

## **The Students' Experience Coming Back After Cooperative Education Experiences**

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## Introduction

Cooperative education programs (co-ops) are partnerships between industries and universities that allow students to gain real, hands-on experience in their field. Co-ops can also be called work integrated learning (WIL). Students, companies, and academia has benefited from these partnerships. Students get a chance to experience working in their field before they graduate, which gives them more insight about their major and if they want to continue with that major or company. More benefits of going on a co-op before graduating has shown to increase their salary after graduation, receiving a housing allowance during their co-op program, early access to mentors and contacts at the company, and an increased opportunity for employment after graduation.

This study takes place at a large southeast research institution. The engineering college has a mandatory co-op program and a three semester academic year. This research uses a case study approach to determine how students transition back to the institution and full time coursework after being on co-op. Surveys were deployed to all students that were out on co-op during the summer of 2016 to get a better understanding of students' transition back to campus after being on a co-op.

Understanding students' transitions back to campus after being on a co-op are critical given the widely acknowledged positive views of co-ops. While there is literature on the benefits of co-op participation, little research exists on the transition students have from coming back from a co-op experience. The results will add to the body of knowledge by developing new theories in the field that inform co-op programs and institutions that encourage co-ops.

## Literature Review

**Cooperative educational programs** (co-ops) have a long history, starting at the University of Cincinnati in Ohio in 1906<sup>1</sup>. Co-op programs have changed significantly over the years, but are still utilized as a way to connect industry and educational programs. A limitation of higher educational programs is that they do not connect to real world problems, and co-ops are a way to infuse the educational program to a real world application, where students can learn about what the profession does day-to-day. Students that are successful in academia will be successful after graduation, but academic success is only a small part of career success<sup>2</sup>.

**Cooperative education benefits** have influence on the overall quality of their undergraduate experience <sup>3-6</sup>. One study used longitudinal data to show that students who do participate in co-op graduate in engineering with a higher grade point average, but it does take them longer to graduate <sup>5</sup>. A case study showed that a required co-op program had influenced first-year undergraduate engineering students to choose that institution, the reported 98% of students say it was important or very important role in their decision to attend that institution <sup>7</sup>.

Other research has compared students that go on co-op to those that do not go on co-op <sup>8</sup>. Students that go on co-op are more likely to receive higher salaries, higher level positions, and achieve higher positions and promotions quicker.

However, in a study examining the transition from co-ops to full-time employment, though it was not specifically asked of them, thirty percent of students reported that the transition from their co-op back to their university hindered their academic motivation <sup>9</sup>. The researchers also found similar experiences reported by students at another university and thought this consideration was worthy of further investigation. This study will explore students' transition from their co-op experience to their full time enrollment at their university and the impact this experience has had on their lives.

## **Research Questions**

The research questions that we addressed for this study are:

1. How do students feel about their transition from a co-op back to their university?
2. What are the transitional issues from co-op back to the university for students?
3. How does the transition from the co-op experience back to UofL impact student's lives?
4. What coping skills are students using to transition from co-op back to their institution?
5. What resources did students use to help them with the transition?

## **Methodology**

This study will explore students' transition from their co-op experience back to their classes at their university. The goal of this study is to determine if there are transition issues, what those issues are, how long it lasts, how it affects students, and whether some groups of students are more affected than others. A pool of 443 engineering students that were on co-op over the

summer of 2016 were emailed an online survey through Qualtrics that included questions about the students' experience returning to classes from their cooperative educational experiences. There were 13 questions total, three of the questions were open-ended for students to give feedback, 10 questions were detailed questions about their experience with the transition back to full-time enrollment in higher education.

Apart from provided time ranges for length of the transitional experience and demographic questions, questions were left open-ended so as not to limit responses. Responses were reviewed to see how the difficulty of the transition affects students' academically and socially, such as how it affects their attendance of classes, their motivation, and their socializing with friends or support groups. Demographic questions were asked to analyze whether a specific group, such as gender or major, is a factor.

