

# Optimizing Internships in Construction Management Based on Student's Interest and Experience

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The growing norm for students in the field of Construction Management is to have at least one internship under their belt prior to entering the industry for a full-time career. The goal of this research paper is to analyze student feedback from their previous internships to draw conclusions on how companies should structure their internship programs based on student interests and level of experience. Research was done evaluating current Construction Management students with previous internship experience at California Polytechnic State University San Luis Obispo. This research paper will be beneficial for industry companies to better tailor their internship programs to each student. This information will also be beneficial for students who can use this information from previous students to find out what key aspects they should look for when selecting and completing an internship at a certain company. A survey was sent out to all Construction Management Students at Cal Poly and were requested to only complete the survey if they had previous internship experience. This paper analyzes what elements of their internships students believe resulted in the most learning, the optimal internship "path" for students, and generally how Construction internships can be improved.

**Key Words:** Construction Management, Internships, Optimizing, Improvement, Students, Survey, Educate, Experience, Student Interests, Success, Structure

## Introduction

In an interview with Carl Vizcarra, Cal Poly Construction Management alumni and Project Executive with Bernard's (General Contractor), he stated, "Young employees have a huge thirst to learn. They should ask for as much responsibility as they can handle as that is the best way for them to learn and develop," (Vizcarra 2018). Many industry companies have very structured internship programs that are similar between companies. There are elements of these internships that are very successful and some that aren't when it comes to stimulating learning for students. According to an article Entrepreneur, the CEO of 140 Proof, Jon Elvekrog states, "Instead of taking advantage of their passion and motivation, they saddle interns with busy work in place of meaningful assignments" (Elvekrog 2015). This was inspiration for several of the questions I put in my survey like if students were given enough responsibility and if they feel their internships could have been more organized.

The goals for this research paper are to aid in determining the optimal internship for Construction Management Students. This will vary based on each student's level of experience and what directly interests them. This information will be of benefit to industry employers to better structure their internship programs for different students. Younger students in Construction Management are unaware of how to select an internship to best supplement their college studies. This will be useful information for students to find out what parts of their internship they should focus on during their internships. It will also show students what is the optimal path for their second and possibly third internships. Larger and more established companies that have been around longer have very structured internships that have been modified over time. The simultaneous objective of this research is find out what aspects of student internships have been successful and share that with companies to help structure their internship programs more efficiently.

In an interview with Brandon Silveira, Project Manager with C.W. Driver, he stated, "I always tell young new hires to dive into the plans. Knowing the plans like the back of your hand allows you to establish credibility with your peers and subs. It's the best way to learn early on in your career by seeing how everything ties together," (Silveira 2019). This inspired questions concerning what elements of student internships led to the most learning. . In a research paper conducted by Derek Bayer titled *The Optimal Construction Internship: A Survey*, he claimed based off his survey results that, "A boot camp at the beginning of the internship can help educate students. One day training events get interns outside of their normal project engineer routine where they can increase their knowledge and better their overall education, (Bayer 2015). To address these ideas, questions were added asking if students felt they held enough responsibility in their internships and if they believe it could have been more organized. The inspiration for this question was based on previous research done on the topic about implementing a Field Internship component as part of course curriculum for Construction Management students. According to Sandra Weber, author of the study, she claimed, "Although graduating students computer skills are excellent, they have limited field experience," (Weber 1998).

## Methodology

My research strategy for this topic is to take a quantitative approach. I will retrieve this data through surveying Cal Poly CM students with a broad range of internship experience. This data will allow me to draw effective conclusions on how internships should be structured based on previous student experiences. The goals of this research paper are:

- To determine what elements of Construction Management Internship's promoted the most learning and what elements didn't lead to as much learning
- To determine the optimal internship structure for students with previous or zero professional experience
- To determine what student's believe is the optimal path of completing multiple internships during college
- To find out what elements of student internships can be improved or organized more efficiently

