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Impact of Structured Internship Programs on Student Performance in Construction Management Curricula

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The objective of this study was to explore the effects of a structured internship program, implemented in the Fall of 1997 by the Construction Management Program at Colorado State University, on student perception and performance in subsequent coursework. Because it was recently initiated, not all construction management students participated in the first structured internship session. As a result, many departmental courses during the 1998-1999 academic year had a combination of students; those who experienced the structured internship program and those who had not. The department was in a unique position to compare student perception and performance of these groups. Measures of performance and perception included: 1) Comparison of changes in GPA, 2) Comparison of student course performance, 3) Differences in attitudinal surveys designed to measure the students' perception of the impact of the structured internship program. The results of the research were inconclusive. GPA's of the internship group increased slightly (1.09%). The data supporting this increase did not prove statistically significant. The non-internship data was statistically significant where the non-internship group posted a 4.49% decrease in GPA. As a whole, the internship group outperformed the non-internship group in subsequent academic performance but the difference between groups was not statistically significant. Students' perceptions overall were very positive with regards to the internship experience. Many students found the work fulfilling and beneficial with regards to career growth and grasping of the concepts presented in future coursework.

Key Words: Structured Internship, Experiential Learning, Co-op Programs, Student Performance

Introduction

Structured internships have grown to become an integral part of the academic landscape. Many argue the practical experience gained from a structured internship is an important step to lay the groundwork in preparing students for careers in their chosen field. It is expected that this experience reaps such benefits as: (1) exposure to techniques and problems not encountered in a classroom environment, (2) enhanced understanding of the business world, (3) improved ability to evaluate and assimilate classroom experiences, and (4) increased motivation to master subject material on returning to school (according to The AAA Committee on Internship Programs as cited by Knechel and Snowball, 1987). Other benefits include: (1) opportunities for permanent placement with the sponsoring company, (2) clarifying career choices, and (3) increasing student's self-esteem (Flesher, Leach, and Westphal, 1996).

Besides the potential rewards for the student, the sponsoring company may also realize benefits from participating in a structured internship program. They include filling staffing needs (Rohlk, 1998), recruiting (Buchanan, 1997), contributing to the profession (Crumbly and Summers,

1998), and giving back to the community (Buchanan, 1997). The school implementing such programs benefits as well. It strengthens communication with the industry and supplements academic programs with the practical experience gained by the students.

As a result of these expected outcomes, many academic institutions are convinced the internship experience adds to the student's overall education and award credit to those who take part in the internship program. However, the assumption that structured internships nurture academic learning is arguable. Little empirical evidence is available to sustain this hypothesis (Knechel and Snowball, 1987). This study's purpose was to further explore the assumption that structured internships do have educational merit by testing the hypothesis that students improve academically following a structured internship experience.

In the fall of 1997, the Construction Management Program at Colorado State University followed the trend and initiated a mandatory structured internship program, officially known as the Phelps Internship Placement Program, in which the participating students earn credit. Because it was recently initiated, not all construction management students participated in the first structured internship session, which occurred in the summer of 1998. As a result, many departmental courses during the 1998-1999 academic years had a combination of students; those who experienced the structured internship program and those who had not. The department was in a unique position to compare student performance of these two groups and perceptions of interns. Measures of performance and perception included: (1) comparison of fluctuations in GPA, (2) comparison of student performance in subsequent coursework, and (3) attitudinal surveys across various demographics designed to measure internship students' perceptions and elicit open-ended comments.

Four previous studies explored the effects of structured internship programs on subsequent coursework. The studies conducted by Koehler (1974), Knechel and Snowball (1987), Kwong and Lui (1991), and English and Koeppen (1993) examined accounting students' post-internship scholastic performance. This study builds upon their research but investigates construction management students' performance in subsequent coursework.

Methodology

Research Questions

To address the above areas of concern, the study posed the following research question:

> **Does participation in the Phelps Internship Placement Program improve academic performance within the Colorado State University Construction Management curriculum compared to those who have not participated in the structured internship program?**

This question was addressed with the following sub-questions:

1. What are the GPA changes of those students who had experienced the structured internship program compared to those who had not?
2. How do those students who experienced the structured internship program perform in the same construction management coursework subsequent to the internship compared to those who had not participated in the internship?
3. What are the changes in students' perceptions of the internship regarding career, coursework, internship, and quality of work life?

