

GRADUATE EMPLOYABILITY IN THE FIELD OF CONSTRUCTION MANAGEMENT

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ABSTRACT

The construction industry plays an important role in helping a country succeed in a globally competitive market. Therefore, the demands for well-educated and well trained graduates in the field of the construction industry are increasing day by day. This thesis examines the employability of graduates in the field of construction management. A questionnaire survey was conducted among post graduates to understand whether there is a gap in the curriculum and to assess the difficulties they faced when they were searching for a job and also when joined as a fresh employee. This project also collects suggestions from graduates regarding topics to be integrated into the curriculum in order to produce good quality future engineers. Various perceptions on the gaps felt in the curriculum, need for a new curriculum, industry- university partnerships are considered.

Keywords: Employability; practical exposure; industry university partnership

1. INTRODUCTION

Construction industry plays an important role in the socioeconomic development, improving quality of life and in helping a country succeed in a globally competitive market. Modern society relies on construction industry for producing commercial and industrial facilities for business, civil infrastructure for public and private needs and housing for residents. The National Science and Technology Council defined Construction engineering education as "Construction engineering education focuses on the entire life cycle of a project. This includes initial planning and programming, design, manufacturing, and site construction, occupancy and maintenance, condition assessment, retrofit and renovation, or removal" (National Science and Technology Council 1994). National Academy of Engineering states that our future engineer's should be such that "He or she will aspire to have the ingenuity of Lillian Gilbreth, the problem- solving capabilities of Gordon Moore, the scientific insight of Albert Einstein, the creativity of Pablo Picasso, the determination of the Wright brothers, the leadership abilities of Bill Gates, the conscience of Eleanor Roosevelt, the vision of Martin Luther King, and the curiosity and wonder of our grandchildren." Nowadays the complexity of construction projects, advances in project management,

innovations in computer technology, the sophistication of new construction equipment, and evolution of new technologies and industries all increased the demand of well-educated and well-trained construction engineers. But it is widely acknowledged that the quality of Indian Engineering Graduates is steeply declining, especially in rural areas, contributing to the low employability rates. Increased rates of unemployment among new graduates highlight the urgent need to provide adequate training and skills thus ensuring that they have the skills required by the labour market.

2. LITERATURE REVIEW

HISTORY OF ENGINEERING EDUCATION

The word “engineering” came from the Latin word “ingenium” which means natural talent or capacity. It is an art of finding something new. Nature was the primary instructor of the first engineers. They learned by trial and error experimentation and self-education. They closely observed nature and then formed a treaty with reality to coax nature to do what it is willing to do and nothing more (Schexnayder et al 2011).

CONSTRUCTION MANAGEMENT EDUCATION TODAY

The National Science and Technology Council defined Construction engineering education as “Construction engineering education focuses on the entire life cycle of a project. This includes initial planning and programming, design, manufacturing, and site construction, occupancy and maintenance, condition assessment, retrofit, and renovation, or removal” (National Science and Technology Council 1994). Eugino et al (2017) conducted a survey of more than 500 graduate students from American and European universities. The survey was intended to find the courses most demanded by graduate students in the construction management field. Various courses such as Contractors’ associations, Feasibility assessment, Design management, Construction management, Maintenance, and operations Management, Legal concepts, advanced technical concepts, Economy and Finance, Accounting, Quality and Environmental Management, Marketing, Safety and health management etc are considered. It is found that students consider maintenance and operation as less important. So it is clear that graduate programs in construction management are not conveying properly the importance of the feasibility and operation phases of the infrastructure lifecycle; additional efforts should be made by universities, to improve current syllabi and to offer new courses.