The research procedure for this paper is survey based. An 11-question survey was sent out to all Construction Management Students at Cal Poly SLO and closed after 50 respondents completed the survey. The survey objective was to gather data to analyze student feedback on the questions about optimizing internships for Construction Management Students and what aspects elements of their internships could have been improved. Students were requested to only complete the survey if they had previous internship experience. Within a week, 50 students completed the survey and the survey was closed. The questions were as follows:

1. What is your current class level?
2. How many internships have you completed?
3. What types of Internships have you completed? (Title of Internship Position)
4. What aspects of Construction Management were you exposed to during your internship?
5. Please rate each focus area of your internship(s) that you believe promoted the most student learning or didn't lead to very much learning.
6. What percentage of time do you believe students interns should spend out in the field? (Observing construction, shadowing superintendents, QC, etc.)
7. Do you believe you were given enough responsibilities as an intern?
8. On your previous internships, do you believe you were given enough training to effectively complete your internship responsibilities?
9. Do you think your internship(s) could've been more organized?
10. What kind of internship "structure" do you think promotes the greatest learning for students with minimal experience?

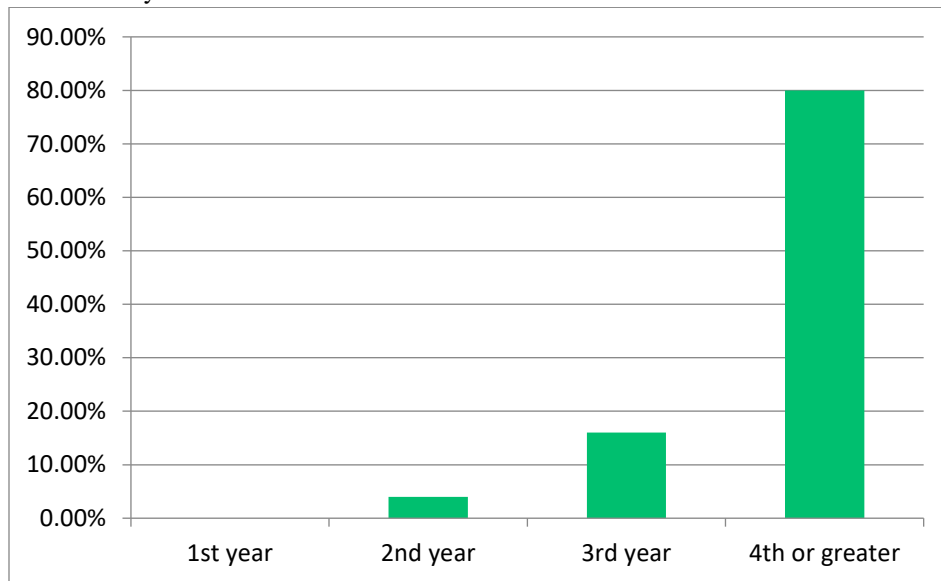
11. What course of action do you recommend for students with internship experience to take for future internships?

### Research Results

The following information is the results of the survey sent out to current Construction Management Students at Cal Poly San Luis Obispo.

