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Incorporating Industry Professionals as Guest Speakers in Construction Management Programs: Enhancing Knowledge and Learning Experiences

Farnaz Jafari, MA and Lauren Redden, MBC

Auburn University
Auburn, Alabama

This study explores the impact of integrating industry guest speakers into United States Construction Management (CM) programs on student learning. Combining a primary survey and action research, the study explores the effect of industry guest speakers on students' educational experiences and the effective approaches to improve student learning. The results indicate that industry guest speakers enhance students' understanding of the construction industry and enrich their learning. Moreover, a thematic analysis employing inductive coding was utilized to analyze the qualitative feedback from open-ended questions from the primary survey. The findings reveal that students favor interactive formats, such as hands-on workshops and Q&A sessions, over traditional lectures. They strongly desire real-world examples to connect theory with practical application, emphasizing the need for guest lecture content to be pertinent to their CM coursework. Students also advocate for more frequent guest speaker appearances across all CM courses. The study acknowledges the potential for sample size expansion, recognizing its influence on data outcomes. As more participants are expected to join the survey, results may evolve. These findings offer insights for improving guest speaker integration in CM programs to align with students' desire for enhanced learning experiences.

Key Words: Construction Management, Guest Speakers, Student Learning, Industry, Education

Introduction

In the rapidly evolving field of construction management, bridging the gap between academic learning and real-world industry practices is paramount to producing skilled and industry-ready professionals. As construction projects become more complex and multifaceted, it is imperative to equip students with not only theoretical knowledge, but also practical insights. Guest speakers from the construction industry, with their firsthand experience and dynamic expertise, present a unique opportunity to enrich the learning process within Construction Management (CM) programs (Aliu & Aigbavboa, 2017). This paper delves into the impact that guest speakers wield in the realm of education, specifically focusing on the CM discipline. By bringing industry practitioners into the classroom, students gain direct

exposure to current industry trends, challenges, and best practices, thus fostering a holistic and immersive learning environment (Miller et al., 2009). Existing literature on the incorporation of guest speakers in educational settings predominantly concentrates on academic fields outside of CM. Empirical studies within this literature primarily investigate the guest speaker's impact on students' discipline-related knowledge, professional attitudes, potential career prospects, and their presentation effectiveness. Additional papers within this domain concentrate on offering guidance, insights, and tactics for the efficient management and utilization of guest speakers (Hogan, 2009; Riebe et al., 2013).

Within the field of CM education, the inclusion of industry guest speakers has become a prevalent practice. These speakers often bring their practical experiences and insights into the classroom, offering students the opportunity to bridge the gap between theoretical knowledge and real-world application. The interaction with industry professionals not only enhances the learning experiences of students but also enriches their understanding of industry practices (Aliu & Aigbavboa, 2017). Such engagements can motivate and inspire students, potentially influencing their career paths within the CM field. Understanding the impact of these guest speaker sessions on student learning is crucial for educators and policymakers aiming to optimize the educational experience in CM programs.

Literature Review

Integrating guest speakers into CM programs holds notable significance as higher education institutions are increasingly scrutinized for their role in preparing students for the competitive job market and equipping them with essential transferable skills (Hurrell, 2016). Recognizing the significance of collaboration between academia and industry is crucial in tackling the shared challenges that both sectors encounter when it comes to the adoption and advancement of emerging technology within the construction industry (Annor et al., 2023). In the realm of academic disciplines, the inclusion of guest speakers has demonstrated its efficacy in attracting students and reigniting their interest in specific fields. Fedoryshyn and Tyson's (2003) study in accounting exemplifies this phenomenon, showcasing the power of well-planned guest speaker presentations in introductory courses. This approach can positively shift student perceptions, fostering a more favorable outlook on the subject matter and potential careers, thereby revitalizing the appeal of various academic disciplines (Payne et al., 2003).