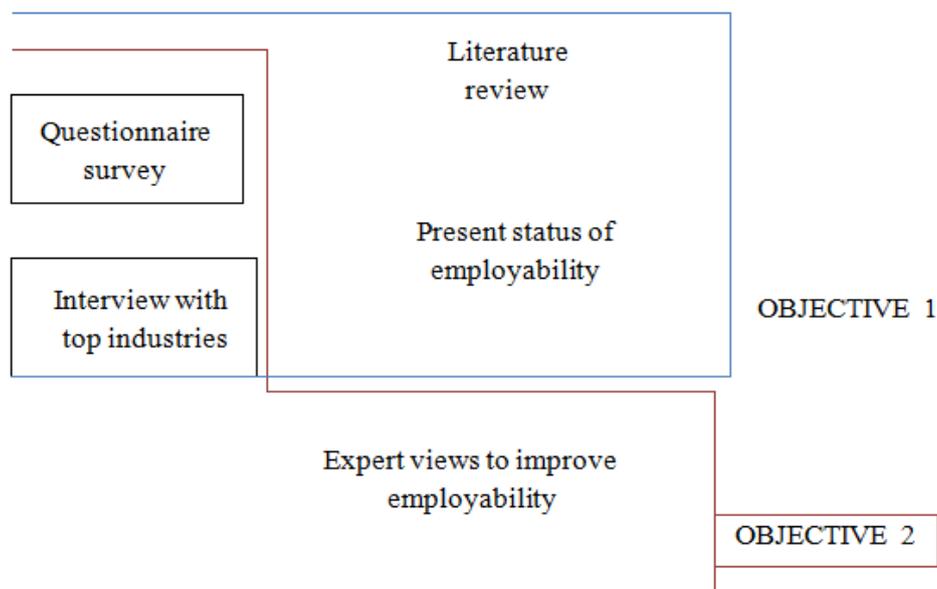
EMPLOYABILITY OF GRADUATES

Employability is defined as the extent to which employees have skills which are regarded as attractive by the employers (Scholarios et al 2005). According to Fugate et al (2004) employability is a psycho-social behaviour that embodies individual characteristics that affect and enhance the individual work interface. Cristina et al (2013) analysed perceptions of students on training gaps that affect their employability. They conducted a questionnaire survey with construction management students and with their survey they collected the possible reasons for the high rate of unemployment among graduates in construction field. These included personal issues, educational issues, macroeconomic issues and issues specific to the construction industry.

MODELS OF EMPLOYABILITY

The models of employability are useful in planning the curricula and for demonstration of valued role of higher education institutions and how employers may constitute to increased employability. These models claim to be relevant to ensure adaptability to our changing world of work and hence an increased chance of occupational satisfaction and success.

3. METHODOLOGY



DATA COLLECTION

To comply with the objectives stated, a survey was taken as the research tool because of its suitability for collecting opinions. The population of the study comprised of the post graduates from Construction Engineering and Management (CEM) and Structural Engineering and Construction Management (SECM) stream. A Questionnaire was prepared using Google forms which is attached in the appendix. Contact details of passed out students are collected from different colleges providing SECM and CEM courses. Graduates from colleges are asked to fill the form through contacting them over mobile phone and the form is then mailed to their email id. The questionnaire had two parts. The first part contained questions regarding the respondent's personal details such as name, gender, the college from which he/she got post-graduation, stream of specialization, university, year of passing etc. In the second part, respondents were asked to give their opinions on various questions such as difficulties faced in finding a job, difficulties faced when joined as a fresh employee, gaps felt in the academic level and suggestions for topics to be integrated into the curriculum. The responses to the Questionnaire are attached in the appendix. Data are collected from the following colleges tabulated below.

List of colleges

COLLEGE	STREAM OF SPECIALIZATION
MES COLLEGE OF ENGINEERING	CONSTRUCTION ENGINEERING AND MANAGEMENT
COCHIN COLLEGE OF ENGINEERING AND TECHNOLOGY	CONSTRUCTION ENGINEERING AND MANAGEMENT
VIMALJYOTHI ENGINEERING COLLEGE	STRUCTURAL ENGINEERING AND CONSTRUCTION MANAGEMENT
ST JOSEPHS COLLEGE OF ENGINEERING AND TECHNOLOGY	STRUCTURAL ENGINEERING AND CONSTRUCTION MANAGEMENT
SAINTGITS COLLEGE OF ENGINEERING	STRUCTURAL ENGINEERING AND CONSTRUCTION MANAGEMENT
MANGALAM COLLEGE OF ENGINEERING	STRUCTURAL ENGINEERING AND CONSTRUCTION MANAGEMENT
AMAL JYOTHI COLLEGE OF ENGINEERING	STRUCTURAL ENGINEERING AND CONSTRUCTION MANAGEMENT