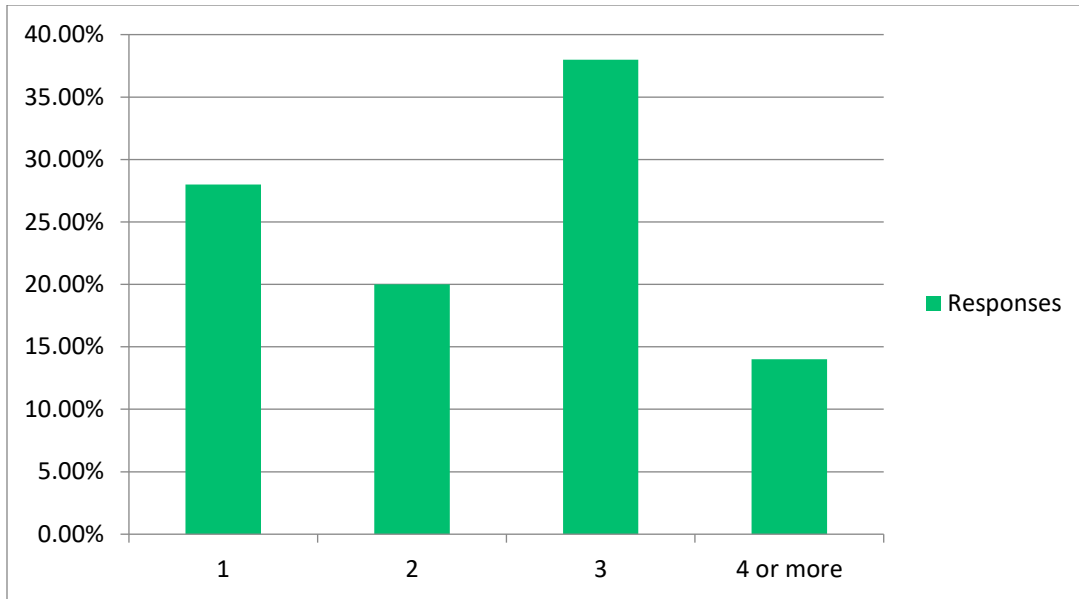
The first question asked of students was “What is your current class level?” This information was used to gauge what group of students responded to the survey. Table 1 shows 80% of the respondents to the survey were 4<sup>th</sup> years or greater, 16% are 3<sup>rd</sup> years, and 4% are 2<sup>nd</sup> years. There were zero 1<sup>st</sup> year respondents given that the survey requested students only fill out the survey if they had completed at least 1 internship related to Construction Management.

Table 1 Question: What is your current class level?



The next question asked to gauge how many internships the student respondents have completed. Table 2 shows that 28% of respondents completed 1 internship, 20% completed 2 internships, 38% completed 3 internships, and 14% completed 4 or more internships. This shows that a majority of the student survey respondents (72%) completed at least 2 internships.

Table 2 Question: How many internships have you completed?



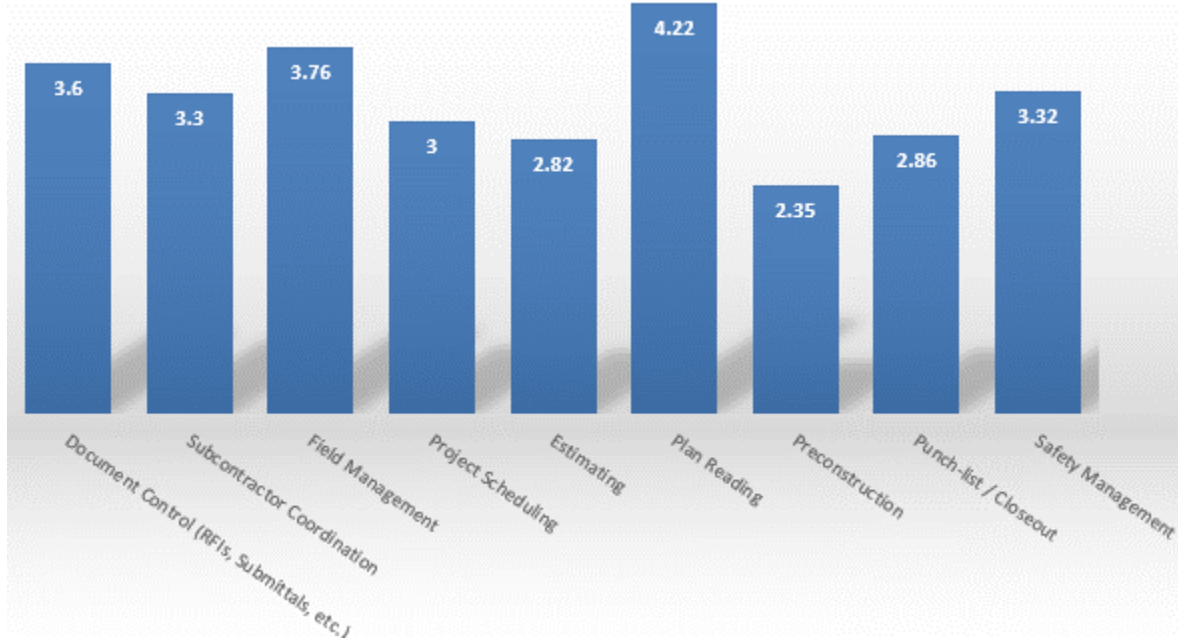
The following was asked to determine the different internship positions the student respondents have completed in the past. Table 3 show that the most common internship position completed by students is as a Project Engineer/Project Management Intern (88%). The second most common internship is the Field Engineer Intern (46%). 14% of Students worked as Estimating interns, and 4% worked directly in Building Information Modeling. 16% of students completed internships in other areas not listed on the survey as a Preconstruction intern, Carpenter’s Apprentice intern, and Facilities Management intern.