Subjects

The sample of internship and non-internship students originated from Colorado State University construction management majors. The sample consisted of two groups: Internship (treatment) and Non-internship (control). The pre-selected internship sample consisted of those students who elected to participate in the first structured internship session that occurred in the summer of 1998. The Phelps Internship Placement Program coordinator provided a list of those students participating in this first session. The non-internship group was formed from all other construction management majors in the program who did not elect to participate in the first structured internship session. CM administrators provided class roles to help the researchers identify those students who were construction management majors and were enrolled in at least one upper-division construction management course for the 1998 fall semester. All students who fit the criteria were included into the pre-selected non-intern group. No non-construction management, pre-construction management, construction management minor, second bachelor, or graduate students were included in either group.

Procedure

The methodology of this study built upon the research conducted by Koehler (1974), Knechel and Snowball (1987), Kwong and Lui (1991), and English and Koeppen (1993), but measured construction management students' performance in subsequent coursework and changes in intern perceptions of the internship experience. The methodology of this study relied on three instruments for gathering data. They included pre- and post-internship GPA data, performance measurement in subsequent coursework, and pre- and post-internship questionnaires.

After approval of the appropriate Human Subjects Review Process, the research sub-questions were answered in the following manner:

1. What are the GPA changes of those students who had experienced the structured internship program compared to those who had not?

A list of participants was created for the intern and non-intern group. Space was provided to record the term GPA and credit hours of each student for the two pre-internship semesters (1997 Fall, 1998 Spring) and post-internship semester (1998 Fall). Only the 1997 Fall and 1998 Spring semester term GPAs were examined for this study since these represented participants' performance as construction management majors. Prior to these terms, participants may have been in other majors or their academic performance may have been unfocused and possibly influenced by adjusting to college life. The term GPAs represent performance in all classes,

including non-construction management courses, for which the student was registered and had completed during that particular semester. The post-internship GPA excluded the grades earned for the internship itself.

Once this data set was assembled for both groups, the two-term pre-internship GPAs for all participants were averaged using the respective credit hours as a basis for weight. The mean two-term pre-internship GPA was compared to the one-term post-internship GPA to observe a possible percent change for each participant. The average was calculated for an overall pre-internship GPA, post-internship GPA, and percent change for both groups.

To test for differences at the .05 level of significance between the intern group and non-intern group, data were entered into the SAS statistical package to perform various analyses. Analysis of variance (ANOVA) was performed between groups on their:

- Term GPAs before treatment,
- Term GPAs after treatment,
- Percent change of GPA.

The ANOVA test was also performed within each group's:

- Percent change of GPA.

The ANOVA test was used because this methodology compares the variance between groups and within groups. The test reveals if there are two means that differ significantly from each other. The ANOVA is more versatile than other inferential statistics because it can test the differences between two or more means (Ary, Jacobs, and Razavieh, 1996).

2. **How do those students who experienced the structured internship program perform in the same construction management coursework subsequent to the internship compared to those who had not participated in the internship?**

For each of the required upper-division construction management classes offered in the 1998 fall semester, lists were generated consisting of the intern and non-intern group enrolled in each class.

Along with the class lists, instructors were provided course performance data sheets on which participants' names were not identified. The instructor recorded course performance data randomly; thus the researchers had no opportunity to link names to this data.

Upon collection of all course performance data, the information was converted into percentages reflecting total points earned versus total points possible for each student to allow for comparisons between groups on their overall performance regarding all 11 courses.

To test for differences at the .05 level of significance between the intern group and non-intern group, an ANOVA from the SAS statistical package was performed between groups on their:

- Overall performance in the 11 courses.
- Performance within each of the 11 courses.

As with the previous research question, the ANOVA test was used because the methodology compares the variance between groups.

3. **What are the changes in students' perceptions of the internship experience regarding career, coursework, internship, and quality of work life?**

Pre-internship and post-internship questionnaires were developed and administered to the internship group prior to and after their structured internship experiences. Questionnaires were designed utilizing suggestions from Salant and Dillman (1994). The survey consisted of 15 questions inquiring about students' perceptions of their career, the construction industry, and their coursework. The questions were part of four composite groups. Questions 1 and 2 revolved around *career*. Questions 3, 4, and 6 focused on *coursework*. Questions 5 and 15 addressed *internship*. Questions 7, 8, 9, 10, 11, 12, 13, and 14 inquired about *quality of work life*. Additionally, space was provided to allow students to openly express their thoughts regarding the structured internship program and construction industry. The pre-internship questionnaire asked the participants to respond to statements regarding their perceptions that existed prior to their structured internship experience. The post-internship questionnaire asked the participants to respond to the same statements found on the pre-internship survey but inquired about their perceptions that existed after their structured internship experience.

