

Semantic Analysis to Identify Expected Competencies of Entry Level CM Graduates

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The construction industry is unique in terms of the diversity of calibers that form a team for a successful project. Construction Management (CM) programs should always strive to offer a pool for most of the calibers needed by construction companies. To achieve this target, CM programs, continuously, need to exert efforts to understand the exact requirements of companies and close any gaps between the current curriculums and the industry needs. One effective way to do this is by assessment of the recruiting efforts of the construction companies and exploring the details that companies include in their search for certain competencies. Therefore, this research presents a novel method to identify the competencies that contractors expect from CM new graduates using semantic analysis of the job description companies use for job advertisement.

The objective is to identify the most sought competencies of construction management graduates through analyzing the job advertisement of the recruiting companies with a focus on the job descriptions. The research also aims at establishing a more meaningful dialogue between the industry and the academic circles regarding the construction management curricula and how they meet the current requirements of the construction companies. The proposed method utilizes large collection of job descriptions published by contractors to recruit newly CM graduates in USA. These job descriptions are analyzed through machine learning algorithms targeting semantic analysis of the wording and expressions included in the contractors' job descriptions to identify the most significant competencies expected for certain jobs. The method is presented with an example of one job designation that is cost estimator at entry level, being recruited by mechanical and electrical contractors.

Results show that the proposed method can be used as an effective way to understand contractors' expectations with the objective of further improvements of CM programs and holding more meaningful dialogues between the construction industry and. The results section of this poster will show the words and terms related to CM competencies that have been frequently used in job advertisement and their weight in the full text of the advertisement. The research also illustrates how logarithmic and augmented term frequencies were used to identify the weighted significances of used terms. Among the most significant terms recognized in analysis are project management, cost estimating, bidding and construction experience. The direct impact of this research is better understating of recruitment needs of construction companies with a focus on recent graduates from the construction management programs. The indirect impact will be improvement of construction management curricula to reflect this better understanding.

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