Incorporating guest speakers into educational programs offers several benefits. These experts have the power to inspire students by providing them with up-to-date industry insights and practical knowledge (Miller et al., 2009). Rather than intimidating, these insights serve as a source of motivation. Through various forms of engagement, including lectures, discussions, and site visits, guest speakers share their experiences, thus motivating students to confront industry challenges (Aliu & Aigbavboa, 2017). Their inspirational talks serve as a form of mentorship, imparting industry knowledge that enhances students' mindset and employability (Hogan, 2009). Despite these benefits, the effective utilization of guest speakers presents certain challenges. The primary challenge is seamlessly integrating guest speakers into the program to align with desired learning outcomes. Van Hoek et al. (2011) offer practical recommendations for faculty to categorize guest speakers based on roles and seniority, enhancing the learning experience. Recruitment of suitable guest speakers is another significant hurdle. To overcome this, faculty can employ strategies that heavily rely on networking, both within personal and professional networks, observing their presentation abilities during a conference to assess their pedagogical competence, and leverage the networks of students, alumni, peers, and senior faculty members to streamline the recruitment process, ultimately enhancing the educational impact of guest speakers (van Hoek et al., 2011).

While students frequently derive enjoyment from guest speaker visits, these encounters may not always pose intellectual challenges to them (Karns, 2005). Hence, from a learning perspective, the conventional format of guest speaker sessions might lack effectiveness (Dalakas, 2016). Therefore, the mere invitation of guest speakers to the classroom may prove insufficient to augment the overall student learning experience. Leor (2015) suggests that faculty can facilitate guest speakers' effectiveness by preemptively supplying them with clear objectives, time frames, and presentation methodologies, as well as aligning their anticipations with student interaction levels. To further enrich learning, reviewing the speakers' materials and promoting active engagement strategies can significantly enhance the educational experience, since guest speakers unfamiliar with the students' knowledge base may inadvertently deliver content that is either too advanced or not sufficiently connected to the students' existing understanding (Leor, 2015). Additionally, in response to this challenge, Zheng et al. (2018) introduced and evaluated a student-centered guest lecturing approach in a "Chemical Crystallography" class, using student feedback as a measure of its effectiveness. This method, incorporating themed presentations, hands-on workshops, and small group discussions, proved highly effective in enhancing student interest and understanding, leading to sustained positive impacts on learning and engagement (Zheng et al., 2018). By incorporating guest speakers in such an active learning format, students are encouraged to move from being passive recipients of predefined knowledge to becoming engaged participants in their own learning journey (Smith et al., 2005; Machemer & Crawford, 2007; van Hoek et al., 2011).

However, a conspicuous gap exists in empirical literature concerning the integration of guest speakers into Construction Management (CM) programs and the optimal methodologies for their incorporation into courses. The current body of literature evaluating the efficacy of guest speakers is outdated and lacks consideration for Generation Z (Gen Z) students. Recent research by Cickovska (2020) highlights educators' concerns regarding the behavioral traits of students, specifically in relation to Gen Z learning styles, resulting in a misalignment of expectations and aspirations that contributes to disconnection and suboptimal learning outcomes. Therefore, an investigation into the methodologies of integrating guest speakers into CM programs is imperative for enhancing learning outcomes among Gen Z students. Having explored the significance, challenges, and potential enhancements associated with guest speakers, the following methodology section will provide insights into how to effectively integrate and utilize guest speakers within CM programs to optimize student learning outcomes and engagement.

Methodology

In this research, a mixed methods approach was employed, combining both qualitative and quantitative data collection methods to provide a comprehensive understanding of the impact of guest speakers in CM programs. We designed and distributed a primary survey to CM students across the United States. The survey was circulated via the Associated Schools of Construction's (ASC) Listserv by requesting department heads of CM programs to distribute it to their students. Additionally, we employed an action research survey methodology at Auburn University throughout the investigation to corroborate and expand upon the data collected via the primary (nationally distributed) survey. The primary survey instrument consisting of multiple-choice and open-ended questions was created using the Qualtrics platform. The survey instrument created consists of 23 Likert-type scale items and six open-ended questions to assess the satisfaction and contribution industry professionals bring to CM program classrooms. A total of 29 questions were divided into seven categories. Table 1 provides an overview and description of these seven categories. The open-ended questions offered respondents the space to share their thoughts on the impact of guest speakers on their learning experience, how these speakers contributed to their understanding of industry practices, and whether they felt motivated to pursue a

career in construction management. Respondents also had the opportunity to suggest ways to enhance the learning experience and propose specific topics or areas they would like guest speakers to cover.

