Experiential Learning for Increased Employment Opportunities:

A Study on the Relationship between Externships Incorporated in Workforce Education Program Curriculum and Employment Status of Graduates

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Introduction

Colleges and Universities strive to provide opportunities that increase the chances their graduates have of obtaining employment. Career colleges offer students an experiential learning opportunity in the form of externships. An externship, similar to an internship, provides students a short practical experience in their field of study. Career colleges develop partnerships with reputable organizations to provide students with hands-on-experience. An externship is a class, not a job. Partners are informed of the teaching requirements of hosting student externs and agree to mentor them in their workplace and students are informed that they will receive a grade (typically pass/fail) upon completion of the externship.

This study examines the relationship between externships and graduates' employment statuses. To closely review the relationship, I ask the following research questions:

1. Are students who complete externships more likely to be employed than those who do not?
2. Are students who complete externships working at the clinical site where the externship was completed?
3. Are students who complete externships working in their field-of-study?
4. Are students who complete externships earning more than students who did not?
5. Are students who earned a certification in combination with completion of an externship more likely to be employed that those who did not?

I hypothesize that successful completion of an externship results in a greater chance of obtaining employment after graduation. This study aims to investigate the impact that experiential learning in the form of externships has on the employment opportunities of graduates who participate in

them. Information regarding whether students passed a certification exam, full-time vs. part-time employment, externship site, and wages were included to provide further explanation for students' employment statuses.

Data

Graduates of Collin College Continuing Education Health Science programs were invited to participate in an online survey. The students graduated between January 2014 and June 2015. Survey questions included:

- What program (s) did you complete?
- Did you take the certification exam?
- If yes, did you pass?
- Did you complete an externship?
- Have you found employment?
- Do you work in your field?
- Are you actively seeking employment?
- Do you work full-time or part-time?
- Do you work at the site where you completed your externship?
- What is your salary/hourly wage?
- Do you feel that your course (s) prepared you well for employment in your field?

Depending on how a student responded to a question, they were directed to the appropriate next question. For example, if a student answered "No" to the question "Have you found employment?" they would be directed to the question "Are you actively seeking employment?" and if they answered "Yes" they would be directed to "Do you work full-time or part-time?" See attached "Graduate Employment Data" document for the full survey.

Emails inviting graduates to participate in the survey were sent three times in order to collect sample data. The email invitations were sent between February and April, 2016. 2,092 surveys invitations were sent, 712 were opened (34%) and 129 students participated in the survey making for a 6% response rate. Of the 129, ten were screened out due to incomplete surveys. Including incomplete survey data could potentially bias the results. Table 1 provides program information of the 119 surveys that were examined.

Table 1. Type of Program Completed

Certified Medical Assistant (CMA)	37
CMA, Dental Assistant	1
CMA, Pharmacy Technician	1
CMA, Phlebotomy	10
Dental Assistant	16
Pharmacy Technician	19
Phlebotomy	29
Veterinary Assistant	6
Total	119

After reviewing all of the survey responses, graduates were divided into 2 groups. Group one consisted of students who completed externships (58 students total) and group two consisted of students who did not complete externships (61 students total). Because the sample groups consist of almost the same number of students (3 person difference), the opportunity for biased results based on unequal sample sizes is lessened. Table 2 illustrates the number of students who completed externships and those who did not.

Table 2.
Students who Completed Externships and Those Who Did Not

	Frequency	Percentage
Externship	58	51.26
No Externship	61	48.74
Total	119	100.00

Clinical sites that host externs were also emailed a survey invitation in an effort to gain insight from employers on why they would extend an employment offer to an extern and whether or not they prefer potential employees to have a certification. 50 email invitations were sent and 16 responded; of the 16 only 11 surveys were complete, the rest were disregarded. The survey consisted of three parts: Relationship with Collin College, Practice and Teaching Resources, and Considerations when Hosting Externship Students. All responses were qualitative and cannot accurately be assessed using a regression model. Additionally, the sample size is too small for accurate regression results. The attached "Collin College CE Health Science Employer Data" document is the full survey given to clinical sites.

Data Analysis Strategy

To test the hypothesis that students who complete externships are more likely to be employed than those who do not, logistic regression was employed with the binary responses of "Yes" or "No" to completion of externship as the independent variable and "Yes" or "No" to employment status as the dependent variable. The regression equations were as follows:

Equation 1: $P(Y=1|X)$ [1]$= \beta_0 + \beta_1 EXTERN$, where Y is EMPLOY

Equation 2: $P(Y=1|X) = \beta_0 + \beta_1 EXTERN + \beta_2 PASS$, where Y is EMPLOY

Equation 3: $P(Y=1|X) = \beta_0 + \beta_1 EXTERN$, where Y is SITE

[1] The observed probability of Y=1 for each level of X, where Y is the dependent variable with the response of "yes" and X is the independent variable.

