INDUSTRY SURVEYS REGARDING CONTINUING EDUCATION IN CONSTRUCTION MANAGEMENT

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Since perspectives on higher education are continually changing, curriculum must reflect the current needs of industry. However, individual perspectives may differ based on one’s background and social position. The purpose of this study was to strengthen the course content of the master’s programs in Construction Management at the University of Florida. The primary goal of the surveys used was to determine the attitudes of alumni regarding the value of a master’s degree in Construction Management, for themselves, or for those who work for them. Survey questionnaires were developed, and two surveys were conducted on alumni, using Qualtrics Survey software. Two sample tests for equality of proportions were used for statistical analysis. Middle managers and executives shared some common ideas, but they showed different opinions regarding attending the Construction Management School for their Master’s degree. Also, middle managers with a master’s degree tend to find more additional value in students with a master’s degree than middle managers with only a bachelor’s degree. Based on the results, a 16-month Master’s degree program in Construction Leadership was designed, equivalent to four academic semesters.

Keywords: Graduate program, Industrial needs; Higher education, Leadership.

1 INTRODUCTION

“The increasing global emphasis on sustainable approaches and the need to increase efficiency and improve cost over the lifecycle of projects, demand new approaches to architecture, engineering, and construction (AEC) education” (Becerik-Gerber et al. 2011). Graduate programs in Construction Management around the U.S. are having problems meeting this demand, because of problems attracting domestic students to their master’s degree programs in times of an expanding economy. Concurrently, the construction industry is changing at a pace never before seen. New integrated fast-tract construction project delivery systems gave sped up the pace of design and construction to a level inconceivable a generation ago—in some parts of the construction industry, a decade ago. Technological breakthroughs have resulted in equipment, software and methods heretofore unseen, and the combination of these new developments has left some Construction Management personnel unprepared to lead in this new era.

2 PURPOSE

Scott (2016) says that “there has been, rather, a ‘systems thinking’ approach [to construction education], a sense of wanting to prepare an educational experience that would equip the future leaders in construction to ensure they would develop the knowledge, skills and competences to take their place in an ever-changing architecture, engineering and construction (AEC) industry. The
The purpose of this two-part survey study was to determine where the University of Florida’s M.E. Rinker Sr. School of Construction Management (Rinker School) should focus its energies and resources in meeting the needs of the industry.

In the first survey input was gathered from executives (industry leaders). In the second survey, middle managers were targeted, those with 5-18 years of experience in the construction industry.

The primary goal of the surveys was to determine the attitudes of alumni toward the value of a Master’s degree in Construction Management for themselves, or for those who work for them.

The secondary goal was to determine if the attitudes and opinions offered by the respondents differed by demographic categorization, such as experience, level of education (terminal degree), or the status within the organization of the respondent; and, where possible, to determine if these differences were statistically significant.

3 METHODOLOGY

The two surveys were conducted on alumni using Qualtrics Survey software. The first survey was distributed to the Executive Committee (ExCom), an industry advisory group of the Rinker School made up of executives only. The second survey was modified from the first one, and targeted middle management personnel. However, there were respondents to the second survey filling executive positions. This second survey was distributed to alumni who graduated between 1999 and 2012. People in this demographic would mostly hold middle management positions and should lend a different perspective than those in upper management. The first survey had 40 participants; 121 responded to the second.

The surveys consisted of 17 main questions, plus eight follow-up questions to which participants were asked to respond only if they had responded to previous questions in a certain way. For this study, the first 10 main questions, plus the eight appropriate follow-up questions, were analyzed. The questions and subsequent analyses were designed to provide the following:

1. Determine industry attitudes toward master’s-level education in Construction Management.
2. If the attitude is negative, determine what can be done to change the negative perception.
3. Identify new courses or course content that industry would like to see in the master’s degree curriculum.
4. Identify the format or delivery system that would most likely draw current industry personnel to a master’s degree program.
5. Identify differences in attitudes toward master’s degree programs based on different demographics such as age, position, level of education, etc.

