Bringing Industry Practitioners on Board: The Way Forward

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Abstract

In Malaysian higher education, forming cooperative education programs with the industry has been the practice of most universities to ensure the employability of their graduates. This is accomplished through student/staff industrial attachments and advisory boards. A private university has taken a step forward by recruiting industry practitioners to teach at the University, contrary to the traditional mode of recruiting instructors through the normal scholarship route. This is to ensure that they impart their knowledge on the skills required by the industries into their teaching. Thus, the purpose of this paper is to share the experience of this University that takes on board industry practitioners as academicians. This study employed a quantitative approach in data gathering, using questionnaire survey distributed to 90 lecturers teaching engineering courses. About 60 of the lecturers were previously industry practitioners while the other 30 were without industry experience. The results showed that the lecturers with industry experience and those without the experience employed similar teaching methods, which were the student-centred approaches. The results also revealed that both groups of lecturers perceive soft skills as important to be integrated in the teaching of technical courses. However, those with industry experience perceived entrepreneurship and management skills as highly important, unlike the other group. This paper concludes with recommendations on practices by this University on teaching and learning of technical students that can be emulated by other institutions.

Keywords: Industry practitioners; soft skills; engineering students

1. Introduction

Human capital development is a priority area in Malaysia’s development agenda under the Ninth Malaysia Plan which ran from 2006 to 2010 (The Economic Planning Unit, 2006 cited in Roselina, 2009).

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Due to this, the government has reinforced that the development of human capital and the upgrading of the mentality and intellectual capacity of the nation must be given precedence for Malaysia to be a developed country. Raising capacity knowledge, creativity and innovation, are crucial elements in the context of globalization (Roselina, 2009) and therefore, Malaysia must focus on the development of human capital through the upgrading of mentality and intellectual capacity. This imperative affects the role and responsibility of higher education. Higher education institutions are responsible for producing quality human capital and must therefore be more receptive to market change. Having the foresight knowing what students need in order to participate on a global scale upon graduation is also required.

Studies have found that among the concerns surrounding the quality of Malaysian graduates relate to their lack of soft skills which were required by the industry as the skills are essential for employability (Abang Abdullah, 2005; Aida Suraya et al., 2005; Devadason et al., 2010; Lee, 2003; Megat Johari et. al, 2002; Nik Safiah, 2010; Roselina, 2009; Sibat, 2005). Consequently, there exists an employment gap where there is an excess of jobless graduates while at the same time there are unfilled job vacancies. The industry values workers based on their aptitude and capabilities in performing a given task, and not just by their paper qualification only. This is further supported by a study conducted by Harvard University, the Carnegie Foundation, and the Stanford Research Institute which found that technical skills and knowledge make up about 15 percent of the reason a person obtained a job, kept the job and advanced in that job while the remaining 85 percent of job success was based on individual’s soft skills (Crosbie, 2005).

Even though the problem of unemployed graduates was due to lack of soft skills is a global problem, there is a private university in Malaysia that has managed to produce employable graduates. This institution claims an impressive record of graduate employability: 95% are employed within 9 months of graduation. Thus, it will be interesting to know the approach taken by this University in producing such graduates and to identify the best practices carried out at this university.

2. Literature Review

The issue of graduates lacking in soft skills has led to many studies being conducted to identify critical skills required at the workplace and to develop them in higher education. These studies attained the feedback from employers and a majority focused on the reasons for graduate employability. It was suggested that every university in Malaysia should employ an integrated approach to develop graduates’ soft skills in order to enhance their employability because most Malaysian tertiary institutions lacked this approach (Yaqin, 2009). Thus, numerous studies have been conducted on the integration of soft skills in teaching and learning at tertiary level. Most of these studies obtained the feedback from the lecturers and students.

In Australia, the Royal Melbourne Institute of Technology University conducted a study to better understand the beliefs and attitudes of academic staff and their impact on institutional efforts to integrate soft skills. The study found that personal traits and discipline had a significant impact on the emphasis placed on the teaching of soft skills (RMIT University, 2009). The study also discovered that strong emphasis was placed on communication skills, critical thinking and problem solving and independent learning in their teaching. Callan (2003) examined the attitudes of vocational students and their teachers on soft skills. Results of the study showed that the majority of the teachers believed that they had explained the importance of soft skills to their students and these students understood the information. But they claimed that students were more concerned to learn skills they viewed as more relevant to the industry in which they wanted to work rather than on learning soft skills.

