Skills and Competency in Construction Project Success: Learning Environment and Industry Application- The GAP

H. S. M. Hasan*, H. Ahamad, M. R. Mohamed

Faculty of Architecture Planning and Surveying, Universiti Teknologi Mara, Perak, Malaysia

Abstract

The main objective of this paper is to identify the gap between the effectiveness of learning environment and industry application on skills and competency in construction project success. To achieve the objective, secondary data is collected, while primary data are distributed by postal survey. From the survey to the employer respondents, the result indicate that employer too much emphasis on specialization within organizations and lack of cross fertilization of ideas between departments. From the employer respondents also shows the difference between the expectations of industry and graduates from construction management education.

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1. Introduction

The construction industry is regarded as being inherently uncertain and complex in its structure. The complex nature of the construction industry, coupled with the challenges of global competitiveness and changing regulatory requirements has created the need for highly educated and competent construction management graduates. Essential attributes include: intelligent, flexible, adaptive, and the ability to deal with uncertainty and rapid changes.
Construction management graduates are employed in various organizations in the construction industry such as, building and civil engineering contracting, project management consulting, construction and project management consulting, client organizations (public and private) and developer organizations. Considering the diversity of employment opportunities, construction management graduates need to be equipped with the necessary skills to be able to work efficiently with other professionals in construction industry.

The objective of the research is to determine if construction management graduates apply their skills and theory in practice and meeting the expectations of their employers. Bearing in mind the dynamic forces impacting the industry, can construction management’s academia identify the skills needed by construction management graduates for future success? Are construction management graduates meeting the expectations of contractors? This information is critical for the successful formulation of curricula. To answer these questions, questionnaires were distributed to construction managers in contracting organization regarding their expectations and observations on recent construction management graduates. The survey is analyzed and the results discussed.

In order to achieve the objective, primary data were arranged to be distributed via mail as postal survey to at least 420 respondents in Klang Valley, Malaysia; consist of 210 employee’s respondents and 210 employers’ respondents in Klang Valley. The collected data were analysed using SPSS, correlation method. It was predicted that an effort is needed for a closer working relationship between academia and industry in the shaping of construction management graduate programmes. The emphasis was on gaining insight into the different perceptions of industry, academia and graduates. This approach has helped to capture the main issues and prevailed views on construction-management education and its application in industry.

The first step in searching for information for this research was to undertake the search through library on-line services, which is available at the library. The relevant textbooks, research papers, seminar papers and journals, articles and special publications etc. were listed. The research process includes three main selections:

- exploratory research technique,
- selection of basic research method,
- selection of the sample design (Illustrated in figure 1).

The research process starts with a problem discovery through the use of an exploratory research technique combining secondary data and experience survey.

Exploratory research is undertaken at the beginning of learning about a topic. Where little or no previous knowledge exists, the researcher must engage in an open-ended search for answers and understanding. [1] There were two techniques applied in this research. The first technique is by carrying out secondary data analysis where the data was previously collected and assembled for some project other than the project at hand. The second is by conducting experience surveys where individuals who are knowledgeable about a particular research problem are surveyed. In attempting to understand the problems at hand, researchers had discussed on the issues and ideas with knowledgeable person who have had personal experience in the field. The following figure illustrates the research process for this research.
The gap between the effectiveness of learning and industry application on skills and competency in construction project success

Selection of exploratory research technique

Secondary data
Experience survey

Problem definition

Selection of basic research method “Quantitative”

Pilot survey

Amendment (If any)

Survey: Postal questionnaire

Data analysis and interpretation of finding

Summary and conclusion

Approaches to data collection

Develop

Research Questions
Research Objectives
Once the problem is defined, the next step is the processes of choosing the appropriate research design through the selection of several basic research methods namely secondary data study and conducting survey via postal questionnaire. Secondary data is the data collected using the desk study approach because the data obtained from other sources while the data collected using surveys, case studies and problem-solving approaches are called as primary data because they are obtained first hand. Survey involves asking and obtaining answers to questions by conducting surveys using questionnaires, interviews and case studies. In questionnaires, the questions occur in two primary forms - open and closed. Open questions are designed to enable the respondents to answer in full in whatever form and extent. Closed questions have a set number of responses as determined by the researcher. However, such rigidity of available responses may constrain the responses to open artificially, hence a response opportunity of ‘other, please state’ should be provided wherever possible. The questionnaires had been administered by post or email to respondents.

The methods adopted for the research should be appropriate for the purpose intended. However, in practice, most researchers often face two main constraints; time and cost. The time allocated or planned for the completion of the field survey was 3 months after which data collection were analyzed. The questionnaires were distributed to respondents in Klang Valley area and within the time permitted.

This is followed by the process of data gathering and data processing such as editing, coding and data analysis. During this stage, the data will be interpreted to come out with the findings. The process of analyzing the data is by using the descriptive statistic methods. This method is the simplest method of analysis which provides a general overview of the results. The descriptive method in this research analyse the responses in percentages and also contain actual numbers. This research adapted the frequency distribution in describing the data. The data gained from frequency distribution in this research is presented in the form of tabulation. Tabulation is the simplest way to show the frequency of observations of each response to each variable under investigation. Finally, the findings of the study are to be reported through the presentation of a report.

