

First Year Business Practicum: Impacts of Early Experiential Learning

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Abstract

This research builds on previous higher education studies and improves the understanding of students' confidence in their chosen business education path with the introduction of a first-year experiential business practicum course. Students' understanding of business disciplines within the early years of academic decision-making has been a challenge, as typical liberal arts educational paths provide minimal coursework in the specific disciplines within the first two semesters of study. The two-year mixed-methods study included a quantitative survey of first-year business students enrolled in a private four-year liberal arts university in southwestern New York. The qualitative portion of the study analysed students' non-prompted written responses to their learning outcomes in the course. The findings suggest that first-year students' completion of an experiential business practicum course is associated with increased confidence in their chosen major and a sense of engagement with their freshman cohort. Students in the study indicated a negligible increase in understanding of their career opportunities. Future attention could be given to pursuing additional coursework in the freshman practicum to develop students' exposure to career opportunity through learning activities.

Key words: *First-year business students; business practicum; experiential learning; confidence in academic major.*

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PsycINFO Classification: 3530

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Introduction

The United States Department of Education statistics indicate that over the past decade, nearly one third of female and one half of male students enrolled in four-year bachelor programs do not graduate within six years (U.S. Department of Education). Many factors contribute to students' inability to complete undergraduate programs timely. Students who change their academic programs after completing their first four semesters of coursework can become challenged to complete the full sequence of courses within eight semesters. Promoting a stronger understanding of the academic program within the first year of study should minimize the occasion where a student completes courses not required in their final chosen program of study.

Across a national scale, first-year attrition represents approximately half of all student departures from universities (Willcoxson, Cotter, & Joy, 2011). A number of researchers have identified social comfort and involvement as key elements to undergraduate student retention (Hoffman et al. 2002; Nicpon et al. 2006; Rayle, Robinson Kurpius, & Arredono 2006). A research goal of this study included evaluating the impacts of an experiential business practicum course for first-year students in order to gain a better understanding of the value of the student business cohort cohesion.

Most schools of business offer students a practicum course after completing at least three semesters of coursework. A typical business plan of study presents very little in the way of program-specific content within the first year of study. Students may complete a business law or introductory economics course. However, many programs require students to complete two semesters of general education courses, with no program-specific content. This structure minimizes the opportunity for first-year students to solidify their choice of major and cohesion with students in their major program.

This study analysed the impact of a hands-on practicum course on first-year business students' confidence in their choice of major and their sense of engagement with fellow students in their college cohort. The study investigated whether their confidence in their major and knowledge of career opportunities increased after completing the practicum course in their second semester of study. Additionally, the study evaluated whether students indicated that the practicum group work was a valuable outcome from their first-year experience.

Literature Review

A foundational researcher on college student attrition, Tinto focused on the concepts of academic and social integration (Tinto & Pusser, 2006). Tinto identified the critical elements of student retention as student and institutional commitment, expectations, feedback, support and engagement (Tinto and Pusser 2006). These factors served as the main focus throughout the past decades for those involved with college student retention.

Tinto and Pusser's (2006) results also resonated with other researchers' findings on college student attrition and retention. Students engagement and the degree to which academic programs met their expectations were correlated with students' long-term commitment to their chosen educational paths. Long, Ferrier, and Heagney (2006) and Queensland Studies Authority (2004) suggested that many students who did not remain enrolled in undergraduate education suffered from lack of commitment or interest in their studies.

Similarly, Willcoxson, et al. (2011) argued that student attrition in the first year of college was due to personal factors, such as a students' inability to integrate into university systems, either social or academic. The researchers also found that student attrition was correlated with a lack of goal commitment, as indicated by students' academic coursework choice, career direction, school-work balance, or lack of academic preparation (Willcoxson, et al., 2011).

The lack of confidence for new college students toward their chosen major has been an issue for many years. The Chronicle of Higher Education (2001) reported that fifteen percent of students enter college undecided on their major, while many more change their major after their freshman year. A study at Penn State found that 80% of freshmen, including those who have declared their majors, indicated that they were uncertain about their major, and 50% expected to change their major after they declared (Granitz, Chen, & Kohli, 2014).

