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5-10-2022

# The Effects of Information Literacy Instruction on Business Students' Job Readiness

Daniel S. Le

*Georgia State University, dle@gsu.edu*

Adrienne Graham

*Georgia State University, agraham@gsu.edu*

Jeremy Walker

*Georgia State University, jwalker184@gsu.edu*

Marie-Louise Watson

*Valdosta State University, MWatson59@gsu.edu*

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### Recommended Citation

Le, D.; Graham, A.; Walker, J., and Watson, M. The Effects of Information Literacy Instruction on Business Students' Job Readiness(2022), University Library Faculty Publications 140. DOI:10.1080/08963568.2022.2073418

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# The Effects of Information Literacy Instruction on Business Students' Job Readiness.

Authors: Le, Daniel; Graham, Adrienne; Walker, Jeremy; and Watson, Marie-Louise

Keywords: Library instruction, job readiness, career readiness, academic libraries, business students

## ABSTRACT

The purpose of this study is to examine college student perceptions of information literacy instruction and to what extent library instruction influences students' attitudes in their business research during their job-readiness training through the Panthers Advanced Career Experience (PACE). The findings suggest that library instruction intervention positively influenced and increased confidence in completing the information research for their client-based consultation projects.

## INTRODUCTION

In today's employment landscape, college students are expected by potential employers to be job-market-ready upon graduation (Belle et al., 2021). Business schools meet this challenge by providing graduating students with hands-on training opportunities such as internships, work co-ops, and client-based consultation courses. This study focuses on the effects of library instruction for the Panthers Advanced Career Experience (PACE) program at the Robinson College of Business at Georgia State University, Atlanta, Georgia, and how information literacy intervention at this stage of student academic career contributes to their job readiness. PACE (Georgia State University, 2022) is a course-based program started as a part of Robinson College of Business' College to Career initiatives to provide students the opportunities for experiential learning and job-readiness training. For purposes of this study, the terms "job readiness" and "career readiness" training are used interchangeably with the PACE client-based consultation course (including the information literacy intervention), as it represents one form of this training.

For most business students, participating in job readiness training is their first opportunity to work with clients in a professional environment. While they are motivated to start their professional careers, many are not confident in professional settings as most of their business experience was through academic learning. In addition to the anxiety of working with business clients, library and information search create challenges for the students: "Library anxiety plays a critical role in academic performance of the students...Previous research showed that there was a negative correlation among study anxiety and educational performance of the students. Students cannot achieve their goals if they are having library anxiety" (Akbar et al, 2021). Although students at this stage of their academic career have had library instruction and exposure to business research in previous courses, they are out of practice for researching business databases and industry resources used by business professionals. Multiple studies from the early 2000's confirm student comfort with using the Internet for research: "The consistency of results in virtually all of these studies seems to confirm that Google and its predecessors have been, and remain, the go-to source for much of undergraduates' academic research" (Perruso, 2016, p. 616). However, student perceptions and attitudes toward using libraries and library resources for business research in job readiness training are less known.

During job-readiness training, students experience first-hand how essential information is for businesses as information and knowledge are the bases for business decision-making. To learn more about students' attitudes and perceptions toward information search during their job readiness training, the study conducted assessments by using online surveys to collect the students' responses. The surveys were deployed at various stages before and after the library instructional sessions. Central to this study is the focus on the effects of the library instructional intervention and determining its impacts on the students' perceptions of their information research skills as they prepare to enter the workforce.

## LITERATURE REVIEW

### Information Literacy and Business Students

Information literacy research on business students is well documented in literature. Information is essential to businesses, and business students must learn that information and decision-making are intertwined (Booker et al, 2012) for their professional careers. Information literacy also plays a vital role in students' academic careers by empowering them with research skills (Tariq et al, 2018). Librarians contribute to the students' academic and professional careers, with student research skills to play a positive role in knowledge and the economy.

