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Information Behaviors and Pedagogies of Teaching Faculty

A Dissertation

Presented to

The Faculty of the University of Lynchburg

In Partial Fulfillment

of the Requirements for the Degree

Doctor of Education (Ed.D)

---

by

L. Katherine Glaeser, MLIS

July, 2020

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May 2020

University of Lynchburg
Lynchburg, Virginia

Dissertation Title: Information Behaviors and Pedagogies of Teaching Faculty

APPROVAL OF THE DISSERTATION

This dissertation, ("Information Behaviors and Pedagogies of Teaching Faculty"), has been approved by the Ed.D. Faculty of the University of Lynchburg in partial fulfillment of the requirements for the Ed.D. degree.

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Date 8th August, 2020

Table of Contents

SIGNATURES……2

TABLE OF CONTENTS……3

DEDICATION……9

ACKNOWLEDGEMENTS……...10

ABSTRACT……...11

LIST OF TABLES……12

LIST OF FIGURES……...13

CHAPTER 1 - INTRODUCTION……15

Chapter Overview……..15

Introduction……....15

Significance of the Problem……...15

Problem Statement……17

Purpose Statement……..18

Research Questions……18

Chapter Summary……..20

CHAPTER 2 - LITERATURE REVIEW……..21

Chapter Overview……..21

Information Literacy Defined……21

Standards of Information Literacy……...21

ACRL Model……21

CILIP model.……23

SCONUL Model……....24
Information Challenges……..25
Information Overload……...25
Personalization Algorithms and the Filter Bubble……...25
Importance of Information Competencies…….26
Academic Attainment……..26
Career Advancement……27
Democratic Society and Social Justice……....27
Delivery of Information Literacy Instruction in Higher Education……...28
Common Delivery Points of IL Instruction…….28
Alternate Models of IL Delivery……..30
Faculty-Librarian Collaboration……30
Librarian-Taught Courses……..30
Course Flagging…….30
Issues in IL Instruction……...31
Small Number of Librarians Relative to Student Body……...31
Competing Demands……....32
Faculty Instructor Involvement……....32
Challenges in IL Adoption…….33
Faculty Culture and Perceptions……..33
Librarian Status and Unequal Partnerships……..34
IL Competencies of Faculty……...34

Information-Seeking Behavior…….35

Variances by Seniority…….35

Pedagogical Practices…….36

Spoon Feeding…….36

Missing or Incomplete Citations……..36

Copy Editing……37

Faculty Development……...37

Chapter Summary……..38

CHAPTER 3 - METHODOLOGY……....39

Chapter Overview……..39

Research Design…….39

Participants……...39

Data Collection……....40

Survey……....40

Survey analysis……....41

Interviews……...41

Interview grounded theory analysis…….42

Connections Between Behaviors And Pedagogies……....43

Limitations……...43

Chapter Summary……...……...44

CHAPTER 4 - DATA ANALYSIS AND

FINDINGS……...45

Chapter Overview……..45

Demographic Profile of Participants……..45

Experience Level of Survey Respondents……...46

Primary Academic Division of Survey Respondents……..47

Interview Participant Demographics……...48

Data Analysis……....49

Survey Data……..49

Pedagogy Modification and Experience Level……..49

Pedagogy Modification and Academic Division……...51

Pedagogy Modification and Library Instruction……....52

Pedagogy Modification & Library Appointments…….54

Instructor Citations vs. Student Citations……..56

Class Readings……...58

Pedagogy and Search Preference……...60

Information-Seeking Habits……...65

Search Category and Pedagogy Modification……65

Search Category and Experience Level…….68

Pedagogy Modification Themes……....71

Interview Data……..72

Perceptions of Student Challenges……72

Perceptions of the Library……..73

Learning the Ropes……73

Faculty Struggles……...76

Information Seeking Variances by Experience Level……....77

Pedagogical Variances by Experience Level……80

Intersections Between Pedagogy and Information Seeking……..85

Discussion of Findings……...90

Research Question 1...……90

Research Question 1.A……92

Research Question 1.B……92

Research Question 1.C……93

Chapter Summary……..93

CHAPTER 5 - RECOMMENDATIONS AND CONCLUSION……..95

Chapter Overview……..95

Overview of the Problem……...95

Review of the Study……...95

Purpose……95

Methodology……....96

Survey……....96

Interviews……...97

Summary of the Findings……...97

Implications……....98

Limitations……98

Recommendations……..99

Professional Development……..99

Course Flagging……..99

Graduate and Postgraduate IL Programs……..100

Faculty Mentorship……...100

Future Research……..101

Chapter Summary……101

REFERENCES……..……..102

APPENDICES…….111

APPENDIX A……....111

APPENDIX B……....117

APPENDIX C……....121

APPENDIX D……....123

DEDICATION

This dissertation is lovingly dedicated to my beloved children, Aedan and Jonas. May you always pursue your curiosity with the relentless determination to discover the truth, and the hopeful tenacity to create new knowledge.

It is also dedicated to my fellow librarians who work tirelessly to serve their communities and ensure the academic success of their students. It is my hope that this research will help contribute to that good work.

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There are so many people to whom I owe a debt of gratitude upon the completion of this study. To Dr. Ghislaine Lewis, my committee chair who applied pressure and encouragement with the precision of a surgeon, and without whom, I would surely have faltered. To my committee members Ms. Jenny Horton, and Dr. Deanna Cash for their expertise and support. To my family and friends, particularly my beloved husband John and father David, and my dear friends Kate and Maryška, for your unwavering belief in my ability, and willingness to sit up long nights reading drafts and providing feedback. To my professor Holly Gould, and my colleague Kaetrena Davis Kendrick for your feedback and expertise. To my professors and classmates who invested their time and knowledge so freely. And finally, to my colleagues in the library who were so accommodating and continually cheered me on.

Abstract

Rapid development in the information landscape (IL) has placed increased pressure on educational institutions to ensure that students are equipped with the skills needed to succeed. In order to overcome these challenges and transfer the necessary IL skills to students, faculty instructors must model the required skills in their own information dissemination practices, and adopt instructional methods that reinforce those skills and increase students' opportunities to practice them. To achieve this goal, we must first understand the perspectives of the faculty, and the contexts in which information seeking and teaching occurs.

This study aims to learn what approaches teaching faculty already use in order to address information literacy in their classrooms across various disciplinary contexts, and how those approaches may be informed by the respective information-seeking habits. This understanding helps us to identify the ways in which an effective IL instruction program might be developed intentionally to fit within the curricular and cultural fabric of an institution of higher education.

Based upon the findings from the survey and interview portions of the study, both the information seeking and pedagogical practices of teaching faculty are a product of the broader context in which they exist. Those practices also change over time as the faculty member moves through the phases of their career, integrates into the professional network, and builds their pedagogical knowledge base. That accumulation of knowledge; however, is placed under the pressures of rapid change in the information landscape; which challenges all to continue to learn and adapt. The library can support this by offering developmental opportunities through trusted channels. However, the library must ensure that librarian instructors maintain the confidence of teaching faculty by remaining current in the field, and utilizing effective pedagogies themselves.

