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The Impact of Attending a Specialty Contractor Panel Discussion on Students' Perceptions of Specialty Contracting Careers

Shantanu Kumar, Ph.D.¹, Kelsey A. Ginori, Ph.D.¹, Joseph P. Cleary, Ph.D.¹

¹California Polytechnic State University, San Luis Obispo

The demand for specialty contractors in US construction exceeds skilled workers availability, thus creating challenges for universities, organizations, and industry to attract students to these careers. Research shows that guest speakers, particularly young professionals, can increase interest in certain fields. This study examines the impact of a specialty contractor alumni panel on construction management (CM) students' perceptions of these careers. A 19-item Likert scale survey measuring students' awareness, value, difficulty, and preference for specialty contracting careers was distributed to all CM students at a university. Pre-panel, 85 students completed the survey. After an hour-long alumni panel featuring six recent graduates in specialty contracting, 19 out of 50 attending students completed the survey. Comparison of pre- and post-panel surveys revealed a shift toward greater awareness, understanding, and interest in these careers. Further analysis found a strong correlation between students' year in the program and their awareness of specialty contracting. Additionally, students' exposure to information about the field was linked to higher perceived value and increased likelihood of pursuing these careers. The findings suggest that CM programs could benefit from more engagement opportunities, such as alumni panels, early in students' university experience to help them explore the importance of specialty contracting roles.

Keywords: Specialty Trades, guest speakers, student perceptions, career pathways, workforce development

Introduction

The Bureau of Labor Statistics (2024) reports that construction employment is on the rise, with open positions in specialty trades contributing to a gain of approximately 22,800 jobs in September 2024 alone. Specialty trade contractors have a vital function in construction projects, performing work that requires skilled labor, equipment, and knowledge in a specific trade (i.e. electrical, plumbing, roofing, concrete, etc.) and projects are typically on a contractual basis (Tommelein & Ballard, 1997). Becker and colleagues (2014) contend that as modern buildings become more complex and technological, a transformation is occurring in construction from generalist to specialist, increasing the role of specialty trade contractors.

A struggle to keep pace with the growing demand for skilled labor (AGC, 2019) poses certain challenges for individual construction projects, such as cost overruns and schedule delays, leading to lost profit and missed opportunities that threaten the industry as a whole (Kim et al., 2020). According to AGC, 88% of the construction firms are unable to fill at least one of their positions and 68% of firms note that new applicants lack necessary skills (AGC, 2023). Project managers in all sectors of the economy, including specialty contracting, are also in demand as companies exhibit more project-based organizational structures (Bredin & Suederland, 2011). Employers rely heavily on existing construction education programs to fill positions (Toppin, 2018) and innovative approaches are needed to recruit these students for high-demand construction related careers such as specialty contracting. Both the Mechanical Contractors Association of America (MCAA) and the National Electrical Contractors Association (NECA) support university student chapters and national competitions in an effort to engage construction management (CM) students and attract them to their industry, similarly stating in their national student chapter events in the fall of 2024 that attracting enough qualified employees to their member companies was one of their biggest challenges (MCAA, 2024; NECA, 2024;).

Introducing industry professionals as guest speakers in the classroom is a well utilized approach in the literature across multiple disciplines to inform students of certain careers (Zou et al., 2019) and is especially prevalent in construction management education (Jafari & Redden, 2024). Burns and Chopra (2016) defined guest speakers as “subject matter experts who speak to classes to share their personal or professional experiences and knowledge with students” (p. 9). Interactions with successful role models can motivate and inspire students to persist in the face of challenges and potentially influence their career path (Burns & Chopra, 2016). Research has shown that Generation Z (Gen Z), students born between 1995 and 2012, are particularly motivated by job and financial security, possibly due to growing up in an era of financial recession and witnessing effects of Covid-related economic difficulties (Jayatissa, 2023). The pandemic and other sociocultural and political events of recent times may also account for Gen Z’s tendency to prioritize mental health and wellbeing in their career decisions, placing emphasis on a positive work environment, culture, support, and autonomy (DePetris & Tang, 2022). Hayden & Ledwirth (2014) suggest that alumni can offer recent perspectives on seeking employment in the current job market and can provide valuable insights for networking programs, workshops, and as guest speakers in panels.