TKM COLLEGE OF ENGINEERING	STRUCTURAL ENGINEERING AND CONSTRUCTION MANAGEMENT
SREE NARAYANA GURUKULAM COLLEGE OF ENGINEERING	STRUCTURAL ENGINEERING AND CONSTRUCTION MANAGEMENT
MAR ATHANASIOS COLLEGE OF ENGINEERING	STRUCTURAL ENGINEERING AND CONSTRUCTION MANAGEMENT
TOC H INSTITUTE OF SCIENCE & TECHNOLOGY	CONSTRUCTION ENGINEERING AND MANAGEMENT
FEDERAL INSTITUTE OF SCIENCE AND TECHNOLOGY	STRUCTURAL ENGINEERING AND CONSTRUCTION MANAGEMENT
	STRUCTURAL ENGINEERING AND CONSTRUCTION MANAGEMENT
CHRIST KNOWLEDGE CITY	STRUCTURAL ENGINEERING AND CONSTRUCTION MANAGEMENT
JAIBHARATH COLLEGE OF MANAGEMENT AND ENGINEERING TECHNOLOGY	STRUCTURAL ENGINEERING AND CONSTRUCTION MANAGEMENT
COCHIN INSTITUTE OF SCIENCE AND TECHNOLOGY	STRUCTURAL ENGINEERING AND CONSTRUCTION MANAGEMENT

An interview with industry people like project managers, contractors, owners of the construction firm is conducted. Their perceptions on skills most expected from a graduate, lacks found in fresh employees and on the training schemes provided for their employees are assessed.

DATA ANALYSIS

Data collected were analysed through descriptive statistics using IBM SPSS Analytical software and Institutional theory. Means and standard deviation are utilized for descriptive statistics. Mean and standard deviation are measures of central tendency and distribution. Data are then analysed using Institutional theory.

INSTITUTIONS

Institutions can be described as cultural rules that function as templates for the way we perceive our environment and how we act. (A. Kedefors 1994). Arthur Stinchcombe (1968), defines the institution as a structure in which powerful people are committed to some values and interests, emphasizing that these values are preserved and interests are protected only if those holding them retain power. Normally institutions reflect the dominating interests in a society or in an organization. Institutions are the rules of the game of a society or more formally are the humanly devised constraints that structure human interaction. They are composed of formal rules (statute law, common law, and regulations), informal constraints (conventions, norms of behavior and self-

imposed rules of behavior) and the enforcement characteristics of the both. Organisations are the players: groups of individuals bound by a common purpose to achieve objectives. They include political bodies, economic bodies, and educational bodies. Institutions are unnecessary in a world of instrumental rationality. (Douglass 192). The key to institutional change is 'Competition'. Competition forces organizations to continually invest in skills and knowledge to survive. The kinds of skills and knowledge individuals and their organizations acquire will shape evolving perceptions about opportunities and hence choices that will incrementally alter institutions. The institutional framework provides the incentives that dictate the kind of skills and knowledge perceived to have the maximum pay off. Perceptions are derived from the mental constructs of the players. The economies of hope, complementarities, and network externalities of an institutional matrix make institutional change overwhelmingly incremental and path dependant. On an organizational level, institutions are a way of overcoming the limits of the individual so that everybody does not have to make the same mistakes. On the other hand, institutions preserve behavior, which restrains new learning.