LIST OF TABLES

TABLE	PAGE
Table 1 - Demographic Data of Interview Participants	48
Table 2 - Experience Level and Pedagogy Modification Chi-Square	50
Table 3 - Pedagogy Modification and Library Instruction Chi-Square	53
Table 4 - Pedagogy and Library Research Appointments Crosstabulation	55
Table 5 - Instructor Citations and Student Citations Chi-Square	57
Table 6 - Class Readings and Searching Databases Crosstabulation	59
Table 7 - Search Categories and Pedagogy Modification Fisher's Exact Test	66
Table 8 - Search Category by Experience Level Crosstabulation	69
Table 9 - Key for Figure 21	84
Table 10 - Pedagogical Approaches Discussed in Interviews	91

LIST OF FIGURES

FIGURE	PAGE
Figure 1 - Experience Level of Survey Respondents	46
Figure 2 - Primary Academic Division of Survey Respondents	47
Figure 3 - Experience Level and Pedagogy Modification	50
Figure 4 - Pedagogy Modification and Academic Division	51
Figure 5 - Pedagogy Modification and Library Instruction	54
Figure 6 - Pedagogy Modification and Library Appointments	56
Figure 7 - Instructor Citations and Student Citations	58
Figure 8 - Class Readings and Searching Databases	59
Figure 9 - Pedagogy Modification by Search Preference - Databases	61
Figure 10 - Pedagogy Modification by Search Preference - OneSearch	62
Figure 11 - Pedagogy Modification by Search Preference - Search Engines	63
Figure 12 - Pedagogy Modification by Search Preference - Google Scholar	64
Figure 13 - Search Category and Pedagogy Modification	66
Figure 14 - Search Preference Sub-Categories and Pedagogy Modification	67
Figure 15 - Search Category by Experience Level	70
Figure 16 - Information Seeking Behaviors by Experience - 1 - 7 Years	78
Figure 17 - Information Seeking Behaviors by Experience - 8 - 15 Years	79
Figure 18 - Information Seeking Behaviors by Experience - 16 + Years	80
Figure 19 - Pedagogical Approaches by Experience: 1 - 7 Years	81
Figure 20 - Pedagogical Approaches by Experience: 8 - 15 Years	82
Figure 21 - Pedagogical Approaches by Experience: 16+ Years	83

Figure 22 - Information Seeking References of Health Sciences Participants 86

Figure 23 - Information Seeking References of Humanities Participants 87

Figure 24 - Pedagogical Approaches of Health Sciences Participants 88

Figure 25 - Pedagogical Approaches of Humanities Participants 89

Chapter 1 - Introduction

Chapter Overview

This chapter explores a brief overview of the significance of information literacy and the challenges in addressing it. It also describes the purpose of this research study and the research questions being investigated.

Introduction

The Association of College and Research Libraries (ACRL) defines information literacy (IL) as "the set of integrated abilities encompassing the reflective discovery of information, the understanding of how information is produced and valued, and the use of information in creating new knowledge and participating ethically in communities of learning" (ACRL, 2016, p. 12). As such, IL has clear importance for an individual's academic achievement. However, the competencies of IL are also fundamental to career readiness (Head, 2012), and factor significantly into employer hiring decisions (NACE Staff, 2016). Beyond individual considerations, IL also has broad organizational import for organizations, economies, and nations (IFLA & UNESCO, 2005). The importance of IL education is undisputed; however, institutions struggle with the practical challenges of operationalizing a curriculum which addresses IL skills effectively.

Significance of the Problem

Rapid development in the information landscape has placed increased pressure on educational institutions to ensure that students are equipped with the skills needed to succeed. Those changes in the landscape have introduced significant information challenges which face both students and their respective instructors. Some of these challenges include the

overwhelming volume of generally unfiltered information available, algorithmic integrity (Newman, 2017; Cain Miller, 2015), the filter bubble (Pariser, 2012), misinformation and fake news (Rajan, 2017; Hargittai, Fullerton, Menchen-Trevino, & Thomas, 2010). These challenges require increasingly sophisticated information skills on the part of both student and faculty researchers; however, the very nature of IL poses difficulties with regard to equipping researchers with the necessary competencies.

IL is unique in that it is not discipline-specific. Rather, it belongs to all of the disciplines (Weiner, 2010). Librarians have taken a leadership role in the development of information literacy standards. However, librarians have faced substantive challenges in the pursuit of a consistent IL education for the students in their charge. Those challenges include funding and personnel shortages of the library (Badke, 2005); the operational structure of the curriculum (Carlson, Fosmire, Miller & Nelson, 2011; Cope & Sanabria, 2014), the culture of the faculty and the status of the librarian within the university (Badke, 2005). In general, unequal partnerships between teaching faculty and librarians impede the implementation of IL programs (Badke, 2005).

In light of these challenges, it seems logical that disciplinary faculty would teach many of the necessary information literacy skills to their students within the content-specific context of their courses. However, disciplinary faculty may lack awareness of the need, and the expertise to accomplish this goal while still meeting their own disciplinary targets (Carlson, Fosmire, Miller & Nelson, 2011). Additionally, if IL remains an incidental byproduct of the academic majors, rather than an intentional competency of the curriculum, it may be difficult to assess performance in this area. Therefore it is important that libraries understand the broader context

of IL instruction within the disciplines in order to develop effective development programs to support IL instruction in classrooms beyond the library's walls.

Problem Statement

Although the codified standards of information literacy have been well-established, institutions of higher education have struggled to adopt them in the curriculum in a broad and cohesive manner. In addition, the need for librarian-faculty collaboration has been well documented (Badke, 2005; Bates, McKeever & Reilly, 2017; Montiel-Overall, 2007; Morrison, 2007; Nagasawa, 2016) ; however, librarians remain unequal partners hampered by challenges, such as limited staffing and resources which prevent comprehensive solutions to student information literacy education. Most models focus on librarians teaching students, though many libraries remain unable to support staffing levels required to teach all students adequately. Limited research has been conducted thus far on the possibility of librarians teaching the teachers. Therefore, IL competencies are still delivered in a predominantly passive manner as a by-product of disciplinary-specific content instruction. Additionally, as the intention and purpose of IL instruction differs from that of disciplinary content, the pedagogies adopted in the instruction of that content may actually exacerbate IL instruction goals by reducing a student's opportunities to learn and practice new information skills (Ganley, Gilbert & Rosario, 2013; McKeever, Bates & Reilly, 2017; Morrison, 2007).

In order to transfer the necessary IL skills to students, faculty instructors must model those skills in their own information dissemination practices, and adopt instructional design and pedagogies that reinforce those skills and increase students' opportunities to practice them. In

order to achieve this goal, we must first understand the contexts in which information seeking and teaching occurs.

This context will likely differ across the spectrum of faculty contexts which include the discipline and the teaching experience Understanding how changes may take place over the course of a faculty career will help us to understand the broader context in which IL instruction occurs, and therefore design appropriate programs to support the adoption of effective IL programs.

Purpose Statement

The purpose of this study is to learn what approaches teaching faculty already use in order to address information literacy in their classrooms across various disciplinary contexts, and how those approaches may be informed by the respective information-seeking habits. This understanding helps us to identify the ways in which an effective IL instruction program might be developed intentionally to fit within the curricular and cultural fabric of an institution of higher education.

Research Questions

This study seeks to understand the complex issues surrounding IL instruction by answering the following research questions.

1. What pedagogical approaches do teaching faculty utilize to address Information Literacy in their classrooms?
    a. How are the pedagogical approaches of teaching faculty influenced by their respective information-seeking habits?

b. How do the pedagogical approaches and information-seeking habits of teaching faculty vary across disciplinary contexts?
c. What types of support or development would be most beneficial to faculty and students?

Chapter Summary

In summary, IL is the repertoire of skills and knowledge required to effectively find, utilize, and communicate information. The importance of these skills have increased as the complexity and scale of the information landscape has rapidly evolved. Students require strong IL skills to succeed in their academic pursuits as well as beyond college, as employers increasingly place a high value on skilled workers who can navigate this information landscape effectively. Despite the importance, institutions of higher education have struggled to operationalize a curriculum which intentionally and effectively develops these skills. This study explores existing IL instructional approaches employed by teaching faculty. A deeper understanding of this context helps us to identify and develop an effective IL instruction program that better meets the curricular needs of the institution.

Chapter 2 - Literature Review

Chapter Overview

This chapter describes modern information challenges and defines information literacy, its applications, and importance. It also describes the common delivery methods of information literacy instruction and the respective impediments of adoption and challenges of those methods.

Information Literacy Defined

Information literacy (IL) is a set of competencies and knowledge which enable the effective discovery, use, and communication of information (ACRL, 2016). This definition varies slightly across IL organizations, especially with regard to critical thinking. For example, 2018 the Chartered Institute of Library and Information Professionals (CILIP) adopted a broader definition, stating that "Information literacy is the ability to think critically and make balanced judgements about any information we find and use. It empowers us as citizens to reach and express informed views and to engage fully with society" (Secker, 2018, p. 156).