Equation 4: $P(Y=1|X) = \beta_0 + \beta_1 EXTERN$, where Y is FIELD

Equation 5: $P(Y=1|X) = \beta_0 + \beta_1 EXTERN + \beta_2 PASS$, where Y is FIELD

Equation 6: $WAGES = \beta_0 + \beta_1 EXTERN$

Equation 7: $WAGES = \beta_0 + \beta_1 EXTERN + \beta_2 PASS$

Variables were coded as:

EMPLOY: represents the employment statuses of graduates (coded as 1 if yes and 0 otherwise)

EXTERN: represents externship completion (coded as 1 if yes and 0 otherwise)

SITE: represents if a graduate is employed at the clinical site where they completed their externship (coded as 1 if yes and 0 otherwise)

FIELD: represents if a graduate works in their field-of-study (coded as 1 if yes and 0 otherwise)

PASS: represents whether a graduate passed their certification exam (coded as 1 if yes and 0 otherwise)

WAGES: represents the hourly wages of employed graduates coded as follows:

- 1 if less than $10.00/hour
- 2 if $10.00-12.99/hour
- 3 if $13.00-$15.99/hour
- 4 if $16.00-19.00/hour
- 5 if greater than $19.00/hour

Equation 1 served as the primary test for the hypothesis. The variable *PASS* was added to elaborate the hypothesis – did passing the certification exam have an effect on employment status and if so, was the effect significant?

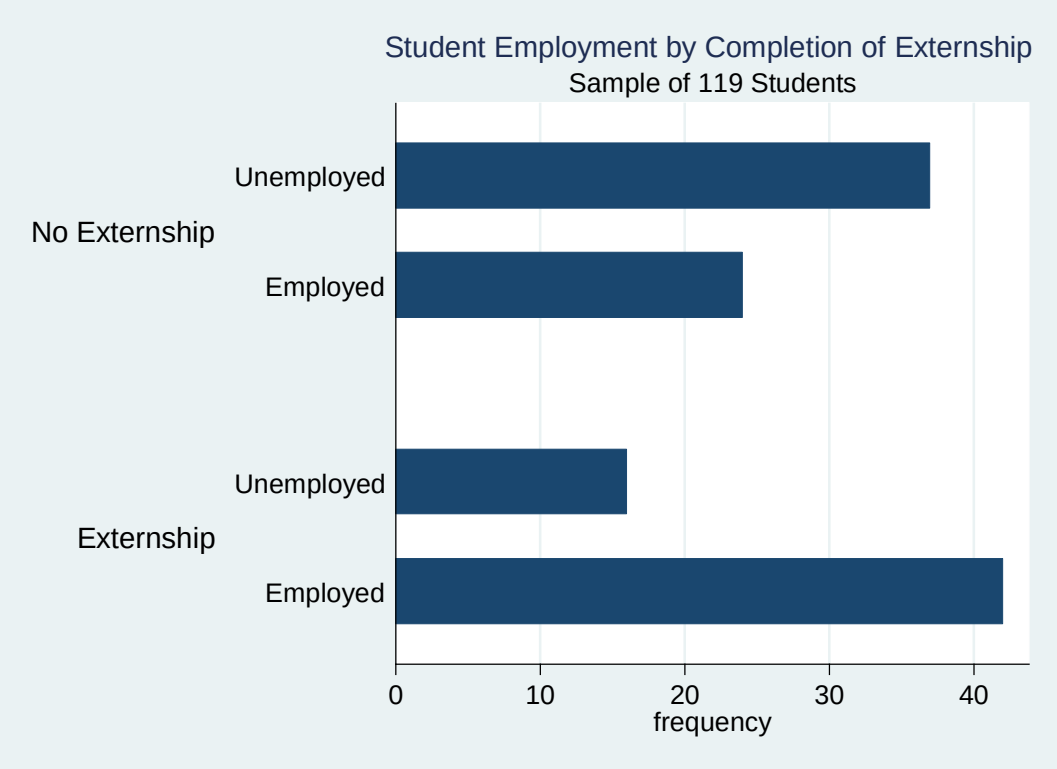
Results

Part of the challenge of this paper was having enough data to perform all of the analyses. Table 3 represents relevant data to the proposed hypothesis collected from the survey.

Table 3. Graduate Data on Employment Status, Employment Site, Certification Exam and Wages

	Externship	No Externship
Employed	42	16
Unemployed	24	37
Externship Site	17	Not Applicable
Field of Study	38	20
Passed Certification Exam	55	47
Did Not Pass Certification Exam	0	4
Wages		
Less than $10.00/hr	12	10
$10.00-12.99/hr	17	9
$13.00-$15.99/hr	9	1
$16.00-19.00/hr	1	1
More than $19.00/hr	2	3

The graph that follows (Graph 1) illustrates the stark difference between the groups – those who completed externships and those who did not and their employment statuses.



The logistic regression results are statistically significant in the direction predicted by my hypothesis, with an odds ratio of 4.05; those who completed externships were 4.05 times more likely to obtain employment that those who did not (See Table 5). Tables 4 and 5 illustrate the logistic regression results.