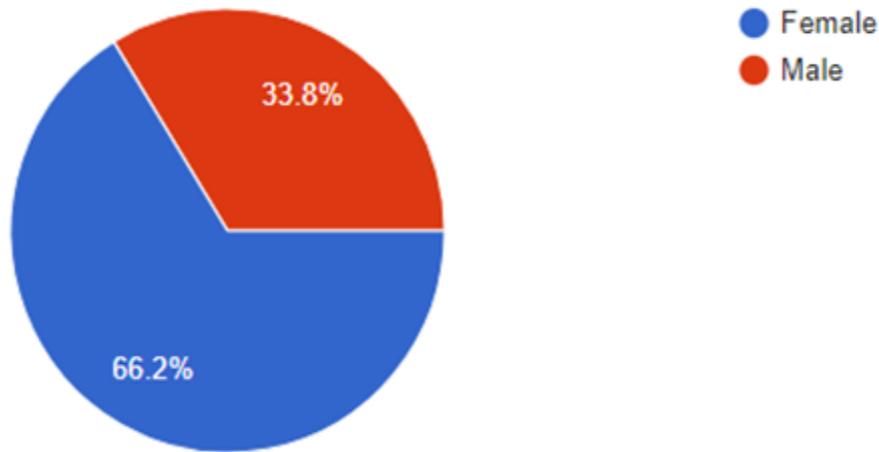
INSTITUTIONAL THEORY

Institutional theory burst on the organization's scene during the mid-1970s and has generated much interest and attention (Powell and DiMaggio 1991). It considers the processes by which structures including schemes, rules, norms, and routines become established as authoritative guidelines for social behaviour. According to Richard Scott, institutions are social structures that have attained a high degree of resilience. Institutional theory addresses the processes by which social structures, including both normative and behavioral systems, are established, become stable and undergo changes over time (Scott 2012). It addresses the fundamental issues of social order and social change and the construction of shared meaning systems. (Scott 2008). It consists of three elements or pillars contributing to institutional construction, maintenance, and change. They are cognitive, normative, regulative structures and activities that provide stability and meaning to social behavior and they operate at multiple levels of jurisdiction.

4. RESEARCH METHODOLOGY

Data collection is done by conducting Questionnaire survey among graduates and an interview with industry people. Questionnaire to be conducted among students are prepared using Google forms and the same is made to be filled by Graduates. The responses to the questionnaire were analysed using IBM SPSS Statistics and Institutional theory. According to their questionnaire responses, the students can be profiled as follows.

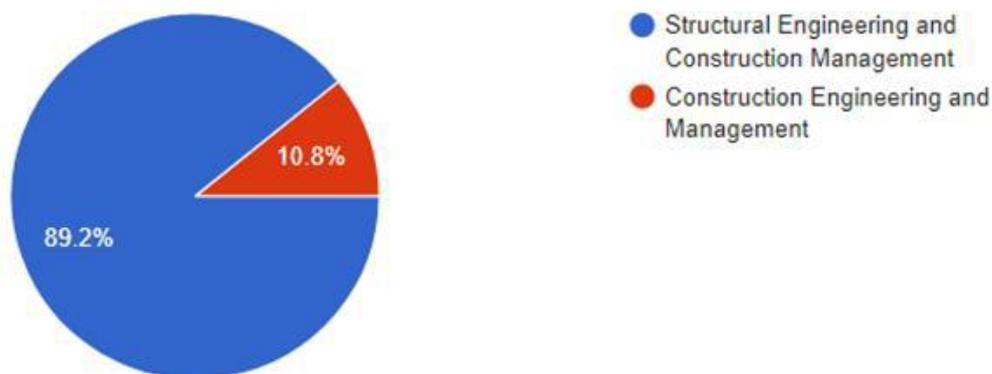
GENDER



Response percentage regarding Gender

According to their questionnaire responses most of the respondents were female. About 66.2% of the respondents are females. It is also noticeable that females are in greater number than males who enrols for graduation programmes.