Zafar (2011) suggested that students' uncertainty toward their declared major can be attributed to the lack of knowledge available to students in their early years of college. Zafar's (2011) studies found that changes in majors were due, in part, to new information that the students received after beginning the major, helping to pinpoint their abilities, interests, job and career opportunities. Over time, as the students received new information, some chose to drop out of college or switch to a different major that seemed to fit them better (Manski, 1989).

Students' decision-making on their college major most often begins while the students are studying in high school. Some students make their determinations even before entering high school (Granitz, Chen and Kohli, 2014). High school students rely most heavily on parents and family members for their college study decisions. The likelihood that students choose a major related to a family member's occupation has been found to be strongly correlated with the family member's wage at the time the major choice is made (Xiaoy, 2016). Still, the choice of college major has been made by the students themselves; Granitz, et al. (2014) found that that 94% of students thought about their major by their senior year in high school, and 37% of students thought about their major as early as their junior year.

Another important factor in the confidence of first-year students in their choice of major, as well as retention, has been the students' perception of belonging to a student cohort. Severiens, Meeuwisse, and Born (2015) suggested that even large university programs are able to create a more intimate perception for students by developing mentor groups and peer groups. Harvey, Drew, and Smith (2006) argued that a first year student who self-perceives as "one of the masses", not feeling seen as an individual, has been a key indicator of student dissatisfaction with their academic programs. Harvey et al. (2006) showed that students preferred experiential student-centered learning environments and activities rather than lectures.

An additional factor influencing business schools' use of experiential courses has been the employment outcomes of their graduates. Employers have indicated a strong desire for college graduates to focus efforts on experiential learning groups such as those offered in a practicum course. Employers have been seeking college graduates with classroom experience in problem-solving and design-based teaching methods (Lehmann, 2009). Academic programs that designed learning cohorts focusing on problem-based experiential learning provided students with skills and experience aligned with the real-world needs in professional realms (Lehmann, 2009). The Association For Career & Technical Education (2014) reiterated that becoming career-ready often required more from students than attending college and performing well academically; Employers have sought graduates with real-world experiential involvement. Employers seek candidates with real world experiences in critical thinking, interpersonal communication, writing, and information literacy, particularly how to apply

these skills in the workplace (Campbell & Kresyman, 2015). Developing students' real world experiences from the start of their first year in a business program could serve to reinforce the skillsets required in the workforce.

The focus of this study was to measure the impact of a practicum course on first-year business students' confidence in their choice of major and career goals as well as their engagement with their college cohort. Therefore, the research questions focused on whether students were confident in their choices of major and their understanding of career opportunities for their major. The study also investigated whether students indicated feeling at the end of the term that their hands-on group projects created a positive experience with their college student cohort.

The overarching research questions were:

To what degree does a practicum course for first-year business students impact their confidence in their selected major?

To what degree does a practicum course for first-year business students impact their understanding of career options for their selected majors?

To what degree does a practicum course for first-year business students impact their engagement with students in their college cohort?

From the research questions, the following hypotheses were developed:

Hypothesis 1:

Business students' completion of a first-year practicum course is positively related to confidence in their selected major.

Null: Business students' completion of a first-year practicum course has no relation to confidence in their selected major.

Hypothesis 2:

Business students' completion of a first-year practicum course is positively related to understanding career options for their major.

Null: Business students' completion of a first-year practicum course has no relation to understanding career options for their major.

Hypothesis 3:

Business students' completion of a first-year practicum course is positively related to their engagement with students in their college cohort.

Null: Business students' completion of a first-year practicum course has no relation to their engagement with students in their college cohort.

Method

To test the hypotheses, a mixed-method approach was taken. In order to test the positive relationship between a first year practicum course and students' confidence in their major (Hypothesis 1), as well as students' understanding of career options for their major (Hypothesis 2), a quantitative study was conducted. Pre-course and post-course surveys were completed to measure students' confidence and understanding. To test the students' engagement with students in their college cohort (Hypothesis 3), a qualitative study was conducted. At the end of the term, students were asked to reflect in writing about the impact of the first-year business practicum course. Qualitative analysis was used to determine the non-prompted topics students discussed in their writing.