## Results

**Demographics.** The response rate for the online survey was about 25 percent. The female population of the co-op group is over represented by about 6 percent, as shown in Table 1.

Table 1. Gender of students.

Gender	Percentage of Students
Male	65.71%
Female	29.52%
Do not want to disclose	4.77%
Total	100%

Table 2 shows the co-op completion rate of the students surveyed. Over 50 percent of the students that responded to the survey had been on three co-op experiences. The students that completed three co-ops are typically within 2 semesters of completing their undergraduate degree. Notice that less than 10% have completed one co-op experience, these students have only completed 4 semesters of their engineering degree. Most of the survey responses came from more experienced engineering students that have completed more than one co-op. This

may affect survey results, and may be interesting to compare to surveys with younger and less experienced co-op students.

Table 2: Reported amount of co-op experiences.

Number of Co-ops Completed	Percentage of students
One	9.65%
Two	31.58%
Three	58.77%
Total	100%

Table 3 displays the engineering majors of students that responded to the survey. All majors within the University are represented in the responses. Our largest portion of students surveyed are studying mechanical engineering, matching the engineering college’s largest department, Mechanical Engineering. Civil engineering had the least populated responses in the survey. This could be due to civil engineering being a smaller department on campus or because there were fewer civil engineers out on co-op over the summer semester.

Table 3: Engineering majors of students.

Engineering Major	Percentage of students	Overall percentage of students in each major on co-op in the summer semester
Bioengineering	11.43%	9.71%
Civil Engineering	9.52%	7.9%
Computer Science and Computer Engineering	18.10%	19.19%
Chemical Engineering	11.43%	13.09%
Electrical and Computer Engineering	15.24%	13.77%
Industrial Engineering	11.43%	7.9%
Mechanical Engineering	22.86%	28.44%
Total	100%	100%

### ***Transition Experience***

The reported difficulty of the transition is reported in Table 4. Out of the 109 students who participated in the survey, about 23% reported a 'somewhat difficult' or 'difficult' transition period. About 76% of students reported that the transition was easy or somewhat easy.

Table 4. Difficulty of the transition from co-op back to the university.

Difficulty	Percent of Total
Easy	31.19%
Somewhat Easy	45.87%
Somewhat Difficult	17.43%
Difficult	5.51%
Total	100%

Table 5 examines reported transition difficulty, by gender. Males and females have similar portions of 'Easy', 'Somewhat Easy', and 'Somewhat Difficult' responses. The largest difference is the 'Difficult' response; about 9% of students reported a 'Difficult' transition out of the male group, while zero reported a 'Difficult' transition out of the female group who responded. A higher percentage of females reported that it was somewhat difficult compared to males, but none reported the transition to be difficult.

Table 5. Difficulty of the transition from co-op back to the university by gender.

Transition Difficulty	Percent of Females	Percent of Males
Easy	32.30%	31.90%
Somewhat Easy	48.40%	43.48%
Somewhat Difficult	19.40%	15.94%
Difficult	0%	8.70%
Total	100%	100%

Table 6 shows if students coming back from their second or third co-op feel their latest transition was easier than past transitions. About 64% of students responded ‘Yes’, with 36% responding ‘No’ while a majority recorded that their latest transition has been easier than past transitions, while a sizable portion disagree. The students that participated in the research had a high number of repeated co-ops, which was insightful to whether the transition was hard because it was a transition, or because there may have been other relevant factors. The table shows that 36 percent of the students that had reported the transition being somewhat difficult to difficult and it is unclear if this transition was harder or if all transitions were hard for these students.

Table 6. If latest transition was easier from past transitions\*.

Answer	Percent of Students
Yes	63.64%
No	36.36%
Total	100%

\*Only for Students Coming Back from Second or Third Co-op



The researchers looked at the transition by major and reported transition effort in Table 7. For many of the majors, it shows a range between 25% and 12% are reporting the transition was somewhat difficult to difficult. Electrical engineering shows 50% of their students are reporting the transition somewhat difficult to difficult, which is double of the next highest majors of 25% (Bioengineering and Chemical).

