

Comparative Analysis of Internship Programs from Employer and Student Perspectives

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ABSTRACT

Internships have long been considered an essential experiential learning method in higher engineering education. It can immerse students in real-world practices and bridge the gap between theory and practice. Internship experience is particularly crucial in fields with strong practical emphasis, such as construction. Recognizing the value of student internship experiences, many universities embed internship courses within their curriculum, and even making them a prerequisite for graduation. However, despite the widespread presence of internship programs, there still exists a gap between the requirements and offerings from the industry and the expectations of students. Such gap can affect the efficacy of student learning experience, potentially undermining the objectives internship programs seek to achieve. To comprehensively understand the current state-of-the-art of the internship programs and student internship experience in the construction industry, this research conducted a comparative analysis from both the employer and student perspectives through online surveys. The results compared the internship program details, intern hiring preferences, and internship format across 11 construction companies in different sizes, as well as student job search experience and the resources they leverage. The results also compared the perceived qualities of an ideal employee, as ranked by both the employers and students. These results foster broader discussions among companies to share experiences and best practices of student internship programs, and provide a roadmap for higher education institutions and industry partners to collaboratively design internship programs that are relevant, effective, and aligned with the evolving needs of both the industry and its future professionals.

KEYWORDS

Internship program, Construction industry, Comparative analysis

INTRODUCTION

Internships have been widely recognized as an important learning method in higher engineering education. It can expose students in real-life work environment, and help them to integrate the theoretical knowledge learned in the classroom with best practices in the industry [1]. This is particularly necessary in practical fields like construction [2]. The complexity of projects and the dynamic nature of the work environment require students to be equipped with a practical understanding that often goes beyond the in-class knowledge. To that end, many universities have actively collaborated with the industry, developed internship course in their curriculum, and even made internship a prerequisite for graduation.

Internships programs in construction has been explored by a plethora of existing studies. These studies can mainly be categorized into three topics: introduction of the internship class structure in a specific program, analysis of the role of internships on students learning, and evaluation of the effectiveness and outcomes of internship programs. For example, [2] provided a thorough introduction of the internship program developed by the Building Construction Program at Virginia Tech. The internship course objectives, the implementation process and the lessons

learned in the process were presented in the paper. [3] investigated the benefits of internship class for the students, the professor, and the industry mentor using a case of the internship class offered by the construction management program at the University of Nebraska-Lincoln. [4] identified that internship creates added value to both the students and the companies through an analysis of student internship reports. [5] compared students with internship experiences to those without internships in terms of changes in GPA and course performance, and the results indicated a positive impact of internships on students GPA and overall performance.

However, despite the widespread presence of internship programs, there still is a misalignment in the understanding and expectations among the university, the companies, and the students involved. Universities view internships as an educational strategy to enhance student learning, with an aim to provide students with personalized education experiences. However, companies often treat internships as a recruitment tool to look for ideal candidates for full-time employees. In construction, companies typically place student interns in an ongoing project under the guidance of a mentor (i.e., project manager). This is unlike the common practices in tech domain, where interns are offered with standardized and structured internship programs and limited scope of work. The complex nature of construction projects can make it challenging for students to quickly grasp all aspects of the work. It thus requires strong self-learning skills and engagement, but is also hard to verify if students really achieved their learning objectives. Students, on the other hand, often find their needs not seen by the company, and difficult to fully engage in the complexity of the projects at hand. This leaves a huge gap, which highlights the necessity of a common understanding among the three stakeholders and improvement in the internship programs.

Therefore, to address this knowledge gap, in this research, the author aims to conduct a comparative study of student internship programs in construction, from both employer and student perspectives. The goal is to foster a shared understanding of the internship programs in the industry as well as student needs, enabling the department to refine the structure of the internship course, as well as collaborate with companies and student career services, to leverage all the resources and help with student success.

