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Attributes of Graduate Architects: An Industry Perspective

[1]Rohani Salleh, [2]Md Anwar Md Yusof and [1]Mumtaz Ali Memon
[1]Department of Management and Humanities, Universiti Teknologi PETRONAS, Perak, Malaysia
[2]Department of Architecture, Faculty of Architecture, Planning and Surveying,
Universiti Teknologi MARA, Seri Iskandar Campus, Malaysia

Abstract: The purpose of this study is to reveal the industry's viewpoint on the importance of attributes of graduate architects. Data were collected from Malaysian architecture firms, using a structured questionnaire. Of the 250 distributed questionnaires, 65 completed were returned, with a response rate of 26%. Descriptive statistical analysis was performed to assess the level of importance for each graduate attribute. The results indicate that of those attributes proposed, responsibility, a positive attitude and teamwork skills were rated as the top three attributes. This study contributes to the existing literature on employability skills by providing industry perspective on the subject, which is, thus far, less discussed in existing published research. Implications of the findings are discussed.

Key words: Employability skills, graduate attributes, architect, architecture industry, Malaysia

INTRODUCTION

As Malaysia strives to be a developed nation by 2020, much depends on its talent pool. As a result, there is a significant increase in the demand for highly skilled workers in the country. This increased demand is not only concerned with the quantity of workers but also emphasizes the quality of the labour which significantly contributes to productivity and ultimately works towards the strategic objectives of both organization and country.

Existing literature indicates that the quality of workers can be evaluated through two relevant aspects, namely, technical and non-technical skills. It is indeed important that relying solely on technical skills may not sufficient to survive in this era which is fast-moving and advanced. Consequently, the employment process becomes challenging for job seekers, due to high expectations and tough selection criteriaused by employers. To this end, higher learning institutions play an important role through continuously providing graduates with the necessary skills and attributes, enabling them to use their technical skills effectively in order to obtain and sustain their jobs (Salleh *et al*., 2013, 2015).

In Malaysia, although universities are much concerned with the employment of their graduates, lack of employment competencies among fresh graduates is a major concern (Salleh *et al*., 2013; Zaharim *et al*., 2009). Employers have frequently given negative feedback regarding the skills and attributes that graduates possess at the initial stage of their careers. Previous studies have empirically revealed that employers show a high concern towards the non-technical skills or attributes of the graduates. For example, Rasul *et al*. (2009) have observed that Malaysian employers are not satisfied with the skills of their workers and provided negative responses with regard to the performance of their workers. Likewise, Nasir *et al*. (2011) reported that graduates' lack of mastery of employability skills is the major reason for employers' dissatisfaction. These findings are comparable with the findings of Kamsah (2004) who pointed out that graduates' lack of employability skills (proxied as generic skills) is one of the key reasonsbehind employers' complaints and dissatisfaction. Thus, there are debates on possible causes of and solutions towards this growing phenomenon namely, discrepancies between the skills and attributes that graduates possess and the expectations of the industry. This is particularly urgent, due to such occurrences have been reported from all of the key professions and industries that are driving the nation.

Architecture is one of the most influential professions in our global society as it involves everything that influences the way in which the built environment is

Corresponding Author: Rohani Salleh, Department of Management and Humanities, Universiti Teknologi PETRONAS, Perak, Malaysia

planned, designed, made, used and maintained. Correspondingly, there is a high demand for architecture professionals with the skills and attributes needed to successfully manage architectural projects. Salleh *et al.* (2013) and Rasul *et al.* (2009) assert that the job scope of today's architects is not only the planning, designing and modelling of construction projects, but that it also involves the writing of contracts, the leadership and management of a team of professionals as well as dealing, negotiating, and working closely with clients and contractors. Hence, with many other industry professionals, architect graduates also need a diverse set of attributes in order for them to utilize their technical expertise effectively and satisfy their employers by meeting industry expectations. Although there is an extensive literature available on employability skills, the question "what employability skills and attributescan help architect graduates to meet the industry expectations" remains unanswered thus far.

To address this issue, this empirical investigation aims to involve key industry players in the field of architecture in order to identify important employability attributes which truly represent the industry's expectations. As graduates' employability skills can be addressed through their graduate attributes (Nair *et al.*, 2009), the Malaysian architecture firms were asked to point out the most important attributes that they most commonly looked for among graduate architects. Given that there is a scarcity of empirical studies in the literature of employability, specifically from the employers' point of view, the present study fills the highlighted research gap by identifying a set of skills: graduate attributes that may enable graduate architects to meet industry expectations and contribute successfully in the workplace.