Population and Sample

The population for the study consisted of all first-year business students enrolled in a small private university in southwestern New York State. Data was gathered from the first year students in the 2015-16 and 2016-17 academic years. All first-year business students were offered the quantitative surveys to complete during class meeting times. All students were requested to complete the qualitative writing piece as an out-of-class assignment.

The participants in the study were traditional age college students. Their majors included accounting, business administration, finance, and marketing. The students had completed one semester of coursework during the previous term. A negligible percentage of the students may have completed their first semester of coursework at a different institution.

Figure 1 shows that there were more male students than female students in the study (n=82).

Figure 1:
First-year student survey participants' gender

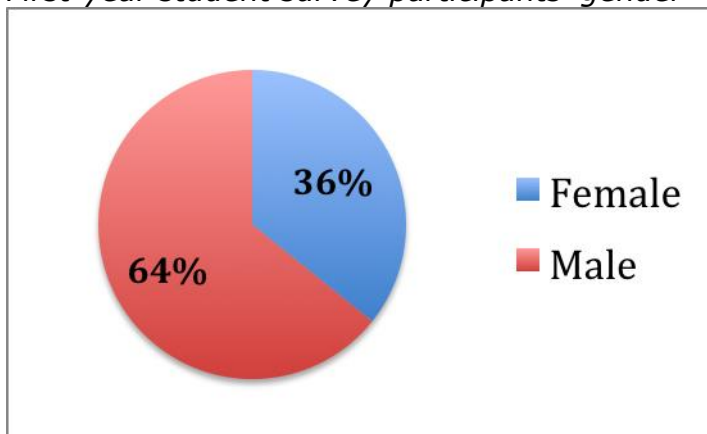
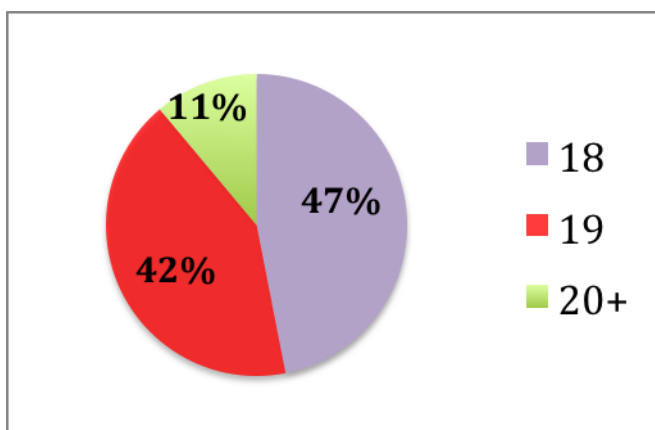


Figure 2 highlights that the age groups 18 and 19 were greater represented in the student participants (n=82).

Figure 2:
First-year student survey participants' by ages



Instrumentation and Data Collection Procedures

The instrumentation for the quantitative portion of the study was a paper survey. The invitation to complete the survey delivered during class time. The pre-course survey was completed during the first week of the students' second term. The post-course survey was completed during the last week of the students' second term. The qualitative writing portion of the study was completed during the last week of the terms.

The pre-course and post-course survey instruments contained five closed-ended scaled questions. Opening questions on the survey qualified participants for having majors and minors within the business school. The first two questions asked students to rate how sure they were of their selected major and minor, respectively. The third question asked students to rate how well they understood career options for their major. The last two questions asked students to rate how much general work and specific business work experience they have had. The five-point scale questions measured participants' self-perception of the constructs. The same five questions were asked on the pre-course as well as the post-course surveys in order to measure students' perceptions before and after completing the practicum course. Two categorical questions were included at the end of the survey to collect demographic information on gender and age. A paper survey distributed in person was determined to be most appropriate to collect responses from first year students.

The instrumentation for the qualitative portion of the study was a written reflection assignment. The assignment was distributed via the students' Learning Management System (LMS) and completed independent of class time. Students also submitted their written reflection via the LMS. The qualitative instrument was open-ended, allowing students to self-select any elements from the course that they perceived as having an impact.