Questions revolving around coursework were significant to this study since they inquired about the internship student's perception of the relationship between the internship experience and academic performance. The other composite questions and the open-ended comment section were primarily intended to provide additional insight about the internship program in general. The dependent variables were developed from literature reviews. Participants were asked to respond to questions using a Likert scale with seven response options. Values 1 to 7 were assigned to the responses from strongly agree to strongly disagree. The lower the response to the item, the stronger the students agreed with the statement. An example of the questionnaire is presented in Appendix A.

Results

Participation Rate

Seventy-eight (78) students participated in the internship program during the summer of 1998 and were ultimately placed with a total of 59 companies. Seventy-five (75) students were pre-selected to be included into the internship group. Three students were excluded because they were not construction management majors at the time of the study or were enrolled in the 24-week internship session, thus not allowing them to return to campus for the 1998 fall semester. After examining the class roles of upper-division construction management courses for the 1998 fall semester, 113 construction management students fit the criteria for the control group and were pre-selected to be included into the non-internship group.

Of the 75 internship students, 60 chose to sign the consent form and were included in the sample making a participation rate of 80 percent. Of the 113 non-internship students, 89 elected to sign the consent form making a participation rate of 79 percent.

Student demographics are presented in Table 1. Only four members of the internship group were female (6.7%) while nine members of the non-internship group were female (10%). During the 1998 fall semester, the internship group consisted of two sophomores (3.3%), 21 juniors (35%), and 37 seniors (61.7%). The non-internship group consisted of three sophomores (3.4%), 29 juniors (32.6%), and 57 seniors (64%). Although unintended by the researchers, the distribution of student's class standing was similar between groups. During the two semesters prior to the internship, the mean credit hours earned by the interns were 28.03. The non-interns earned 25.79 credit hours. The semester following the internship, the mean credit hours for which the interns registered was 14.75 while the non-interns registered for 14.37 credit hours.

Table 1

Student Demographics

Category	**Internship N = 60**		**Non-internship n = 89**	
	N	**Percentage**	**n**	**Percentage**
Female	4	6.7	9	10.1
Male	56	93.3	80	89.9
Sophomores	2	3.3	3	3.4
Juniors	21	35.0	29	32.6
Seniors	37	61.7	57	64.0

GPA Performance

Pre-internship GPA Performance

Pre-internship and post-internship GPAs were amassed for both groups. Overall GPA performance is presented in Table 2. The GPA earned by the non-internship group (2.9827) was higher than the GPA earned by the internship group (2.9047) prior to treatment. However, the ANOVA performed on the difference between the two groups was not statistically significant. This demonstrated the equivalence of groups making them initially comparable and strengthened the internal validity of the study.

Table 2

Overall GPA Performance

Category	Internship		Non-internship		Significance Level* (p)
	Mean	**S.D.**	**Mean**	**S.D.**	
Pre-internship Term GPA	2.9047	.5166	2.9827	.5555	.3889
Post-internship Term GPA	2.9050	.5931	2.8285	.6512	.4674
Percent Change In GPA	1.09%	.1821	(4.59%)	.1738	.0571
Significance Level Change In GPA**	.6345		.0157***		

* Significance levels between groups.
** Significance levels within groups.
*** Significant at the .05 level.

Post-internship GPA Performance

Table 2 also illustrates that post-internship academic performance by the two groups was distinct. The internship group earned a term GPA of 2.9050, an increase of 1.09% from their pre-internship GPA. The non-internship group earned a term GPA of 2.8285, a decrease of 4.59% from their pre-internship GPA. In spite of this, the ANOVA performed on the difference between groups with respect to their post-internship term GPAs and percent change in GPA was not statistically significant. Nor did the internship group achieve an increase in GPA that was statistically significant. However, the decrease in GPA by the non-internship group was statistically significant. A graph depicting the pre- and post-internship performance is presented in Figure 1.