Employability skills and graduate attributes: Since 1980, employability skills have become popular around the world (Zaharim *et al.*, 2009) and are sometimes defined interchangeably as generic skills, basic skills, soft skills, key skills and so on. Academically, employability skills refer to "those basic skills necessary for getting, keeping and doing well on job" (Robinson, 2000). According to DEST (2002), "employability skills assist learners and candidates to demonstrate technical competence and skills to achieve and maintain successful employment". However, term employability skills have been conceptualized and operationalized in different ways all around the world.

For example, in Australia, "employability skills are the skills required to not only to gain employment but also to progress within an enterprise so as to achieve one's potential and contribute successfully to enterprise's strategic directions" (Shannon, 2012). Despite the fact that there are several definitions of employability skills in the literature, there is an agreement on its consequences: gain, progress and successful contribution at the workplace. In other words, the higher the employability skills, the higher the chances of being employed, maintaining a job and most importantly, the higher the satisfaction of the employer (Hillage and Pollard, 1998). However, it is still unclear as to which set of skills should be pronounced to be the most prominent employability skill-set.

Harvey (2001) believes that attributes are the actual determinants of graduates' performance at work. Importantly, according to Percision (2007), employability skills are the sub-set of graduates attributes. It shows the broader perspective of graduate attributes compared to the employability skills. Hence, it is not surprising that universities address employability skills through graduates' attributes (Nair *et al.*, 2009). This study therefore, focuses on the non-technical side of employability skills and operationalized, it as graduate attributes to reveal industry's perspective.

Past studies have proposed different sets of employability skills. For example, a ten-skill set presented by Zaharim *et al.* (2010) includes communication skills, life long learning, team work, professionalism, problem solving and decision making, competence in application and practice, knowledge of engineering and science, engineering systems approach, knowledge of contemporary issues and competence in specific engineering disciplines. This skill-set was primarily focused on engineering graduates. In addition, Smith and Kruger (2008) argue that basic skills, communication skills, management skills, environmental awareness skills, intellectual skills, interpersonal skills and self and career management skills are the true employability skills that a graduate must be equipped with in order for them to be successful in their future careers. More recently, the eight-skills inventory of Sung *et al.* (2013) emphasized that workplace literacy and numeracy, information communication technology, self-management, workplace related life skills, communication and relationship management, problem solving and decision making, health and safety, initiative and enterprise, lifelong learning and global mind-set are the key employability skills.

Apart from the above, several other studies (Bakar and Hanafi, 2007; Shafie and Nayan, 2010) have also proposed different sets of employability skills. But it

remains an issue that which set of skills should be considered ideal from an employers' perspective, particularly in the context of the architectural industry.

Employability skills and graduate architects: Architects play a quite diverse and broad role in the building industry and are the products of current architectural design education. According to the Australian Institute of Architects (AIA) (2014), architects are "professionally trained designers who work on buildings and the built environment, generally involve in several phases: starting a project, designing, documentation and approval, construction and after construction phases. Hence, the architectural profession has been considered to be an evolving and multidisciplinary career (Salleh *et al*., 2013). With regard to graduate architects, AIA emphasizes that imaginative and creative thinking, critical analysis, the ability to see the bigger picture and giving attention to the smallest detail, as well as communication skills are the key attributes that an architect must possess.

In Malaysia, the official body of architects most often suggestsa set of basic skills as those compulsory for architect graduates. For instance, the Board of Architects in Malaysia has pointed out some basic skills that are the prerequisites for an architect such as planning, building construction knowledge, design skills, written and oral communication, architectural communication skills and CAD skills. Likewise, the Malaysian Institute of Architects also emphasizes planning, design, landscape design, urban design, interior design, leading and coordinating and liaising and supervision. However, existing literature has indicated that basic skills are perceived as less important when compared to soft-skills. For example, a study conducted by Iowa State University (2004) found that basic skills such as math, science and design were revealed to be less important by employers and it was recommended that focus should be given to other skills: critical thinking, problem solving and work ethics and human behaviour. Several other studies also highlighted the importance of employability skills.

Recently, based on the content analysis of job advertisements in a Malaysian setting, Salleh *et al.* (2013) reported that, during the recruitment process, architecture firms preferred that graduates architects possessed soft skills, especially interpersonal skills, communication skills and good presentation skills. Earlier, Ling (2002) found that problem solving skills significantly predicted anarchitect or engineers' performance in Singapore. In addition, Precision (2007) revealed that employability skills were believed to be highly relevant to their work roles by working graduates. Supporting this view, Farooqui *et al.* (2010) discovered that soft skills are the most important skills for construction graduates to perfectly execute and manage construction projects.

Apart from the above, more recently, in his conceptual model proposed for the selection of architects, Ling (2003) has recommended that firms select those architects that have the ability to resolve problems who are less likely to make errors in their judgments and those with creative ideas.