Variables

For both phases of the study, the independent variable was defined as enrolment in the business practicum course for first-year business students. Completion of the course was required since the study evaluated student responses at the end of the term. Students' success in the course was not a factor of the independent variable, as students completed their surveys and writing regardless of their grade in the course.

Three dependent variables were included in this study. For Hypothesis 1, the dependent variable was defined as the students' confidence in their choice of major. For Hypothesis 2, the dependent variable was defined as the students' understanding of career options for their major. For Hypothesis 3, the dependent variable was defined as the students' identification of engagement with their student peers as a valued takeaway by the close of the course. Two control variables were established for the study: the participants' 1) age and 2) gender.

Data Analysis Plan

The survey data from the quantitative portion of the study (Hypothesis 1 and Hypothesis 2) was analysed using SPSS version 21. Using SPSS's table views, the data was reviewed to confirm that all variables transferred properly with coding in place. For all statistical testing, the level of significance of .05 was established. Statistical analyses included descriptive statistics, such as frequencies, mean, median, and standard deviations for all variables contained in the dataset. Observations for the dependent variables were analysed using responses to questions asking participants to indicate their confidence in their major and their understanding of career options. The

control variables were also analysed to identify any possible correlations with age or gender. Since the number of students enrolled in each course was well under 200 students, a normal distribution could not be assumed. The Wilcoxon Signed-Rank test is a non-parametric paired difference test used to compare two related samples, or repeated measurements, on a single sample (National Institutes of Health, 2002). Therefore, the Wilcoxon Signed-Rank nonparametric test for comparison of means, and medians, was utilized.

The data from the qualitative portion of the study was analysed in Microsoft Word 2011. Researchers reviewed and searched the students' written documents for discussion of course outcomes. The researchers then listed trends and frequencies in the participant responses. Students were asked in a free-form response to indicate their takeaways from the course, so students' discussion of engagement with classmates was non-prompted.

Ethical Considerations

To ensure credibility and ethical foundations, the Institutional Review Board (IRB) at the study site reviewed and approved the study. Overall, the participants were subject to no harm. The surveys contained non-invasive questions of respondents' opinions on classroom and academic experiences. The study obtained no personally identifying information from participants.

Limitations

The most significant limitation of this study was that participants self-reported their perceptions of confidence in their majors, understanding of career options, and engagement. Since the study was conducted within a small university, the findings may not be generalizable to larger populations of freshman cohorts. Additionally, the study was limited to the timeframe in which participants responded to the survey.

Results

For the quantitative portion of the study, the survey data was first analysed by reviewing the frequency of responses for dependent and control variables, to ensure that the distribution of respondents was not skewed. Overviews of the sample data are presented in Figure 3, and Figure 4. Secondly, the statistical data testing process was to conduct a comparison of means on the variables pre-course and post-course. The comparison of means included testing a) between the independent variable and the dependent variables, b) between the control variables and the dependent variables, and 3) between the control variables and the independent variable.

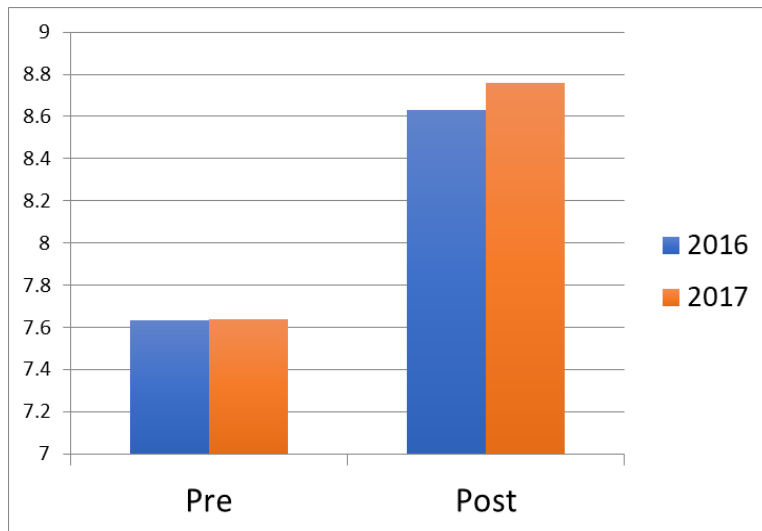
Results for Hypothesis 1: Business students' completion of a first-year practicum course is positively related to confidence in their selected major.