To address the problem of a shortage of specialty contracting employees and to allow students to gain perspectives to a vital potential career path, the current study seeks to measure the impact of an alumni career panel on undergraduate construction management students’ understanding of and preference towards specialty contracting careers. The purpose of this study is to investigate the impact of an alumni panel discussion on students’ perceptions and likeliness of selecting specialty contracting as a career path.

Literature Review

There is much research across disciplines that shows integrating guest speakers in the university setting has a range of positive benefits, including the potential to influence career knowledge and preference. For example, Metrejean, Pittman, and Zarzeski (2002) explored junior-level undergraduate accounting students’ immediate feedback after a guest speaker event, finding that most responses to the question “What was good about this event?” were career-oriented and related to having an increased awareness about different accounting fields and what employers want, and that students ultimately felt more confident in their career decision making. In a recent survey of 114 undergraduate fashion students across two universities based on students’ general perceptions of guest speakers, researchers concluded that “Students were so assured of the authority of guest speakers that

listening to them could change their anticipated career path” (Jablon-Roberts & McCracken, 2022, p. 84). Jablon-Roberts & McCracken (2022) provided some suggestions based on this research, including that to maximize impact, guest speakers should be prepared to speak about a typical day, their personal journey, career pitfalls, how their college experience relates to their current role, be enthusiastic and honest, and answer student questions. Some studies have sought to measure the impact of a guest speaker by comparing perceptions of students who were and were not exposed to guest speakers, or by administering surveys before and after the event. For example, Miller et al. (2009) compared the perceptions of students enrolled in an entrepreneurship class with guest speakers to those not enrolled in the class and found that the former group had higher entrepreneurial intentions, more positive attitudes toward entrepreneurship, and more knowledge of various support factors for entrepreneurs. Riebe and colleagues (2013) administered a Likert scale survey before and after a guest speaker event to 150 undergraduate business students in Australia, finding an increased understanding among students of the significance of skills that are important for employability and workplace success. More recently, Powell and Rey (2019) examined how a panel of six successful, local, minority small business owners impacted African American business students’ efficacy and education in entrepreneurship through analyzing the results of 32 students’ Likert scale surveys administered before and after the event. Findings revealed significant increases in ability to identify new business opportunities, confidence in ability to network and create and market products successfully, confidence in managing employees, and a greater understanding of how to run a successful business (Powell & Ray, 2019).

When a visiting guest speaker is also a former graduate of the institution, students may be particularly invested in the message. Zagora (1982) explored how alumni contribute to career assistance efforts at 13 private schools, colleges, and universities, sharing the success of panel discussions in which quality alumni who have achieved success in their industry discuss their jobs, career paths, necessary training, current opportunities in the field, and undergraduate courses that may be helpful for students’ future career goals. In a study measuring 159 business students’ perceptions comparing alumni guest speakers to non-alumni industry guest speakers, Phan and colleagues (2004) found that alumni speakers were rated as having higher interactivity, evoking higher emotional attachment, and were associated with greater closeness.

Several studies have explored undergraduate students’ perception of construction careers and found career awareness to be an influential factor in choosing to enter the field. For example, Bigelow et. al., (2016) found that in addition to school-related factors, career opportunities emerged as a positively influential factor for retention of female construction management students. Similarly, Ostadalimakhmalbaf and Escamilla (2021) analyzed 108 questionnaires of students in construction trade programs to understand critical factors attracting skilled trade students to pursue a career in construction-related areas and found that family perception and support of construction careers as well as perception of salaries for construction-related positions are important factors leading to their decision. While many studies have explored perceptions of construction related careers, only one study was found that sought to identify student perceptions of specialty contracting specifically. Becker and researchers (2014) investigated student opinions on specialty trade employment by surveying 148 students across 5 universities, 67 of which had construction management academic backgrounds. Surveys revealed that 21% of students thought that a 4-year bachelor’s degree would overeducate them for employment with specialty trade contractors. Researchers also found that only 66% of construction students had considered seeking a job with a specialty trade contractor. Becker et al. (2014) recommended that university construction programs improve their connections to the specialty trade industry, such as by increasing the number of specialty contractor speakers in the classroom setting.