Based on the above discussion and the findings of past studies and given the importance of employability skills in the architectural profession, this present study empirically investigates the importance of employability skills from the employer's perspective in order to achieve the aforementioned objectives.

MATERIALS AND METHODS

A comprehensive review of the relevant literature was conducted with a concern to understand the employability attributes of architects. During the screening process, several attributes were considered based on past employability skills frameworks (Ling, 2003; Shannon, 2012) and in particular, those frameworks which proposed or operationalized in a Malaysian setting (Bakar and Hanafi, 2007; Salleh *et al*., 2013, 2015; Shafie and Nayan, 2010; Sung *et al*., 2013; Zaharim *et al*., 2009). Based on aforementioned employability frameworks and inventories, initially 33 different types of attributes were selected and submitted to 22 experts in the field of the architectural industry in order that they might indicate the relevant attributes important for architects at the entry level of their careers. According to the feedback provided, the instrument was further modified; only 10 attributes such as responsibility, a positive attitude, teamwork, the ability to work under pressure, creativity, independence, problem solving skills, flexibility, leadership ability and interpersonal attributes were finally considered for main data collection.

A 5-point Likert scale, ranging from "not important at all" to "highly important" was used for employers within the architectural field to rate the attributes based on their importance. However, before the data was collected, a pilot test was performed in which the items were further refined as highlighted by the 14 participants involved in the pilot study.

Table 1: Demographic information

Area	Frequencies	Percentage
Geographical location of the respondents		
Johor	5	7.7
Kelantan	1	1.5
KL	34	52.3
Kota Bharu	1	1.5
Melaka	1	1.5
Pahang	1	1.5
Penang	2	3.1
Perak	2	3.1
Sarawak	1	1.5
Selangor	17	26.2
Total	65	100.0
Employees description, No. of employees		
1-10	21	32.3
11-20	22	33.8
21-30	9	13.8
31-40	7	10.8
Above 50	6	9.2
Total	65	100.0
Age description		
20-29	8	12.3
30-39	11	16.9
40-49	25	38.5
50 and above	21	32.3
Total	65	100.0
Industry experience, years of experience		
1-5	8	12.3
6-10	3	4.6
11-15	12	18.5
Above 15	42	64.6
Total	65	100.0

A total of 250 questionnaires were distributed to the architectural firms located in the different territories of Malaysia. Although 70 completed questionnaires were returned, 5 questionnaires were incomplete and therefore, excluded. Finally, 65 questionnaires were considered for further analysis with a response rate of 26%. The total number of respondents was considered reasonable being was slightly higher than past efforts. Salleh *et al.* (2015) asserted that an architectural context is exceptional since these firms have busy schedules and work mostly on outdoor projects; hence, it is quite difficult to get a high number of responses. Moreover, the Statistical Package for Social Science (SPSS 21.0) was used to analyse the data. Since the study is descriptive in nature, the data was interpreted using descriptive statistics such as frequencies, mean score and standard deviation.

Demographic information: Principal architects, such as Owners, Managing Directors, Founding Partners, General Managers, HR Managers and Head Architects were among the participants, since they were among the most responsiblefor their firms and hence completed the questionnaires on behalf of the firms. Of these respondents, the majority of them (65%) were highly experienced above 15 year. This became one of the key strengths of the present study.

With regard to the respondents' geographical location, about 78% of the respondents were from Kuala Lumpur and Selangor territories, 52 and 26%, respectively. This may be because, the majority of architectural firms are located in these two areas. Furthermore, based on the descriptive analysis, companies were different in size; however, the majority of them (66%) were either 1-10 employees (33%) or 21-30 (33%) number of employees. The summary of demographic information is presented in Table 1.

RESULTS AND DISCUSSION

The results of the descriptive statistics have shown that all proposed attributes were considered to be important by the employers with a mean value above 4.0. Of those attributes, all yielded as highly important attributes, with mean scores above 4.23. The highest ratings were given to responsibility, a positive attitude and teamwork attributes. Table 2 displays the results of highly important and important graduate attributes from the employer's perspective.

Responsibility, a positive attitude and teamwork were revealed to be the top 3 highly important variables rated with a mean of 4.73, 4.65 and 4.62, respectively. Since architects most often handle big projects and are busy on multiple sites, being responsible is a crucial trait from employers' perspectives. They prefer those architectural graduates who will certainly not leave their work unfinished and stay until everything gets done. According to Shannon (2012) "architecture is a team based production process" (p.120). Hence, through being a committed team player, an architect also helps other team members to finish their work on time. In addition, a positive attitude is also significant at work, as architects not only deal with a diverse set of clients but also work with members from diverse backgrounds and levels such as engineers, surveyors, contractors and so on who belong to different cultures with different mind-sets. A positive attitude definitely contributes to a harmonious balance in the architect-client and peer relationship which ultimately brings a sense of citizenship among the stakeholders. Indeed, positivity breads positivity.