A study by Mohd Salleh, Mohd Zaki and Wahid (2008) on the inclination and knowledge of the teaching staff on the integration of soft skills in teaching and learning activities at Malaysian public universities found that the main methods being used were the conventional ones like projects, lecture and tutorial. Student-centered methods were used but at lower regularity. The soft skills that were considered important and frequently integrated by the
lecturers in their teaching were communication skills, teamwork and critical thinking and problem solving while the least integrated was entrepreneurship skills.

3. Research gaps and objectives

The above review has triggered several research gaps in the literature. First, despite the several studies conducted on the importance of soft skills in the views of the lecturers, no study has been conducted exclusively on lecturers with industry background. This study addresses this gap by examining the teaching approaches employed and the important soft skills elements to be integrated in the teaching of technical courses from the perspectives of both groups of lecturers. The aim is to examine which soft skills elements are viewed as important by the lecturers with industry experience and those without industry experience that would possibly be emphasized in their teaching of technical courses. In other words, the interest is to discover whether the lecturers’ perceptions of the soft skills elements differ over their industry experience which may shed some light on the soft skills that are being emphasized by the lecturers in their teaching. Thus, the following research objectives (ROs) were set for this study:

- **RO1**: To compare the teaching approaches employed by lecturers with industry experience and those without the experience in integrating soft skills in the teaching of technical courses.

- **RO2**: To compare the views of lecturers with industry experience and those without the experience on important soft skills elements to be integrated in the teaching of technical courses.

The purpose of this analysis is to find out the similarities and differences between the teaching approaches employed by lecturers with industry experience and those without industry experience. The goal is to determine if the lecturers’ industry experience influences their teaching approaches. This is because the people from the industry are the ones who have highlighted that many graduates are lacking in soft skills. Hence, it would be interesting to find out whether the teaching approaches by those academics who were once industry practitioners are any different from those who are purely from academic and have had no experience working with the industry. The findings would provide some insights into the teaching practices of this group of lecturers which are still largely not explored.

4. Research Methodology

This study employed the quantitative research method and a set of questionnaire was used as the method for data collection. The subjects of the study were lecturers teaching technical courses. Out of 125 questionnaires sent through the email and by hand, 90 lecturers responded. The 90 completed questionnaires that were used in the study represent a return rate of 72 percent. Out of the 90 lecturers, 60 are with industry experience while 30 are without.

Survey questionnaire was used as the main method for data collection, adapted from studies conducted by Kamsah (2004), Ziegler (2007) and Mohd Yussoff, (2008). The questionnaire focused on teaching approaches that the respondents employed in their teaching of technical courses. The items were produced based on the literature review on the approaches taken to integrate soft skills in the teaching to enhance the students’ ability in soft skills. The questionnaire was divided into 3 sections, section A was on the respondents’ demographic information. Section B was on the importance of soft skills to the respondents and teaching approaches employed like Problem-based Learning (PBL), Project Oriented Problem-based Learning (POPBL), Cooperative Learning (CL), Project-based Learning (PjBL) and Teacher-centered Approach (TCA). Additionally, this section also inquired into the soft skills elements that were being emphasized by the lecturers in the teaching. It is to gauge which soft skills elements were being placed as most important to least important to them. The last section, Section C was on the tasks emphasized by the lecturers to enhance students’ soft skills. This section was divided
into 6 sub-sections with each detailing the tasks to enhance each soft skills element which were communication skills, critical thinking and problem solving skills, information management and lifelong learning ability, leadership skills, ethics and professional moral, as well as entrepreneurship and management skills.

To answer the research questions on the teaching approaches employed by the lecturers in integrating soft skills in their teaching, comparisons were also being made between the approaches used by the lecturers with industry experience and the ones without industry experience through the t-test. T-test was also used in addressing the important soft skills elements to the lecturers. To measure the reliability of the scales in Section C, Cronbach’s alpha was used.

4.1. Reliability of scales in Section C

Cronbach’s alpha was used to measure the reliability of the scale. Hair et al. (1998) stated that the generally agreed upon lower limit for Cronbach’s alpha is .70. The alpha levels of Entrepreneurship and Management skills, Critical Thinking and Problem Solving skills, as well as Leadership skills were 0.96, 0.91 and 0.93, respectively. Teamwork has the alpha levels of 0.91 while Lifelong Learning ability was with alpha level of 0.88. Lastly, Communication skills and Ethics and Professional Moral showed alpha level of 0.80 and 0.84, correspondingly. The overall alpha level for all was .89, therefore, the scale was considered highly reliable.