Standards of Information Literacy

The competencies of IL are codified in various standards of professional and national organizations, yet the standards contain common themes. We will look at three major models below including the ACRL *Framework for Information Literacy for Higher Education*, the CILIP *Definition of Information Literacy*, and the SCONUL *Seven Pillars of Information Literacy* model.

ACRL Model

The Association of College and Research Libraries (ACRL) is the United States' academic library association. The 2016 *Framework for Information Literacy for Higher*

Education is the most recent iteration of IL standards in higher education libraries in the United States. It is organized around six frames:

- *Authority Is Constructed and Contextual* - Information resources reflect their creators' expertise and credibility, and are evaluated based on the information need and the context in which the information will be used. Authority is constructed in that various communities may recognize different types of authority. It is contextual in that the information need may help to determine the level of authority required.
- *Information Creation as a Process* - Information in any format is produced to convey a message and is shared via a selected delivery method. The iterative processes of researching, creating, revising, and disseminating information vary, and the resulting product reflects these differences.
- *Information Has Value* - Information possesses several dimensions of value, including as a commodity, as a means of education, as a means to influence, and as a means of negotiating and understanding the world. Legal and socio-economic interests influence information production and dissemination.
- *Research as Inquiry* - Research is iterative and depends upon asking increasingly complex or new questions whose answers in turn develop additional questions or lines of inquiry in any field.
- *Scholarship as Conversation* - Communities of scholars, researchers, or professionals engage in sustained discourse with new insights and discoveries occurring over time as a result of varied perspectives and interpretations.

- *Searching as Strategic Exploration* - Searching for information is often nonlinear and iterative, requiring the evaluation of a range of information sources and the mental flexibility to pursue alternate avenues as new understanding develops. (ACRL, 2016)

CILIP Model

CILIP is the United Kingdom's library and information association. The CILIP definition stated above recognizes five contexts in which IL is relevant:

- *Everyday life* – the idea that information literacy is useful in our daily lives, for example when we check hotel reviews, compare insurance policies or learn how to avoid scams or online fraud.
- *For citizenship* – information literacy enables us to participate in democracy, make judgements and recognise bias and misinformation and help to address social exclusion.
- *Education* – information literacy applies to all levels of learning, including formal, informal and lifelong learning. It's vital it is embedded into the curriculum as part of critical thinking and knowledge development.
- *Workplace* – in this context information literacy helps to achieve organisational aims, adds value and involves working ethically with data and knowledge. It may be more commonly known as knowledge or data management in the workplace.
- *Health* – more commonly known as health literacy in this context, it helps patients and their families make informed choices about their health and wellbeing and ensures people are able to find and use reliable healthcare sources when looking for treatment or long-term management of health-related conditions (Secker, 2018).

SCONUL Model

The Society of College, National and University Libraries (SCONUL) which represents all national and university libraries in the United Kingdom and Ireland, adopted the *Seven Pillars of Information Literacy* model, which describes the core outcomes of information literacy. Each pillar is further subdivided into abilities and understanding. The seven pillars include:

- *Identify* - able to identify a personal need for information
- *Scope* - can assess current knowledge and identify gaps
- *Plan* - can construct strategies for locating information and data
- *Gather* - can locate and access the information and data they need
- *Evaluate* - can review the research process and compare and evaluate information and data
- *Manage* - can organise information professionally and ethically
- *Present* - Can apply the knowledge gained: presenting the results of their research, synthesising new and old information and data to create new knowledge and disseminating it in a variety of ways (SCONUL, 2011)

Information Challenges

The models of IL listed above allow us to provide the type of educational experiences which enable students to overcome the information challenges of the modern age. Today, the metaphor “drinking from the firehose” is often used synonymously with “information overload”, which is just one of the information challenges researchers currently face. Other information challenges have emerged as a matter of recent public concern, with news outlets, including NPR, The Guardian, BBC, Reuters, etc. as well as comedians such as John Oliver focusing attention on

issues such as fake news (Rajan, 2017; Hargittai, Fullerton, Menchen-Trevino, & Thomas, 2010), algorithmic accountability (Newman, 2017; Cain Miller, 2015), media misrepresentation of scientific studies (Last Week Tonight with John Oliver, 2016), and the apparent lack of skill sets among students at various levels to fact-check or critically evaluate information (Domonoske, 2016).

Information Overload

Information overload is a term describing the state of feeling overwhelmed by the task of narrowing a large set of information results in order to identify relevant resources. This experience is not limited to students, or casual internet user; faculty are also feeling the challenge of information overload, as Pontis, Blandford, Greifeneder, Attalla & Neal report that filtering information was a major "pain point" regardless of the experience or seniority of the faculty member (Attalla, Blandford, Greifeneder, Neal & Pontis, 2015, p. 30).

Personalization Algorithms and the Filter Bubble

Of particular concern is the growing presence of personalization algorithms which curate search results with results that are consistent with the user's attributes and prior information seeking behaviors (Pariser, 2012; The News Literacy Project, 2016). A 2017 NPR article entitled "What Dylann Roof Encountered when he Googled Race" summarizes that "there is a disconnect between the stated mission of a free and open Internet and the reality of search algorithms, which come with all the messy biases of anything designed by humans" (Hersher, 2017).

Without accounting for the effects of personalization algorithms, information seekers may place an undue amount of trust in resources returned high in the search results. They may also become increasingly isolated from differing worldviews as tools of discovery continue to

learn from and return information consistent with the digital footprint of the user's existing worldview - an occurrence known as the "filter bubble" (Pariser, 2012, p.8-9). In his 2012 book The Filter Bubble: How the new personalized web is changing what we read and how we think, author Eli Pariser explains:

> With Google personalized for everyone, the query "stem cells" might produce diametrically opposed results for scientists who support stem cell research and activists who oppose it. "Proof of climate change" might turn up different results for an environmental activist and an oil company executive. In polls, a huge majority of us assume search engines are unbiased. But that may be just because they're increasingly biased to share our own views. More and more, your computer monitor is a kind of one-way mirror, reflecting your own interests, while algorithmic observers watch what you click. (p.3)

Importance of Information Competencies

Although often seen as separate from content, the importance of information competencies cannot be overstated.

Academic Attainment

Information literacy represents the foundational and gateway skills required for students to effectively engage with the literature specific to their chosen field of study. However, IL is not an intentional part of the content of most courses of study. As a result, the academy has struggled to incorporate IL into the curriculum in a more purposeful, consistent, and cohesive manner.

Career Advancement

In addition to academic attainment, IL is also vital to career advancement and success. In 2016, the National Association of Colleges and Employers (NACE) released a report which indicated that multiple IL-related competencies including the "ability to make decisions and solve problems"; "ability to obtain and process information"; and "ability to create and/or edit written reports" are highly important to employers hiring recent college graduates. Most notable is that some of these items are more important than job-related technical knowledge (NACE Staff, 2016).

Despite the recognition of the importance of IL skills, formal education curricula addressing them at all levels has lagged behind. In Project Information Literacy's 2012 study "How College Graduates Solve Information Problems Once They Join the Workplace", researcher Allison Head interviewed supervisors at 23 large employers of recent college graduates regarding new hires' abilities to solve information problems. Employers generally found recent graduate hires to face a steep learning curve. Employers reported that recent graduate hires rarely demonstrated the desired IL competencies such as "engaging co-workers in an iterative research process, retrieving information in a variety of formats, identifying patterns in an array of sources, and diving into sources of information" (Head, 2012, p. 24). A strong information literacy education will benefit individual students and their respective employers; however, information literacy also relates more broadly to societal needs as well.