Existing literature on the impacts of guest speakers in the university predominantly focuses on academic fields outside of construction management (Jafari & Reddin, 2024). There is a lack of studies that have attempted to investigate how guest speakers impact construction management students' career knowledge and preferences, and specifically how engagement with construction management program alumni might impact career choice. Additionally, little investigation has been conducted to assess construction management student's perceptions of full-time employment with specialty trade contractors (Becker et al., 2014). The present study seeks to address these gaps by measuring the perceptions of construction management students related to specialty contracting before and after an alumni panel of specialty contractors.

Methodology

The purpose of this study is to investigate the impact of a construction management (CM) alumni panel discussion on students' perceptions and likeliness of selecting specialty contracting as a career path. This study aims to provide an exploratory overview of students' perspectives of specialty contractors in comparison to their perspectives of other opportunities in the construction industry in general, such as general contractors and construction managers. The target population was undergraduate students studying construction management at a California Polytechnic University, San Luis Obispo (Cal Poly SLO). The students enrolled program wide were asked to complete a pre-panel survey (control group). After the panel discussion, students in attendance were asked to complete a post-panel survey (experimental group). Pre panel and post panel terms are used to represent control and experimental groups. The resulting responses were analyzed using quantitative research methodology to produce guiding information to inform future specialty contractor and student engagement strategies.

Construction Management Degree Program

The curriculum of the CM program at Cal Poly SLO is integrated. The program defines this integrated curriculum as a method of combining all the core academic subjects such as scheduling, estimating, materials, and methods into a single course under an overarching theme, such as residential construction, commercial construction, or civil construction. CM majors must take seven practice-specific integrated lab courses. These labs cover fundamentals, residential, commercial, specialties, heavy civil, jobsite, and program management. Each of the integrated labs includes technical foundational information, estimating, scheduling, methods, material and a project-based learning component. Taken in sequence, these courses form a spiral learning framework.

Specialty Contractor Panel

A one-hour panel discussion of Cal Poly SLO CM graduates in the first two years post-graduation working for a specialty contractor was scheduled on campus the evening prior to the fall 2024 career fair. The event titled "Career Kickoff Panel" was advertised via email to the student and faculty list serve and flyers placed in classrooms and common areas around the facility, seven days in advance of the event. The panel consisted of six industry professionals, four spring 2024 graduates, and two spring 2023 graduates. Two of the panelists were women and four were men. Four of the panelists worked at three different ENR top 5 and one top 50 electrical firms, one at an ENR recognized top 10 mechanical firm, and one at an ENR recognized top 5 concrete firm (Adolphus & Keller, 2024). Complimentary food was provided during the panel. The panel discussion was moderated by a fourth year CM student that had previously interned at a concrete specialty contractor and was a member of the MCAA National Competition team, and member of the MCAA club. During the panel discussion the moderator started with an introduction of themselves, a broad introduction of the panel, explained the purpose of the event, and then asked the participants the following questions while facilitating and moderating the discussion in the interest of the one-hour time frame:

1. Introductions: name, position, company and why you chose the company/industry you chose.
2. What drew you to your side of the industry and ultimately the company you are at?
3. What is the day to day like in your job?
4. What is one exciting story of a problem you got to solve on your job?
5. What is the biggest surprise about your first year or 2 in your position?
6. Why should students consider working for a specialty contractor (vs GC?)
7. Why should students consider working for your company?
8. How can they find you at the career fair tomorrow?
9. What questions does the audience (students) have for the panel?
10. Can you describe a time when you had to learn something new quickly on the job? How did you approach that challenge?
11. What's one misconception students might have about working for a specialty contractor?
12. What is a rewarding aspect about working for a specialty contractor that you cannot experience working for a GC?
13. What advice do you have for students going into tomorrow's career fair?
14. How "paper-pushy" is working for a specialty contractor compared to a GC?