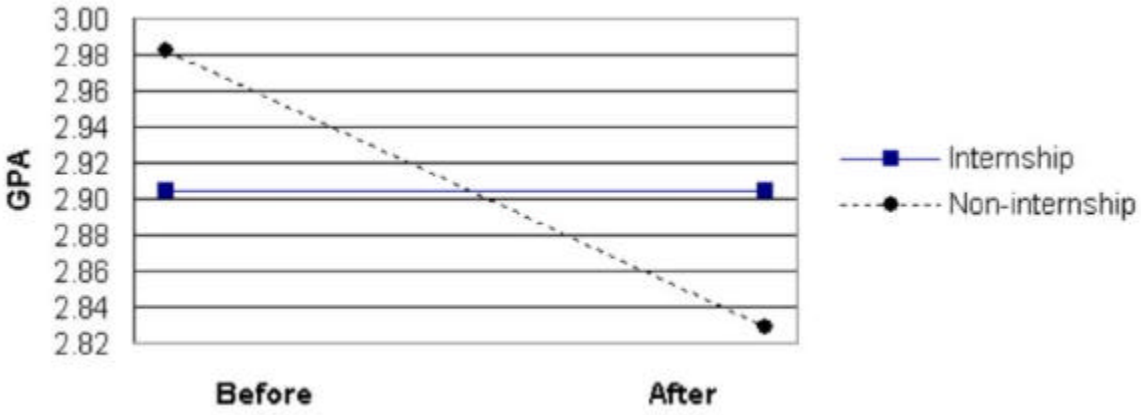

Figure 1. Pre- and Post-internship Performance

Subsequent Course Performance

Course Profile

To segregate the effect of the internship on academic performance, the 11 upper-division construction management courses offered following the internship were examined to compare performance between groups. The total number of students in all 11 classes for each group (137 and 214) exceeds the sample number for each group (60 and 89). This was due to enrollment in multiple classes by students from each group during the 1998 fall semester. Course performance is presented in Table 3.

Course Performance

As a whole, the internship group outperformed the non-internship group in subsequent academic performance but the difference between groups was not statistically significant. Performance in specific subject areas varied. The internship group earned higher grades in MC 261, MC 361, MC 362, MC 363, MC 364, and MC 366. The non-internship group performed better in MC 232, MC 317, MC 365, MC 461, and MC 464. However, these grade differences between groups in each class were not statistically significant.

Table 3

Course Performance Data

Course No.	Course Name	Internship		Non-internship		Significance Level (p)
		Mean	S.D.	Mean	S.D.	
MC 232	Arch. & Const. Planning	87.27	9.37	88.57	7.43	.6451
MC 261	Const. Surveying	86.05	7.08	83.54	7.20	.4012
MC 317	Safety Management	92.20	5.30	93.03	3.54	.7270
MC 361	Mechanical Building Systems	84.80	6.40	81.25	13.03	.1000
MC 362	Const. Contracts	78.48	7.19	74.17	11.37	.1363
MC 363	Quantity Surveying	87.28	4.76	85.68	7.02	.5631
MC 364	Advanced Const. Systems	85.82	4.89	82.42	6.98	.2113
MC 365	Const. Estimating	87.78	6.32	88.00	4.50	.9272
MC 366	Const. Eqpt. & Methods	88.11	3.34	85.72	7.03	.4704
MC 461	Const. Sched. & Cost Control	87.25	2.58	92.18	3.92	.1392
MC 464	Const. Project Administration	87.47	5.34	88.11	7.01	.8272
Overall		86.77	6.78	85.68	9.37	.5354

Intern Perceptions

Response Rates

A pre-internship and post-internship questionnaire was developed to measure the internship group's perceptions regarding career, coursework, internship experience, and quality of work life. The pre-internship questionnaire was given immediately before the internship. The post-internship questionnaire was administered near the end of the 1998 fall semester. Of the 75 participants, 65 returned a pre-internship questionnaire making a response rate of just under 87 percent. Forty-four (44) returned a post-internship questionnaire making a response rate of just under 59 percent.

Internship Demographics

Internship participant demographics are presented in Table 4. Of the internship participants surveyed, five females responded to the pre-internship questionnaire (7.7%), while four females responded to the post-internship questionnaire (9.1%). At the time of the internship, two sophomores (3.2%), 28 juniors (44.4%), and 33 seniors (52.4%) responded to the pre-internship questionnaire (63 had reported their class level). One sophomore (2.3%), 13 juniors (29.5%), and 30 seniors (68.2 %) responded to the post-internship questionnaire.