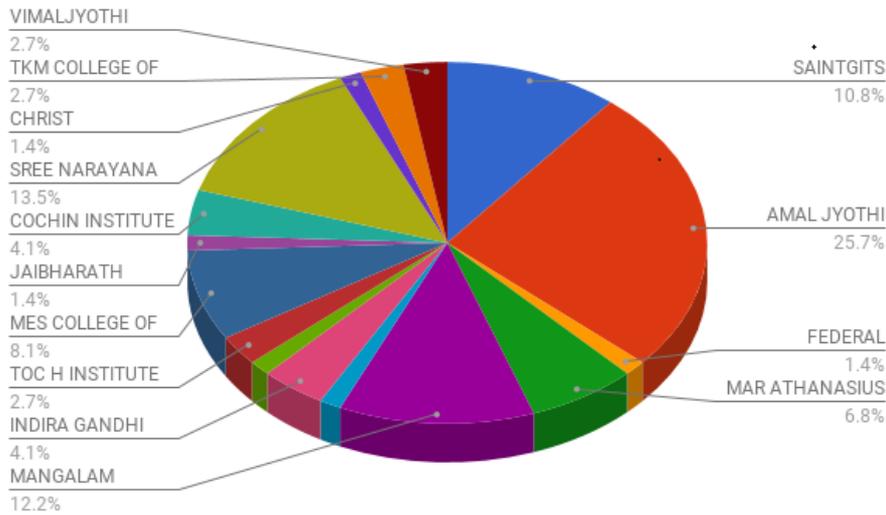
STREAM OF SPECIALIZATION



Response percentage regarding Stream of Specialization

Around 89.2% of respondents completed their graduation in Structural Engineering and Construction Management Stream. Among the 21 colleges providing graduate programs in Construction Management, only 3 colleges are providing Graduate programs in CEM stream and the other 18 colleges are providing Graduate programs in SECM stream

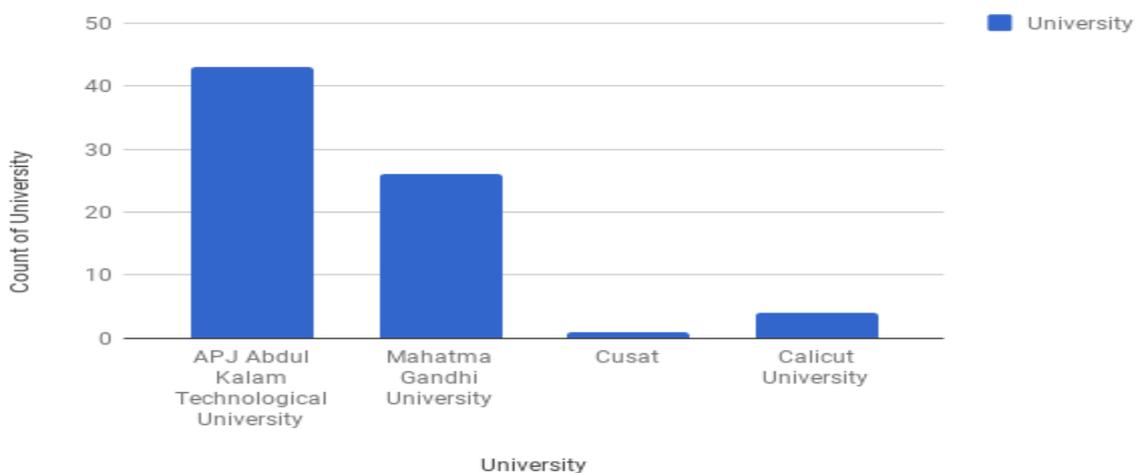
COLLEGE



Response percentage regarding Colleges

However, the questionnaire survey was intended to collect responses from graduates who passed out from Construction Management Stream, there were some difficulties in accessing all the passed out students. Maximum number of respondents are from Amal Jyothi College Of Engineering (25.7%) and Sree Narayana Gurukulam College of Engineering (13.5%).