Table 3 Question: What types of Internships have you completed? (Title of Internship Position) Check all that you have completed.

| <b>Table 3</b>  |                                    |                   |
|---|------------------------------------|-------------------|
| <i>Different Completed Internship Positions of Student Survey Respondents</i> |                                    |                   |
| <b>Position Title</b>   | <b>Number of Student Responses</b> | <b>Percentage</b> |
| Project Engineer/Project Management Intern                                    | 44                                 | 88%               |
| Field Engineer Intern   | 23                                 | 46%               |
| Estimating Intern   | 7                                  | 14%               |
| BIM/VDC Intern  | 2                                  | 4%                |
| Other   | 8                                  | 16%               |

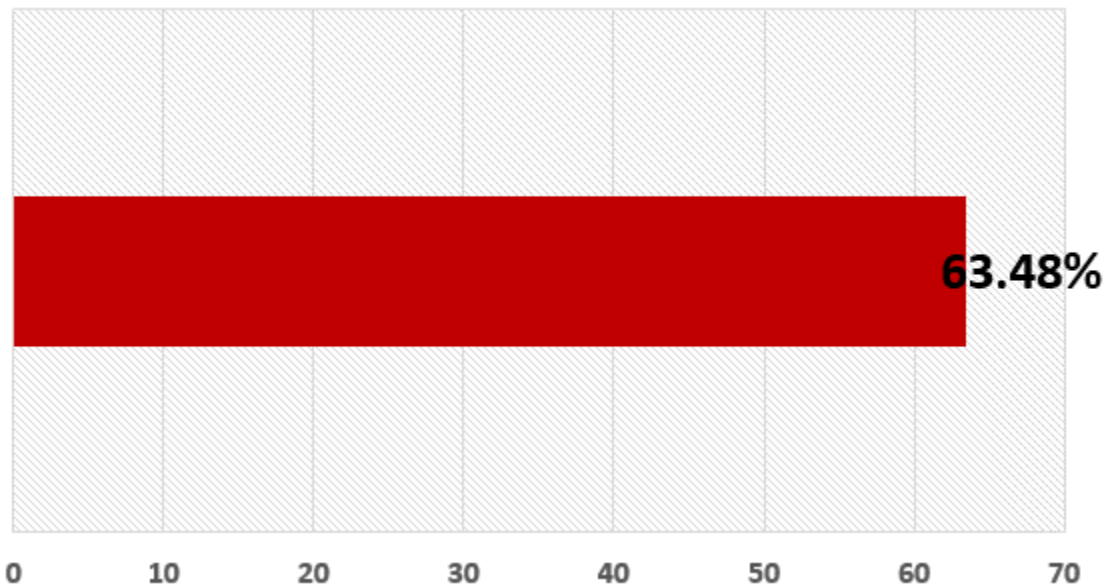
The following question asked students to rate various focus areas of their internships from 1 (promoted very little learning) to 5 (promoted the most learning). The results in Table 4 show that students believe exposure to Plan Reading, responsibilities that relate to field management, and day to day document control are the focus areas that promoted the most learning based on the student feedback. Concurrently, students claim that preconstruction, estimating, and punch-list didn’t lead to as much learning compared to the other focus areas they were exposed to on their internships.