More than 83 percent of the interns indicated that they had construction experience prior to the internship. Nearly 75 percent of the interns had at least one year of construction experience. Eighty-seven (87) percent reported they worked as a laborer at some point. More than 59 percent had field supervision experience and almost 30 percent indicated they performed administrative duties during their construction experience. Finally, approximately 24 percent reported they were involved with managerial responsibilities.

Table 4

Internship Participant Demographics

Category	***Pre*-internship Questionnaire n = 65**		***Post*-internship Questionnaire n = 44**	
	N	***Percentage***	***N***	***Percentage***
Gender				
Female	5	7.7	4	9.1
Male	60	92.3	40	90.9
Class Level				
Sophomore	2	3.2	1	2.3
Junior	28	44.4	13	29.5
Senior	33	52.4	30	68.2
Experience				
Yes	54	83.1	NA	
No	11	16.9	NA	
Time				
3 Months or Less	3	5.5	NA	
3 to 6 Months	6	10.9	NA	
6 to 9 Months	5	9.1	NA	
1 Year or Greater	41	74.5	NA	
Responsibility (check all that apply question)				
Laborer	47	87.0	NA	
Field Supervision	32	59.3	NA	
Administrative	16	29.6	NA	
Management	13	24.1	NA	

Initially, the most striking results of the questionnaire originated not from the measurement scale, but from the demographics section. Of the 65 interns surveyed, more than 83 percent had previous construction experience. Nearly 75 percent of these interns had at least one year of experience in the construction industry. Almost 60 percent indicated they had experience in field supervision, administrative duties, management responsibilities or some combination of the

three. The researchers could only speculate on the magnitude of experience the non-interns possessed. Upon reflection, this should not have been an overwhelming surprise. More than 50 percent of the intern participants were seniors. However, this pre-existing construction experience base possibly negated the effects of the questionnaires with regard to certain questions. The subsequent lack of significant results on the questionnaires may have substantiated this hypothesis.

Implications

The purpose of this study was to investigate whether participation in the Phelps Internship Placement Program helped improve academic performance compared to those who had not participated in the formal internship program. The results suggested that participation will likely lead to an increase in scholastic performance, but this is a fragile assumption. The demographics show a tendency for construction management students to possess relevant work experience before the internship. The nature of the experience is unknown, but it has the potential for wiping out the positive effects of an internship with respect to subsequent academic performance.

The implications of this study have a significant impact on the role internship plays within an academic program. At the development stage, educators must clearly identify the purpose of the internship and the level of resources they wish to commit. If the purpose is to augment the curriculum, enhance academic learning, and increase the stature of the academic program with the commitment of minimal resources, implementing an internship program may not deliver the desired results and will not be the best use of those resources. If the primary goal is to ensure all construction management students gain interview experience, work with a quality company, are exposed to the industry, and are assigned challenging tasks, internships have been demonstrated to be worthwhile for the students.

If the latter is the predominant objective, this study has presented some implications, both general and specific, for administering such internship programs. It's clear that construction management students probably have some level of experience under their belt before the internship. In an attempt to differentiate the internship experience, educators must establish procedures to increase the likelihood that students will receive stimulating assignments. These procedures may include aggressively recruiting companies that will adhere to the ideals of providing students with a variety of opportunities. Vigorously maintain record keeping policies via student assignments or periodic telephone calls so as to monitor their experiences and determine if sponsor companies are providing the appropriate level of opportunities for the students. This also implies that construction management departments must commit the necessary resources to suitably perform such monitoring. Failing to do so would possibly result in an internship program becoming irrelevant.

Since the internship program at CSU was recently initiated, it will require time to mature and gradually provide students with a valuable experience they will cherish. Perhaps academic performance will proportionally improve as well. This study only scratched the surface of this

topic and the results lead to additional research. These additional areas of research are presented in the next section.

Conclusions

Based on the outcome of this research, it is initially difficult to conclude whether participation in Colorado State University's construction management internship program enhances academic performance. The results from the two primary indicators of performance, overall GPA and subsequent course performance, contradicted each other. The decline in GPA experienced by the non-interns was statistically significant. The variation in subsequent course performance between groups, although hard to ignore, was not statistically significant. The fact that the internship group's marginal increase in agreement with the statement saying the internship helped their performance in subsequent coursework upon returning to the classroom was not statistically significant does not lend credence to the hypothesis that the internship enhances academic performance. Perhaps the primary reason for the inconsistent results lies within the previous work experience an overwhelming number of interns, and possibly the non-interns, had prior to the internship. The internship could have been nothing more than a continuation of previous work. As a result, both groups may have had a good understanding of the intricacies of the industry thus minimizing or even negating the effects of the internship on academic performance. Two students' comments in the open-ended section were particularly enlightening.