Democratic Society and Social Justice

According to the 2005 Alexandria Proclamation, "Information Literacy lies at the core of lifelong learning. It empowers people in all walks of life to seek, evaluate, use and create

information effectively to achieve their personal, social, occupational and educational goals. It is a basic human right in a digital world and promotes social inclusion of all nations" (IFLA & UNESCO, 2005). It further goes on to assert that the competencies of IL are crucial to the competitive advantage - not just of individuals, but of nations through the support of economic enterprise, technological innovation, education, and health and human services. This sentiment is echoed by CILIP which asserts that IL enables everyday citizens to engage as informed members of a democratic society, and empowers disadvantaged groups by providing them the tools with which they may understand the world (CILIP, 2018). The Stanford History Education Group goes a step further in saying "we worry that democracy is threatened by the ease at which disinformation about civic issues is allowed to spread and flourish" (Wineburg, McGrew, Breakstone, and Ortega, 2016, p. 5). The broader societal implications of information literacy necessitates a cohesive and comprehensive approach to related competencies at all levels of education. The focus for this study is particularly on the higher education context discussed below.

Delivery of Information Literacy Instruction in Higher Education

Higher education has struggled to adopt an effective and consistent approach to IL. A number of different delivery methods have been attempted by library professionals with varying degrees of success based on the highly contextual nature of each institution.

Common Delivery Points of IL Instruction

1. *Embedded librarianship* - librarians teach multiple instruction sessions, digital learning objects, and generally offer increased availability through the course management system environment. This method can be

effective, allowing the librarian to develop a rapport with individual students, though it is also labor intensive.

2. *In-class instruction with a librarian* - librarians partner with faculty members to deliver a single "one-shot" customized instruction session. The one-shot instruction session is by far the most common delivery method. However, the limited time window, and lack of continuity with each student's experience are major limitations to the delivery of all but the most basic of IL skills.

3. *One-on-one research consultations with a librarian* - students request one-on-one research consultations with a librarian. Session lengths and topics vary due to the students' availability and needs. Research consultations may be voluntary on the part of the student, though sometimes they are also encouraged or required by the instructor of a specific course. Research consultations are labor intensive, but highly effective, as they are tailored to the individual need of each student at the time of delivery.

4. *In-class instruction with teaching faculty* - teaching faculty deliver the underlying concepts and skills within the unique context of their respective disciplines and content.

Alternate Models of IL Delivery

With the exception of method four, the above methods of IL delivery rely heavily on librarian instructors. However, the librarian-student ratio reveals the biggest challenge with these methods. With limited staff and funding, libraries in general struggle to accommodate the volume of instruction required in order to offer each student a purposeful and effective delivery of the IL skills required for their academic success. Therefore, alternate or supplementary methods must be explored as well.

Faculty-Librarian Collaboration

Most IL instruction relies upon extensive collaboration between librarians and faculty instructors. This collaboration is generally seen as beneficial, and can manifest in a variety of applications. Faculty-librarian collaborations are immensely important, and will be discussed further in the following section of this chapter.

Librarian-Taught Courses

Some institutions have approached the challenge of IL instruction by having librarians teach dedicated courses. This model varies greatly from institution to institution, with some (including the target institution of this study) offering optional courses, while others mandate completion as a graduation requirement.

Course Flagging

Course flagging is the practice of identifying research-intensive courses within the existing college catalog. These courses are taught by faculty instructors. Requirements to

demonstrate that research-intensive courses comply with desired goals vary by institution. Students may be required to take a certain number of flagged courses as a requirement for graduation.

Issues in IL Instruction

While each institution varies greatly based on the individual context, certain challenges which relate to higher education in general have emerged from the literature.

Small Number of Librarians Relative to Student Body

Numerous interventions are needed in order for early college students to adopt the basic literacies required for their educational success (Carlson, Fosmire, Miller & Nelson, 2011, p. 488). However, the librarian-to-student ratio is generally far lower than the faculty-to-student ratio of most educational institutions. Taking the target institution of this study as an example, the faculty-student ratio is 10:1, while the librarian-student ratio is 516:1 (Central Virginia University, n.d.). Among ten regional universities near the target institution, the librarian-student ratio ranged from 158:1 to 728:1 with a mean ratio of 396:1 and median of 355:1. Tabulations were based upon the most recent publicly available enrollment data at each of the schools, as well as the number of librarians listed on the staff directories of their library websites. The lower numbers of librarians relative to the student body poses substantive challenges with regard to providing the needed IL instruction in a consistent manner to all students. Additionally, librarians also face competing demands for their time which may further exacerbate their ability to operationalize a comprehensive IL program.

Competing Demands

The mission of teaching faculty is primarily the teaching of students and the shared governance of the academy. Many libraries require all librarians to participate in the instruction program. However, that is only one piece of their overall footprint. Librarians also add a functional specialty to their instructional and shared governance responsibilities. Common librarian specialties include systems automation, access services, resource sharing, scholarly communications, electronic resources, bibliographic management and metadata, etc. Various specialties are required in order for the library to function, both in its physical and digital permutations. These functional requirements often compete for time with the overwhelming IL instruction needs of the student body, which is exacerbated further by the limited number of librarians to accomplish instructional goals, and limited contact hours with students. Therefore, teaching faculty, by necessity, play a much larger role than librarians in the IL education of the student body.

Faculty Instructor Involvement

Faculty instructors generally recognize inadequate research skills in their students (Cope & Sanabria, 2014; Morrison, 2007), but may struggle or even resist adapting their own pedagogies for a variety of reasons. Reasons for resistance could involve the perception that their own content is competing with IL skills acquisition for classroom time (Morrison, 2007); as well as the perception that the institution values research more than teaching (Pham & Tanner, 2015); and the perception that skills of critical evaluation and discipline-specific content knowledge would port to other contexts (Badke, 2005). The challenges in IL instruction are echoed further in the broader institutional challenges to adopting a comprehensive IL program.

Challenges in IL Adoption

Raven (2012) asserts that librarians "are ideally positioned to provide not only research instruction, but research insight to students, professors, and the wider university community" (Raven, 2012, p. 18) because of their unique perspective that comes from working closely with both students and faculty on their information needs. However, the culture of the academy and its faculty provides some unique challenges with regard to adopting IL in a more systematic way in the broader curricular context.

Faculty Culture and Perceptions

Weiner asserts that the very nature of IL itself hinders its adoption: "the fact that information literacy is applicable in all disciplines, involves metacognition, and is a way of thinking combined with a set of skills, hampers its inclusion in a methodical way in college curricula. It doesn't 'belong' to any single discipline, but instead belongs to all of them" (Weiner, 2010). This notion of belonging is important, as individual faculty instructors develop their own ideas about the importance of various research skills (Cope & Sanabria, 2014), which are informed by highly individual advanced disciplinary training (Carlson, Fosmire, Miller & Nelson, 2011, p. 488); however, those ideas may or may not be in alignment with the formal standards of IL education (Cope & Sanabria, 2014). This points to a greater need for collaboration and communication between librarians and faculty in the setting of curricular goals and instructional delivery of IL-related concepts. In addition to faculty perceptions of IL, the librarian's status within the academy may also contribute to cultural challenges of adoption.

Librarian Status and Unequal Partnerships

Although greater collaboration between librarians and teaching faculty is required, the literature reveals challenges with regard to librarian status. Power asymmetry within the academy may impede effective and meaningful collaboration between faculty instructors and librarians (Carlson, Fosmire, Miller & Nelson, 2011; Pham & Tanner, 2015). Badke (2005) laments that librarians often work very hard to solicit willing collaborators, and asserts that librarians should be viewed as subject-matter experts within the LIS field in order to ameliorate the power imbalance. This notion is echoed further by Pham & Tanner who assert that "Effective collaboration does not simply happen by management edict but through the development of personal understanding and respect for each other's knowledge, skills, and expertise that is built up between partners over time" (Pham & Tanner, 2015, p. 10). It is increasingly clear that teaching faculty play a vitally important role in the adoption and implementation of effective IL instruction programs; therefore, it is important to study and understand the existing intersections of IL in teaching faculty information behaviors and pedagogies.