*Table 4* Question: Please rate each focus area of your internship(s) that you believe promoted the most student learning or didn't lead to very much learning.



The next question was asked to determine what percentage of time students recommend interns should spend out in the field on their internships. The average time based on the survey results is that student interns should spend just over 63% of their time in the field (see Table 5). The lowest percentage a student responded with to the question was 40% of their time.

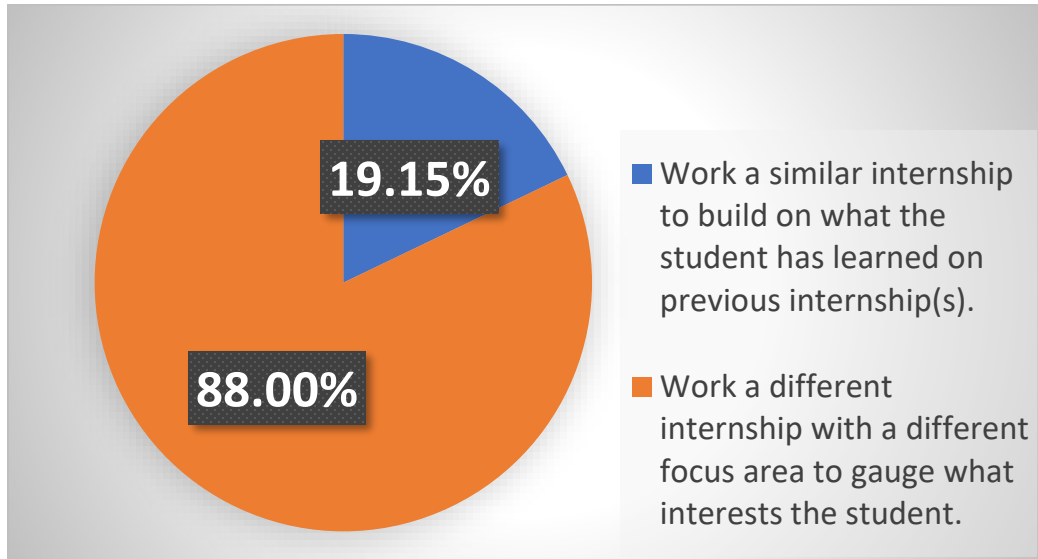
*Table 5* Question: What percentage of time do you believe students interns should spend out in the field? (Observing construction, shadowing superintendents, QC, etc.)



Question 6 was asked to find out what students would recommend to future students for their second and subsequent internships. The question asked students to rank whether they would recommend or not recommend the following two options for a student to take. As you can see in Table 6, most of the respondents (88%) would recommend that

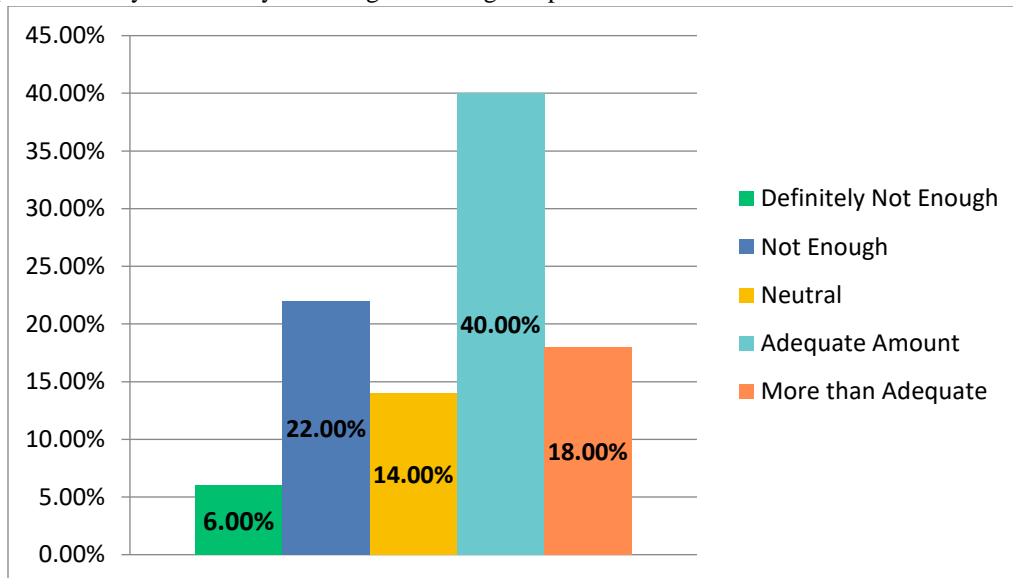
students work a different kind of internship with a different focus area (Field, Estimating, etc.). Only 19% of students recommend working the same kind of internship because it's believed to build on what they've already learned on their initial internship.