Students' perceptions of self-confidence in their chosen major were measured with the same question on the pre-course and the post-course survey. The question asked students, "On a scale of 1-10, 10 being the highest, how certain are you that you want to pursue that major?" The previous question had asked students to indicate their major, which is what the terminology 'that major' referred to. The mean of the pre-course survey data was compared to the mean of the post-course survey data to determine whether the two means indicated a statistically significant difference.

In the comparison of means for Hypothesis 1, a statistically significant difference was found between the means of students' confidence in their chosen major pre-course and post-course. At the beginning of the course, the mean of students' response to the question for Hypothesis 1 was 7.6 in each year of the study. (See Figure 3.) At the end of the course, the mean of students' response to the question for Hypothesis 1 was 8.6 and 8.7 in 2016 and 2017, respectively. Figure illustrates student participants' confidence in major, pre and post course (n=82).

Figure 3:

First-year student responses to confidence in chosen major (H1)



H1 Null: *Business students' completion of a first-year practicum course has no relation to confidence in their selected major.*

With the Wilcoxon Signed-Rank test resulting in a $p < .05$, the null hypothesis that the two sample sets shared equivalent measures of central tendency was rejected. The higher score for students' confidence in their major in the post-course survey indicated a significant difference from their confidence reported in the pre-course survey data. (See Table 1.)

Table 1:

Non-Parametric Test of Confidence in Chosen Major (H1)

	Null Hypothesis	Test	Sig.	Decision
1	The median of differences between PreHSMaj and PostHSMaj equals 0.	Related Samples Wilcoxon Signed Rank Test	0.000	Reject the null hypothesis

Asymptomatic significances are displayed. The significance level is .05

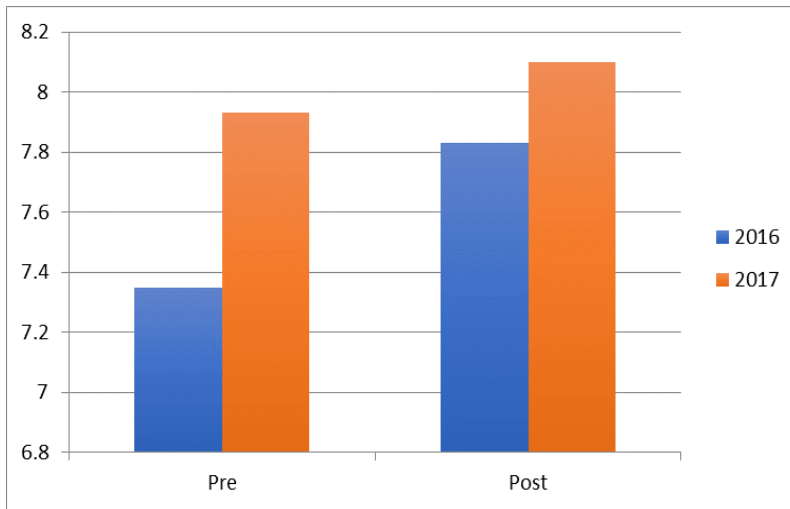
Results for Hypothesis 2: *Business students' completion of a first-year practicum course is positively related to understanding career options for their major.*

Students' understanding of career options for their major was measured with the same question on the pre-course and the post-course survey. The question asked students, "On a scale of 1-10, 10 being the highest, how clearly do you understand the types of jobs/careers available for this major?" The mean of the pre-course survey data was

compared to the mean of the post-course survey data to determine whether the two means indicated a statistically significant difference.