IL Competencies of Faculty

The most effective way to ensure that students adopt appropriate information habits is for faculty instructors to model those behaviors in their own tasks, as well as to adopt pedagogies that reinforce best practices. Therefore, in order to understand the instructional context surrounding IL, we must also explore the information behaviors of those who teach.

Information-Seeking Behavior

For the purpose of this study, the information-seeking behavior of faculty instructors is limited to that which directly pertains to academic functions, including research and instruction. The skills required to engage effectively in information-seeking are largely the same for instructors and for students. While faculty members have attained a high level of competency with critical evaluation of information products respective to their discipline, the tools of discovery are constantly evolving and require continual learning and adaptation in order for the researcher to continue to discover information effectively over the course of their career.

Variances by Seniority

An individual faculty member's approach to information seeking, use, and pedagogical practices may all vary based on their level of seniority in the academy (Pontis, Blandford, Greifeneder, Attalla & Neal, 2015, p. 32). Particularly, as researchers gain experience, knowledge, and confidence in that knowledge, they increasingly rely on social interactions with networks of professional contacts, and more advanced scholarly activities, such as peer-review in order to remain up-to-date with the latest (often unpublished) research in their fields. However, early-career faculty tend to rely on discovery methods such as search engines and databases in order to seek information (Pontis, Blandford, Greifeneder, Attalla & Neal, 2015, p. 32; Nicholas et al., 2017, p. 27). Indeed, many early career researchers have come to view the library not as a destination for research of information resources, but as a simple study space (Nicholas et al., 2017, p. 25). The information-seeking behaviors of teaching faculty may change over time, and likely also influence their respective teaching methods.

Pedagogical Practices

In light of the knowledge that most IL instruction comes directly from the teaching faculty rather than librarians, it is important to understand how that instruction impacts IL learning in the student body. The literature reveals several pedagogical practices that run counter to the goals of IL instruction.

Spoon Feeding

Spoon feeding occurs when teachers simply provide the information resources to students rather than encouraging or requiring students to independently study or source the research themselves (McKeever, Bates & Reilly, 2017, p. 61). Depending on the level of student, some spoon feeding may be required; however, certain practices may be used as a method to circumvent the need to teach students how to perform the research themselves (Morrison, 2007, p. 15).

Missing or Incomplete Citations

Attribution is one of the positive behaviors which we hope for students to adopt. This maps to two ACRL frames including "Scholarship as a Conversation" and "Information has Value". By teaching students to attribute the ideas of others, we show them how to utilize information ethically, and to recognize their voice as a part of the scholarly conversation (ACRL, 2016). Despite this, citations are often missing from instructional materials. One 2016 study by van Helvoort and Sjoer found that this was possibly related to the use of common knowledge as perceived by the professor. Common knowledge does not require citation; however, what is common knowledge to a subject matter expert might not be common knowledge to an undergraduate student; therefore, sourcing enables students to retrace the sources. Additionally,

the study found that “relying on ‘common knowledge’ also carries the danger of ignoring new developments in the domain" (van Helvoort & Sjoer, 2016, p. 349). Therefore, attribution takes on a new function by modeling positive IL behaviors, by providing a breadcrumb trail for students to follow, and by encouraging continued currency in the field through the sourcing of resources.

Copy Editing

Copy editing refers to the practice of heavily editing or rewriting drafts of student work. One potential result is the inflation of students’ self-perception of their abilities, because the final paper is not a reflection of the student’s work. Ganley, Gilbert, and Rosario recommend providing workshops for faculty in order to teach them pedagogical techniques which allow for productive feedback of student work in a manner that enhances students adoption of IL skills, rather than transferring the cognitive heavy lifting to the respective teaching faculty (Ganley, Gilbert & Rosario, 2013 p. 95).

Faculty Development

In their 2017 study, Alagarsamy and Ramalingam assert that "educational institutions have an opportunity, and a challenge, to prepare faculty to meet the demands of the information age. The faculty members need to identify what students should know and be able to do" (Alagarsamy & Ramalingam, 2017, p. 1). This suggests that librarians could potentially overcome some of the aforementioned challenges of delivering consistent IL instruction by adopting a “teach the teacher” model.

Chapter Summary

In this chapter, we defined information literacy and described its importance in overcoming information challenges, and providing the skills needed for success in the classroom and beyond. We also examined common methods of delivery, and impediments to the adoption of comprehensive and purposeful curricula which deliver the fundamental skills of IL. We established that faculty instructors must play a leading role in the delivery of IL skills alongside their own content.

Chapter 3 - Methodology

Chapter Overview

This chapter explores the design of the proposed research study. It examines the participants, methods, procedures, data analysis, and limitations of the proposed research.

Research Design

The purpose of this study was to learn what approaches teaching faculty already use in order to address information literacy in their classrooms across various disciplinary contexts, and how those approaches may be informed by their respective information-seeking habits. This understanding enables the identification ways in which an effective IL instruction program might be developed intentionally to fit within the curricular and cultural fabric of an institution of higher education.

As discussed in chapter two, previous related studies have focused on individual elements, such as faculty perception, or information seeking behaviors; however, this design sought to consider the entire information cycle from searching to dissemination. In order to accomplish this goal, the study adopted a two phase mixed methods approach composed of a survey instrument and interviews.

Participants

Study participants included teaching faculty, at a small private university located in central Virginia. This research excluded athletic coaching faculty, as well as professional librarian faculty. Participants were classified by their primary academic division as well as years of experience, in order to account for the ways information behaviors may vary across disciplines and over time.

Data Collection

As a mixed methods study, the research incorporated multiple methods of data collection including a survey and interviews.

Survey

Due to a gap in the literature connecting information behaviors with IL pedagogical approaches, an original survey was designed and piloted using Survey Monkey. Three professional librarians piloted the survey and provided feedback, which was incorporated. The revised survey (Appendix A) was distributed via email (Appendix B) to all faculty at Central Virginia University (pseudonym). The survey asked the participants to respond to a series of questions regarding their IL related behaviors and teaching methods. There were 19 questions in which participants were asked to respond to within six categories:

1. Information-Seeking Behaviors;
2. Information Literacy Teaching Behaviors;
3. Information Dissemination Behaviors;
4. Library Collaboration;
5. Contextual Information; and
6. Interview Participation (optional).

This enabled the broad identification of common preferences and practices, and the identification of potential participants for the second phase of the study.

Survey analysis.

Quantitative analysis of the survey focused primarily on descriptive statistics, as well as Chi Square tests to compare the responses of faculty participants. Long answer responses were coded qualitatively in the NVIVO software to identify common themes. Data collected from the survey was analyzed first in order to identify significant ideas and trends prior to the interview phase. The goal of the analysis was to gain a broad overview of the target institution as a whole.

Interviews

After the survey results were collected, potential participants for the following interview phase of the study were identified. The target was 10 interview participants that represent a wide range of disciplines and teaching experience. The qualitative method was individual guided, or semi-structured interviews. In her 2013 book *Qualitative Research in Education*, Lichtman indicates that guided interviews involve a structure which is the same for all participants; however, the researcher may adapt questions in response to the situational context (Lichtman, 2013). The structure of the interviews for this study was in the form of discussion topics. While questions were developed in advance, the researcher adapted as needed in order to ensure that adequate granularity of contextual information was achieved. Informed consent forms were distributed via email prior to the interviews, and reviewed and signed in the interview room prior.

Interview participants were asked to provide a syllabus and/or assignment instructions prior to the interview. Those materials were intended to provide clarity and direction for the interview. Topical categories of discussion (Appendix C) included:

1. Information seeking behaviors;
2. Student readiness and performance with information seeking tasks;
3. Instructor pedagogical approaches and adaptation with regard to those student information competencies and needs;
4. Collaboration with the library (if any); and
5. Professional support or development needed.

Interview grounded theory analysis.