Statistical analyses were necessary in some cases. On one question, for example, Two Sample tests for equality of proportions with continuity correction were used to test two independent samples that were divided into four groups in the study: middle managers with only a bachelor’s degree, middle managers with a master’s degree, all middle managers, and managers at the executive level. There were two comparisons between groups: middle managers with only a bachelor’s degree vs. middle managers with a master’s degree, and middle managers vs. executive managers. The objective of these tests was to determine whether the different groups tended to exhibit similar opinions regarding the value of a master’s degree. For the purpose of validation through statistical analysis, the assumption was made that each group gave identical answers to the questions. An analysis was then performed to determine if this was so. For example, the two comparisons between the groups related to hypotheses were as follows:

For comparison between middle managers and the executives, the null hypotheses and alternative hypothesis are as follows:

• Ho: The proportion of middle managers who answered affirmatively is the same as the
proportion of the executives who answered affirmatively.

• Ha: The proportion of middle managers who answered affirmatively is not the same as the proportion of the executives who answered affirmatively.

4 THE SURVEY

The 31 members of ExCom are all executives. Since there were 40 executive responses to the first survey, it is obvious that ExCom members sought input from nine of their peers. The breakdown of the areas within the industry in which the executives work is shown in Figure 1. Of 73 middle managers that identified their position, 26 respondents are company executives (mostly for smaller companies), five respondents are project engineers, 35 respondents are project managers, one respondent is a superintendent, and six respondents serve in some other capacity.

![Figure 1. Breakdown of areas in which the executives work.](image)

Table 1 indicates the answer summary of respondents’ primary role within their company.

<table>
<thead>
<tr>
<th>Role</th>
<th>Managers with only bachelor’s degrees</th>
<th>Managers with master’s degrees</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Manager</td>
<td>19 (45.2%)</td>
<td>16 (51.6%)</td>
<td>35 (47.9%)</td>
</tr>
<tr>
<td>Company Executive</td>
<td>17 (40.5%)</td>
<td>9 (29.0%)</td>
<td>26 (35.6%)</td>
</tr>
<tr>
<td>Project Engineer</td>
<td>4 (9.5%)</td>
<td>1 (3.2%)</td>
<td>5 (6.8%)</td>
</tr>
<tr>
<td>Superintendent</td>
<td>0 (0.0%)</td>
<td>1 (3.2%)</td>
<td>1 (1.4%)</td>
</tr>
<tr>
<td>Others</td>
<td>2 (4.8%)</td>
<td>4 (12.9%)</td>
<td>6 (8.2%)</td>
</tr>
<tr>
<td>Total</td>
<td>42 (100.0%)</td>
<td>31 (100.0%)</td>
<td>73 (100.0%)</td>
</tr>
</tbody>
</table>

5 RESULTS

The primary goal of the surveys was to determine the attitudes of alumni toward the value of a master’s degree in Construction Management for themselves or for those who work for them. Specifically, information was sought regarding the following:
• In determining a student’s desirability as a possible hire, would the student’s earning a master’s degree from the Rinker School make up for a bachelor’s degree in an area not associated with construction?
• What value, if any, is a master’s degree from the Rinker School?
• Are employees with a master’s degree paid a higher starting salary than those with only a bachelor’s degree?
• What course content could be added to improve the value of a master’s degree from the Rinker School?
• Would construction executives and middle managers consider returning to school, or sending an employee back to school, to pursue a master’s degree in Construction Management? Why or why not?
• What course format would be most desirable for someone working in the construction industry to earn a master’s degree from the Rinker School?
• What is management’s level of interest in earning, or having their employees earn, continuing education credits or in attending a two-week course focused on a specific topic of interest?
• What does management see as the greatest inhibitors for themselves or for their employees in pursuing opportunities offered by the Rinker School to earn a master’s degree?

The secondary goal of the surveys was to determine if the attitudes and opinions offered by the respondents differed by demographic categorization such as age and experience, level of education (terminal degree), or the status within the organization of the respondent; and, where possible, to determine if their differences were statistically significant.