In the comparison of means for Hypothesis 2, a statistically significant difference was not found between the means of students’ understanding of the career options for their major pre-course and post-course. At the beginning of the course, the mean of students’ response to the question for Hypothesis 2 was 7.35 in 2016 and 7.92 in 2017. At the end of the course, the mean of students’ response to the question for Hypothesis 2 was 7.83 in 2016 and 8.1 in 2017. (See Figure 4.) Figure 4 illustrates student participants’ understanding of career opportunities, pre and post course (n=82).

Figure 4:
First-year student responses to understanding of career opportunities (H2)



H2 Null: *Business students’ completion of a first-year practicum course has no relation to understanding career options for their major.*

With $p < .05$, the Wilcoxon Signed-Rank test accepted the null hypothesis that the two sample sets shared equivalent measures of central tendency. The higher score for students’ understanding their career options in the post-course survey was not statistically large enough to indicate a difference from their understanding reported in the pre-course survey data. (See Table 2.)

Table 2:
Non-Parametric Test of Understanding of Career Opportunities

	Null Hypothesis	Test	Sig.	Decision
1	The median of differences between CareersPRE and CareerPOST equals 0.	Related Samples Wilcoxon Signed Rank Test	1.000	Retain the null hypothesis

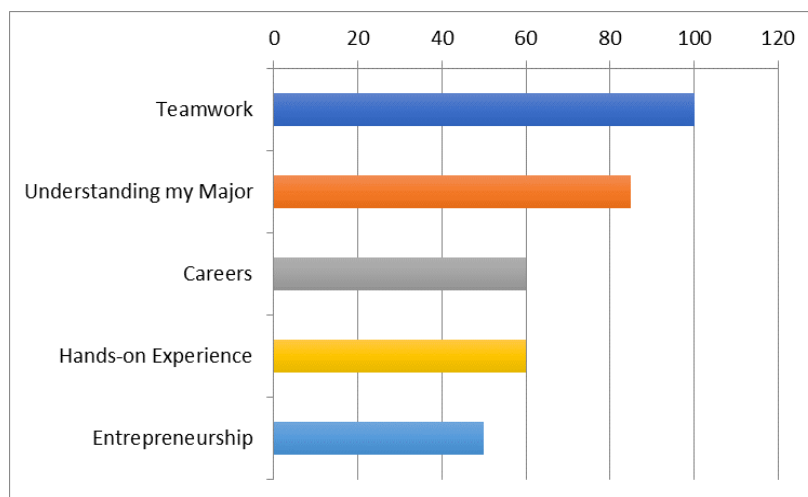
Asymptomatic significances are displayed. The significance level is .05

Results for Hypothesis 3: Business students' completion of a first-year practicum course is positively related to their engagement with students in their college cohort.

Students' engagement with their cohort was measured by a frequency analysis of concepts mentioned by students in their final reflection writing. In the unaided and unprompted reflections, the most frequently mentioned topics were 1) teamwork, 2) students' majors, 3) hands-on business experience, 4) careers, and 5) starting a business/entrepreneurship. (See Figure 5.) The top ranking subject, teamwork, was mentioned by 100% of the students in their reflection writing as a valuable takeaway from the course. The second most frequently discussed takeaway, with 85% of students' mentioning, was a better understanding of their business majors. Tying for third most mentioned topics were hands-on business experience and careers, each receiving mentions from 60% of students. Lastly, entrepreneurial desires related to starting a business were mentioned by 50% of students in their written reflections. (See Figure 5.) Figure 5 illustrates student participants' non-prompted responses to what value they took from the first-year business practicum course (n=82).

Figure 5:

First-year student responses to takeaways from the practicum course (H3).



H3 Null: *Business students' completion of a first-year practicum course has no relation to their engagement with students in their college cohort.*

Since all students mentioned teamwork as a valued takeaway for the course, the analysis of Hypothesis 3 suggested that the null hypothesis should be rejected and Hypothesis 3 should be accepted. The completion of a freshmen business practicum course was positively related to engagement with students in their cohort.