Table 6 Question: What course of action do you recommend for students with internship experience to take for future internships?



The next question was to see if students felt they were given enough responsibilities by their employers during their internships. Table 7 shows the majority agree they were given an adequate amount of responsibility as intern (58%) while 28% believe they could've handled more responsibilities.

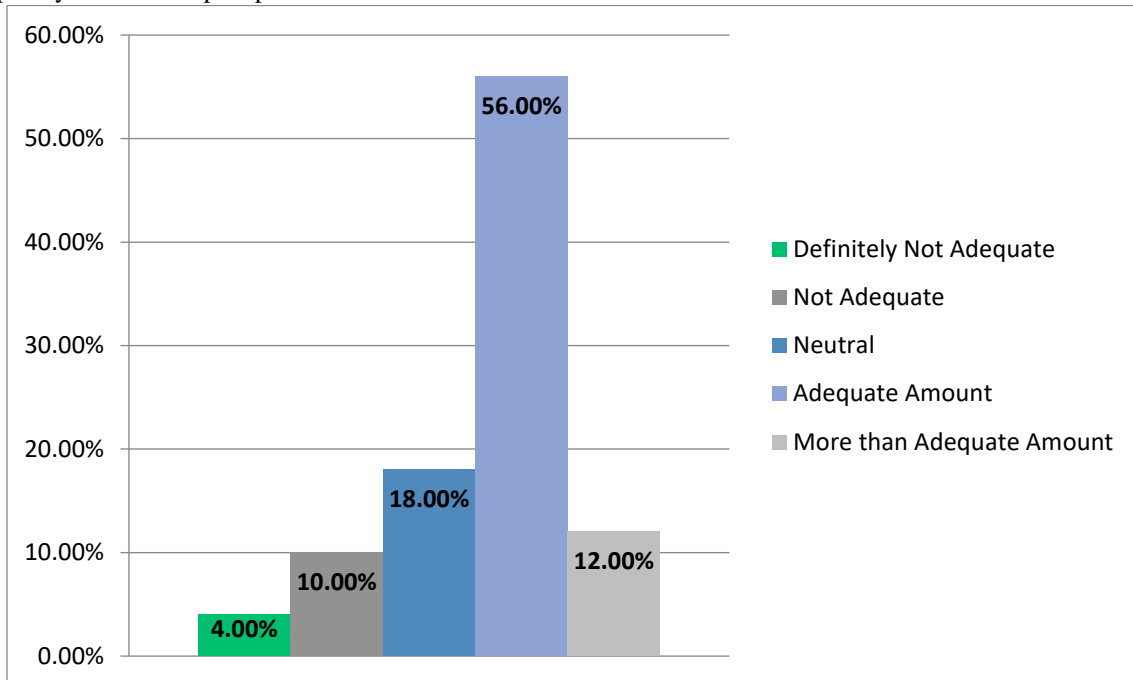
Table 7 Question: Do you believe you were given enough responsibilities as an intern?