The results of this study highlight the fact that attributes such as the ability to work under pressure (4.58), creativity (4.53) and time management (4.5) were

Table 2: Importance of architects graduates' attributes from employer's perspective (n = 65)

Attributes	Mean	SD
Responsible	4.73	0.44
Positive attitude	4.65	0.51
Teamwork	4.62	0.49
Able to work under pressure	4.58	0.58
Creative	4.53	0.53
Independent	4.46	0.50
Problem solving	4.45	0.68
Flexible	4.42	0.55
Leadership	4.38	0.67
Interpersonal	4.23	0.82

also rated as highly important attributes by employers. Changes in preferences and technological developments have led to a competitive environment within the industry. Thus, employers expect their workforce to be creative and to bring innovative construction designs by which they might sustain themselves within the industry. Shannon (2012) believes that architecture is undoubtedly a creative field. Correspondingly, these high expectations put lot of pressure on the graduates. Accordingly, employers want individuals who not only handle occupational pressure positively but also enjoy working to give their best. According to Salleh *et al.* (2015) in the architectural industry time means money. Hence, working with tight deadlines and putting in effort to meet scheduled deadlines is a common phenomenon in the architectural profession. As any delay may cause employers a loss of millions in additional expenses, graduate architects who have adequate time management skills are considered as top choices for employers.

The findings also reveal that employers highly prefer to employ those graduates who can work independently (4.46), can continue to deal with work-related problems (4.45), who possess great leadership skills (4.38) and who possess the ability to make decisions (4.32) confidently. Working on different sites, architects often have limited supervision and have to work independently and accept responsibility for all project-related decisions. Therefore, graduates are expected to solve their own problems in the projects that they manage. Leadership is all about inspiring others so that they follow one's decisions (Salleh *et al.*, 2015). That's why architectural firms highly value graduates with proper leadership skills, so they not only lead well but, are also flexible enough to work both independently and in groups as well as make critical decisions in any situation related to their architectural projects.

Apart from the above, the findings shown in Table 2 report that interpersonal skills (4.23) were also specified as highly important attributes for graduate architects. Interpersonal skills are most often considered to be as life skills which one uses to interact with other people at both individual and group levels. Since an architect must continually interact with clients, contractors and other groups related to the projects, good interpersonal skills create a good relationship and friendly environment in the workplace. Thus, interpersonal skills are imperative for architect graduates to work with the employer of their choice.

CONCLUSION AND IMPLICATIONS

A highly skilled workforce is necessary in order to achieve and sustain a competitive advantage. Current literature, on the other hand, highlights that employers aren't satisfied with their workforce and showed high concern regarding the employability skills and attributes that existing graduates hold. Although extensive literature is available on the subject, employers' perceptions on the importance of such employability skills have been less explored, especially in the architectural profession. Without knowing which skill-set employers are looking for, it is not only challenging for higher learning institutions to prepare their graduates accordingly in order to meet the industry's expectations.The present study significantly contributes to existing literature on employability skills and graduate attributes by presenting the industry's view, responding the question raised in the first section: namely, "what employability skills and attributes, exactly, can help architect graduates to meet the industry expectations?"

The findings of this study indicate that several employability skills or graduate attributes are highly important for graduate architects in order for them to easily secure their jobs at the entry-level and to continue to do well in their jobs. Responsibility, a positive attitude and teamwork skills are the most important attributes that universities should focus on, since these were revealed to be the top three attributes highly rated by the industry.

Practically, this study may help higher learning institutions to better understand the needs of architectural employers and thus design their curriculum accordingly in order for their graduates to meet the anticipated skills-set of their employers. Correspondingly, in the long-run, it may help to reduce employers' concern over the issue of the mismatched skills of graduate architects.

One of the limitations of this study is the sampling. It can be seen that the majority of the respondents belong to the urban side, particularly from Kuala Lumpur and Selangor. Although it is clarified that the majority of Malaysian architectural firms belong to these territories, it may provide a sense of biased sampling. Hence, further studies are suggested using a balanced sampling frame

which represents all the states and federal territories of Malaysia in order to increase the generalizability of their findings. In addition, this study has performed descriptive statistics due to the nature of the research objectives. Therefore, future studies are advised to further extend this study in order to investigate the causal relationship between graduates' attributes and their employers' satisfaction by using more advanced statistical methods, such as structural equation modelling.

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