Grounded theory is a qualitative research method in which data is used to identify a model or theory (Lichtman, 2013). Strauss and Corbin describe grounded theory as "a *general methodology* for developing theory that is grounded in data systematically gathered and analyzed. Theory evolves during actual research, and it does this through continuous interplay between analysis and data collection" (Strauss & Corbin, 1994). In this case, the data comes from the interview questions, and open response survey questions. Interviews were transcribed and coded in NVIVO. The researcher applied grounded theory protocols of open, axial, and selective coding. Davidson (2002) noted:

> There are three distinct yet overlapping processes of analysis involved in grounded theory from which sampling procedures are typically derived. These are: open coding, axial coding and selective coding. Open coding is based on the concept of data being "cracked open" as a means of identifying relevant categories. Axial coding is most often used when categories are in an advanced stage of development; and selective coding is used

> when the "core category", or central category that correlates all other categories in the theory, is identified and related to other categories (para. 4)

In adopting a grounded approach, it was hoped that a model or theory would emerge that could guide the design of future information literacy development programs.

Connections Between Behaviors And Pedagogies

As previously stated, there is a gap in the literature regarding the connection between the information behaviors of teaching faculty, and their respective pedagogical methods in teaching IL-related concepts. This was an area of particular interest in the analysis of both survey and interview data. The survey posed an open question regarding information-seeking routines. This was followed-up in the interview where the researcher further explored the information seeking routines of participants. Responses were compared across different categories of teaching faculty, including primary academic division, and experience level.

Interview participants were informed of the procedure in the interview confirmation email (Appendix D) and encouraged to prepare by reflecting upon their information seeking routine. In this portion of the session, participants were asked to walk the researcher through their normal research routine when searching for academic information. This enabled the researcher to determine the manner and extent to which information-seeking behaviors influence adopted pedagogies.

Limitations

While it is possible to infer the ways in which faculty practices might affect student learning, by not collecting data directly from students the researcher cannot positively connect

specific practices with specific student outcomes (or lack thereof). However, faculty perceptions of student learning were explored in the interview setting.

As seen in Chapter 4, the interview participants represented a variety of experience levels and academic divisions. However, the researcher was not able to ensure a balance between the academic division and experience levels. For example, the 16+ years group contains eight participants; the 8 - 15 years group contains 2 participants; and the 1 - 7 years group contains 3 participants. This asymmetry between experience level and academic division may skew the data or its interpretation. For example, an observation attributed to experience, may actually be related to disciplinary context, and vice versa.

Chapter Summary

This chapter examined the mixed methods research design consisting of a survey and semi-structured interviews as well as their respective data analysis procedures, and the limitations of the study.

Chapter 4 - Data Analysis and Findings

Chapter Overview

This chapter explores the approaches taken by teaching faculty in order to address IL in their classrooms across various disciplinary contexts, and how those approaches may be informed by their respective information-seeking habits. A mixed methods approach was adopted, and both qualitative and quantitative data were collected and analyzed. The research began with a survey of the teaching faculty, designed to gather information regarding the research-related information behaviors, including the ways in which participants teach information literacy skills to their students. The survey was followed by interviews of a select number of teaching faculty who indicated their willingness to participate in their survey response. Interview questions focused on information literacy related behaviors, student readiness, and classroom pedagogies.

Demographic Profile of Participants

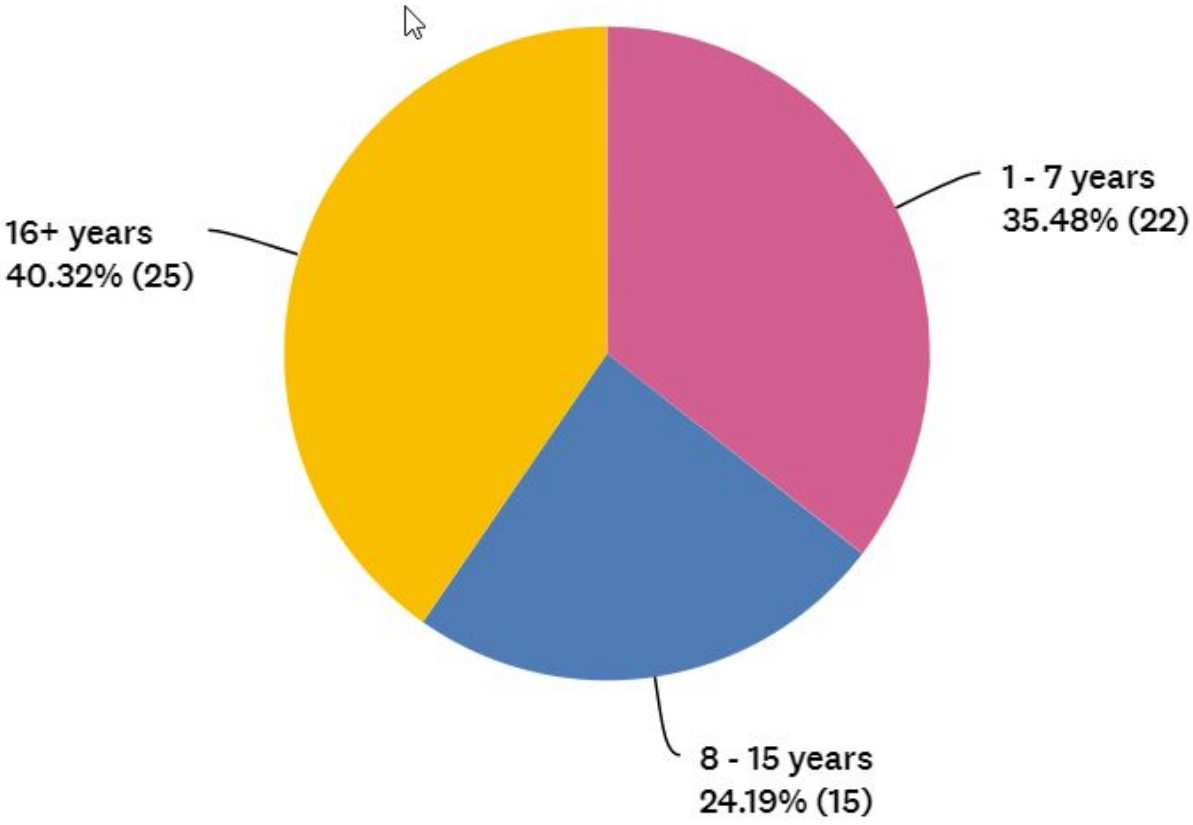
The survey was conducted online, and distributed via email to all of the 353 current teaching faculty at Central Virginia University including full-time and adjunct positions. 65 responses were received, of which 62 were complete and utilized in analysis. The only demographic data collected in the survey were the years of teaching experience in higher education, and primary academic division of the participants.

Experience Level of Survey Respondents

The results showed that of the 62 complete responses, 22 participants (35.48%) had 1 - 7 years of teaching experience; 15 (24.19%) had 8 - 15 years of experience; and 25 (40.32%) had 16+ years of teaching experience in higher education.