However, as recently as 2005, Cooney found business faculty/librarian collaboration, a key tool of business library instruction, to be widespread but also "overwhelmingly described as moderate" (Cooney, 2005, p. 3). The effectiveness of business library instruction directly correlates to the methodologies, the timing of the instruction (Cooney & Hiris, 2003,) and the skills required in the industry. Griffis notes a shift in business librarianship from traditional bibliographic instruction to greater emphasis on experiential learning (Griffis, 2014, p. 333). Griffis believes this shift is driven by demand from employers and business school accrediting agencies (Griffis, 2014); Tanaka also cites demand from potential employers for employees with an elevated level of data literacy and research skills (Tanaka et al., 2019). Liu casts an even wider net, opining that "business IL in academic libraries, driven by changing needs of our users and trends in business education, faces great challenges in engaging with faculty and diverse student groups, dealing with dynamic learning environments, new technologies, experiential learning, fragmented one-shot topics, and scaffolding students' learning" (Malafi et al., 2017; p. 83). It should be noted that experiential learning is an important component of cognitive search strategy, which entails research based on business applications and experiences in conjunction with critical thinking skills. Business faculty and business school administrators believe they are responding to the changing needs of businesses by promoting the teaching of practical skills and information.

### Sources of Information Search

According to Wilson's seminal "nested" information-seeking model (1999), information behavior, information-seeking behavior, and information search behavior are inter-related, and the information search behavior is dependent on the information behavior. Business students' search behavior heavily depends on the accessibility of resources and what resources are allowed or suggested by business instructors and librarians. In a 2005 survey, all business instructors allowed students to use web sources, with a large majority encouraging or requiring students to use websites (Dewald, 2005). Other faculty members require students to use library subscribed databases as well as the free resources on the web. For undergraduate students, they prefer to use easily accessible web resources through search engines rather than library resources (Joo & Choi, 2011.) Although students are at ease searching for information on the web, this information search does not necessarily translate into finding quality information. Students may not understand that free web resources are not always appropriate for their research. Furthermore, business students are not familiar with the basic resources currently used in the industry and the ethical use of the information (McInnis Bowers et al, 2004.) Through library instruction, business librarians can play a role in guiding the students to the appropriate resources and improve their business information literacy skills (Detlor et al, 2011).

## **Attitudes toward Library Instruction**

The fear of libraries for college students is real and well-documented in literature. Library anxiety is identified as the feelings of inadequacy and fear which create barriers to effective library use (Mellon, 1988.) In an exploration of factors impacting business students' adoption of on-line library tools, Booker et al noted the importance of library anxiety (in addition to computer anxiety), stating that "library anxiety has received considerable attention (Jiao, Onwuegbuzie, & Lichtenstein, 1996; Mellon, 1988)", with Mellon (1986/2015) being the first to document and explore library anxiety, including its causes and impact on student performance (Booker et al, 2012, p. 2505). In the Mellon study, library anxiety or fear was found between 75 and 85 percent of undergraduate students during their first use of library (Mellon, 1986/2015). In their seminal works, Jiao and Onwuegbuzie contributed to the understanding of library anxiety and made recommendations on improving the quality of library and information literacy instruction (Jiao & Onwuegbuzie, 1999; Cleveland, 2004). For the students, their perception of satisfaction toward library services is dependent on the timely delivery and the accuracy of information (Hsu et al, 2014). Students feel great satisfaction with library services when the resources are concisely available during the window of time when they need them. Furthermore, students expressly dislike formal, descriptive lectures and prefer interactive lectures where the application of the materials is the focus of their attention (Cronin & Carroll, 2015).

There is a body of evidence supporting the positive outcomes associated with library instruction and the success of business students. Although the trends in business information literacy are moving away from descriptive lectures to interactive business applications, students perceive a positive attitude towards library services when the library can provide concise information at the critical time of the need for that information. Most of the research has focused during the students' academic careers; nevertheless, there is limited research on their attitudes toward library instruction at an opportune time when they prepare to enter the workforce.

## METHODOLOGY

### *Overview*

Through the Panthers Accelerated Career Experience (PACE), upper-level undergraduate business students work in teams to solve problems for local companies in a business consultant role. PACE prepares students with project management basics and public speaking training with the guidance and mentorship of instructors and professional industry speakers. Unlike capstone courses, PACE is open to junior- and senior-level students, hence not all participants have completed their mastery in business skills; however, they are given an opportunity to experience and prepare for their job-readiness with business clients in a professional setting while earning course credits towards their degrees. Since its inception in 2014, PACE students have completed 116 client-based projects, averaging 7-8 projects per semester. PACE clients come in a wide range from large Fortune 500 corporations to municipal government offices to non-profit organizations to business startups. A list of clients during the research period is included in Appendix A: PACE Past Clients and Clients during Academic Year 2020-2021.