2. Questionnaire design

The purpose of this research is to identify the gap between the effectiveness of learning environment and industry application on skills and competency in construction project success. The questionnaire was basically designed and developed due to the framework. It also covered the information needed for the analysis and findings and also the background of the respondents. The sample of the distributed questionnaire is attached in the appendices for reference purpose. The emphasis was on gaining insight into the different perceptions of industry, academia and graduates. This approach helped to capture the main issues and prevailing views on construction-management education and its application in industry.

There are 2 sets of questionnaire:
- Questionnaire for employer
- Questionnaire for employee

Each set of questionnaire consists of 4 sections:
- Demographic information.
- Perception of innovative practice
- Assessing the quality of knowledge transfer processes.
Existing links and funding between educational establishments and industry.

Demographic information.
Applicable to whom that involve in the construction industry constraint in Klang Valley area. The purpose of this section is to collect information regarding respondent's demographic profile whereby the questions touched on their company or the organization and also the respondent's personal profession or position in that company or that organization subjected.

Perception of innovative practice
The questions touched on the importance of the key performance indicator in the Malaysian construction industry.

Assessing the quality of knowledge transfer processes.
In this section, the question ask regarding knowledge transfer processes which more related with the syllabus, delivery method and the suitability of the knowledge delivery systems compared to its application in the industry.

Existing links and funding between educational establishments and industry.
In last section of questionnaire, the question asks about the relationship between educational establishments and industry.

3. Respondents

From the survey, within four month of mailing, about 420 sets of questionnaires (consist of 210 questionnaire for employer and 210 questionnaire for employee) were posted and distributed to selected individuals and organizations involved in the construction industry in the Klang Valley. However, only 300 sets (200 employees and 100 employers) were returned, giving a success rate of 71.4%.

4. Findings and summary

The study demonstrated from the different views of the construction industry, academia and graduates that there was indeed a gap between construction-management education and its practical application. It was also apparent that there was significant divergence in the perceptions of this gap. This difference in views reinforced the need for further research.

From the analysis that had been done, the perspective of industry is as follows:

There is too much emphasis on specialisation within organisations and lack of cross fertilisation of ideas between departments. People are encouraged to follow specific specialisation paths and thus become skilled in these areas only. There is not enough sharing of knowledge between specialists of different areas.

There is a difference between the expectations of industry and graduates from construction-management education. Graduates are often expected to perform according to specific targets that are not necessarily compatible with the skills gained from courses. On the other hand, the value of a course to an organisation may not be the same as that perceived by a graduate.

Employees lack of necessary inter-personal skills or lack of willingness to apply innovations and lack of emphasis on people skills. Practitioners also call for more positive criticism of jobs that have not been successful, thus learning from past mistakes.
From the employee' perspectives, the underlying expressed causes of the gap can be summarised as follows:

- Graduates may not always be given the opportunity to be innovative and thus might tend to move to management consulting organisations where they are more likely to be given relevant responsibility early in their careers.
- The university's perceived role is to expose people to new knowledge and to make them think, whereas the industry's perceived job is to apply knowledge.
- A substantial percentage of the best practice knowledge and innovation learnt can be applicable quite early in the industry, although it takes time for the graduates to actually be in a sufficiently senior position to make that happen.

Bearing in mind the different views expressed above, some propositions are made to address the issues arising. Hence some propositions from the industry are summarised below:

- Graduates should be encouraged to move freely within organisations to enhance more effective transfer of knowledge and experience.
- A culture change is required within the industry to encourage increased investment in human resources and education professional bodies are urged to adopt a less polarised attitude and to collaborate with one another.
- More industry-university, collaboration is also required in the funding, development and delivery of courses.

Propositions made by academia include:

- Industry should focus on effectiveness rather than just efficiency
- The industry needs to address the factors that inhibit learning in organisations; more information sharing, forums and debates are required; organisations need to set up internal formal and informal learning seminars to share best practice.
- There should be more emphasis on the case-study approach in construction management courses stronger links should exist between the industry, universities and professional bodies the industry is urged to show more interest in education rather than just training.

Graduates' propositions are:

- The industry needs to learn how to extract knowledge and best practice from other industries.
- Employers are encouraged to clarify their requirements for skills needed from graduates who should be made aware of new areas to be encouraged within their organisations
- Industry should fund more students and adopt a more flexible approach to training.
- Academia needs to be encouraged to produce more readily useable information for the industry by putting more emphasis on the transfer of practical experience.

5. Recommendation for further research

For further research, it is recommended to investigate the necessary actions and strategies for bridging the perceived gap between the education and practice of construction management and to formulate a clear strategy for applying these actions and strategies. It recommends that, the research strategy is to be implemented over an estimated period by mixed methodology including:

- Further in depth interviews with industry, academia and graduates,
- Case study analysis of selected construction management course
- A wide ranging mail survey of representative population (peninsular Malaysia)
References