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Comparing Construction Professionals job descriptions with University modules. Do the modules taught match the needs required?

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ABSTRACT

Long before Covid19 the roles and requirements of construction professionals have been evolving. The pandemic has served to increase this pace of change. Some of these changes are temporary (although who knows for how long) whilst other changes could be here to stay. Whilst University modules are often accredited by professional bodies to ensure graduates have the skills required for industry, they are also set well in advance of delivery. Therefore, module learning outcomes often cannot be updated easily in response to rapidly changing industry demands. The problem therefore exists that graduates may enter an industry that demands skills they do not possess and does not require skills University modules have helped them to develop. The aim of this paper is to understand what the current industry requirements are of post Covid-19 construction professionals and to establish if Universities are meeting these requirements with existing modules. A failure to prepare graduates to meet the immediate challenges the industry faces could lead to a less productive and less responsive industry. This paper conducts a content analysis of the topics covered in every module undertaken from five Universities offering Professional Body accredited Construction Project Management and Quantity Surveying courses. The results are compared to a content analysis of twenty job descriptions for the same roles. The results reveal that whilst University modules do provide robust and required knowledge and experience, they do not meet all current and immediate demands placed upon construction professionals. However, for the most part modules cover broad and diverse topics that allow specific activities to be tailored to ensure most graduate skills requirements are met.

Key Words: Construction Professionals. Graduates. Construction Industry. Covid-19. Job Requirements.

1. INTRODUCTION

The construction industry can be described as the design, construction, maintenance, refurbishment, and ultimate demolition of built assets, infrastructure, and engineering works. It has an annual value to the UK economy of over £99bn, employs over 2million people and contributes 9% to the economic output (Rhodes, 2019). The industry itself is made up of a diverse workforce who are required to collaborate in multi-disciplinary teams but with the shared aim of ensuring the project is a success. Such 'success' however, is often subjective, as the industry has also been described as consisting of bipartisan relationships where success for one party is often at the expense of another. Nevertheless, collaborative approaches have been spearheaded for many years, and are constantly the primary focus and recommendation of numerous industry reports and research findings. It has been argued that in order for project success to be achieved, factors such as teamwork, relationship building, and cooperation of key stakeholders need to be considered (Cheung et al., 2003).

Indeed, recent research has highlighted the increased focus Higher Education (HE) providers are placing upon multi-disciplinary education in the fields of architecture, engineering, and construction (AEC) (Ali, 2019). In addition to such collaborative behaviours, project success is arguably also dependent upon the different construction professionals involved each being competent and effective at their own professional requirements. However, in an ever evolving and challenging industry it can be difficult for professionals to ensure their skillsets and competencies remain relevant and up to date. Indeed, two of the most influential industry leading reports of recent times have both highlighted and described how industry professionals are in need of training and development to enhance their skillsets to address a lack of knowledge skills and experience (Farmer, 2016; Hackitt, 2018). These reports were published pre-Covid19, and so the strains placed upon the industry and the need for competent and relevant skills has arguably evolved over the past few years as the industry attempts to adapt and survive in a Covid19 world and looks to prosper afterwards.

What the demands of Covid19 will mean for the long-term skills and training of construction industry professionals is somewhat unknown at this stage. What is for certain is that recent, current, and soon to be University Graduates entering AEC professions will need to have competence in their own professional roles, combined with adaptable, transferable, and collaborative skills to ensure they excel in multi-disciplinary environments and positively contribute to successful construction projects. However, the modules HE students complete as part of their degrees are often set well in advance, going through a process of confirmation by internal and external professionals before being delivered students. Therefore, they are arguably rigid and unable to respond quickly to the changing demands in the industry, potentially resulting in graduates entering a profession with an already outdated skillset. A failure to prepare graduates to meet the immediate challenges the industry faces could therefore potentially lead to a less productive and less responsive industry. There is a gap in current research and understanding around the suitability of HE AEC modules in preparing and equipping graduates with the relevant skillsets required to tackle the challenging demands of employment in a Covid19 and post Covid19 workplace. Through the use of a

Qualitative Content Analysis (QCA) comparing university modules from AEC courses with recent job role requirements, this inductive research paper seeks to contribute to this gap in knowledge and serves to provide guidance and understanding around the suitability of current AEC graduates to meet contemporary industry demands.