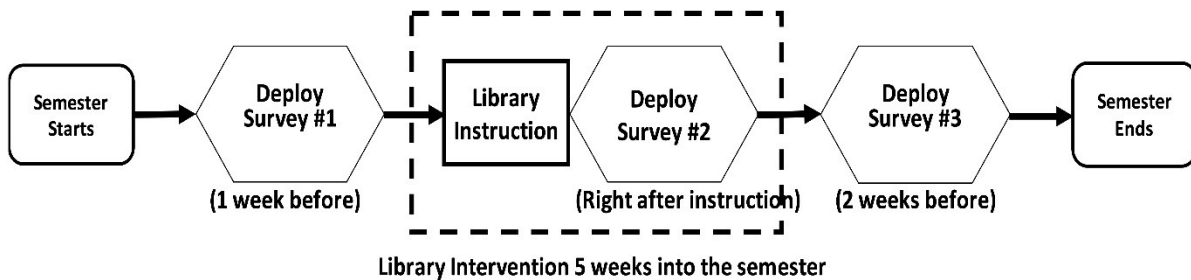
The PACE students work in teams on semester-long projects and present their findings and recommendations to their clients toward the end of the semester. Some students through their reconnaissance seek out research help from the library to find high-quality business intelligence and data for their consultation projects. The PACE instructors recognized a higher quality in coursework among the student groups who seek library research help. Through this observation and library outreach, the PACE instructors integrated library class instruction into the PACE programs. For their client-based projects, all teams are required to research their companies and their direct competition. Depending on their clients' needs, some teams develop a marketing plan including customer demographic research such as population, age, race, household income, etc. Finally, teams assess best practices for solving their clients' issues through business article database search, such as Business Source Complete/Ultimate, ABI/INFORM Collection, or Google Scholar in conjunction with the consultations with their advisors/instructors, who can advise and share their practical work experience. The library intervention is a library instruction session where the Business Librarian taught or reiterated the business databases and library resources to help students find the required information and business intelligence for their consultation projects.

In order to determine if library instruction is associated with changes in Business students' perceptions and attitudes towards business and information search, Qualtrics online surveys were created and distributed to students enrolled in the PACE program in the Fall 2020 and Spring 2021 semesters. During this study, a total of 42 and 50 students were enrolled in the course in the Fall and Spring, respectively.

The Qualtrics surveys were deployed three times during each respective semester relative to the scheduled library instruction. In addition to the 2 demographic questions on class status and major asked at the beginning of the first survey, the same surveys on student attitudes were distributed one week before the instruction session and immediately after the session, and a slightly modified survey at the end of the semester. The end-of-semester survey included slight changes to the free-text response fields as appropriate for the timing of the survey's distribution. However, no substantive changes to the core questions of the survey distributed at the end of the semester. Approximately five weeks into the semester, the Business Librarian who served as the liaison to the PACE program delivered a synchronous library instruction session to students using the university video-conferencing platform. In both semesters,

the library instruction sessions included the same core content: discussions on how to evaluate the quality of information sources, lecture material centered on the importance of understanding copyright and licensing restrictions, and live demonstrations of library databases with the most applications for their specific client-based projects. Then, a similar survey was distributed during the final two weeks preceding “study week” at the end of each respective semester, specifically once students had completed their client-consulting projects. This approach to surveying the business students allowed for a quasi-experimental pretest/posttest research design. (See Diagram A).

**Diagram A: Library Intervention and Survey Deployment Timeline**



The survey that was distributed to students prior to and after the instruction session included five core questions with fixed responses that became the focus of analysis. These questions were designed to solicit students' responses, attitudes, and feedback as they directly related to the instructional content of the library instruction sessions. Further, these questions were designed with an emphasis on discovering students' self-reported confidence in finding and evaluating information, knowledge of information evaluation criteria, general perceptions related to broadly defined information sources, and understanding of copyright concerns. Survey questions were kept intentionally general so as to keep the overall survey short and avoid overly prescriptive or leading questions. The survey also included some free-text response fields where student participants could provide additional notes or details as appropriate. The surveys also included minor demographic questions (e.g., “What is your business major?”). The questions and response options included in the survey are detailed in Table 1. Student participation in the study was completely voluntary and all survey responses were collected and recorded anonymously. Consequently, not all students participated in the survey and it is impossible to link any pre-instruction survey responses with post-instruction survey responses.