Table 1

Description of Research Variables Employed in the Survey

Survey Question	Category	Description of the Category
Q7, Q8, Q9	Frequency of Guest Speakers	Examining the number of guest speaker sessions attended by participants, ranging from none to multiple sessions.
Q10, Q11, Q12	Expertise of Guest Speakers	Assessing the level of expertise and experience of the industry guest speakers.
Q13, Q14, Q15	Topics Covered	Investigating the specific topics or themes addressed by the guest speakers.
Q16 (A, B, C, D)	Interaction with Guest Speakers	Exploring the level of interaction between participants and guest speakers, including opportunities for Q&A, networking, or mentoring.
	Participant Engagement	Measuring the active engagement of participants during guest speaker sessions, including attentiveness, participation in discussions, or follow-up activities.
Q17, Q18, Q19	Format of Guest Speaker Sessions	Considering the format or delivery method of guest speaker sessions, such as lectures, panel discussions, workshops, or case studies.
Q20, Q21, Q22	Perception of Relevance	Examining participants' perception of the relevance of the guest speaker sessions to their CM education and future careers.
Q23, Q24, Q25, Q26, Q27, Q28, Q29	Outcomes/Effects of Guest Speakers and Overall Satisfaction	Capturing participants' opinions and overall satisfaction with the guest speaker program and its impact on their learning experience.

Action Research

In the quest for empirical evidence to drive meaningful enhancements in instructional methodologies, this study incorporated action research alongside the primary (nationally distributed) survey. The application of pre-post surveys was instrumental in assessing the impact of guest speakers on a CM program as an educational intervention. In this phase of the study, a comprehensive assessment was conducted through the administration of a set of pre- and post-surveys, immediately before and after an industry guest speaker lecture in the "Introduction to Construction" course, which is attended by 163 first-year students. This course is a component of the curriculum offered at Auburn University. Students were asked to respond to an identical set of questions, inquiring about the students' existing understanding of the guest speaker's subject matter, its relevance to the field of construction management, and their inclination towards pursuing a career in the area of expertise presented by the guest speaker, to both before to and after the delivery of the guest speaker's lecture.

The questions are as follows and were on an Agree-Disagree scale:

- 1) I have a good understanding of "Guest Speaker Topic" in the construction industry.
- 2) I think knowing about "Guest Speaker Topic" is relevant to my studies in construction management.
- 3) I can see myself working for a company that does this line of work (i.e., "Guest Speaker Topic") after my graduation.

Subsequently, these questions are mapped to specific items within the primary survey.

- The guest speakers enhanced my understanding of the construction industry (Q9).
- The topics covered by the guest speakers were relevant to my studies in Construction Management (Q13).
- The guest speaker sessions increased my awareness of the practical applications of Construction Management concepts (Q21).

Results and Discussion

A total of 185 respondents participated in the primary survey, including undergraduate and graduate students. Among the 185 responses, 148 were considered complete, and this subset was selected for the study's analysis, with the exclusion of responses that consistently chose only a single response option (e.g., "strongly agree" for all questions) or very few responses. The study's demographic composition revealed that 80.54% of the respondents identified as male, while 18.79% identified as female; a minority chose not to disclose their gender. In terms of academic status, the majority of participants, accounting for 86.49%, were undergraduate students, with a significant distribution across the junior (41.22%) and senior (44.59%) levels. A smaller fraction, 8.11%, were enrolled in graduate programs at the master's level, while 5.41% were undertaking doctoral studies.

According to the data within the average response count graph (Figure 1), it is evident survey participants express agreement in response to the survey questions. These inquiries aimed to assess students' perceptions of the guest speaker's impact on their learning experience, utilizing a rating scale from 1 (Strongly Disagree) to 7 (Strongly Agree).

