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Improving Graduates' Employability Skills through Industrial Training: Suggestions from Employers

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Abstract

Industrial training is considered to be an effective tool to enhance graduates' employability. The objective of this study is to explore employers' suggestions on how to improve students' performance so that they are work-ready when they graduate. Open ended responses were obtained from questionnaires administered to 179 employers who offered 12 weeks of industrial training for 186 students in one Malaysian research university. The results indicated a satisfactory level of students' performance during the training. Most employers were willing to recruit the students in future. Technical skills were ranked as needing the most improvement by students. The employers suggested that the duration of industrial training was too short and should be extended to 6 months for the training to be beneficial to the students.

Keywords: employability skills, industrial training, graduates, employers' perspectives.

1. Introduction

The current debate on improving higher education has focused on whether graduates are equipped with the necessary skills to prepare them for the work environment. Feedback from employers indicates dissatisfaction with the quality of graduates coming into the labour market (Kagaari, 2007). The main criticism centres upon failure of the education programs received by graduates to adapt to the changing realities and practices of industry (Jamali, 2005). According to Bennett (2002), employers are looking for a more flexible, adaptable workforce so that these young employees can enable their companies to become more flexible and adaptable to changing market needs. Cox and King (2006) contend that this employer expectation does not mean that graduates should be able to do the work immediately without further training but rather, as rightly argued by several authors, they need to possess a capability to acquire the skills that facilitate and enhance employment opportunities (Kagaari, 2007; Maher & Graves, 2008). In this regard, Harvey (2004) argued that the acquisition of knowledge, skills and abilities will make graduates more likely to be successful in their chosen occupation, either in paid or unpaid employment. Therefore, in order to place emphasis on learning and the possession of skills, Clarke (1997) stressed the importance of close collaboration between educators, employers and government, to help develop appropriate teaching and training programmes.

Scholars have suggested training in industry, or industrial training, as one of the strategies to address the problem of lack of skills necessary for employment. Industrial training aims to expose students to the working environment (Ab Rahman, Omar, Kofli, Mat, Osman, & Darus, 2009). Maher and Graves (2008) reveal that students who have undergone industrial training are more confident when they enter real working life. It is therefore not surprising that industrial training is obligatory, or at least encouraged, in many university curriculums.

Most studies on industrial training do not identify the skills students need so that they are work ready; most focus instead on the benefits that students can gain from industrial training. Shipton et al. (2006) point out that one of the benefits of industrial training is that graduates are able to overcome entry shock when they enter the job market. According to employers, engineering students who have had industrial training perform better than students who have not (Kagaari, 2007). Students believe that they have benefitted significantly from industrial training and were also satisfied with their performance during the training (Omar, Kofli, Mat, Darus, Osman, & Ab. Rahman, 2008). More specifically, the students acknowledged improvements in their 'personal attitude', 'communication' and 'working attitude' after industrial training (Ab Rahman et al., 2009). Little is known, however, regarding the skills upon which to concentrate that could enhance the students' employability. This present study is needed, therefore, to identify the skills students should focus upon during industrial training to improve their employability. Thus, the objective of this study is to seek the opinions of employers who supervise students regarding the skills that students should improve upon. The significance of this study is that it will identify the skills that students are lacking and need to improve; its outcome will provide suggestions on ways to

increase students' employability by identifying the skills that the industry perceives as important. Suggestions will be provided to help students better prepare for their future career.

2. Skills for Employability

Attributes that the graduates should possess consist of qualities, skills and understanding (Bowden, Hart, King, Trigwell & Watts, 2000). Graduates are expected to be proactive and able to solve problems in a creative way; these are the abilities that employers look for when recruiting graduates (Zehrer & Mossenlechner, 2009). In general, employers look for graduates with communication skills, empathy, motivation, decision making abilities, planning abilities and improvisation abilities (Bagshaw, 1996). In the case of professional firms in the built environment, employers look for both behavioural and technical qualities relevant to the professional working environment (Hassan, Ismail, Ahmad Zaini, Hassan & Maisham, 2011). The technical skills required from students vary according to the program studied. While behavioural qualities are similar to those expected from graduates by employers of other industries, the technical qualities possessed by, for example, quantity surveying graduates, are more specific to the profession, such as measurement skills and knowledge related to project variation; project meetings; contract administration; post-tender activities; and estimating and costing (Hassan et al., 2011). In the context of engineering students, the technical skills required from them are acquiring and applying the fundamental knowledge of engineering; competency in theoretical and research engineering; competency in application and practically oriented engineering; technical competence in a specific engineering discipline; ability to utilise a system approach to design and evaluate operational performance; ability to design and conduct experiments; as well as to analyse and interpret data (Abdullah, Zaharim, Harris & Omar, 2007). In addition, Yorke and Knight (2006) propose three main attributes for graduate employability; personal qualities, core skills and process skills. Personal qualities consist of self-awareness; self-confidence; willingness to learn; emotional intelligence; independence; and adaptability. Core skills include self-management; written and oral communication; and critical analysis. Process skills refer to problem solving; team working; computer literacy; integrity; work ethics; planning and prioritising; and coping with uncertainty.