Figure 1

Experience Level of Survey Respondents



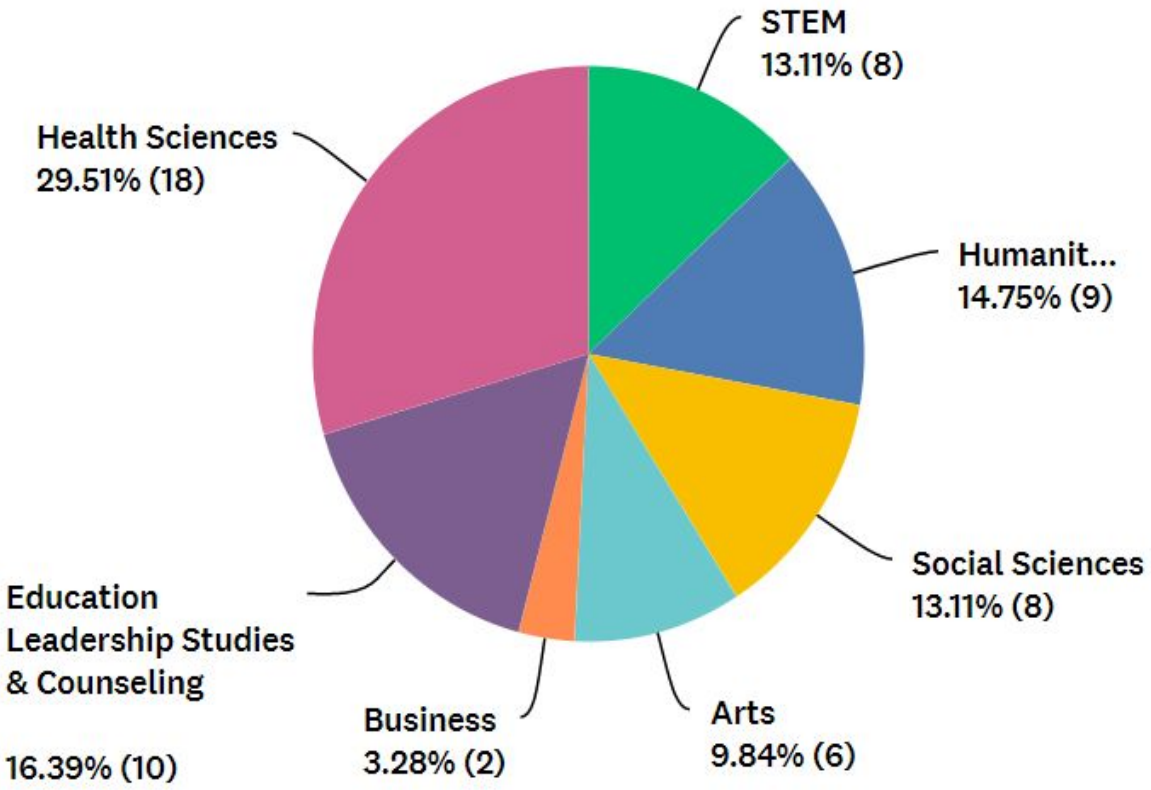
Note. Experience levels of survey respondents as a percentage of the whole are shown.

Primary Academic Division of Survey Respondents

Participants represented a variety of academic divisions, including 2 (3.28%) from business; 10 (16.39%) from education, leadership studies, and counseling; 18 (29.51%) from health sciences; 9 (14.75%) from humanities; 8 (13.11%) from social sciences; 6 (9.84%) from visual and performing arts; and one participant who declined to provide their academic division.

Figure 2

Primary Academic Division of Survey Respondents



Note. Primary academic division of survey respondents as a percentage of the whole are shown.

Interview Participant Demographics

Out of the 62 participants who completed the survey, thirteen also agreed to participate in the interview portion of the study. Interview participants were selected to represent a variety of academic divisions and experience levels.

Table 1

Demographic Data of Interview Participants

Participant	Academic Division	Experience Level
1	Humanities	16+ Years
2	Humanities	16+ Years
3	Business	16+ Years
4	Education, Leadership Studies, and Counseling	16 + Years
5	Visual & Performing Arts	16+ Years
6	Health Sciences	16+ Years
7	STEM	16+ Years
8	Visual & Performing Arts	1 - 7 Years
9	Social Sciences	16+ Years
10	Humanities	8 - 15 Years
11	Social Sciences	8 - 15 Years
12	Education, Leadership Studies, and Counseling	1 - 7 Years
13	Health Sciences	1-7 Years

Note. Primary academic division and experience level of each interview participant is shown. Participants were assigned a numerical designation in order to protect their confidentiality.

Data Analysis

This section will begin with data analysis of the survey data first, followed by a deeper examination of the themes which emerged from the interviews.

Survey Data

Data collected from the survey was analyzed first in order to identify significant ideas and trends prior to the interview phase. The survey was organized into the six categories of Information-Seeking Behaviors, Information Literacy Teaching Behaviors, Information Dissemination Behaviors, Library Collaboration, Contextual Information, and Interview Participation. Each category generally had one open ended question. Open ended questions were examined and analyzed using NVIVO, while quantitative data were analyzed statistically in SPSS.

Pedagogy Modification and Experience Level

A Pearson chi-square (Table 2) was performed in order to explore the relationship between the experience level of the instructor and their modification of pedagogy. There was no statistically significant relationship between experience level and the modification of pedagogy.

Table 2

Experience Level and Pedagogy Modification Chi-Square

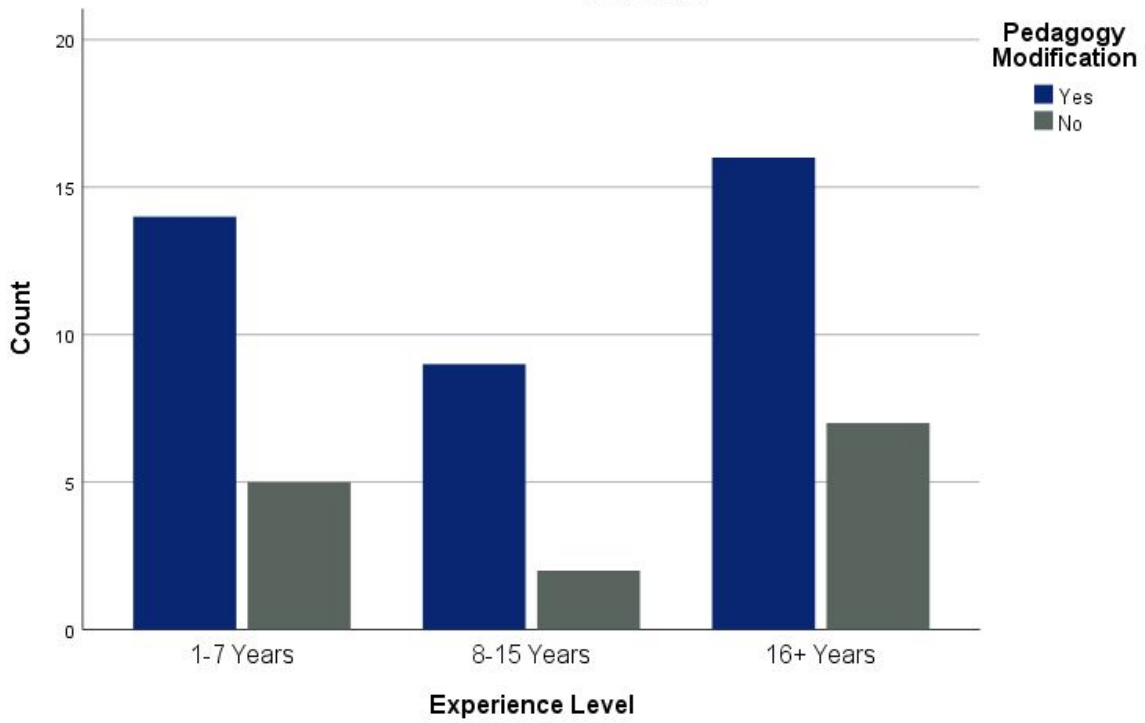
Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	.575[a]	2	.750
Likelihood Ratio	.601	2	.741
Linear-by-Linear Association	.108	1	.743
N of Valid Cases	53		

a. 1 cells (16.7%) have expected count less than 5. The minimum expected count is 2.91.