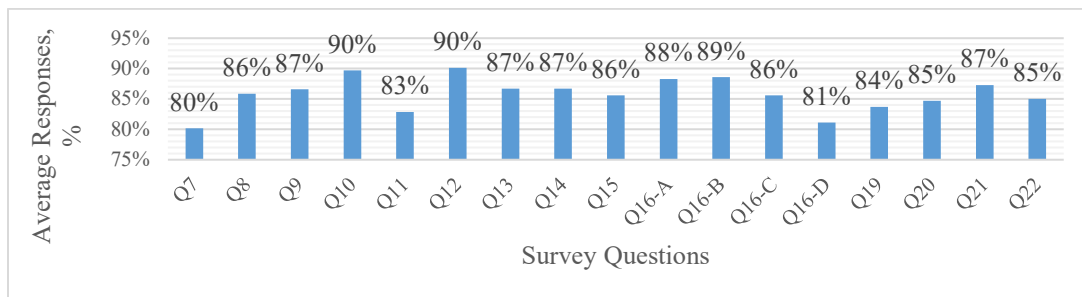


Figure 1. Graphical Representation of Average Response Count of Survey Questions

The survey questions were systematically categorized for a comprehensive analysis. As shown in Table 1, questions 7, 8, and 9 were designed to evaluate the "Frequency of Guest Speaker." Questions 10, 11, and 12 focused on the "Expertise of the Guest Speaker," while questions 13, 14, and 15 delved into "Topics Covered." In particular, Question 16 was presented in a matrix table format, comprising four statements (Q16-A, Q16-B, Q16-C, and Q16-D), and addressed "Interaction with Guest Speakers and Participant Engagement." Questions 17, 18, and 19 explored the "Format of Guest Speaker Session," with a specific examination of Q17 and Q18, as depicted in Figure 2, to uncover distinct aspects of the guest speaker format. Questions 20, 21, and 22 inquired about the "Perception of Relevance."

In particular, Q10 ($M=6.28$, $SD=0.71$) and Q12 ($M=6.31$, $SD=0.78$) displayed a 90% agreement feedback trend. Q10 asked the participants if the guest speakers demonstrated in-depth knowledge and expertise in the construction industry, while Q12 asked them if the guest speakers provided valuable insights based on their industry experience. It's important to note that certain questions showed

relatively lower rates of agreement. For instance, questions regarding the “frequency of guest speakers in the course” (Q7) received an 80% average response ($M=5.61$, $SD=1.12$), encompassing a range of opinions from disagreement to strong agreement, which means students expect more frequent appearance of guest speakers in their CM courses. Similarly, the question concerning “Communicating complex building construction concepts and ideas effectively by the guest speaker” (Q11) garnered an 83% average response ($M=5.80$, $SD=1.02$), spanning from somewhat disagreement to strong agreement. Finally, “critical thinking and reflection encouragement in the guest speaker session” (Q16-D) received an average response of 81% ($M=5.68$, $SD=1.11$), reflecting opinions that ranged from somewhat disagreement to strong agreement.

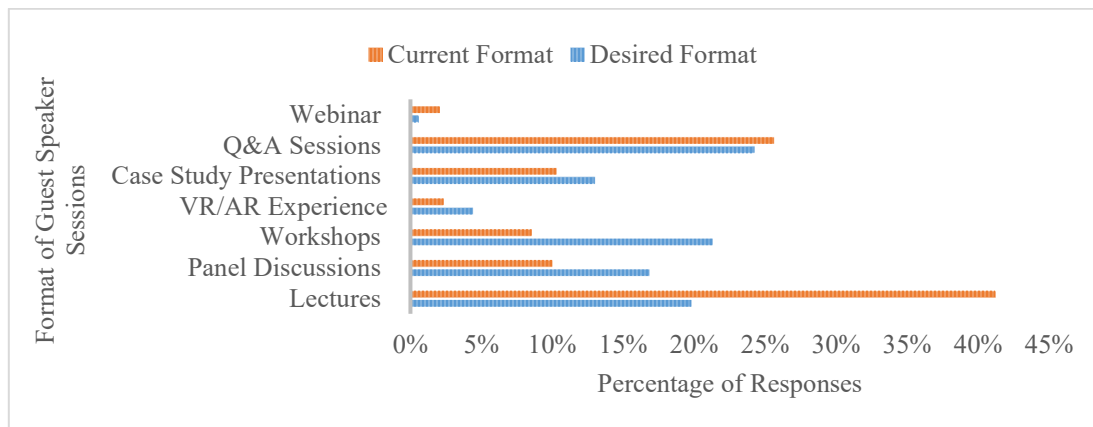


Figure 2. Graphical Representation of Current Guest Speaker Sessions Formats and Desired Formats