Table 4
Summary of Logistic Regression Results Analysis for the Employment/Externship Relationship

EMPLOY	Coef. (Std. Err.)	z P > |z|
EXTERN	1.40	3.55
	(0.39)	(0.00)
CONSTANT	-0.43	-1.65
	(0.26)	(0.099)

Due to the high z score, it can be said that there is a significant relationship between externship completion and employment status; however, the data in Table 4 is in log-odds units and cannot

be read as OLS[2] coefficients. To interpret the score, I estimated the predicted probabilities of Y=1 using the following equation:

$$\Pr(Y = 1|X_1) = \frac{1}{1 + (\frac{1}{e^{-0.43+1.40X_1}})} = 0.724$$

The results indicate that completion of an externship increases the likelihood of employment by 72.4%.

Table 5
Summary of Logistic Odd Ratio Results Analysis for the Employment/Externship Relationship

EMPLOY	O.R. (Std. Err.)	z P > |z|
EXTERN	4.05 (1.60)	3.55 (0.000)

Equation 2 deals with the relationship between employment status and whether a student completed an externship and passed a certification exam. Although the group who completed an externship in combination with passing a certificate exam had a greater chance of obtaining employment (72.7% or 3.30 times more likely) as opposed to those in the non-externship group, the results are not significantly significant. Tables 6 and 7 illustrate the logistic regression results.

[2] Ordinary Least Squares

Table 6
Summary of Logistic Regression Results Analysis for the Employment/Externship Relationship

EMPLOY	Coef. (Std. Err.)	z P > |z|
EXTERN	1.19	2.83
	(0.42)	(0.005)
PASS	0.89	0.74
	(1.19)	(0.458)
CONSTANT	-1.09	-0.95
	(1.15)	(0.341)

Table 7.
Summary of Logistic Odd Ratio Results Analysis for the Employment/Externship Relationship

EMPLOY	O.R. (Std. Err.)	z P > |z|
EXTERN	3.30	2.83
	(1.40)	(0.005)
PASS	2.42	0.74
	(2.89)	(0.458)

To answer the remaining questions regarding whether graduates who completed externships are more likely to work in their field-of-study and if they are earning more, turn back to Table 3. 38 of the 58 (66%) of students who completed externships work in their field-of-study compared to 20 of the 61 (33%) who did not complete externships. There is a cluster in the $13.00-15.99/hr wage range for those who completed externships while that cluster lies in the $10.00-12.99/hr wage range for those who did not. Of the 42 students who both completed externships and are employed, 17 (24%) work at the clinical site where they participated in their externship.

Discussion

The experience gained through externships provides students with experiential learning that helps launch them into the workforce. Although the results to Research Question 1 are significant, they provide only minimal support for the hypothesis that completing externships increases graduates chances of obtaining employment. There is the idea that an externship takes on the role of giving students valuable work experience in the form of hands-on class training, while the clinical site receives an extended look at investing long-term in a potential employee. On the other hand, there is the perception of externs as free labor for a clinical site as the extern is looking to add a line to his/her resume. The Clinical Coordinator of Continuing Education Health Sciences at Collin College does a great job filtering out clinical sites that use externs as an unpaid employee rather than viewing them as a student in training; however, the possibility of such a clinical site does exist. What is most important is that the externs are gaining valuable growth opportunities to expand their marketable skills sets to obtain employment upon completion of their programs.

Of the 11 completed surveys by employers, 100% responded that the criteria Collin College must meet gives them confidence in their programs and students, 91% provide externs a mentor and 18% have a succession plan for students to transition into employment at their clinical site. All survey participants commented that Collin College Continuing Education Health Science provides quality students and have excellent programs. They continue to work with the college because their students show great potential and they support the growth of Continuing Education Health Science Programs.

Limitations

The biggest limitation in this study is the small sample size of data. Because surveys are optional, graduates may not feel the need to complete them as they are already finished with their education at Collin College and have no desire to provide employment information. Another limitation is the lack of demographic information. This limits the ability to generalize these findings to the general population. Similar to this, there is likely some amount of bias is the self-selection of those who responded to the survey. There could be some linking characteristic between the students in this sample and the outcomes that were detected by the analysis.

Future Research

The most apparent finding of this study, namely, is that externship participation predicts greater likelihood for employment offers at graduation. There is potential for future research by conducting mandatory surveys before students begin their program and again before they enter their externship to gain insight on whether they feel prepared to enter an externship. And then email survey invitations to graduates 3-6 months after externship completion, which include questions regarding demographic information, to examine the employment/externship relationship. To make this additional research possible, the Collin College Continuing Education Health Sciences department would require more staff to keep up with the survey data and the graduates would need an incentive for taking the survey they receive after program and externship completion. Providing the department these additional resources could result in promising research that externships are definitely having an effect on graduates' employment statuses.