5. Results

An independent-samples t-test was conducted to compare the mean scores of the two groups which were the lecturers with industry experience and the ones without industry experience on the teaching approaches employed by them. On running the t-test, the result showed that there was no significant difference in scores for lecturers with industry experience and those without industry experience. Table 1 below sums up the result.

| Teaching approach                           | t     | df  | p-value |
|--------------------------------------------|-------|-----|---------|
| Problem-based Learning (PBL)               | .667  | 88  | .507    |
| Cooperative Learning (CL)                  | -.739 | 88  | .462    |
| Teacher-centred Approach (TCA)             | -.637 | 88  | .526    |
| Project-based Approach (PBA)               | 1.236 | 88  | .268    |
| Project Oriented Problem-Based Learning (POBPL) | 1.228 | 88  | .267    |

* Significant at the 0.05 level

The results indicated that none of the p-value was less than 0.05 which showed that there was no statistically significant difference on the lecturers’ teaching approaches of the two groups. As such, to answer RO1, it can be concluded that whether the lecturers had the experience with the industry or not did not seem to significantly affect the teaching methods that they employed in the effort to integrate soft skills in their teaching.

6. Important Soft Skills Elements

This section explores the views of lecturers with industry experience and those without the experience on the soft skills elements that are viewed as important. The descriptive analysis of the assessment was followed by the
t-test to compare the results from the two groups. The lecturers indicated their assessment of the soft skills elements on a five-point Likert scale that ranged from ‘Not important’ which scored 1 to ‘Very important’ which scored 5. The soft skills elements were critical thinking and problem solving skills, communication skills, self-awareness and ethical skills, lifelong learning ability, information management and leadership skills, teambuilding skills, as well as entrepreneurship and management skills. The interpretation of the mean score was adapted from Landell (1997) on the degree of importance as follows: 1.00 - 2.33 means the level of importance is low, 2.34 - 3.67 level of importance is average and 3.68 - 5.00 the level of importance is high. Table 2 below shows the result of the analysis to determine the mean score for both groups.

| Soft skills elements                        | Industry ex | n  | Mean | Level of importance | Std. Dev. |
|--------------------------------------------|-------------|----|------|---------------------|-----------|
| Communication skills                       | Yes         | 60 | 4.50 | High                | .62       |
|                                            | No          | 30 | 4.43 | High                | .77       |
| Critical thinking & problem solving skills | Yes         | 60 | 4.68 | High                | .50       |
|                                            | No          | 30 | 4.83 | High                | .38       |
| Teambuilding                               | Yes         | 60 | 4.07 | High                | .84       |
|                                            | No          | 30 | 4.03 | High                | .93       |
| Lifelong learning & info. management       | Yes         | 60 | 4.18 | High                | .72       |
|                                            | No          | 30 | 4.23 | High                | .68       |
| Ethics & professional moral               | Yes         | 60 | 4.38 | High                | .74       |
|                                            | No          | 30 | 4.33 | High                | .88       |
| Entrepreneurship & management skills       | Yes         | 60 | 3.97 | High                | .94       |
|                                            | No          | 30 | 3.10 | Average             | 1.47      |
| Leadership skills                          | Yes         | 60 | 4.08 | High                | .99       |
|                                            | No          | 30 | 3.63 | Average             | 1.19      |

Table 2 shows that both the lecturers with and those without industry experience seemed to show quite similar patterns of perception. Both groups have evaluated Communication skills, Critical Thinking and Problem Solving, Teambuilding, Lifelong Learning and Information Management, as well as Ethics and Professional Moral, fairly positively. In contrast, lecturers without industry experience seemed to perceive Entrepreneurship and Management skills of average importance as compared to those with the industry experience who perceived the skills of fairly high importance. A similar pattern of perception also emerged with the Leadership skills where the lecturers without industry experience perceive the skills of average importance as compared to those with the industry experience who seemed to perceive the skills of high importance.