No.	Question Text	Question Code	Response Options	Variable Type	Notes
Aa)	Please indicate your class level.	class	* Junior * Senior * Other	Multinomial	Only asked in the pre-session survey - Demographics
Ab)	--Other: Please specify	-	<i>free text response</i>	-	
Ba)	What is your business major?	major	* Accounting * Computer Information Systems * Finance * Managerial Science * Marketing * Other	Multinomial	Only asked in the pre-session survey- Demographics

Bb)	--Other: Please specify	-	<i>free text response</i>	-	-
1)	How confident are you in searching and evaluating business information?	search_confidence	* Extremely not confident * Somewhat not confident * Neither confident nor not confident * Somewhat confident * Extremely confident	Ordinal	-Perceptions and attitudes
2a)	Do you know the criteria used to evaluate information?	eval_knowledge	* Yes * No	Binary	-Perceptions and attitudes
2b)	--If Yes, Please specify	-	<i>free text response</i>	-	-
3a)	If you need business information, where would you go to find it for your consulting project?	search_sources	* Library * Google and the Internet * My advisor * My clients * Other	Multinomial	- -Perceptions and attitudes
3b)	--Other: Please specify	-	<i>free text response</i>	-	-
4)	Library resources are only useful for class assignments and not relevant to my work experience	library_usefulness	* Strongly disagree * Somewhat disagree * Neither agree nor disagree * Somewhat agree * Strongly agree	Ordinal	- -Perceptions and attitudes
5)	As a student, I'm not bound to copyrights or licensing agreements by the sources I used for my consulting project.	copyright_dk, copyright_applicable	* Disagree * Neither agree or disagree * Agree * I don't know enough about copyrights or licensing agreements to decide	ordinal, binary	Question split into two codes, reflecting those who responded "I don't know..." and those who responded on the ordinal scale. - - Perceptions and attitudes
FTa)	What are you most interested in learning about using information and data in business?	-	<i>free text response</i>	-	Only asked in the pre-session survey
FTb)	What information did you need for your client-based consulting project but wasn't able to find through the GSU Library databases?	-	<i>free text response</i>	-	Only asked in the post-session survey

Table 1 - Survey Questions

### Data Processing & Modelling

Once all the data was collected, all data processing and analysis was conducted using R. Data cleaning and transformations were conducted primarily using Tidyverse packages (Wickham et al., 2019). Following data processing, a set of six regression models were created to test if there was a statistically significant relationship between the Business librarian's instructional intervention and changes in students' attitudes and perceptions. Owing to the relatively small sample size of data collected, each fixed-response question (except *class* and *major*) was tested in a separate regression model. For each model, question responses were treated as the dependent or response variable. For each model, each survey sample was coded as a binary indicator "pre-session" (0) and "semester end" (1). This indicator was used as the primary independent, or "treatment," variable for each model. To that end, the use of semester end as an independent variable serves as a proxy for measuring the possible influence that library instruction in the middle of the semester may have had on shifts in students' survey responses.



To control for group-differences between students enrolled in the same course but in different semesters, an additional control variable was included in all regression models and encoded as “2020” (0) and “2021” (1).

Since the defined responses to each of the survey questions did not conform to the same structures, different modelling techniques were used for different sets of variables. For models in which the dependent variables represented ordinal data (e.g. search confidence, library usefulness, and copyright applicable), ‘ordered logistic regression’ as implemented in the *MASS* package in R was used to specify and fit the models (Venables & Ripley, 2002). For models in which the dependent variables represented binary responses (e.g. eval\_knowledge and copyright\_dk), ‘logistic regression’ as implemented in the *STATS* package in R was used to specify and fit the models (R Core Team, 2021). For the model in which the dependent variable represented multinomial data (e.g. search sources), ‘multinomial regression’ as implemented in the *NNET* package in R was used to specify and fit the model (Venables & Ripley, 2002). Further, for the multinomial regression model, any of the survey options could have been used as the reference-group for comparing against other options. However, the “Library” survey option was chosen as the reference-group because, to the authors, it represented the most interesting point of comparison to all other possible response options for the search\_sources question.

## RESULTS

Once the final Qualtrics survey was closed in Spring 2021, a total of 77 individual survey responses had been collected. Frequency counts for the number of pre-session and semester end survey responses received in each semester, and frequency counts for responses to each fixed-response question can be viewed in Table 2. Since all survey responses were anonymous, it was not possible to identify paired sets of survey responses. Additionally, because survey completion was not required, some survey responses include missing values for select questions. Missing responses are reported as “NA” in Table 2.