3. Research Methodology

The paper attempts to identify the skills perceived by employers as important for graduates' employability. Questionnaires comprising open-ended questions were distributed to 179 organizations from the built environment sector which had provided three months industrial training to 186 students of one research university in Malaysia.

Data were collected from the students' supervisors at the end of the training. The supervisors, usually senior personnel in the firm, were regarded as the most suitable people to identify the skills the students are lacking and the areas in which they need to improve, because they supervise students throughout their industrial training.

The main section in the questionnaire contained two open-ended questions concerning 1) employers' suggestions for improving student performance and 2) employers' comments on the institution's industrial training scheme. The reason for using open-ended question was to give opportunities for the employer to present their opinions in a way that might not be possible in closed questions (Driscoll, Appiah-Yeboah, Salib, & Ruport, 2007). In addition, the open-ended questions were used to seek clarification from employers on the weaknesses of individual students which vary from one to another. One of the strengths of an open ended question is its ability to provide comprehensive data (Driscoll et al., 2007).

Data gained from the open-ended questions were analyzed manually to identify the themes arising from the responses. We followed Evans and Farquhar's (2010) suggestions on how to identify ideas that emerge from the data: several themes were developed through repeated readings of the open-ended responses in the questionnaires. User comments were grouped manually and the emerging themes identified and summarized.

4. Results and Discussion BE AWARE OF CONSISTENCY OF TENSE – I HAVE CHANGED MOST OF THE FOLLOWING TO PAST TENSE

4.1 Students Performance during Industrial training

This study covered the built environment students in one research University in Malaysia, who had completed four academic semesters and were attending industrial training. The distribution of programs taken by students undergoing industrial training is shown in Figure 1:

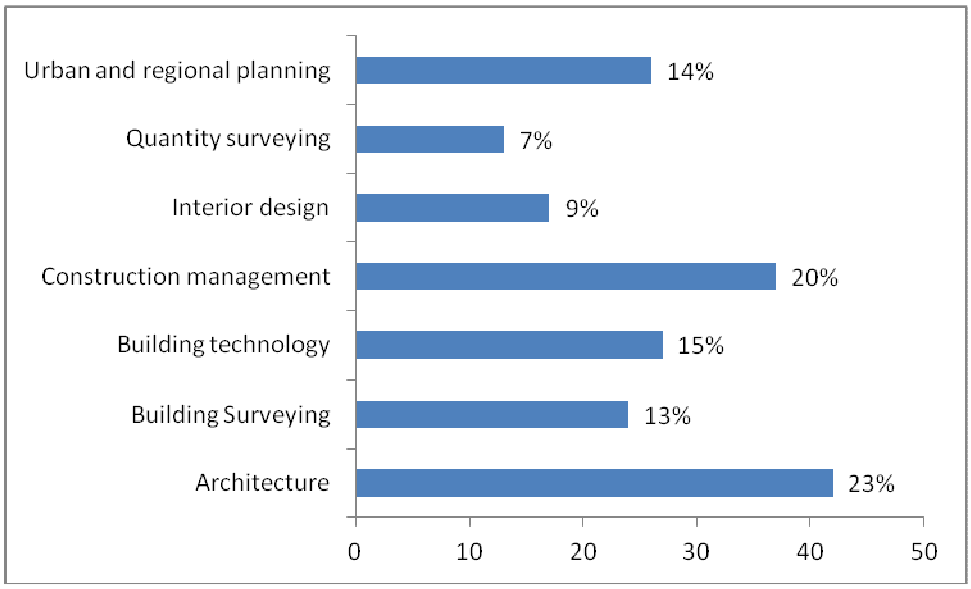

Figure 1: Distribution of students in each program

Figure 1 shows the distribution of the 186 students in each program. The majority studied the architecture program, followed by students from the construction management, building technology, urban and regional planning and building surveying programs.

The mean score for students' performance related to three main dimensions, namely personal qualities, core and process skills, was calculated using descriptive statistics in SPSS software (Table 1). The overall mean score was 2.41 indicating that the students' performance was satisfactory; implying that in general the students performed well during the industrial training. Two dimensions, namely personal quality and core skills, were rated as satisfactory with mean values of 2.35 and 2.37 respectively, while process skills were rated as excellent by the employers with a mean value of 2.51.

Table 1: Mean scores for students' performance in industrial training

Dimension	**Mean Value**	**Rate of Performance**
Personal Quality (4 items)	2.35	Satisfactory
Core Skills (6 items)	2.37	Satisfactory
Process Skills (7 items)	2.51	Excellent
Overall mean	**2.41**	**Satisfactory**

The employers were asked about their intention to recruit the students after they graduated. Table 2 revealed that out of 179 employers, nearly 99% said they would recruit the students while only two employers would not.

Table 2: Intention to recruit the student in the future

	Yes	**No**
Willing to recruit the student after they graduated	**177**	**2**

4.2 Improvements for Employability

Although the overall performance of students was satisfactory, there were a few suggestions made by the employers made to help the students improve and perform well when they enter the real working environment. The majority of employers suggested that students needed to improve a variety of technical skills; Table 3 presents the technical skills which employers suggested should be improved, listed according to students' programs.