- "The only thing I don't like about the internship program is I worked for my company before I was a student at CSU and going to continue working for them after graduation. So the only thing I got from the internship program was a tuition bill that I had to pay and homework after working for 10 hours. I also didn't like the fact that my boss has to be burdened with extra paperwork for me."
- "I do agree with the internship program but not fully. The company I'm doing my internship with I already worked for the past two summers. Now to graduate, I have to pay out-of-state tuition plus the company has to pay to have me back."

Another reason for the inconsistent results may have to do with duration. Conceivably, 12 weeks may not have been enough time to fully grasp the prerequisite skills needed to succeed in the industry resulting in the interns not taking full advantage of the classroom experience.

Regardless of the performance in subsequent coursework and questionnaire results, the fact that the interns maintained their GPA while the non-interns did not suggests the internship probably had a positive affect on academic performance. The reasons for this relationship are hard to pinpoint. Possibly due to the urging of internship coordinators and the record keeping responsibilities required by the program, host companies may have felt compelled to provide students with a variety of challenging tasks; tasks which may not have been ordinarily assigned if the position was a standard "summer job." One student noted the following in the comments section:

- "Since I have had previous field experience in the past, I had a good idea of what goes on at the job site. However, I have received much more responsibilities with the internship which requires different skills than I have used in the past."

As a result, intern students may have gained a more sophisticated outlook of the industry thus enhancing their motivation to perform well academically or at least negate the effects of "senioritis" (Dorrance, 1979).

With respect to subsequent coursework, the interns earned an overall average of 86.77%. In the six classes in which the interns outperformed the non-interns, the average difference in grades was 2.96 points. In the five classes in which their non-intern counterparts surpassed them, the average difference in grades was 1.58 points. The point here is how much better do the interns have to perform? Their average score is comparatively high which illustrates that they have a firm comprehension of the subject material. This is also true of the non-interns. Construction management students often have a solid fundamental knowledge of the techniques employed by their craft when they reach the second half of their academic careers. In a study by Jackson (1998), a survey was administered to 340 construction management seniors from six different universities regarding ethics. Of the 285 responses, more than 65 percent indicated they had 1.5 years of experience and almost 40 percent reported they had an immediate family member involved in the construction business. One member of the internship group of this study noted the following in the open-ended section of the questionnaire:

- "I have lived in the house of a senior superintendent (Dad) all my life so there are no real 'shockers'. I'm just learning more and more about *why* [emphasis added] things are done the way they are."

It would be expected that construction management students as a whole will perform moderately well in courses related to their chosen field of study, even without the benefit of participating in an internship.

The answer may lie with courses taken outside the construction management curriculum. Classes such as soils in construction, elementary structural design, or labor relations, may be the real test of whether the internship has a positive affect on academic performance. These subjects are on the fringe of the core construction knowledge base and would be a key indicator in determining if a student was motivated to learn as a result of the internship. This study did not incorporate performance data from these types of classes, but, judging from the performance in overall GPA of both groups, this may be the area in which the interns differentiated themselves from the non-interns.

Clearly, the benefits of an internship program are numerous. Students have the opportunity to observe first-hand the skills and knowledge needed to succeed and enhance their understanding of the industry. To reinforce this statement, students have noted the following in the open-ended section of the questionnaires:

- "I don't know where my interests lie. However, the internship helped narrow the field."

- "The learning experience of the internship program is very beneficial. There is the potential of gaining an entire years worth of coursework in a single semester of internship."
- "The internship that I did was extremely beneficial to me. I learned a lot and I feel that if I didn't do an internship, I wouldn't have the job that I have today."
- "My perceptions of commercial construction have changed the most. Before my internship with a commercial GC, I did not like it. After, I was confident that I wanted to pursue this as a career."
- "It is very important that you have good communication skills. Telephone conversations are a daily activity."

Conversely, the internship proved to be an eye-opener for some students:

- "Surprised at the level of politics involved in the construction industry."
- "I did not expect the role that the social/political relationships play in the industry. If it were just building buildings, the job would be perfect. Instead, you have to shuffle paperwork, and deal with owners and architects."