In order to determine whether there was significant difference between the two groups on the soft skill elements that they perceived as important, a t-test was conducted. The results of the test are shown in Table 3 as follows:
Table 3. Results of t-test comparing means between lecturers with and those without industry experience

| Soft skills elements                  | t    | df  | p-value | Mean diff. |
|--------------------------------------|------|-----|---------|------------|
| Communication                        | .440 | 88  | .661    | .151       |
| Critical thinking & problem solving  | -1.438 | 88  | .154    | .104       |
| Teambuilding                         | .171 | 88  | .864    | .194       |
| Lifelong learning & info. management | -.315 | 88  | .754    | .158       |
| Ethics & professional moral          | .283 | 88  | .778    | .176       |
| Entrepreneurship & management        | 3.396 | 88  | .001*   | .255       |
| Leadership                           | 1.892 | 88  | .062    | .237       |

* Significant at the 0.05 level

On running the t-test the result revealed that there was statistically significant difference in the lecturers’ evaluation for Entrepreneurship and Management skills in which \( t = 3.396 \) with \( p\)-value = 0.001. This finding points out that lecturers with industry experience seem to appreciate Entrepreneurship and Management skills more than those of without industry experience. As a whole, the results suggested that the lecturers’ experience with the industry did not seem to significantly affect the soft skills elements that they perceived as important to be integrated in their teaching except for Entrepreneurship and Management skills. The industry experience significantly affected the lecturers with industrial experience who perceived the skills as of high importance while those without industrial experience perceived the skills as average in importance. Thus, to answer RO2, the lecturers with industry experience viewed Entrepreneurship and Management skills of high importance to be integrated in the teaching of technical courses, and this view is slightly different than the lecturers with no industry experience.

7. Discussion

From the results on the teaching approaches employed by the lecturers, it was evident that their varied experiences and backgrounds did not affect their teaching approaches. It is worth noting that the lecturers with industry experience embarked on the teaching profession without or with little prior pedagogical experience. They were hired on the basis of their industry experience which the University believed could be advantageous to the students through their hands-on experience in the industry. It is also one of the ways to bridge the gap between academic and industry. This study found that the lecturers with industry experience employed similar teaching methods as the ones without industry experience. Thus, this illustrates that the University has taken a pragmatic approach by hiring people from the industry as academic staff. No doubt that knowledge on pedagogy is important for educators to possess but this knowledge can be gained through training programs on teaching and learning after entering the teaching profession. A combination of their industry experience and pedagogical content knowledge can make them better lecturers because they know the needs of both academia and industry.

Regardless of the differences in industry experience the lecturers seemed to be fairly constant in their preferences in relations to the teaching approaches that they employed in integrating soft skill. However, the fact that they are consistently somewhat similar in their teaching practices is interesting. It may be appropriate to assume that these lecturers are fully aware of the student-centered approaches. The lecturers may consist of individuals with different background and experiences, yet the results shown in the study do not reflect what one might have expected. In other words, the results should have revealed different perceptions and preferences, based on the different background and experiences of the lecturers. Student-centered approaches like PBL, PjBL,
POPBL and CL are widely used in the field of engineering education; therefore, a possible explanation could be that the lecturers are familiar with these approaches.

This study has taken a step forward by looking into the perspectives of both categories of lecturers. It has been found that lecturers with industry experience have the same preference as those without industry experience on the teaching approaches in integrating soft skills in their teaching. Lecturers with industry experience and without industry experience prefer to employ the student-centered teaching approaches, even though those with industry experience did not have sound background in pedagogy content. What is apparent is that those from industry bring their tacit knowledge, experience and expectations gained from the industry and convert it into judgment of what methods would work best. What they lack in formal pedagogical training is compensated by knowledge gained from the industry. Hence, recruiting lecturers from the industry benefit this University.

Pertaining to the issue on soft skills elements perceived by the lecturers as important to be integrated in the teaching of technical courses, lecturers with industry experience seem to place more importance on Entrepreneurship and Management skills compared to those without industry experience. This may be due to their experience with the industry where business acumen is vital. Thus, they could better see the importance of the skills for students to acquire to be able to get a job with established corporations locally and internationally. Based on their experience they could probably see the importance of business acumen to technical professional like engineers for them to effectively contribute to their organizations.

8. Conclusion

In order to move forward, this university has recruited lecturers with industry experience as teaching staff. Currently about 67% of the lecturers teaching engineering subjects have industry experience. Having them as academic staff adds advantage to the university as it leads to a better industry and university relation. Hence, in terms of networking with the industry, those with experience have the advantage especially in getting students’ placement for industrial internship at established and multinational companies locally and overseas. This could also be one of the factors to this University’s success in producing marketable graduates. This study therefore, has illustrated that there are variations in views of the integration of soft skills in the teaching and learning process. In general, all lecturers, regardless of their background, support the effort in developing soft skills among the technical students. The diversity of the workforce enriches the University in terms of their different experiences, different emphasis on soft skills while at the same time allows the sharing of common pedagogical concerns, such as which soft skills need to be emphasized. By employing people from the industry, this University has gone a step further to cement linkages with the industry.

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