Table 7. Ease of transition by major.

Major	Easy / Somewhat Easy	Difficult / Somewhat Difficult
Bio-Engineering	75%	25%
Chemical Engineering	75%	25%
Civil Engineering	80%	20%
Computer Science	79%	21%
Electrical Engineering	50%	50%
Industrial Engineering	83%	17%
Mechanical Engineering	88%	12%

Table 8 displays the length of time that it took for students to feel comfortable at their university after going on co-op. There were about 25% of students that reported the transition time was one week or less. The highest percentage (36%) was 1 to 2 weeks for transition time, and the second highest was 3 to 4 weeks, at almost 30%. There were some students that reported 1 to 2 months of transition time to feel comfortable at the institution, (7%).

Table 8. Length of time before students were settled.

Length of time	Percent of Total
One week or less	24.77%
1 to 2 weeks	35.78%
3 to 4 weeks	29.36%
1 to 2 months	7.34%
Other	2.75%
<b>Total</b>	<b>100%</b>

***Reasons for Difficulty with the Transition from Co-op to the University Setting***

Table 9 shows the reasons that students reported having a difficult transition back from co-op. The most common answer is the change of schedule from work to school, which was about 42% of the students. The next two notably common responses were the amount of homework, with about 23% of the students, and balancing work and school, also about 19% of the students.

Table 9. Reported Reason for Somewhat Difficult / Difficult Transition

Reason	Percent of Total
Difficulty of Coursework	7.68%
Amount of Homework	23.08%
Balancing Work and School	19.23%
Change of Schedule from Work to School	42.31%
Other Reasons	7.69%
<b>Total</b>	<b>100%</b>

Almost all students reported that it took time to transition between their co-op and the institution. For students that reported the transition being difficult, their transition period may have been longer. Below are comments in the open-ended portion of the survey to help explain some the reported results.

## Open-Ended Responses

Students responded to three different open-ended survey questions regarding the impact of the transition on their life, coping skills they used to help with the transition, and what resources they used to get through the transition. Below are the summaries of their responses.

### Impact

For question 7 on the survey, students were asked how the transition between co-op and the university has impacted their life. There were 66 responses to this open-ended survey question. The researcher used open axial coding using the constant comparative methods.

**Assignments, homework, coursework, and work** appeared in 30% (20 out of 66 respondents) of the comments. Responses were almost entirely negative, including a variety of struggles and difficulties with the transition. Many of the comments related to a heavy course load coming back from co-op, *“you are thrown into stressing about tests, quizzes and homework immediately” (SUM16-06)*, *“getting back into a demanding school work load- more assignments/deadlines... stressful” (SUM16-25)*.

**Schedule, time, regiment, and/or rhythm** was mentioned in 45% (30 out of 66 respondents) of the comments. Responses ranged from a loss in free time, to readjusting to a school schedule. All comments but one was negative, expressing a difficulty of their schedule change from co-op to the university setting. Many expressed a harsh transition, *“The abrupt change of schedule and mindset is hard to adjust” (SUM16-108)*, *“It’s hard to get back into the routine of strange hours” (SUM16-87)*. Others mentioned a change in their sleep schedule, *“Sleep schedule changed to match class schedule” (SUM16-61)*, *“Different sleep schedule” (SUM16-102)*, *“Less sleep and more stress since I was not used to the regiment of school” (SUM16-30)*.

**Money or loss of income** was mentioned in 8% (5 out of 66 respondents) of the comments. Students were surprisingly honest about the financial loss of coming back to the university. All 5 comments are negative, and talk about a change in spending habits. *“I didn’t find it hard to jump back into classes. The harder part was the loss of income.” (SUM16-104)*, *“I stopped making money” (SUM16-81)*, and one student explained the change in income resulted in a

change in their budget, *“Had to get used to...budgeting for such a large change in income”* (SUM16-28).