Participation, Data Collection, and Analysis

The panel discussion was attended by 50 undergraduate CM students. A pre-panel survey was administered prior to the panel discussion via email to the CM list serve to all major and minor students in the program. This served as the control group. To elicit a high response rate on the pre-panel survey, CM faculty were asked to encourage students to participate in the survey and there was a clear explanation that participation in the survey was optional. To minimize forms of internal or external threats to validity (e.g., history, maturation, etc.), the study was administered in a short relative timeframe of one week prior to the panel discussion. A post panel survey was administered directly following the panel discussion accessed by the students in attendance (experimental group) with a QR code. Both surveys consisted of 19 questions with 5-point Likert-type scale responses common in exploratory research and effective with proper explanation of the purpose of the survey (Keeley et al., 2013). The pre and post surveys were piloted by a small group of CM faculty and fourth year students, providing feedback that was then implemented into the survey before wider distribution, one week in advance of the panel.

Results and Discussion

The results help to address the impact of a Construction Management (CM) alumni panel discussion on students' perceptions and likeliness of selecting specialty contracting as a career path. The pre panel questionnaire survey was distributed to all CM majors at Cal Poly SLO. Out of 600 students in the program, 85 students answered the survey (14.17% response rate). After the panel discussion, students in attendance were asked to complete the post panel discussion questions and out of the 50 students in attendance, 19 students completed the survey (38% response rate). Table 1 shows that the students' distribution (1st through 5th years) were similar between pre and post panel thereby ensuring that the biases associated with students' standing in the CM department were minimized.

Table 1. Student Participation in Pre and Post Surveys by Year

Year of Student	Pre panel (Control group)	Post panel (Experimental group)
1	26%	24%
2	34%	29%
3	19%	29%
4	15%	12%
5	6%	6%

The frequency was analyzed by comparing responses from pre- and post-panel surveys. An overall shift in the students' responses toward options indicating greater awareness and understanding was observed, for example, from "not at all valuable" to "extremely valuable" in response to "How do you perceive the value of specialty trades?". Comparison of pre and post survey results revealed students had an increased understanding and perception of the importance of the MEP and other specialty trades after attending the alumni panel. The results of this analysis are summarized in Figure 1 and Figure 2.