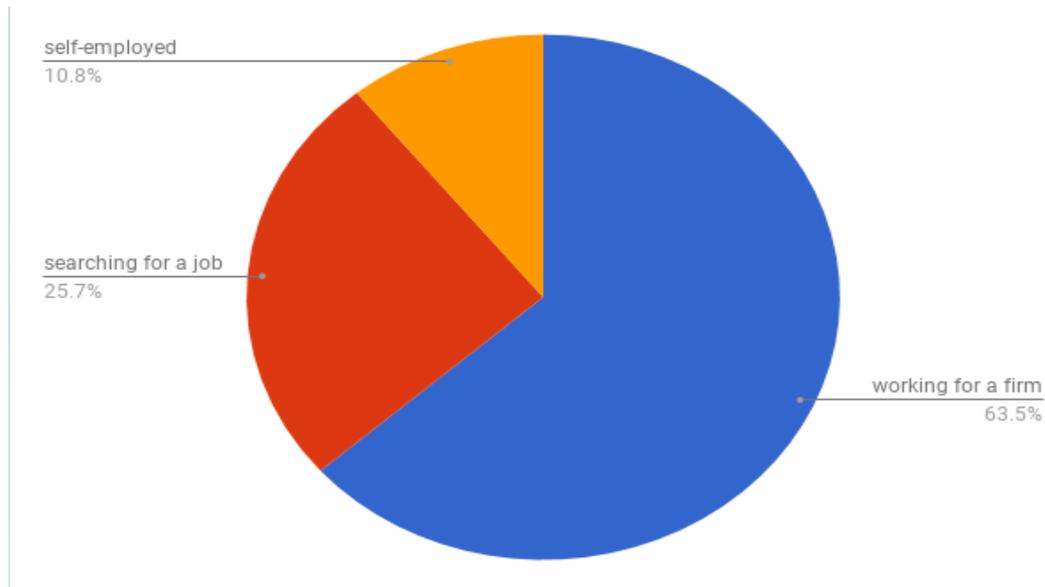
UNIVERSITY



Response percentage regarding University

Majority of the responded graduates passed out from A P J Abdul Kalam Technological University. The respondents in this category had their graduation during the academic year 2018-2019.

WORKING STATUS



Response percentage regarding Working status

DIFFICULTIES FACED IN FINDING A JOB

Variables	Mean	Standard deviation
Low salary	0.47	0.503
Too many professionals	0.28	0.454
Lack of experience	0.22	0.414
Economic crisis	0.07	0.253
Nepotism	0.11	0.313

Mean and SD for difficulties faced in finding a job

Low salary is expressed as the primary difficulty faced in finding a job. Salary is decided and provided by the regulative part in any institution. There may be various reasons for providing low salary such as the difficulties in affording new employees due to current economic crisis. Most of the companies are looking for maximum outputs with lesser expenses.

The factor that determines salary as low or high depends upon the perceptions of individuals and their needs and necessities. The second main reason is the lack of opportunities for fresher's due to the excess quantity of graduates in the construction field which comes under the normative part of an institution. The companies are asking for employees with experience which make the situation difficult for fresh graduates. The reason for not hiring fresh graduates are that the companies are not willing to spend their resources to train graduates when they are available with experienced professionals. The other reason found were candidates entering into the job by recommendations of politicians thereby reducing the job opportunity of other eligible graduates. Most of the factors listed above correspond to regulative or normative part of an institution. Low salary and economic crisis are to be solved at the regulative level, whereas lack of opportunities, too many professionals for the current market demand, lack of experience and nepotism, all constitute to the normative part of an institution.

5. CONCLUSION

The demands for well-educated and well-trained engineers are increasing day by day. Owners, design companies, or contractors require from professionals a combination of technical and managerial skills to improve decision making. However, the graduate education is still mainly focused on technical subjects. A dynamic education system needs regular and periodic adjustments in the course offerings. This can be achieved by a close relationship between construction educators and industry. It is also effective to keep a good balance of industrial experience and academic enterprise in the faculty that teach the course. Experts in construction industry and academy believe that the primary reason for the high rate of graduate unemployment is intrinsic in nature and they believe that an increase in employment Opportunities depends basically on the capabilities of graduates. It can be concluded that the primary reason that affect employability is directly attributed to individuals.

The construction industry needs the construction management programs to not only provide an adequate number of candidates, but also properly train them in the skills required in order to quickly become productive workers within their organizations. The construction management education programs need the construction industry to provide support and input to improve the future construction manager's education and experience level before entry into the construction industry workforce. With construction having such a wide array of opportunity to graduates, it is hard to confine the education to specific areas. Therefore, educators must work to keep their programs meeting the requirements set forth by the industry, offering the widest array of opportunity to its graduates and still meet the accreditation requirements. Graduates should enhance themselves to apply what they know against complexities of natural world, and needs of the society and should be ready to adopt lifelong learning. Engineers must be educated not only to understand but to balance and apply what they know against complexities of natural world, the built environment and the needs of the society. Syllabus revision is highly recommended to ensure the employability of graduates thereby allowing them to enter the job market. Being better prepared, graduates can face their professional future with greater guarantees.

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