Like the previous question, the next question concerns whether students feel they were given enough training by their employers during their internships. Table 8 shows the majority agree they were given at least an adequate

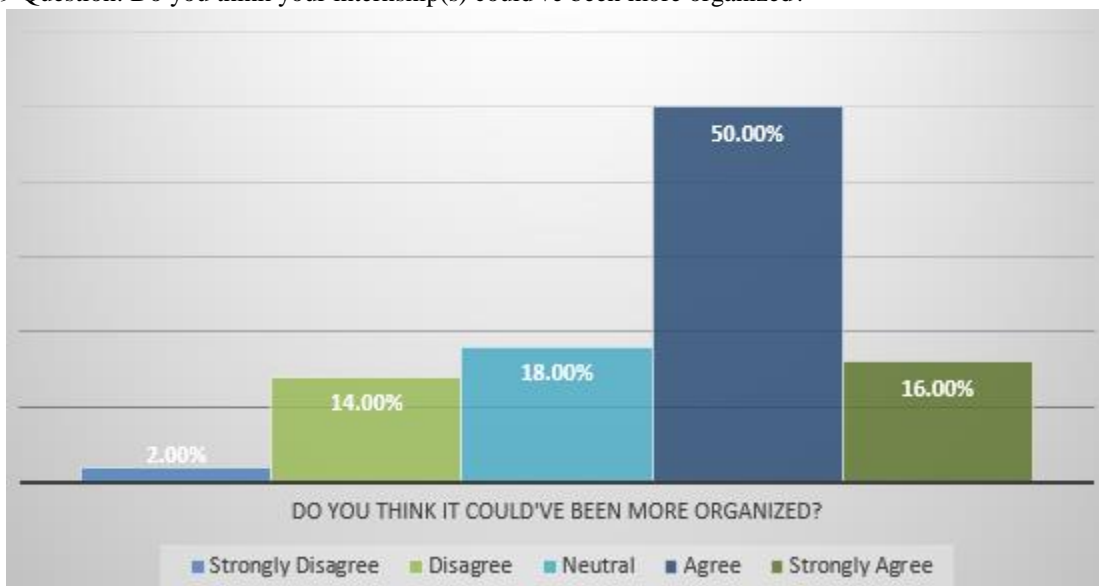
amount of training to complete their responsibilities as interns (68%) while 14% believe they could've handled more responsibilities.

*Table 8* Question: On your previous internships, do you believe you were given enough training to effectively complete your internship responsibilities?



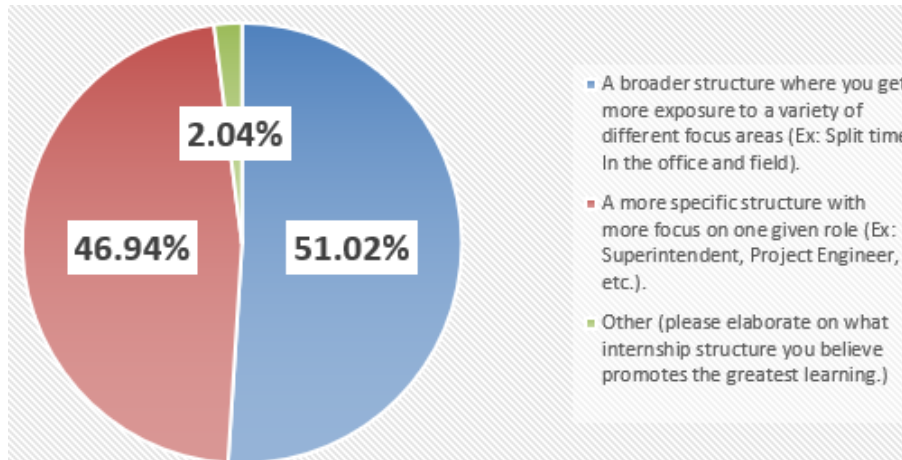
Question 9 concerns if student interns feel they would have benefited from a more organized internship. As internship programs are becoming more common across all companies in the industry, this was to gauge if students feel it was organized well enough or if they felt there was room for improvement. Table 9 shows that most students believe that the internships they've completed in the past could have been more organized (66%).