### **Coping Skills**

For question 8 on the survey, students were asked what coping skills they used to help them transition back to UofL. There were 64 responses to this open-ended question. Five responses were taken out because they reported this was not applicable (NA, N/A, or na).

**Peers and family** were mentioned in 14% (9 out of 64) of the comments. Some responses mentioned friends and classmates that caused the transition to be easier, *“Friends and classmates coming back with me really helped”* (SUM16-52), *“Well I got a girlfriend. Is that a coping skill?”*(SUM16-21). Many connected working with peers to helping with their transition, *“...worked more with friends to stay on top of work initially”* (SUM16-25). *“Study in groups and compartmentalize time”* (SUM16-98). Some students mentioned receiving help from family during the transition, *“I had to communicate with my family”* (SUM16-88)

**The use of scheduling tools and habits** were mentioned in 13% (8 out of 64) comments. This included multiple students referring to keeping a calendar, *“Always used my calendar”* (SUM16-82), *“Time management skills and keeping a schedule helped.”*(SUM16-45). Others mentioned using a notepad or other tools to remember needed tasks, *“I started using a memo pad to remember what I need to get done.”* (SUM16-118), *“I had to write down everything I needed to get done. Literally everything.”* (SUM16-82)

**Discipline, perseverance, willpower, and forcing** were mentioned in 16% (10 out of 64) of the comments. Responses were all similar in meaning: all these students were describing ways they were pushing themselves through the challenges of the transition. One student stated, *“Shear willpower”* (SUM16-18), while other students describe it as: *“Discipline”*(SUM16-86), *“Perseverance”*(SUM16-20), and *“forcing myself to try and keep up with everything”*(SUM16-119).

### **Resources**

For question 9 from the survey, students were asked what resources they used to help transition back to the institution. There were 53 responses to this open-ended question, 8 responses were taken out because the students reported not applicable (NA, N/A, etc).

**Friends, family, professors, or groups of people** were mentioned in 34% (18 of 53) of the comments. Most of these responses were about *“classmates”* (SUM16-85), *“friends”* (SUM16-13), and *“My colleagues who had been on co-op at the same time as well”* (SUM16-43). Many

students mentioned groups or societies that they belong to or have an affiliation with: *“Fraternity”* (SUM16-84), *“Athletic department advising staff”* (SUM16-82), *“Department specific computer labs and the engineering societies lounge”* (SUM16-48), and *“I have a wonderful community at the Interfaith Center that assists me”* (SUM16-40). One student mentioned that they read about how other people went through the experience: *“The internet. It’s nice to read other people’s stories of how they dealt with engineering school after co-op.”* (SUM16-08). Some students went to professors: *“Talking to professors”* (SUM16-20), *“professors to learn from”* (SUM16-44), and *“My professors”* (SUM16-70). Students even talked to their family for support: *“My parents mostly”* (SUM16-76), *“family for help moving my stuff back to campus”* (SUM16-24).

**No resources** were mentioned in 32% (17 of 53) of the comments. Most of these were simply that none were used, *“None”* (SUM16-39), but some students pointed out that they were not aware of any resources that they could use: *“didn’t know of any resources”* (SUM16-93). Some students did not think they needed any resources: *“Resources don’t have very much to do with it; it’s all about motivation for me”* (SUM16-11), *“Me, myself, and I.”* (SUM16-38), and *“None were necessary”* (SUM16-81).

## **Conclusions**

This research showed that close to 25% of students that responded to the survey had a somewhat difficult/difficult time transitioning back to the university after co-op. The students reported that there was no consistent transition time. Students reported that the reason they have transitional issues is because the schedule and workload is different, and it takes them time to get used to it.

The research could be further developed to find out more about transition issues, what causes them, and how to help students transition back to campus.

Recommendations for co-op advisors: Based on the survey and students feedback, we recommend talking with students before going on co-op to be aware that coming back from co-op may be harder than going out on co-op. It may also help students to reach out to them two weeks before coming back to campus, and offering coping resources such as a debriefing session, counseling or stress relief techniques.

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