Readiness of Design-Based Interns to Enter The Real-World: The Employers' Perspectives on Architecture Students

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ABSTRACT

With the rising of Industrial Revolution (IR) 4.0, professionals are pushed to cater to the needs of the rising era. Education institutions alone are not capable of equipping the students with adequate skills as the institutions need to juggle between providing quality knowledge, developing design ability and implementing computer-aided design skills to the students. Guided learning and applying the learning knowledge is the best method of speeding the enhancement of the skill. With greater acknowledgement that learning takes place beyond the confines of a classroom, more emphasis has been placed on internship in an undergraduate course. Internships enable students to put to practise the lessons and theories learnt in the classroom. 77 questionnaires have been received and analysed. In conclusion, skills on technical and design are the most crucial skills that interns need to have. Intern is also expected to be equipped with design software skill and site exposure and reading design related literature may help in polishing the design skill of the interns. Despite the non-requirement by Lembaga Arkitek Malaysia (LAM) for undergraduate students to undergo internship programmes, it is found that the programme is still in demand and recommended to be continued.

Keywords: Design-based students, internship, computer-aided, management, leadership

INTRODUCTION

The issues of employability of architecture graduates often lead to concerns about the effectiveness of architectural education in developing expertise of architects, a major part of which is design (Oluwatayo et al., 2017). Architect provides a range of services ranging from design, contract administration, and renovation of project management. Design, however, remains the core competence of the architect (Oluwatayo et al., 2017). Hill (2001) citing Banham (1975) on traditional roles of architects include: form-givers, creators and controllers of human environments. Role of architects in the 20th century is often one specialist in a group of specialists (Brady, 1996). Architect's roles are defined, increasingly, by what they term intermediation. By this they are referring to the ways in which regulation is creating new layers of complexity relating to their interpretation and implementation, as well as generating problems for design teams to solve. The delivery of design depends on architects to provide

means of working through such complexity, by becoming, "more self-regulatory and regulators of other built environment professionals" (Imrie and Street, 2009).

LITERATURE REVIEW

Internship is a practical training venture undergone by graduating students to give them hands-on experiences before entering the industrial world. According to Jamil et al. (2013), as the undergraduate students are exposed to the supervised-professions in the industries, they would have the chance to assimilate in-class learnings with the work-related tasks. Throughout the whole internship program, students would have the opportunity to imply what they had learned into the job scopes given (Abu et al., 2011) while inculcating the industrial soft skills such as decision-making skill, communication skill as well as the skill to convince people with their respective ideas. Internship programs play a vital role to enhance the students' essential knowledge and skills in order to improve their confidence, and to ensure that they are proficient in completing their future tasks as they indulge in the working world (Sahrir et al., 2017).

The duration for an internship program usually lasts from 3 to 8 months. Showing brilliant performances throughout the whole internship period may open a wider chance for the interns to be absorbed and secure a permanent position at the organisation. This employer's intention of offering permanent job to an intern afterwards is supported by a study of Maertz Jr et al. (2014) in which it is said that there is the benefit of cost-effectiveness when the employers hire an intern for a full-time position since it may lead to savings in the areas of recruitment and selection. An accurate expectation among future employees can be cultivated through Internship experience (Shoho et al., 2012). Hence, that is why most students do some research, setting their goals and targeting their dream company prior to the internship application.

During internship, students of architecture are expected to obtain experience under supervision of a Professional Architect or his or her representative. The scope of experience shall cover four main phases in the construction, namely: schematic design phase, design development phase; contract documentation phase; and contract implementation and management phase. The interns are expected to gain knowledge and understanding of architectural practice and the implication of professional decisions made during the period of practical experience (LAM, 2006). Meanwhile, supervising professionals shall ensure the intern is provided with adequate practical experience at a professional level. The two earliest phases, emphasising on the importance of design production which is schematic design and design development, while the third phase is more on documenting and arranging the design into contract documents. Drawing skill is essential to an architect's profession hence interns should prepare themselves to master this particular aspect.

Higher education institutions take in novices and attempt to train them to be fit for practice in professional domains (Oluwatayo et al., 2017) through development of skills necessary for professional practice (Meijers and Kuijpers, 2014) not only including the skill to design, but also skill to design using the computers, while internship helps in implementing what has been learned. Skills related with drawing are the most/ highest important skills required for an architect (Yalcin and Ulusoy, 2015), and hence, align with the Industrial Revolution (IR) 4.0 strategy which is to produce computer savvy professionals.

METHODOLOGY

This research applied survey method, adopting open ended questionnaires and archival reviews as its strategies. The questionnaires were distributed to a total of 150 registered architects who supervised intern students for 6 months from public universities in Klang Valley, Malaysia. The distribution of the questionnaires resulted in a total of 77 completed questionnaires, thus providing an effective response rate of 51.3%. Questionnaire surveys were analysed using descriptive analysis. Table 1 below indicates all of the skill performances manifested by the internship students under 77 supervisions.

EMPIRICAL RESULTS

Most of the internship students exhibit a high skill level in implementing knowledge of architecture design as well as manual drawing skill with the percentage of 58.4% and 54.5% respectively (refer Table 1). As for IT knowledge/skill, it is showing the highest percentage of students (46.8%) at the very high level of prowess. Meanwhile, the percentage of students with low-level capabilities for all three skills i.e., knowledge of architecture design, manual drawing skill, and IT knowledge/ skill is at its minimum of 2.9%, 9.1% and 1.3% respectively. This is in line with the expectations placed on these graduating architecture students.