Table 3: Technical skills that should be improved by the students

Program	**Technical skill that should be improved**
Architecture	Drawing detailing, design skill (contemporary and design concept development), AutoCAD, cost estimation, building construction, building material, services engineering, visualization, UBBL/ building services and management contracts, 3D design, comprehension of construction plans, submission and detailing, construction details
Building Surveying	Mapping, AutoCAD, drawing, design skills and industry requirements, materials for building finishes, prices of building materials.
Building technology	GIS application, SPSS, design criteria, 3D design, AutoCAD, site worker management, job distribution, structural knowledge, site construction works, mapping software
Construction management	Site management, wastage management, material and machinery control, manpower control, cash flow management, measurement, reading and understanding of drawing, work in civil engineering, quantity measurement, project coordination, surveying, taking off, site monitoring, building construction, GIS application, AutoCAD
Interior design	Design concept, detailing, technical drawing, taking off quantity, layout plan, 3D render, graphics, colour coordination, material selection
Quantity surveying	Contract management, construction management, building surveying, taking off
Urban and regional planning	Design and 3D design, GIS application, AutoCAD

Other than technical skills, employers also suggested improvements that could be made in the use of computer software, communication, behaviour, management skills, law and policy and creativity. Further details are presented in Table 4.

Table 4: Other aspects for improvement

Aspect to improve	Detail
Computer software	Wildfire pro-engineer, Excel, Microsoft project skill, map-info, contract management, taking off, construction management, graphics, CAD, AutoCAD, Sketch-up
Communication	Oral English with colleagues and supervisor, presentation, writing, need to ask more questions
Behaviour	Self learning, commitment to new thing, punctuality, self initiative
Management skills	Manage program or system, site workers, job distribution, public relations
Law and policy	Acts 171, 1720, 133, building by-laws, local building by-laws
Knowledge	architecture theory, building structure, material properties, construction technology
Personal qualities	Self-confidence, pro-activeness, leadership
Process skills	Application of theory, creativity, multi-tasking, decision making, creative problem-solving

Employers' suggestions for student improvement concerned both technical and behavioral skills. Among the suggestions was that strategies for improvement should focus on leadership, decision making and problem solving in addition to technical skills, which are important for the built environment students to be successful in their own field. Omar et al., (2008) suggested that four semesters in the university are insufficient for students to build their leadership skills; the short gap before industrial training takes place is the reason why students fail to meet the employers' expectations, especially regarding their leadership skills. Ayarkwa, Adinyira and Osei-

Asibey, (2012) stressed the leadership characteristics that have to be possessed by graduates to promote success in the workplace. Nevertheless, opinions offered in this study by employers regarding improving student performance in decision making and problem solving correspond to those cited by Zehrer and Mossenlechner (2009), who suggest that students need to be skilled in these attributes to allow them to cope with the changing environment. Furthermore, Stewart and Knowles (1999) advocated improvements in behavioural skills such as creativity, communication, teamwork, problem solving and leadership. Besides behavioural skills, most employers in this present study suggested students should improve their technical skills; this is in line with the findings of Mustapha and Abdullah, (2004) who noted that technical competencies were perceived by Malaysian employers as containing the most important knowledge and skills that technical graduates should possess.

4.4 Improvement on Industrial training

Employers were asked for their opinions about industrial training; whether industrial training should be continued; and their suggestions for improvement. From a total of 186 respondents, 41.94% described the industrial training as good and 4.3% as satisfactory; 32.8% provided suggestions on how to improve and 20.97% did not answer the question. Employers who thought that industrial training was good gave the following reasons: training exposes the student to the real working environment; industrial training exposes the student to practical issues rather than theory; students are able to gain experience from the technical training; and industrial training benefits the trainee, company and community. These findings are similar to those of Ayarkwa et al. (2012), who indicated the highest percentage benefit of industrial training lay in exposure to the work environment; they also noted that employers considered that industrial training benefitted students when applying theory to practice; students can better understand what they learn when they experience the job themselves.

With regard to improving the industrial training, 83.6% of employers said that the duration of 3 months is too short and should be extended to 6 months; they thought this longer period of training would be more beneficial, giving more exposure to the trainees to allow them to understand the flow of a project. The shorter duration was not viable for practitioners to let the trainee handle a project more comprehensively; a longer duration would give the student more time to explore and experience working on the construction site. The extended time would help the students use and extend their knowledge and help them to gain maturity in decision making processes.

5. Conclusion

The present paper reveals that student performance in industrial training is at a satisfactory level regarding their personal and core skills, and at an excellent level related to their process skills. Most employers were willing to recruit the students after they graduate. The employers suggested, however, that students need to improve their behavioral and technical skills; employers hoped that the period of industrial training would be extended to six months. These results imply the importance of close collaboration between the university and industry, in particular the professional institutions, to lead to a positive impact upon the students in terms of their employability, thus meeting industry's expectations.

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