In addition to the Likert-scaled questions incorporated into the survey, questions Q17 and Q18 were designed to evaluate the prevailing format of guest speaker sessions and to discern the formats preferred by students to enhance their learning experience and be more engaging and effective. As illustrated in Figure 2, classroom lectures emerged as the most frequently utilized format by guest speakers, representing 41.18% of the total. Subsequently, Q&A sessions were the next most commonly employed format, comprising 25.59% of the sessions. Case Study Presentations, which involve the analysis of real-life case studies, Panel Discussions where a group of experts offer diverse perspectives, and Workshops that provide hands-on experiential learning, were moderately applied formats, with usage rates of 10.29%, 10%, and 8.53%, respectively. The least employed formats encompassed Virtual Reality/Augmented Reality (VR/AR) Experiences at 2.35% and Webinars at 2.06%.

Of note, the findings pertaining to students’ desired formats for guest speaker sessions revealed a clear inclination towards diminishing the prevalence of traditional lectures, with only 19.76% expressing a preference for this format. Students exhibited a strong inclination for increased usage of Workshops (21.24%), Case Study Presentations (12.98%), Panel Discussions (16.81%), and Virtual Reality/Augmented Reality Experiences (4.42%) to enrich their learning experiences. These findings highlight the evolving student preferences and provide valuable insights into optimizing the format of guest speaker sessions in the context of educational enhancements.

Thematic Analysis of Open-Ended Questions in the Survey

Participants provided qualitative feedback on the influence of industry guest speakers on their learning experiences, resulting in 122 responses from a group of 148 participants. Thematic analysis was employed to extract key themes from these responses, which were then mapped to research variables

including Frequency of Guest Speakers, Expertise of Guest Speakers, Topics Covered, Interaction with Guest Speakers and Participant Engagement, Format of Guest Speaker Session, and Perception of Relevance. These variables aimed to assess the overall effectiveness of integrating guest speakers into the classroom setting. Figure 3 illustrates that participants placed a strong emphasis on the Format of Guest Speaker Sessions, with 42% highlighting a preference for hands-on experiences and interactive Q&A sessions, viewing traditional lectures as less beneficial. “Perception of Relevance” received substantial attention, constituting 17% of the responses, as students expected guest speakers to bridge the gap between theoretical classroom knowledge and real-world applications relevant to their coursework.

Additionally, students expressed a keen interest in the “Topics Covered,” desiring guest speakers to address pertinent subjects during their sessions. Their preference extended to wanting guest speakers from diverse geographic regions, industry sectors, and positions. “Frequency of Guest Speakers” also played a significant role, with 11% of participants expressing a desire for more frequent guest speaker appearances across all courses within the CM program. “Interaction with Guest Speakers and Participant Engagement” (8%) was highly valued as an opportunity for networking and future career preparation. Lastly, the “Expertise of the Guest Speaker” (7%) was seen as a valuable contributor to enhancing the learning experience. In summary, these factors collectively contribute to enriching students’ learning experiences, with a particular emphasis on the Format of Guest Speaker Sessions and the incorporation of real-world examples and applications.