METHODOLOGY

This study used a survey-based approach to collect in-depth information from both employers and students involved in the construction internship programs. The methodology aims to thoroughly understand the perspectives of the two major stakeholders in the internship cycle, identify the gaps between their expectations and experiences, and explore potentials for improvement.

Employer Survey

The employer survey was designed and distributed to companies known to offer internship programs in the construction sector. These companies are in different sizes and covered a wide range of company types including general contractors and trades, representing a diverse range of participants. A total of 25 questions were formulated, focusing on four aspects of their internship programs.

- 1) Internship program information: This section is designed to obtain the overall information about the internship programs in the company. Four questions are designed in this section, including the existence of a formal internship program structure, the time since the launch of the program, the number of interns hired every year, and the conversion rate of interns to full-time employees.

- 2) Internship format: This section aims to explore in more depth of the internship programs. Eight questions are designed, which covers topics related to the length of the internship, orientation procedures, mentorship availability, salary, and other financial incentives offered to interns.
- 3) Intern hiring preferences: This section focused on the preferences of employers while hiring interns. Eight questions are formulated in this section, covering company's preferences in terms of student academic years, prior industry experience, type of employment (full-time or part-time intern), student location (local or across the nation), student nationality (US citizen or international student) and sponsorship, as well as the duration and timing of internships.
- 4) Recruitment Resources: This section aims to identify the tools and resources that companies typically use while hiring for interns, such as job fairs, online platforms, and university career services.

Other than these 25 questions related to the internship programs, employers were also asked to identify the qualities that are mostly desired in an intern or a successful employee, providing insight into the skills and qualities valued in the industry.

Student Survey

The student survey was released to students who has taken or is taking the internship class at the Moss Department of Construction Management at Florida International University, both from the graduate level or the undergraduate level. It is designed to collect information on student's internship search experience. A total of 16 questions were included in the survey, covering four major aspects.

- 1) Student demographics: This section collected basic demographic information of the students, including their gender, ethnicity, academic year, and nationality (US citizen or international student).
- 2) Prior experience and current employment status: Questions were designed to gather information about students' prior work experience in the industry and their current employment status.
- 3) Job search preferences and experiences: In this section, students were asked about their preferences and experiences in seeking internships, such as the type of employment they sought, the number of positions they applied for, the number of interviews received, their expected salary, and preferred work locations.
- 4) Internship opportunities and resources: This section focused on the resources students used to find internship opportunities, with an aim to know if students are making use of the career services offered by the university.

Similar to the employer survey, the student survey also added a question about a rank of qualities for a good employee, to gain a better understanding on students' perspectives of industry expectations.

RESULTS AND DISCUSSION

The collected data from both surveys were analyzed to identify the trends, similarities, and differences regarding construction internships from the perspectives of employers and students.

The survey results revealed the structure, preferences, and challenges of the current construction internship programs, and provided key insights for enhanced mutual understanding and further improvement.

Employer Survey Results

Employer survey was released through the Industry Advisory Council at our Construction Management Department. A total of 11 responses were received, with 10 companies hiring interns.

Internship Programs and Format

The results of internship program information are summarized in Table 1. As can be seen in Table 1, despite the different launching time, most companies have established a formal structured internship program. This is a good practice for both the employers and students. On one hand, with a structured program, companies can save time in hiring and managing interns. And on the other hand, students will be exposed to a more structured and standardized internship process, thus improving their learning and internship experience.

In terms of the number of interns hired every year, there exists a huge variance across companies with different type and scale. For example, for most small and medium-sized companies, they typically hire a small number of interns (i.e., most of them hire interns within 5). However, for large companies, their interns can range from 20 to over 130.

It is noteworthy that the percentage of interns getting full-time offer is high. On average, 65% of the interns could receive a return offer, which underscores the effectiveness of these internship programs in the construction industry. This high conversion rate indicates that internships are not only a crucial step in workforce development but also a key pipeline for talent acquisition for the companies.