Analysis of Control Variables:

In the comparison of means for the control variables, no statistically significant difference was found between the means of students' confidence in their chosen major pre-course or post-course when comparing groups by gender or age. Likewise, no statistically significant difference was found between the means of students' understanding of career opportunities pre-course or post-course when comparing groups by gender or age. (See Table 3 and Table 4.) Analyzing both years of the study, at the beginning of the course, the mean of male students' responses to the question of

confidence in their major was 7.698, while that of female students' was 7.517. For pre-course scores by gender, the mean of male students' responses to the question of understanding their career opportunities was 7.698, while that of female students' was 7.607. For pre-course scores by age, the means of responses for students age 18, 19, and 20+ for the question of confidence in their chosen major were 7.421, 7.794, and 8.0, respectively. Again for pre-course scores by age, at the beginning of the course, the means of responses for students age 18, 19, and 20+ for the question of understanding their career opportunities were 7.594, 7.97 and 7.111, respectively.

Table 3:

Non-Parametric Test of Question 1 (Confidence in Major) and Question 3 (Understanding of Career Opportunities) by Age

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of Question 1 is the same across categories of Age.	Independent Samples Kruskal-Wallis Test	.645	Retain the null hypothesis
2	The distribution of Question 3 is the same across categories of Age.	Independent Samples Kruskal-Wallis Test	.365	Retain the null hypothesis

Asymptomatic significances are displayed. The significance level is .05

Table 4:

Non-Parametric Test of Confidence in Major (Question 1) and Understanding of Career Opportunities (Question 3) by Gender

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of HS Maj is the same across categories of Sex.	Independent Samples Mann-Whitney U Test	.880	Retain the null hypothesis
2	The distribution of Careers is the same across categories of Sex.	Independent Samples Mann-Whitney U Test	.948	Retain the null hypothesis

Asymptomatic significances are displayed. The significance level is .05

Scores at the end of the course recorded a mean of male students' responses to the question of confidence in their major as 8.698, while that of female students' was 8.708. At the end of the course, the mean of male students' responses to the question of understanding their career opportunities was 7.907, while that of female students' was 8.13. At the end of the course, the means of responses for students age 18, 19, and 20+ for the question of confidence in their chosen major were 8.526, 8.75, and 9.0, respectively. At the end of the course, the means of responses for students age 18, 19,

and 20+ for the question of understanding their career opportunities were 7.222, 8.25, and 7.636, respectively. With the Mann Whitney U test resulting in a $p < .05$, the null hypothesis is accepted in all tests of gender, concluding that the two sample sets shared equivalent measures of central tendency. With the Kruskal-Wallis test resulting in a $p < .05$, the null hypothesis is accepted in all tests of age, concluding that the groups within the sample sets shared equivalent measures of central tendency. The slight variations in responses by gender or age indicated no significant difference in groups for the pre-course or post-course survey data.

Discussion

This two-year study offered an important finding for business school faculty and administrators seeking to increase the confidence of first-year business students in regard to their choice of academic major. First year students in most business colleges complete very little in terms of academic courses in specific business disciplines. At most, first-year business students typically have taken an introductory business law or economics course. Postponing a better understanding of the variance in business disciplines can inhibit students from making timely decisions on course selection and business school graduation requirements. However, important to note in this study, first-year business students' completion of an experiential practicum course was shown to be positively correlated with an increase in students' confidence in their chosen major. At the end of the one-semester course, first-year business students' confidence in their chosen major increased a statistically significant amount. A practicum course that allowed students hands-on experience with the business disciplines of management, marketing, operations, and accounting reinforced to the first-year students that the major they had selected fit with their understanding and academic desires.

A second important finding in the two-year study of first-year business students was the indication of student engagement with others in their freshman cohort. At the end of the freshmen business practicum course, in each year, students overwhelmingly suggested that they benefitted from the teamwork and hands-on cooperative efforts of the experiential learning course. Schools of business striving to achieve a sense of belonging amongst their students in the early years of academic pursuit should note the findings of this study. The set up of a practicum course in the first year of study has not been the common practice for baccalaureate business programs. Fostering student impressions of useful and meaningful teamwork with their peers was a noteworthy takeaway from the freshmen practicum course.