<b>RESPONSE COUNTS</b>	<b>2020</b>	<b>2021</b>
pre_session	23	19
semester_end	21	14

<b>MAJOR</b>	<b>nJunior</b>	<b>%Senior</b>
Accounting	4	9.52%
Computer Information System	11	26.19%
Finance	3	7.14%
Managerial Science	8	19.05%
Marketing	10	23.81%
Other	6	14.29%

<b>SEARCH_CONFIDENCE</b>	<b>n</b>	<b>%</b>
Extremely not confident	1	0.01
Somewhat not confident	4	0.05
Neither confident nor not confident	17	0.22
Somewhat confident	42	0.55
Extremely confident	11	0.14
NA	2	0.03

<b>EVAL_KNOWLEDGE</b>	<b>n</b>	<b>%</b>
No	59	0.77
Yes	11	0.14
NA	7	0.09

<b>LIBRARY_USEFULNESS</b>	<b>n</b>	<b>%</b>
Strongly disagree	22	0.29
Somewhat disagree	28	0.36
Neither agree nor disagree	15	0.19
Somewhat agree	1	0.01
Strongly agree	2	0.03
NA	9	0.12

<b>SEARCH_SOURCES</b>	<b>n</b>	<b>%</b>
Google and the Internet	35	0.45
Library	17	0.22
My advisor	2	0.03
My clients	11	0.14
Other	4	0.05
NA	8	0.1

<b>COPYRIGHT_APPLICABLE, COPYRIGHT_DK</b>	<b>n</b>	<b>%</b>
Disagree	47	0.61
Neither agree or disagree	3	0.04
Agree	8	0.1
Do not know	11	0.14
NA	8	0.1

*Table 2 - Response Frequencies*

For each of the dependent variables of interest, each model was fit using all available and valid samples. All six models are reported in in Table 3 and Table 4. For each of the six models, the dependent variable for each model is listed. For all models, the core independent variables of interest are semester\_end and 2021. In each model, the semester\_end variable is a binary indicator representing the treatment-group. These samples represent survey responses received at the end of the semester and are contrasted against survey responses received at the beginning of the semester (pre\_session, Table 2). Samples representing student survey responses received during the middle of the semester, immediately following the instruction session, were excluded from the study because we wanted to measure changes in attitude over a longer period of time. Similarly, the “2021” variable is included in all models as a control variable with respect to the possible differences between respective semesters’ student cohorts.

The exact type of regression model used for each respective dependent variable is reported. Since the models are reported in the order in which the associated question appeared in the original survey, the survey responses associated with “higher” and “lower” logit coefficients are explicitly reported to aid in model interpretation. For all models, the relationship between the independent variables and the dependent variables of respective models are reported in logit, or “log-likelihood”, coefficients (B). Each coefficient is also reported with measures of statistical significance (t-statistics and p-values). Since all independent variables represent binary indicators, standard errors have no meaningful interpretation and were not reported. Intercept-coefficients are not reported for ordered logistic regression models as they do not provide valuable information for interpreting results. Lastly, for each of the six models, summary model information is reported including the number of valid observations (n), chi-squared statistic ( $\chi^2$ ), degrees of freedom (df), and statistical significance of model fit (p-value).

	MODEL 1				MODEL 2				MODEL 3			
<b>DEPENDENT VARIABLE</b>	<b>search_confidence</b>				<b>eval_knowledge</b>				<b>library_usefulness</b>			
<i>model type</i>	ordered logistic regression				logistic				ordered logistic regression			
<i>higher B values</i>	"Extremely Confident"				"Yes"				"Strongly Agree"			
<i>lower B values</i>	"Extremely Not Confident"				"No"				"Strongly Disagree"			
<b>MODEL PARAMETERS</b>	<i>B</i>	<i>t-stat</i>	<i>p-value</i>	<i>sig.</i>	<i>B</i>	<i>t-stat</i>	<i>p-value</i>	<i>sig.</i>	<i>B</i>	<i>t-stat</i>	<i>p-value</i>	<i>sig.</i>
(Intercept)	-	-	-	-	-2.1894	-3.6307	0.0003	***	-	-	-	-
semester_end	1.7353	3.3325	0.0004	***	1.0721	1.5653	0.1175	-	-0.5568	3.3325	0.0004	***
"2021"	1.2028	2.4827	0.0108	-	-0.0818	-0.1175	0.9064	-	-0.8323	2.4827	0.0108	-
<b>MODEL FIT</b>												
n	75				70				68			
$\chi^2$	16.8106				2.6309				4.3822			
df	2				2				2			
p-value	0.0002				0.2684				0.1118			
sig.	***				-				-			
<b>DEPENDENT VARIABLE</b>	<b>MODEL 4</b>				<b>MODEL 5</b>							
	<b>copyright_dk</b>				<b>copyright_applicable</b>							
<i>model type</i>	logistic				ordered logistic regression							
<i>higher B values</i>	"I don't know enough..."				"Agree"							
<i>lower B values</i>	[implicit] "I do know enough..."				"Disagree"							
<b>MODEL PARAMETERS</b>	<i>B</i>	<i>t-stat</i>	<i>p-value</i>	<i>sig.</i>	<i>B</i>	<i>t-stat</i>	<i>p-value</i>	<i>sig.</i>				
(Intercept)	-2.1894	-3.6307	0.0003	***	-	-	-	-				
semester_end	1.0721	1.5653	0.1175	-	-0.6664	-0.9017	0.3528	-				
"2021"	-0.0818	-0.1175	0.9064	-	0.3123	0.4622	0.6434	-				
<b>MODEL FIT</b>												
n	70				58							
$\chi^2$	3.1841				1.1558							
df	2				2							
p-value	0.2035				0.5611							
sig.	-				-							
<p>*** p &lt; 0.001  ** p &lt; 0.01  * p &lt; 0.05</p>												