Four groups of two each were chosen for comparison: 1) Middle managers with only a bachelor’s degree vs. middle managers with a master’s degree; 2) Executives vs. all middle managers; 3) Middle managers with only a bachelor’s degree vs. executives; and 4) Middle managers with a master’s degree vs. executives. The first two groups served as the main focus of discussion. Key findings are as follows:

• The overwhelming majority of respondents from all groups would consider hiring a student with an undergraduate degree from a non-technical, non-construction discipline who has earned a master’s degree in Construction Management. Executives (70.0%) were the least likely to do so; middle managers with master’s degrees (94.5%) were the most likely.
• The majority of managers with only bachelor’s degrees and the majority of executives do not find additional value in students with master’s degrees; the majority of middle managers with master’s degrees and the majority of all middle managers do find additional value in students with master’s degrees and the majority of all middle managers do find additional value in students with master’s degrees.
• Of those respondents who do find additional value in students with Master’s degrees, the 10 most common benefits noted were, in order:
  o Determination to gain additional knowledge
  o More diverse skillset
  o Added expertise in specialized areas
  o Added life experience
  o Greater degree of maturity
  o Higher achievers
  o Higher level of dedication
  o More driven
  o Enhanced critical thinking skills
o Higher level of thinking, with enhanced critical thinking skills and better problem-solving skills

- The overwhelming majority of respondents from all groups pay new employees with a master’s degree more. Executives are least likely to pay more; middle managers with a bachelor’s degree are most likely.
- When asked what could be done to develop master’s graduates with more value, more respondents answered either “internships” or “more actual construction experience” than all other answers combined. The other two answers with substantial support were, in order:
  1) More business training
  2) More leadership training
- The overwhelming majority of middle managers (63.55%) would consider attending the Rinker School for their master’s degree; most executives (68.6%) would not.
- When asked what course offerings would entice them to return or send their employees back for a master’s degree from the Rinker School, over half the respondents (59.38%) mentioned a desire for more knowledge of business or business-related subjects such as finance or real estate. Other types of offerings mentioned by multiple respondents were, in order:
  1) Some basic area of construction (planning/estimating/scheduling)
  2) Sustainability
  3) Leadership
  4) Construction law
- When asked to list inhibitors to their coming back, or sending employees back, for a Master’s degree, 38.46% cited factors related to a lack of time to make it happen. Besides the obvious inhibitor of not placing sufficient value in the master’s degree, the only other reasons with multiple responses all dealt with cost.
- Participants were asked if they would consider attending or sending an employee to a master’s program formatted similarly to an executive MBA program (one weekend a month of in-class instruction with supplementary online class meetings and discussions). All four groups of respondents overwhelmingly liked the idea. Middle managers with only a Bachelor’s degree liked it most (83.33%), while executives liked it least (68.80%).
- A majority of respondents in all four groups would consider either enrolling, or having an employee enroll in an online master’s degree or certificate program. Executives were most enthusiastic about this (65.55%); middle managers with master’s degrees were least (51.20%).
- When asked to rank four different possible course delivery methods in a master’s degree program that they might consider for themselves, the respondents ranked them as follows, one being the most favorable:
  1) All courses taught using on-campus class meetings one weekend per month with supplemental online classes and discussions [A]
  2) Courses offered in all three formats and requires that the student take at least two courses delivered through each of the three formats above, with the guarantee that the classroom-only courses can be taken during the six-week summer session. [B]*
  3) All courses taught online. [C]
  4) All courses taught using on-campus class meetings in the traditional way. [D]
When asked to rank the same four possible course delivery methods in a master’s degree program that they might consider sending their employees to, the respondents ranked them as follows, with one being most favorable: 1) [A]; 2) [C]; 3) [B] *; 4) [D]  

* - This option was not available at the time of the first (executives) survey.

About 80.00% of respondents were interested in attending or sending employees to gain specific knowledge in a two-week duration, understanding that these courses would offer a certificate of completion.

Of these, 62.50% would rather the short courses be offered with a 4-6-week break between the two weeks of instruction than having the course offered in two successive weeks.

A total of 62.92% of all middle managers expressed interest in using the Rinker School to obtain CEOs. This question was added to the survey after the executive survey was administered.

The Graduate Record Exam (GRE) was not seen as an inhibitor to middle managers either enrolling themselves or sending their employees to enroll in a master’s degree program. In all, 65.88% of respondents said that if that requirement was waived, they would be no more likely to either enroll themselves or send their employees to enroll in a master’s degree program. This question was added to the survey after the executive survey was administered. According to much research, the GRE is not a reliable predictor of academic success at the graduate level (Goldberg and Alliger 1992) (Wao et al. 2015).

* - Based on an analysis of the data, the Rinker School designed a Master’s in Construction Leadership degree, a 16-month program equivalent to four semesters.

References

