft skills among engineering students at the polytechnic was excellent. The application of soft skills needed by graduates to play an effective role in the working worlds (Hussein & Mokhtar, 2009). Outcome Base Education (OBE) approach that adopted by the polytechnics were effective in applying soft skills to students as a preparation to meet the demands of employers.

Research question

2: Are there differences in the level of soft skills of engineering students between engineering courses?

To answer the second question, an one-way ANOVA test was used. Here is the null hypothesis:

H₀: There was no statistically significant difference of soft skills level of engineering students between engineering courses.

Table 5.2: *One-way ANOVA test for engineering courses*

	One-way ANOVA test		Mean score value		
	F	Sig.	Civil	Electrical	Mechanical
Soft skills	3.694	0.099	3.57	3.58	3.57

Table 5.2 shows data analysis to identify the differences mean score for engineering courses. One-way ANOVA test results conducted for the mean score are not significant (F = 3.694, $p > 0.05$). Hence, the null hypothesis is accepted that there was no statistically significant difference of soft skills level of engineering students between engineering courses in polytechnics.

Findings of this study are consistent with the study conducted by Warman, Zahari, Esa, & Mustafa(2010) that found there no significant differences of the level of soft skills among students of electrical &electronics engineering and mechanical engineering students. However, the study by Ahmad Anuar & Esa (2010) states that there are significant differences between the courses at Mara Active Center for five elements of soft skills. The capability of each student's to apply soft skills in the engineering courses at the university varied according to the level of their ability as stated by Abdullah (2009), Abraham (2002) and Gardner (1983) that every individual has their own intelligent and the intelligent level depending on the application methods and the understanding level of each individual in solving problems.

Results shows that students are aware ofthe important of soft skills in preparing themselveto becoming an engineer. Employers nowadays looking for employees who have

both technical and soft skills (Raftopoulos,*et. al*, 2009; Maniam & Liong, 2007 and Raybould & Sheedy, 2005). In order to satisfy the demands of industries, graduates should increase their quality and competency in the current job market.

Research question

3: Are there differences in the level of soft skills of engineering students between regions?

To answer the third question, an one-way ANOVA test was used. Here is the null hypothesis:

H₀: There was no statistically significant difference of soft skills level of engineering students between regions.

Table 5.3: *One-way ANOVA test for regions*

	One-way ANOVA test		Mean score value				
	F	Sig.	North	South	Central	East coast	East
Soft skills	1.905	0.110	3.72	3.56	3.54	3.48	3.57

The third findings revealed that there was no significant differences of soft skills level of engineering students between regions ($F = 1.905$, $p > 0.05$). It indicates that the location of polytechnic did not affect the level of soft skills among engineering students. However, there are slight significant differences between the north and east coast region by mean value of 0.18. Teaching & learning methods and approaches used by lecturers and culture might be the reasons for this difference exists.

In conclusion, the implementation and application of soft skills among engineering students relevance according to the situation and students necessity. However, the emphasize on the element of soft skills that least applied but considered important by employers should be increase.

Conclusion

Soft skills is one of the important skills in current working worlds. Employees nowadays only considered complete and skilled if they have good technical ability with high knowledge of soft skills. Lecturers are the most important individual that encourage students and increase the level of soft skills among students. The implementation of soft skills during studies important in order to produce a qualified graduates that meet the requirement of industries.

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