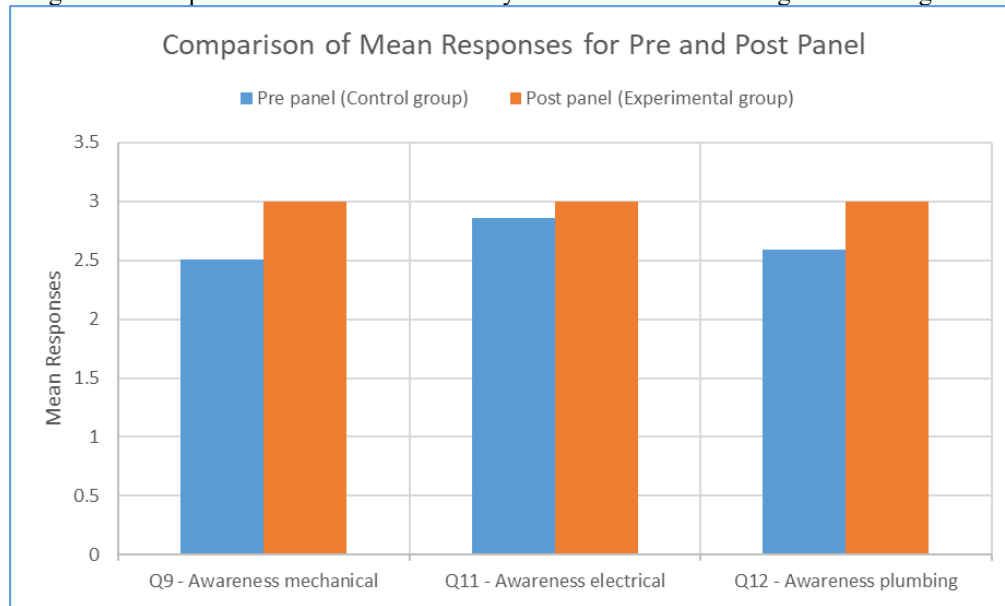


Figure 1: Comparison of mean responses for pre and post panel

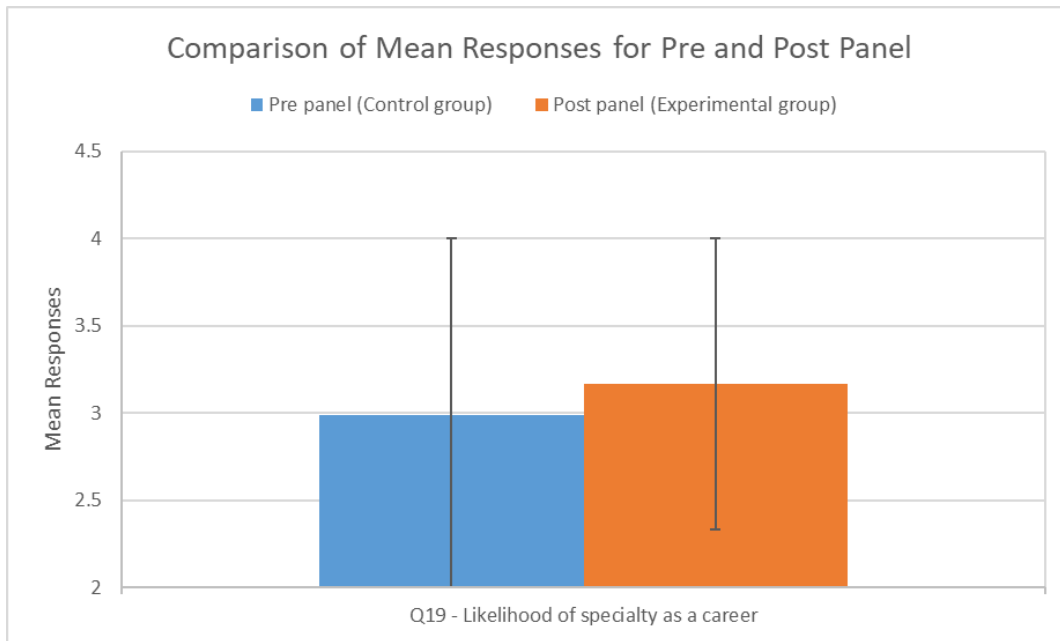


Figure 2: Comparison of mean responses for pre and post panel

In Figure 1 and Figure 2, an increasing trend of the mean responses were seen from the students post panel discussion. The error bars represent the standard deviation. The awareness of mechanical trades among students increased from 41% pre panel to 57% post panel. 100% of the students ranked at least slightly aware or higher post panel compared to 83% before panel discussion. The awareness of plumbing trades among students slightly increased (1%) after the panel discussion. The importance of specialty trades was the only question that had a mean response of more than moderately important. The understanding level among students increased from 73% pre panel to 82% post panel. The likelihood of students choosing MEP or other specialty trades as a career increased from 61% pre panel to 75% post panel.

One of the reasons for students' awareness not increasing significantly for plumbing trade may be attributed to students being unaware of how the labor groups are structured. For example, mechanical contractors may have the ability to work on both mechanical and plumbing scopes and consist of sheet metal workers, pipe fitters, and plumbers within one company. There was no presence from a standalone plumbing contractor in the alumni panel, and this may have aided to the above result. Overall, the understanding of the different specialty trades significantly increased due to a robust panel discussion about the day-to-day work, problem solving, things that were surprising in first two years, importance of specialty contracting, misconceptions, rewarding aspects, and advice for students among many other questions (Riebe et al., 2013; Powell & Rey, 2019). Hearing the professionals in the MEP and other specialty sectors, students were able to become more aware, get a better understanding, and therefore result in a higher percentage of likelihood of them choosing specialty as their career (Jablon-Roberts & McCracken, 2022). The importance of specialty trades was the only question that had a mean response of more than moderately important. This shows that students seem to understand the importance of MEP and other specialty trades, however, organizing workshops, presentations, and networking with specialty contractors is likely to increase students' understanding and likelihood of choosing them as their career path (Becker et al., 2014).