2. RESEARCH METHODS

For this inductive research a literature review was first required to identify the correct sources of information required. This is essential to summarise, clarify and analyse the applicable information (Mays et al., 2005). The benefits to such an approach are that a comprehensive understanding can also be reached, and it allows researchers to address a much wider topic area than a single empirical study could provide (Wang et al., 2015). The first step required was to identify the relevant sources of potential material which in this instance were the job specification and requirements of graduate level AEC role, specifically those aimed at Graduate Quantity Surveyors (QS's) and Graduate Construction Project Managers (CPM's). Twenty graduate job specifications were collected, ten for QS and ten for CPM disciplines. A list of all HE universities in the UK was then collated, with those institutions removed which did not offer both QS and CPM undergraduate courses. From those institutions remaining all those which offered the course that were not accredited by professional bodies were then removed. As using the entire sample of a relevant population can be impracticable, and in some instances impossible, a sampling method is required (Robson and McCartan, 2017). These sampling methods can be probability sampling or non-probability sampling, with the former adopted in this study with the use of simple random sampling whereby from this list remaining institutes were selected at random (Robson and McCartan, 2017). For this research five HE universities were selected. The QS and CPM modules across levels 4, 5 and 6 were then recorded.

Once the data was acquired, a QCA was then undertaken across all documents. A content analysis is a method of analysing and quantifying text in a systematic and replicable manner that helps identify patterns and trends across several text-based documents (Gray, 2018). A QCA allows a broader level of understanding of any content under scrutiny to be ascertained. It is a method of analysis that provides an additional depth of knowledge with regards to the connotation and meaning of words and terms, in addition to the frequency and location of their use as a standard content analysis would reveal (Lock and Seele. 2016). For this research the QCA was undertaken against the job specifications and each requirement then plotted against an applicable module, where relevant.

3. FINDINGS AND DISCUSSION

The QCA revealed that all modules were applicable in matching the requirements of the job descriptions. Table 1.0 illustrates the range of CPM and QS modules that were identified across the 5 HE institutions. All of these modules were found to be relevant to the QCA results of the CPM and QS job descriptions. Whilst each job requirement did focus on skills gained in some modules

over others, all modules were found to be applicable to the requirements of the roles that were analysed.

Table 1.0: CPM and QS Modules / Requirements of Job Description

• Building Services	• Civil Engineering	• Construction Management
• Construction Planning	• Construction Process Management	• Construction Project Management
• Contract Administration	• Corporate Finance	• Design and Delivery
• Digital	• Disciplinary Project	• Dissertation and Research Project
• Economics	• Energy Performance	• Environmental Science
• Facilities Management	• Health and Safety	• History of Construction
• Innovation	• International	• Land Surveying
• Law and legal	• Lean and Offsite	• Management and Strategy
• Measurement and Quantification	• Procurement	• Professional Practice
• Project Management	• QS Practice and Cost Management	• Resource Evaluation
• Risk	• Science	• Sustainability
• Technology and Materials		

However, the QCA of the CPM and QS job descriptions that could not be directly matched to the modules taught at the 5 HE institutes are revealed in table 2.0.

Table 2.0: CPM and QS Job Descriptions that cannot be matched to modules

• Agility	• Build Relationships	• Can Do Attitude
• Chairing Meetings	• Change Management	• Close Working Relationships
• Communication and Interpersonal Skills	• Confident	• Enacting Wellbeing Policies
• Maintaining Quality	• Negotiation	• Proactive

Analysis of the results reveal that is it those skills and experiences that can be described as the 'softer skills' that are primarily those required of CPM and QS graduates which are not immediately visible as directly correlating with specific modules covered on the 5 HE university CPM and QS undergraduate degree programmes. Whilst it could be argued some of these

requirements, such as 'Can Do Attitude' and 'Proactive' cannot be taught at university, Other requirements, such as 'Chairing Meetings' and 'Negotiation' could be taught, yet appear not to be formally included in any modules. Arguably, in an ever evolving and changing construction industry, it is the skills in table 2.0 that are most in demand and most important to creating resilient and flexible construction graduates who are able to confidently pivot to meet new challenges and collaborative effectively with a wide range of stakeholders.

4. CONCLUSION

The construction industry places challenging and evolving demands upon its workforce. Such demands require both individual skills and competencies, and effective team working and collaborative approaches. Arguably, the completion of HE programmes are one method of professionals entering the construction industry with the required skills and competencies required to meet the latest industry challenges. However, there is a gap in current research and understanding around the suitability of HE AEC modules in preparing and equipping graduates with the relevant skillsets required to tackle the challenging demands of employment in a Covid19 and post Covid19 workplace. Though conducting a QCA of recent job vacancy specifications for CPM and QS roles and comparing the results against the modules taught across CPM and QS courses at 5 HE institutes, this research reveals that all modules are applicable to the demands of graduate professional roles. However, there are many expectations and skills demanded of graduates which current modules do not prepare graduates for. This paper recommends further research is conducted into the suitability of HE institutions to broader the topics covered on AEC modules and courses to better prepare graduates for the demands of the construction industry.

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