Table 3 - Models 1 through 5

MODEL 6																
DEPENDENT VARIABLE	search_sources															
model type	multinomial logistic															
higher B values	"Google and the Internet"				"My Advisor"				"My Clients"				"Other"			
lower B values	"Library"				"Library"				"Library"				"Library"			
MODEL PARAMETERS	B	t-stat	p-value	sig.	B	t-stat	p-value	sig.	B	t-stat	p-value	sig.	B	t-stat	p-value	sig.
(Intercept)	2.2392	3.4236	0.0006	***	-1.4812	-1.0329	0.3016	-	0.7475	0.7748	0.3347	-	-2.4374	-1.6008	0.1094	-
semester_end	-2.3766	-3.3062	0.0009	***	-1.1481	-0.7403	0.4591	-	-2.6623	0.9805	0.0066	***	0.1622	0.1233	0.9018	-
"2021"	-0.8159	-1.1479	0.2510	-	0.1658	0.1083	0.9138	-	0.1123	0.8678	0.8970	-	1.4762	1.1652	0.2439	-
MODEL FIT																
n	70															
$\chi^2$	22.1943															
df	8															
p-value	0.0046															
sig.	***															

Table 4 - Model 6

The results of these regression models provide limited, but still useful insights into the relationship between library instruction and shifts in students' perceptions. The overall model fit metrics associated with *eval\_knowledge*, *library usefulness*, *copyright\_dk*, and *copyright applicable* (Models 2, 3, 4 and 5) indicate that there is no evidence of a statistically significant relationship between library instructional interventions and changes in students' perceptions with respect to these specific questions. The logit (B) coefficients associated with "semester end." While the logit (B) coefficients within individual models suggest there may be trends in the data, there simply are not enough samples or strong enough signals to conclusively draw statistical inferences from these models.

Model 1 on the other hand, representing students' self-reported confidence in searching for and evaluating business information and resources, is highly statistically significant overall ( $\chi^2 \approx 16.81$ ,  $p < 0.001$ ). Specifically, Model 1 shows that that by the end of the semester, student respondents were, on average, very likely to report an increase in confidence in their search skills ( $B \approx +1.75$ ,  $p < 0.001$ ). Further, Model 1 shows that there is no statistically significant difference between how students in the Fall semester responded to the *search confidence* question as compared to students in the Spring semester.

Additionally, Model 6, representing a multinomial model representing students' responses to the *search sources* question, is highly statistically significant overall ( $\chi^2 \approx 22.19$ ,  $p < 0.001$ ). In Model 6, "Library" is treated as the reference group for modelling purposes and the parameter estimates reflect the likelihood that, by the end of the semester and following the library instruction session, students reported that they would primarily use "\_\_\_" over using "Library" information resources. By the end of the semester, the likelihood that students reported choosing "Google and the Internet" over "Library" for the purposes of searching for sources decreased and is highly statistically significant ( $B \approx -2.40$ ,  $p < 0.001$ ). Interestingly, the likelihood that students reported choosing "My Clients" over "Library" for the same question also decreased and is highly statistically significant ( $B \approx -2.66$ ,  $p < 0.001$ ). The model parameters for "My Advisor" and "Other" do not show any statistically significant changes between students responses at the beginning vs. the end of the semester.