*Table 9* Question: Do you think your internship(s) could've been more organized?



The final question discusses if students feel a broader or a more focused internship structure promotes more learning. The distribution is an even split as you can see in Table 10. 51% think a broader structure is better whereas 47% think a more focused structure is better for learning. The other category was a potential write in option for respondents and 1 respondent stated that students need exposure to both broader and narrower elements on your internship as both are beneficial in their own ways.

Table 10 Question: What kind of internship "structure" do you think promotes the greatest learning for students with minimal experience?



### Results Analysis

The feedback from Construction Management students at Cal Poly San Luis Obispo is important for seeing how to optimize internships for students. The respondent feedback shows that plan reading was the primary focus area of student's internships that promoted the most learning. After this conversation, it was expected that plan reading would rank as one of top focus areas to promote learning, followed by Field Management and Document Control. Preconstruction ranked as the lowest focus area. This is most likely because not as many students were put into preconstruction responsibilities or didn't enjoy it because they weren't out in the field being hands on.

Another interesting point that came from the survey feedback was that students believe interns should spend a majority of their time out in the field versus the office or at a desk. This may not be entirely feasible as it varies from project to project and there are responsibilities that require interns to be working at the desk. This is worth noting because it shows that students desire to be out in the field more on their internships than they are currently doing. Field Management also ranked as the second highest focus area to promote the most learning for interns.

The results also show that they recommend for student's secondary internships to be in a different area of focus. In addition, the results of whether students think a broader or more focused internship promoted more learning were evenly split. This shows that students feel both kinds of internships are equally important in their own ways. It leads to the conclusion that the ideal path for students with zero experience is to begin with a broader Project Engineer internship that exposes them to more elements of Construction Management. Subsequent internships should be different and have a narrower focus (Field Engineer, Estimating, BIM, etc.) to give the student a different perspective and find out more of what directly interests them.

Lastly, most students agreed that their internships could have been more organized. This could be because of companies with newer internship programs, or a lack of employer willingness to assist the interns

This is worth looking into for future research to find out more about what elements needed to be organized further and what can be implemented to further student learning.



## Conclusion

This information will benefit future Construction Management students and companies to create better structured internship programs. Some of the survey results led to inconclusive data given the variety of responses. The biggest takeaways from the survey results are as follows:

- Plan Reading, Field Management, and Document Control are the focus areas that led to the most student learning
- Construction Management Interns should try to spend a majority of their time out in the field rather than in the office
- For student's second and subsequent internships, students recommend working a different internship with a different focus area (field, estimating, etc.)
- Interns felt their internships could have been organized in a more efficient way
- Both broader and more focused internships are equally important for student learning. Students recommend they complete at least completing one of each internship.

## Future Research

More research on this topic is possible to find out more specific details that resulted in direct student learning. After conducting the survey to get student feedback, the idea arose of surveying or interviewing people in the industry who oversee internship programs. This would be very beneficial as most of these people have direct feedback from surveying students immediately after completing their internships. Most of the questions asked in the survey were designed to be broader. It would be valuable to see more specific details about what each student's internship. Future research on the topic can include:

- Getting feedback from industry professionals who run the internship programs for their respective companies
- Getting more direct feedback from industry professionals who supervise interns while they're out on the jobsite
- Explore more deeply into the exact project engineer internship structure that would be the most optimal for students with zero professional experience.
- Explore how to best structure secondary more focused internships (Field Engineer, Estimating, Building Information Modeling, etc.)
- Explore what aspects of internships students believe lacks organization
- Explore and analyze how internships are structured differently (across the country, subcontractor vs general contractor vs construction manager, etc.)
- Exploring whether students should work for the same company and if there is a correlation to more student learning

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