The data analysis in the two-year study indicated no significant difference in confidence of chosen major or understanding of career opportunities by the freshmen business students grouped by gender or age. In comparisons of means by gender, males and females responded nearly identically to the questions on confidence of major and career opportunity understanding. In comparisons of means by age, the data indicated a minimal positive increase in both confidence in major and career opportunity understanding with an increase of age from 18 to 19 to 20+ years of age. However, the slight increase was not statistically significant. The only significant difference found in the measure of confidence in chosen major was in comparing the means before and after taking the practicum course.

Conclusion

The research has examined the impact of a first-year business practicum course on students' understanding of the career opportunities for their business disciplines. The findings of this two-year study indicated that the completion of the experiential course did not change students' career understanding. While it is possible that freshmen perceive the commencement of their career as being too distant to be of current concern, course developers should still make note of course content directed at career opportunity understanding. Going forward, practicum course developers should consider adding elements to the class to further strengthen the understanding of career opportunities for freshmen students. In subsequent studies, researchers should continually monitor and assess the ability for the practicum course to increase business students' career opportunity understanding.

The findings of this study related to an experiential freshmen business practicum course would seem to indicate a direct correlation to students' confidence in their chosen major early in their academic career. The study also strongly suggests that a freshmen business practicum course is positively correlated with students' perception of strong teamwork and cooperative efforts within their student cohort. Business schools of all sizes can benefit from the strengthening of both students' confidence in their chosen academic path as well as their sense of working together within their school of business class. Raising the awareness of the benefits available through a freshmen business course could help business schools achieve better student retention and satisfaction.

References

- Association for Career & Technical Education. (2014). *ACTE: Voices support for Pathways to Prosperity Act of 2014*. Retrieved from <http://www.acteonline.org/>
- Campbell, C. & Kresyman, S. (2015). Aligning business and education: 21st century skill preparation. *e-Journal of Business Education & Scholarship of Teaching*, 2, 13-27.
- Granitz, N., Chen, S., & Kohli, K. (2014). Choosing business as a college major: A survey of high school students. *Journal of the Academy of Business Education*, 15, 1-22.
- Harvey, L., Drew, S., & Smith, M. (2006). *The first-year experience: A review of literature for the Higher Education Academy*. York: The Higher Education Academy.
- Lehmann, C. (2009). Shifting ground. *Principal Leadership*, 4, 18-21.
- Long, M., Ferrier, F. & Heagney, M. (2006). Stay, play or give it away? Students continuing, changing or leaving university study in first year. Retrieved from http://www.dest.gov.au/sectors/higher_education/publications_resources/profiles/stay_play_giveaway.htm.
- Manski, C. (1989). Schooling as experimentation: A reappraisal of the post-secondary drop-out phenomenon, *Economics of Education Review*, 4, 305-312.
- National Institutes of Health. (2002). *Statistics review 6: Nonparametric methods*. Retrieved from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC153434/>
- Queensland Studies Authority. (2004). *Attrition and persistence of first-year tertiary students in Queensland: Longitudinal research study*. Brisbane: Queensland Studies Authority.
- Severiens, S., Meeuwisse, M., & Born, M. (2015) Student experience and academic success: comparing a student-centred and a lecture-based course programme, *International Journal of Higher Education Research*, 70, 1-17.

- Tinto, V., & B. Pusser. 2006. Moving from theory to action: Building a model of institutional action for student success. National Postsecondary Education Cooperative.
<http://nces.ed.gov/npec/papers.asp>.
- Willcoxson, L., Cotter, J., & Joy, S., (2011). Beyond the first-year experience: the impact on attrition of student experiences throughout undergraduate degree studies in six diverse universities. *Studies in Higher Education*, 3, 331–352.
- United States Department of Education, (2016). National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS), Fall enrollment component; and Fall 2014, Institutional characteristics component. Retrieved from <https://nces.ed.gov/ipeds/>
- Xiaoyu, X. (2016). Forming wage expectations through learning: Evidence from college major choices. *Journal of Economic Behavior & Organization*, 132, 176-196.
- Zafar, B. (2011). College Major Choice and the Gender Gap, Federal Reserve Bank of New York Staff Reports, 364.