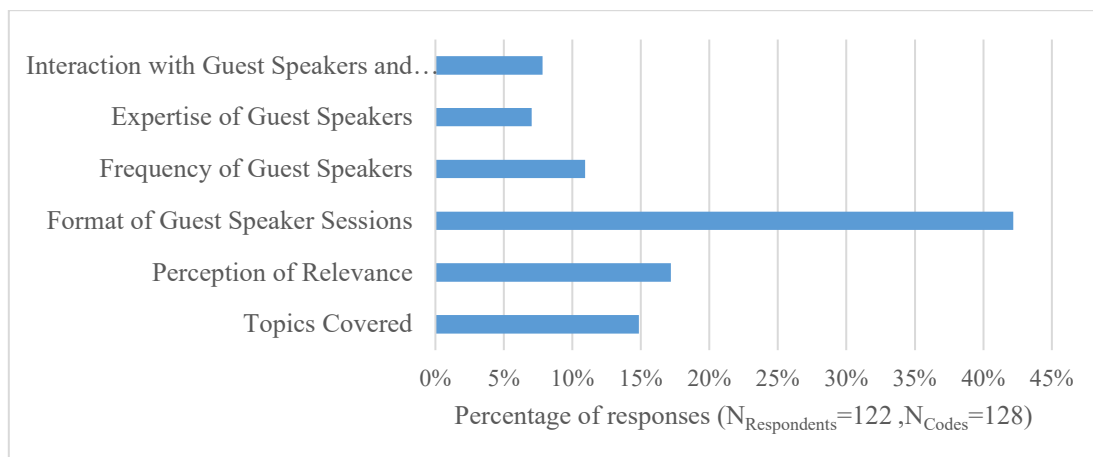


Figure 3. Future Practices for Enhanced Learning Experience

Descriptive Analysis of Action Research

In this phase of study, pre- and post-lecture surveys were administered to students in an “Introduction to Construction” course. These surveys were brief, with three identical questions, and were completed immediately before and after a lecture delivered by an industry guest speaker in the classroom. The purpose of these surveys was to assess changes in student perceptions and attitudes following the guest speaker’s presentation on the Electrical aspect of the construction industry, particularly featuring projects such as constructing the Electric Vehicle (EV) Infrastructure in the United States.

In total, 125 students participated in the pre-lecture survey. Following the guest speaker lecture, 111 students completed the post-lecture survey. These surveys were designed to evaluate three key aspects:

understanding of the company's line of work, specifically in the context of EV Infrastructure construction; the relevance of the industry guest speaker's topic to the students' program and course; and the students' willingness to consider a career in the field discussed by the guest speaker. Table 2 presents the survey results, indicating how students' perceptions and attitudes changed before and after they were exposed to the industry guest speaker's intervention.

Table 2

*Pre-Post Survey Results from Industry Guest Speaker in the Classroom
Focusing on Electric Vehicle (EV) Infrastructure Construction*

		Knowledge Enhancement	Relevant Topic	Career Aspirations
Strongly disagree	Pre	16%	2%	10%
	Post	0%	1%	2%
Disagree	Pre	30%	2%	11%
	Post	0%	0%	5%
Somewhat disagree	Pre	14%	8%	7%
	Post	1%	0%	3%
Neither agree nor disagree	Pre	16%	22%	45%
	Post	7%	5%	14%
Somewhat agree	Pre	15%	24%	11%
	Post	25%	17%	31%
Agree	Pre	6%	32%	13%
	Post	50%	50%	33%
Strongly agree	Pre	3%	9%	3%
	Post	17%	26%	13%

As shown in Table 2, there is a significant shift in students' knowledge and comprehension regarding EV Infrastructure construction before and after the guest speaker lecture. Moreover, a significant portion of students (45%) initially had doubts about pursuing a career in this field. However, following the guest speaker's presentation, they exhibited improved comprehension of the industry and a heightened interest in the construction sector, although some uncertainties persisted. These findings underscore the efficacy of the guest speaker intervention in augmenting students' awareness and knowledge regarding EV Infrastructure construction.

Conclusion

This research delved into the integration of industry guest speakers within Construction Management (CM) programs in the United States and its repercussions on student learning. The combined analysis of primary survey data and action research outcomes underscored the positive influence of industry guest speakers on students' comprehension of industry-related knowledge and their overall learning experiences. Students offered insightful feedback, emphasizing that the format of guest speaker sessions holds a pivotal role, advocating for more interactive and hands-on experiences over traditional lecture-style presentations. Their desire to actively engage in the learning process and witness real-world applications signifies a significant bridge between theoretical coursework and practical industry insights, which guest speakers are well-placed to provide based on their daily industry experiences. Additionally, students expressed a strong preference for increased frequency in guest speaker appearances, spanning across all CM program courses, as they perceived it as a valuable means to

enhance their learning experiences. We recognize the limitations in our study arising from the potential for participant perception bias, as respondents may have preferences for certain guest speakers. Moreover, the primary survey, though distributed nationally, garnered a predominant response from the Southeast. Future research aims to refine bias mitigation and achieve a more geographically diverse sample.

Given students' preference for hands-on experiences and interactive Q&A sessions, faculty and industry guest speakers can collaboratively design well-structured guest speaker sessions to enhance learning in CM programs. The authors acknowledge the need for further research to establish more robust correlations while examining the effects of integrating guest speakers into CM courses. Additionally, the current study's sample size may expand, potentially impacting the present data results. It is essential to recognize that future results may undergo adjustments as more responses are integrated, particularly with the expectation of an increased number of survey participants.

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