The results of the study suggest that participation in a formal internship program will probably have a positive affect on academic performance. However, the effects of construction management internships may not have the same magnitude of influence as compared to other pre-professional internship programs. This is due in part to the characteristics of the construction management field. Many students already have extensive construction experience before they even begin their internship thus possibly dulling the enlightenment the internship is intended to provide.

Recommendations for Future Research

The findings of this study lead to the following recommendations for future research:

1. The current study included students from only one institution. It would be beneficial to replicate this study at another institution offering a comparable construction management internship program to observe and establish any subsequent trends regarding academic learning.
2. As previously noted, this study did not capture the grades from courses outside the core construction management courses. Examining this indicator of performance may provide additional insight whether participation in a formal internship programs will enhance academic learning.
3. The current study only examined performance in subsequent courses that occurred during the 1998 fall semester. Expanding the methodology to include courses following the 1998 fall semester will help establish long-term trends and improve the reliability of the study.
4. The current study suggested participation in the internship program enhanced academic performance. A possible benefit of this outcome is the cure for "senioritis". It would be an interesting study to examine student performance over a 10-year period to determine if "senioritis" does exist.

5. To assess the impact previous work experience has on the internship and subsequent academic performance, a study that would incorporate a more detailed examination of work histories of each group would be useful in further understanding the academic benefits of the internship program.

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Appendix A

Internship Questionnaire

STUDENT PERCEPTIONS OF THE CONSTRUCTION INDUSTRY

Please respond to the following statements regarding your perceptions of the construction industry that exist prior to your internship experience. **All return forms will be kept confidential and your anonymity will be maintained. All results will be released in the aggregate. Individual responses will not be identified**. Clearly circle the response that best represents the extent to which you agree or disagree with each of the following statements by using the scale below:

SA = Strongly Agree, **A** = Agree, **MA** = Mildly Agree, **U** = Unsure, **MD** = Mildly Disagree, **D** = Disagree, **SD** = Strongly Disagree.

Prior to the start of your internship experience:

1. You knew your specific career path within the construction industry (e.g. estimating, field engineering, planning & scheduling, etc.).	SA	A	MA	U	MD	D	SD
2. You had a clear understanding of which area of construction in which you wish to be involved (e.g. residential, commercial, heavy highway, utility, etc.).	SA	A	MA	U	MD	D	SD
3. You believed your coursework would prepare you for the internship program.	SA	A	MA	U	MD	D	SD
4. You believed your coursework would be beneficial in preparing you for a career in the construction industry.	SA	A	MA	U	MD	D	SD
5. You felt confident that the internship program would be beneficial in preparing you for a career in the construction industry.	SA	A	MA	U	MD	D	SD
6. You believed the internship program would help your performance in remaining coursework at CSU.	SA	A	MA	U	MD	D	SD
7. You felt the construction industry generally provided safe working conditions.	SA	A	MA	U	MD	D	SD
8. You believed the construction industry provided fair wages for *management* personnel.	SA	A	MA	U	MD	D	SD
9. You believed the construction industry provided fair wages for *field*							

supervisory personnel.	SA	A	MA	U	MD	D	SD
10. You felt the members of the construction industry are ethical.	SA	A	MA	U	MD	D	SD
11. You trusted that your immediate supervisors of the sponsoring company would treat you fairly.	SA	A	MA	U	MD	D	SD
12. You believed that the field employees ("craftworkers") of the sponsoring company would treat you fairly.	SA	A	MA	U	MD	D	SD
13. You felt confident that the responsibilities assigned to you would be meaningful.	SA	A	MA	U	MD	D	SD
14. You believed your efforts would make a worthy contribution to the sponsoring company.	SA	A	MA	U	MD	D	SD
15. You would have not participate in the internship program if it were not required.	SA	A	MA	U	MD	D	SD

STUDENT INFORMATION

Gender: ____ Male ____ Female

Your class level following the internship program: ____ Sophomore ____ Junior ____Senior

Do you have previous experience in the construction industry (do not include time spent with present internship company)?
____ No (Stop)
____ Yes. If yes please answer the following:

Time spent working in the construction industry:
____ 3 months or less.
____ 3 to 6 months.
____ 6 to 9 months.
____ Approx. 1 year or greater.

Primary nature of responsibilities (Check all that apply):
____ Laborer
____ Field Supervision
____ Administrative
____ Management

Your comments below relative to your perceptions of the construction industry are appreciated.