The Pearson Correlation Coefficient of pre panel data showed that there was a significant correlation between the students' standing (1st year, 2nd year, 3rd year, 4th year, etc.) in the program and their awareness, understanding, and perception of the value of MEP and other specialty trades. It was inferred that the further along students are in the CM program, they are likely to hear more about MEP and other specialty trades, understand the value, and therefore are more likely to make these trades as their career choice. The significant pre panel Pearson Coefficients have been summarized in Table 23.

Comparison	Pearson Coefficient
Year of student and awareness of mechanical trade	.469**
Year of student and awareness of electrical trade	.321**
Year of student and awareness of plumbing trade	.367**
Awareness of mechanical trade and value of the trade	.246*
Awareness of electrical trade and value of the trade	.328**
Awareness of plumbing trade and value of the trade	.322**
Frequency of hearing about specialty trades and understanding their value	.469**
Value of specialty trades and students choosing those trades as career path	.301*

** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).

Chi-square analysis was run on nominal variables for both pre (control group) and post panel (experimental group) datasets, including yes/no questions such as whether students had previously worked for a specialty contractor or been part of a club related to specialty contracting. Students have had the opportunity to be exposed to more MEP focused content both in and beyond the classroom as they progress through the program. With more attendance in presentations, students seem to gain a better understanding of MEP and other specialty trades, and these variables possessed a strong association. It was also observed that the further along a student is in the CM program, there is more likelihood of them attending presentations from specialty trades and having a better understanding of those trades (p-value of 0.006). Since a better understanding has been correlated to students choosing MEP or other specialty trades as their career path, it is important to create opportunities for students early on in their degree program to connect them with specialty trades. In the larger dataset, a unique association was found between students being part of specialty contracting clubs and the likelihood of making MEP and other specialties as part of their career (p-value of 0.029). The reason can be attributed to the fact that these clubs organize several events specific to specialty contracting such as site visits, hosting guest speakers, and participating in competition teams specific to specialty trades. No association was found between the specialty trades students worked for and declaring a career interest in those specific trades as their path after graduation. This can be due to the low number of students who had internships in the area of specialty contracting and there were no statistically significant results.

Conclusion

This research explores the impacts of attending a specialty contracting alumni panel discussion on students' perceptions of careers in specialty contracting. A specialty contracting panel discussion was

held where the panel members consisted of recent alumni of the CM program. A pre-panel survey (control group) was distributed to all CM major students at California Polytechnic University, San Luis Obispo. The post panel survey (experimental group) was then administered to the subset of those students who attended the alumni panel discussion. Data was compared and analyzed between the pre and post panel surveys. The results show that the connection with industry professionals greatly impacts the perceptions of students about specialty contracting including MEP and other specialty trades. The presence of alumni has a stronger impact on current students as they can easily relate to the young graduates, which influences their career choice (Zagora, 1982; Phan et al., 2004). Though the students already understood the value of specialty contracting to a degree based on the pre-panel survey, the panel discussion helped to improve their understanding of MEP and other specialty trades. This better understanding potentially could be the reason for an improvement in the percentage of students willing to choose specialty contracting as their careers. A panel discussion of recent CM graduates working for specialty contractors clearly improved the overall impression of specialty contractors as a post-graduation employment option including MEP and concrete specialty contractors.

Limitations and Future Work

There were a few limitations recognized by the research team. This study did not report the responses of the panel participants and what influenced their chosen career path as the focus of the study was on the perceptions of current students. In addition, this exploratory study did not include any open response questions or interviews with students in the audience of the panel discussion. Future research could include interviews with students and qualitative analysis of self-reported factors that helped determine their inclination to pursue a career path with a specialty contractor. Further, choosing a career path is a complex decision influenced by multiple factors. This research did not capture the demographics and academic history of students, which could also strongly influence their career path choices. This study was also limited to current CM students at Cal Poly SLO. Therefore, future work can investigate how demographics and academic factors impact how students choose a specific career track and potentially how they chose CM as their college major. Future studies can also look into replicating this study on a larger scale to gather a broad set of students' perceptions on specialty panels and related presentations.

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