## DISCUSSION

As shown in the data analyses, there is a strong correlation between students' confidence level in their ability to research and the library instruction intervention during job readiness training. With library instruction, students feel more competent in their research and complete their client-based consultation projects. The library instruction led the students to self-sufficiency and equipped them with how and where to find the data they needed. Cognitively, students showed that they could think critically when choosing the type of resources that fit the scope of their research. Immediately after library instruction, students overwhelmingly indicated that they would use library resources over "Google and the Internet" for their projects; however, on the end-of-semester survey, several students reverted to Google as their source of business research. Library resources were still the leading choice source for the majority of students over Google after their semester-long project. Some students also indicated in the free-text comments that they would use all resources for their future projects. Consequently, as the data indicated, students are less likely to use Google for the answers as the results of the library instructional intervention.

Surprisingly, the data indicates that the students are, when compared to library resources, significantly less likely to consult their clients for information after the library intervention. While the PACE program prepares and reinforces the students with excellent business communication skills, we expected the students to communicate and use listening skills to learn more about the clients' background information and needs. However, with library intervention, students prefer to use library resources than seeking information from their clients. It is possible that students feel more confident with their research skills, and information can be retrieved from library resources with less time and effort than consulting their clients. This finding is an intriguing question that merits further research, especially as it might relate to client experience. We expected greater client customer satisfaction in response to greater student research independence, with students' increased information sources improving independence, depth and objectivity for the final product. However, client surveys would be required to test this hypothesis.

Regarding the relevance of library resources outside of classroom assignments, students feel library resources have usefulness beyond their academic careers. Before completing their client-based project, students intuitively agreed to this statement; however, the experiential learning experience reinforced this belief after students had the opportunities to see first-hand how business information and decision-making are interconnected. The data confirmed there is a stronger correlation in the students' attitudes toward the usefulness of library resources outside of their classroom assignments after completing their client-based consultation projects.

In the in-class and end-of-semester surveys, students were asked to provide comments in the free-text section regarding library resources. With the in-class survey, there was a 48% (35/77) response rate to the question of what sort of business information students need for their client-based projects. There were no negative comments about library resources, but students were expressive and very clear in their responses about the type of information they needed. The free-text question was changed for the end-of-semester survey to ask the students what business information they needed for their projects but was unavailable at the library. The response rate was 18% (14/77), and most were alluding to the fact that library resources do not provide access to primary data and business intelligence for small companies, non-profit organizations, and government offices. These comments were not necessarily negative, but they may suggest a lesson-learn from students that primary data and data skills are essential in business

environments and secondary data are more readily available for public, large, and medium-sized companies. (See Appendix B).

Although copyright awareness is an essential component in information literacy (Case & King, 2018,) the students did not exhibit a strong recognition of the importance of copyright after completing their projects. The copyright issues were discussed during the library instruction sessions, emphasizing the consequences of copyright violations in the workplace, and we had hoped that students would be more mindful of copyrights after completing their projects. However, the students' attitude towards copyrights did not change significantly by their experiential learning experience. It is possible that copyright issues are convoluted and working with clients did not provide students many opportunities to examine and reflect on this complex issue.

Finally, as researchers, we should speculate as to causes for the important relationship between self-reported improved student confidence and this program's instructional intervention. An obvious explanation involves the inherent cognitive search strategy embedded in the program as it relates to practical student payoff. In addition to the benefit of real-world applicability of PACE literacy instruction (versus theoretical lectures), students may have been paying more attention to the PACE literacy instruction because of the obvious practical payoffs (possible jobs, positive job references) of strong performance in this program. A corollary to this involves timing: the timing of the literacy instruction (close to graduation) may also work to heighten student attention to the literacy instruction, since the necessary prospect of finding employment now looms large as graduation approaches. In both scenarios, heightened student attention to literacy instruction might have resulted in improved research skills, thereby justifiably increasing student confidence.

Another factor may be the timing of the instruction within the course, with the synchronous library instruction occurring about five weeks into the semester. It is possible that within the context of this experiential-learning course, the timing of the synchronous library instruction mattered. Five weeks seems an optimal time for instructional intervention, with students having had enough time to gather some information (from the client or from their own research) but not so much time that they are forced to resort to satisficing (using familiar research methods) in the absence of more quality information sources and methods. At five weeks, students would still have enough time to learn and use new research methods; they might also have a sense, from their five weeks of prior research, just where new information is needed. A 2014 study by Hsu et al also supports timing as critical to the student experience: "asking for students' perception toward the library's ability to provide good customer service in providing timely responses to their questions and needs and getting it right the first time, reflects the reliability dimension and has a relatively large impact on satisfaction" (Hsu et al, 2014, p. 142).