Table 1: Frequency test of skill performances by the internship students

	Knowledge of architecture design		Manual drawing skill		IT knowledge/ skill	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Low	2	2.6	7	9.1	1	1.3
Moderate	15	19.5	18	23.4	6	7.8
High	45	58.4	42	54.5	34	44.2
Very high	15	19.5	10	13.0	36	46.8
Total	**77**	**100**	**77**	**100**	**77**	**100**

Maximum percentage shown for the high-levelled skills of knowledge of architecture design as well as manual drawing skill may be caused by:

1) The theory and practices exposed academically may be rather effective for these students to be more confident at their internship program. This is similar to those of Van Dinther, Dochy, and Segers (2011) in which it is said that higher educational programmes have the possibility to enhance students' self-efficacy.

2) Architecture students are taught with these two skills as the foundation of their course ensuring most of them to be able to execute the related task upon completing their in-class learning. This may indicate that higher education is providing a well -structured learning syllabus for the students. The right number of obstacles and support are provided to the students through well-strategized curriculum, scaffolded assignments, and proper teaching, that will assist them in engaging any tasks Darling-Hammond et al. (2020).

On the other hand, the very high competency level in the IT area may be due to the massively exposed new generations of today, to the latest technology and IT advancement. This is being supported by the study which shows that generation X and Y are techno-savvy and flexible (Benson and Mitchell, 2011).

The findings are in unison with those required by (Yalcin and Ulusoy, 2015), in which it shows the highest percentage of 54.5% for the high-level manual drawing skills. The result shows

that, out of the 77 respondents, 17 respondents agreed that skills on technical and design are the most crucial skills that interns need to have as an architecture student. Respondents 2, 10, 31, 34, 64, 67, and 76 suggested that "students should study and explore more on technical drawings including construction details." Skills related to drawing are the most/highest important skills required for an architect which is the ability to draw perspective, freehand pencil drawing, as well as 3D skill imagination and drawing (Yalcin and Ulusoy, 2015). Understanding draughtsmanship is important especially in working drawings (Respondent 11).

To improve the skill, "interns should exercise and practice to draw regularly" (Respondent 6, 22, 31) which includes technical drawing (Respondent 9 and 74). Respondent 18 and 29 seconded the result, where "to develop technical skills is to practise design flair and sketches". However, despite having the highest high-level percentage skill for the manual drawing skill, it still lacks the number of students who possess a very-high level of expertise in the given skill, with the percentage of 9.1%, which is similar to the low-levelled drawing skill. This shows that most of the students are skilful in manual drawing, but there is a plethora of experiences that they still need to gain in the real architecture world in order to be at the top of the profession (very high skill), obtainable after years of working. Upon entering an organisation for years, human capital such as the students' abilities, idea generations and their high-end skills would be valuable assets for the company. This is supported by Zin and Adnan (2016), saying that essentially, intellectuals existing in an organisation is a vital human capital that an organisation should have.

The finding pertaining to architecture design indicates most proportion of the students (50%) are having a high-level design knowledge. Students should have at least fair skills in using design software in order to improve their technical design skills. This is in line with Brady (1996) who proposed that design skills courses should be learned as early as in the second year of bachelor degree studies and this include computer applications. This is suggested by respondent 8 "exploring other design softwares". Respondent 25, 26, and 58 also supported the needs in exploring the design softwares to improve technical skill where respondent concurred that "student should improve CAD draughting by doing more manual drafting to work on lines' thicknesses in order to be able to produce more organised drawings" – Respondent 25 and "improve and practise drawing skills especially autocad focusing on detailing, and specification" – Respondent 26. On top of that, respondents 33 and 55 suggested that other than autoCAD, students should have decent knowledge on revit software by performing a lot of practices. Hill (2001) emphasised that architecture must move with the times because it helps to create the times (Banham, 1975). Yalcin and Ulusoy (2015) are in agreement that being competent with computer and computer programs such as autoCAD and 3D Max is one of the crucial technical skills considered to be required for a successful architect.

Respondent 11 emphasised that site exposure can help in improving the technical skill. Oluwatayo et al. (2017) found that the students who possessed high competency and proficiency levels had achieved those standards through their own practice outside of classes and design assessments, which suggest that those students take extra responsibility for their learning. In which case, they can be said to pursue knowledge-building goals as suggested by Tagg (2007). Respondent 14 agreed that design skill can be improved by a lot of readings such as and particularly the Universal Building By Law (UBBL). Respondent 16 also supported that reading is essential in improving technical skill together with researching and understanding the UBBL. This is in line with Liebing (1987), who suggested that architects view regulations "from mere nuisances as necessary evils, to highly restrictive". In repeated observation during interviews: regulations, while often an irritation and diversion from the main task, need not be

anathema to good design outcomes. Imrie and Street (2009) also agree that design coding through UBBL, if used correctly, can offer the potential to regulate against misuse of practice, including conflicts around market pressures, the demands of meeting regulatory standards and the desire to protect creative autonomy which include designs.

CONCLUSION

In conclusion, technical and design skills are the most crucial skills that interns need to have. Draftsmanship skill is one of the important technical skills for the interns to acquire. Intern is also expected to be equipped with design software skills. Site exposure and reading design related literature may help in polishing the design skill of the interns. This study accentuates intangible assets (skill, intelligence, and expertise) which may be established through internship, that are substantively and significantly related to organisation performance. Internship is indeed one of the many great ways to polish knowledge, skills and expertise among these apprentices. By investing in human capital, employees in the architectural industries will be able to acquire knowledge that will immensely assist them in discovering and interpreting new prospects that are not appreciable to other competitors. The capabilities and proficiencies that the students possess, whether naturally or nurtured, are halfway outcomes, ultimately leading to the business value creation. Despite the non-requirement by LAM for undergraduate students to undergo internship programmes, it is found that the programme is still in demand and recommended to be continued.

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