Table 1. Summary of Internship Program Information

Question	Category	Number
Existence of structured internship program	Yes	8
	No	2
Internship program launch time	1-3 Years	1
	3-5 Years	3
	5-10 Years	1
	Over 10 Years	3
	NA	2
Number of interns hired per year	1-5	5
	5-10	1
	>10	4
Percentage of interns get full-time offer	<25%	1
	25%-50%	3
	50%-75%	1
	>75%	5

Internship Format

The results for internship format are summarized in Table 2. Most of the companies provide orientation and assign mentors to interns. The orientation to interns typically lasts for 1-3 days. However, the results indicated a lack of formal training for intern mentors. This may impact the quality of guidance and support provided to interns, which highlighted an area for improvement in ensuring effective and beneficial mentorships during an internship.

In terms of incentives, all the companies provide payment to interns and the average salary ranges from \$15 to \$22 per hour. Other than the regular salary, 60% of the companies provide housing allowance to students if they work more than 50 miles from home. In addition, 20% of the companies are willing to provide additional relocation cost if necessary.

Table 2. Summary of Internship Format

Question	Category	Number
Orientation provided to interns	Yes	9
	No	1
Orientation length	1 day	5
	2-3 days	4
	NA	1
Assign mentor to interns	Yes	9
	No	1
Mentor get trained for internship programs	Yes	6
	No	4
Provide payment to intern	Yes	10
	No	0
Hourly salary range	<\$10	0
	\$10-\$15	1
	\$15-\$20	7
	\$20-\$25	2
	>\$25	0
Housing allowance provided to intern	Yes	6
	No	4

Intern Hiring Preferences

The results for intern hiring preferences are summarized in Table 3. The results revealed that majority of the companies do not have requirement for prior industry experience. As for academic background, although 30% of the companies accept students from all academic years, juniors and seniors are most welcomed as interns. In terms of the preferences for student locations, most companies hire students from the whole nation, while some small-sized companies prefer local students. As for the duration and timing of internships, companies preferred internship in longer time span, with majority ranges from 12 to 16 weeks. The distribution for preferences on internship

timing is evenly split, with 50% of the companies offering internship positions only in summer, while the other 50% accept interns throughout the year.

In terms of the preferences for employment type, the results demonstrated that full-time interns that can work 40 hours per week are more welcomed. This stands in contrast to the capabilities of certain student groups, especially international students who are often restricted to part-time work. In addition, the majority of the companies only hire US citizens and do not provide sponsorships to international students. A lot of the companies in construction are not aware of the policies in hiring international students. This disparity indicates the lack of knowledge in hiring international students, as well as a potential limitation in the talent pool. To resolve this issue, university's International Student and Scholar Services (ISSS) office is suggested to provide workshops to employers. There is also a need for employers to reconsider their internship structures to accommodate a more diverse range of student capabilities.

Table 3. Summary of Intern Hiring Preferences

Question	Category	Number
Requirement for prior work experience	Yes	3
	No	7
Preference in student academic year	No preference	3
	Graduate	4
	Senior	6
	Junior	6
	Sophomore	3
	Freshman	1
Preference in type of employment: part-time (<20hrs/week) or full-time interns (40hrs/week)	Only hire full-time interns	4
	Hire both, full-time is preferred	5
	No preference	1
Regional preference	Local students are preferred	2
	No preference	8
Duration preference	<12 weeks	3
	12-16 weeks	5
	>16 weeks	2
Time preference	Only in summer	5
	No preference	5
Hire for international students	Yes, all students are welcome	4
	No, only US citizens are considered	6
Sponsorship provided	Yes	3
	No	7

Student Survey Results

Student survey results are presented in Table 4. A total of 36 responses are received, where 53% of the students are already employed in the construction industry, and 50% are actively looking for a job.

The results first demonstrated a pattern in demographics and diversity within the construction industry. The student respondents were predominantly male (68%) and US citizens (68%), pointing towards potential issues in diversity and inclusion within the construction sector. This is further highlighted by the lower participation of international students, which could be attributed to the hiring preferences and restrictions prevalent in the industry. Such a demographic skew suggests a need for more proactive solutions to address the diversity and inclusion issues in the construction industry.

