Conceptualizing a New Undergraduate Degree: Design–Construction Integration

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This poster illustrates the preliminary steps taken in the development of a new undergraduate program to serve the construction industry. The new degree, Design-Construction Integration, aims to form a professional uniquely capable of managing the integration of construction and design for complex projects. The need for the new degree is derived from the rising importance of integrated approaches to project delivery, such as design build. It is also influenced by new technologies tied to information systems, such as Building Information Modeling (BIM), that require a design professional with knowledge of construction methods and techniques. The objective of the Design-Construction Integration (DCI) degree is to overcome the design-construction discipline separation and to develop student competencies needed for careers that require interaction between building design and construction professionals. Graduates would be qualified to act as knowledge brokers within an integrated architecture, engineering, and construction (AEC) project development process by enhancing knowledge sharing and distribution, ensuring that information exchange meets the needs of all parties involved.

This study aims to assess core competencies needed for professionals in a Design – Construction Integration program, and to propose major domain areas for the conceptualized program. After a careful analysis of current architecture and construction management curricula, including accreditation requirements from American Council for Construction Education (ACCE, 2014) and the National Architectural Accrediting Board (NAAB, 2014), researchers prepared an online survey with 38 core competencies required of both professional groups. An invitation for this survey was sent to 1,211 professionals within the AEC industry from across the United States. In this survey, professionals were to select on a scale from one to five how important they think each competency was for a professional who would act as a mediator between design and construction. Descriptive statistics for each competence is reported using SPSS software to establish a rank of priorities in the new curriculum. Researchers have received 58 valid surveys from AEC professionals. The top four competencies found relevant by professionals in the design–construction integration setting are related to soft skills: (1) ability to communicate effectively (written and oral) with other professionals; (2) use of ethical principles to make informed professional decisions; (3) ability to work in a multi-disciplinary team; and (4) ability to exercise leadership. The first technical competency came in fifth place and encompasses the ability to analyze construction drawings for planning and management of construction processes. These results might be updated as researchers get more responses to the online survey. Based on the results from the survey, previous literature, and the Purdue University's current construction management degree, researchers will propose the major domain areas to be included in the new curriculum. We invite other researchers and instructors in the construction management field into the discussion around the development of the Design-Construction Integration undergraduate program. With this study, researchers also expect to raise awareness to the need of integrated approaches to design and construction in AEC undergraduate programs.

References

American Council for Construction Education (ACCE). (2014). Standards and criteria for accreditation of postsecondary construction education degree programs.

National Architectural Accrediting Board (NAAB). (2014). 2014 Conditions for Accreditation. Washington DC.