#### Limitations and Future Directions

There are a variety of factors that limit aspects of the depth and scope of the research findings. First, the study was limited to data gathered from subjective and self-reported survey data. As such, it is difficult to infer if things like students' "confidence" in their research skills is directly connected to their actual skills in conducting information searches. Second, the scope of the study is intrinsically limited to a relatively small sample size that lacks a natural control-group. The study focused exclusively on students in the PACE program; a program which is designed to be relatively small and in which there are fewer than

75 total students in any given semester. Consequently, the potential causal effects of library instruction can only be implied through the available data and results of this study may not generalize well to all undergraduate business students. Further, while it is possible to conduct repeat studies with future cohorts of PACE students, the sample sizes will intrinsically remain small due to design and limitations of the PACE program. Lastly, our study was limited to a single academic year during the COVID pandemic and does not give insight into students' attitudes over extended, ordinary periods of time.

For future directions, additional studies can be conducted to see how students' attitudes could change in a longer research cycle greater than an academic calendar year during a pandemic. Larger samples can be collected to reflect the general population of business students' attitudes towards library resources as they prepare to enter their professional careers. Additional questions can be added to the survey to determine the reasons students are less likely to seek help from their clients for information after the library instruction intervention. This surprising finding from our results can add further to the conversation on the student information-seeking behavior. Because the students' attitude towards copyrights did not change after the library intervention and experiential learning, the library instruction and information literacy activities can be refined and improved until the desired outcomes can be achieved.



## CONCLUSION

Based on the results from this research project, library instruction intervention during job readiness training for business students positively raises the level of confidence for the students' attitude towards their research skills. Library instruction timely delivered during this stage of the students' academic career improves their research skills in evaluating and selecting appropriate resources and is less likely to use Google and internet\_search as the sole source for business research. Together with their experiential learning experience, business students have first-hand knowledge of how information and decision-making are intertwined and thus appreciate the relevancy of library instruction and information literacy skills beyond the class lectures and textbooks.

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**Appendix A: PACE Past Clients and Clients during Academic Year 2020 –21**

**Client Type: Large Companies**

<i>Client #</i>	<i>Company Names</i>
<i>1</i>	<i>Norfolk Southern</i>
<i>2</i>	<i>Microsoft – Real Estate &amp; Facilities Change Management</i>
<i>3</i>	<i>Mohawk Industries</i>
<i>4</i>	<i>Munich Reinsurance</i>
<i>5</i>	<i>WestRock Packaging Solution</i>

**Client Type: Medium Companies**

<i>Client #</i>	<i>Company Names</i>
<i>1</i>	<i>Assurance America</i>
<i>2</i>	<i>Abby's</i>
<i>3</i>	<i>Mile Auto</i>
<i>4</i>	<i>The General</i>

**Client Type: Small Companies & Startups**

<i>Client #</i>	<i>Company Names</i>
<i>1</i>	<i>Aegis Fintech</i>
<i>2</i>	<i>American Fueling System</i>
<i>3</i>	<i>Ankura Consulting</i>

**Client Type: Municipality & Government**

<i>Client#</i>	<i>Company Names</i>
<i>1</i>	<i>City of Atlanta's Mayor Office</i>
<i>2</i>	<i>Georgia Food Bank</i>

**Client Type: Non-Profit & Co-Ops**

<i>Client#</i>	<i>Company Names</i>
<i>1</i>	<i>EPIC Learning Foundation</i>
<i>2</i>	<i>Impact Forest Consulting</i>
<i>3</i>	<i>Market 166 Food Market</i>

**Appendix B: Free-Text Comments on Resources Needed but Unavailable through the Library**

<i>Fall 2020</i>	<i>Spring 2021</i>
<i>Primary research and testimonials from Grocery cooperative markets</i>	<i>Primary Research</i>
<i>Not sure</i>	<i>Rate Structures of public companies</i>
<i>Primary sources from city officials</i>	<i>I have not fully use It. Also, I can't remember what kind of data that I couldn't find</i>
<i>N/A</i>	<i>Financial reports but it was not an issue since it is confidential information that we requested directly from the company</i>
<i>For the small company it's hard to find data</i>	<i>Research on Atlanta's homelessness population</i>
<i>Didn't utilize GSU Database all too much</i>	<i>Honestly just primary research information. I don't think there was anything I could find.</i>
<i>Consumer buying habits for the community</i>	<i>N/a</i>