Table 4. Summary of Student Survey Results

Question	Category	Number	Percentage
Gender	Female	12	33
	Male	24	67
Academic year	Graduate	13	36
	Senior	11	31
	Junior	10	27
	Sophomore	1	3
	Freshman	1	3
Nationality	US Citizen	25	69
	International Student	11	31
Prior industry working experience	<1 year	18	50
	1-3 years	10	28
	3-5 years	3	8
	>5 years	5	14
Currently employed in construction	Yes	19	53
	No	17	47
Actively looking for interns	Yes	18	50
	No	18	50
Number of positions applied	<5	7	39
	5-10	4	22
	10-20	3	17
	20-30	1	5
	>30	3	17
Number of interviews received	0	8	44
	1-3	6	33
	3-6	3	17
	6-10	1	6
Number of offers received	0	11	61
	1	4	22
	2	3	17
Location preference	No preference as long as I can get a job	5	28
	Only consider local positions	13	72

Another finding revealed by the study is the job search challenges faced by students. Many students reported difficulties in securing internship positions. Among the students that actively look for internships, 44% received no interviews, and 61% did not receive any offer. This challenge is particularly pronounced for international students, who face additional barriers due to the preference for full-time interns, which conflicted with their work hour limitations, as well as the lack of knowledge and experience in dealing with the work permit for international students. This suggests a need for more robust job search support and resources, both from universities and within the industry, to facilitate a smoother transition from students to the workforce.

University Career Services

To understand the use of university career services from both the supplier side (i.e., the employers) and the demand side (i.e., the students), the surveys asked both parties to provide the tools and resources they used while recruiting or searching for jobs. The findings from the results reveal a notable discrepancy in the use of resources between employers and students. On one hand, a majority (71%) of the employers rely on university career fairs to recruit interns, and 64% engage with university's student career services and form industry partnerships. On the other hand, however, student engagement with these resources appears markedly lower. Only 39% of students have reached out to the university's career services for support in their internship search.

This discrepancy suggests a potential misalignment in the effectiveness or awareness of career services among students and the actual effect in candidate searching among the companies. Despite the high number of employer presence and extensive recruitment activities at career fairs, students seem to be underutilizing this direct line to potential employers. Instead, students predominantly turn to online job postings on platforms such as LinkedIn and company websites for their job search. This divergence in resource utilization highlights a gap in communication and engagement strategies between students and employers. This gap could stem from several reasons, including a lack of awareness about the value of these services, perceived inadequacy of the opportunities presented, or even the convenience and accessibility of online job search tools than the university career services. On the other hand, however, the strong reliance on career fairs and partnerships with career services by employers verified the ability to provide quality candidates of these channels.

To address this gap, universities could enhance marketing and communication strategies to better highlight the success rates and benefits of utilizing career services and attending career fairs. The internship class could include a module or workshops from the university career services to expose students with the potential resources. Additionally, integrating more digital tools and platforms into the career service's offerings could align more closely with students' job search preferences.

Qualities for Good Employees

Both the employers and students are asked to select the qualities that they think will make a good employee. Eleven qualities based on interviews with industry leaderships and university educators were collected, including solid construction core skills and knowledge, prior working experience, fast learner, good interpersonal skill, communication skill, leadership skill, critical thinking skill, presentation skill, time management, engagement and self-starter, and adaptability. Participants are asked to select the top five in the survey.

Interestingly, neither the employers nor the students ranked the hard skills (i.e., prior work experience, and solid construction core skills and knowledge) in top 5. The top 5 qualities ranked by employers are: communication skill, engagement and self-starter, time management, adaptability, and good interpersonal skill. The top 5 qualities ranked by students are: communication skill, adaptability, time management, fast learner, and critical thinking skill. Both employers and students acknowledge that communication skill is the most important quality in construction. However, the results demonstrated a gap in perceptions of the hard skills between employers and students. Prior work experience and solid construction core skills and knowledge are both ranked in the least 5 important qualities by employers, but they are ranked relatively high by students (ranked number 7 and 6, respectively). This discrepancy suggests a misalignment between what students perceive as important for their professional development and the actual industry expectations. In traditional engineering education, soft skills such as presentation, interpersonal skills, and time management are often overlooked. However, these abilities are essential in ensuring the success of construction projects and thus highly valued by the employers. This gap thus underscores the importance of aligning educational curricula more closely with industry needs to better prepare students for their future careers in construction.

CONCLUSION

This study conducted a comparative analysis to better understand the requirements and offerings from the industry and the expectations of students in terms of construction internships. The results revealed the current state-of-the-art practices in internship programs, the gaps existed between the employers and students, as well as areas for improvement that are crucial for the ongoing development of effective and inclusive training models in the construction industry. From the employer perspective, structured internship programs are widely developed in the construction industry. However, there is a need to provide structured mentor orientation and inclusion for international students. From the student perspective, more attention is needed to use the university career services for better job searching experience. This study also highlighted a perceptual gap between the employers and students regarding the qualities of good employees in the construction industry. This result suggested that universities need to improve their curricula and training programs to fit for the demands of the industry.

This study is limited in its reliance on self-reported data and the limited number of survey respondents. This may introduce biases, and the small group of respondents might impact the generalizability of the findings. Future research will aim to expand the participant pool across different geographical areas to gain more diverse insights. Additionally, longitudinal studies could provide valuable data on the long-term impacts of the internship programs on students' career trajectories and industry trends.

The insights gained from this research requires next steps in collaboration among universities, industry partners, and students. First, companies in the construction industry need to develop structured, inclusive, and flexible internship programs that fit for the diverse needs of students, including international students. Second, universities should spend more effort on increasing students' awareness and utilization of university career services. Third, training on soft skills should be added into the academic curricula as a requirement for student growth. In conclusion, this study not only sheds light on the current state of construction internship programs, but also serves as a catalyst for further improvements, aiming to enhance the quality and inclusivity

of internship experiences, as well as training skilled professionals who are well-prepared to meet the demands of the construction industry.

ACKNOWLEDGEMENT

The author gratefully acknowledges the support from our industry partners, whose willingness to share data and insights has been crucial to the success of this study. Special thanks are also extended to the Industry Advisory Council and Moss Department of Construction Management at Florida International University for facilitating the distribution of the surveys. Their support is deeply appreciated.

REFERENCES

- [1] Y. Wolinsky-Nahmias and A. H. Auerbach, "Evaluating the Design and Benefits of Internship Programs," *Journal of Political Science Education*, vol. 18, no. 4, pp. 584–604, 2022, doi: 10.1080/15512169.2022.2109481.
- [2] C. M. Fiori and A. R. Pearce, "Improving the Internship Experience: Creating a Win-Win for Students, Industry and Faculty," *Building a Sustainable Future - Proceedings of the 2009 Construction Research Congress*, pp. 1398–1408, 2009, doi: 10.1061/41020(339)142.
- [3] A. Karji, S. Bernstein, M. Tafazzoli, A. Taghinezhad, and A. Mohammadi, "Evaluation of an interview-based internship class in the construction management curriculum: A case study of the university of nebraska-lincoln," *Educ Sci (Basel)*, vol. 10, no. 4, Apr. 2020, doi: 10.3390/educsci10040109.
- [4] S. Wandahl, W. Olsen, and L. F. Ussing, "Relevance of Academic Internship to the Quality in Construction Management Education," *International Journal of Engineering Education*, vol. 27, no. 5, pp. 1046–1053, 2011.
- [5] A. J. Hauck, S. Y. Allen, and D. F. Rondinelli, "Impact of Structured Internship Programs on Student Performance in Construction Management Curricula," *Journal of Construction Education*, vol. 5, no. 3, pp. 272–287, 2000.