Figure 3

Experience Level and Pedagogy Modification



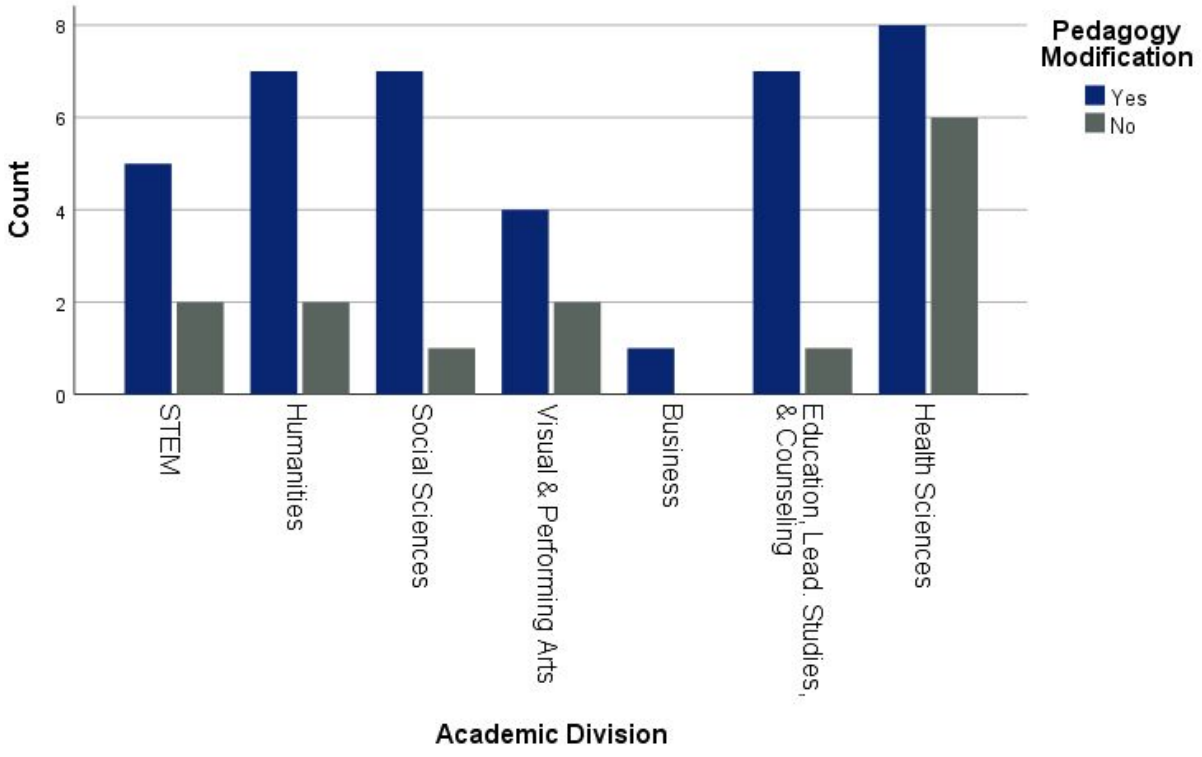
Note. Bar chart shows a simple count of respondents' experience level and indication of their likelihood to modify pedagogical approaches.

Pedagogy Modification and Academic Division

A Pearson chi-square was conducted in order to examine any connection between pedagogy modification and academic division. The test violated the assumptions of the chi-square due to the small sample size of the academic divisions. However, it is notable that there were pockets of higher concentration of those who do not modify pedagogy in Health Sciences, Visual and Performing Arts and STEM (relative to the number of total respondents in each respective division). It is worth exploring what is different about these respective areas which make a more rigid pedagogy more likely.

Figure 4

Pedagogy Modification and Academic Division



Note. The chart represents a simple count of respondents' pedagogy modification, grouped by primary academic discipline. Higher levels of "no" responses indicate an increased level of pedagogical rigidity.

Pedagogy Modification and Library Instruction

A Pearson chi-square test (Table 3) was performed in order to examine the relationship between pedagogy modification and the use of library instruction. The relationship between the two variables was found to be statistically significant X^2 (1, N=52) = 5.398 (p = .020). The effect size for this finding, Cramer's V, was moderate, .32 (Cohen, 1988). In other words, those who utilize library instruction are more likely to report modifying their own pedagogies.

Table 3

Pedagogy Modification and Library Instruction Chi-Square

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	5.398[a]	1	.020		
Continuity Correction[b]	4.008	1	.045		
Likelihood Ratio	5.316	1	.021		
Fisher's Exact Test				.028	.023
Linear-by-Linear Association	5.294	1	.021		
N of Valid Cases	52				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 5.38.

b. Computed only for a 2x2 table

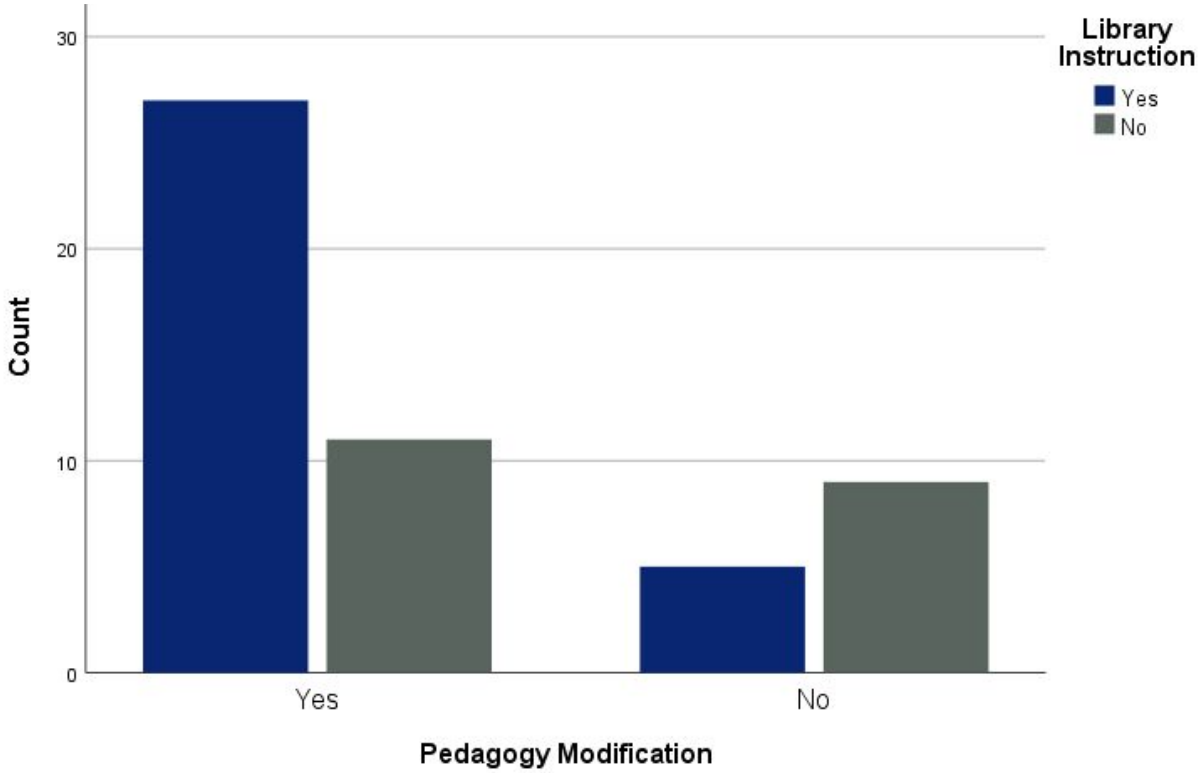
Symmetric Measures

		Value	Approximate Significance
Nominal by Nominal	Phi	.322	.020
	Cramer's V	.322	.020
N of Valid Cases		52	

Note. The relationship between the utilization of library instruction and the modification of pedagogy is shown to be significant with a moderate effect size.

Figure 5

Pedagogy Modification and Library Instruction



Note. Chart represents a simple count of respondents indicating both pedagogical modification, and utilization of library instruction.

Pedagogy Modification & Library Appointments

While the relationship between pedagogy modification and library instruction was statistically significant, this was not the case between pedagogy modification and library appointments. The Pearson chi-square test (Table 4) was valid, but found no statistically significant relationship between these two variables. This suggests that there may be a pedagogical catalyzing effect in the interpersonal collaboration between teaching faculty and librarians which is absent when the instructor is not involved in the student-librarian meeting

setting. In other words, the lack of significance in this variable as opposed to the library instruction variable was found to be instructive, and should be explored further in future studies.

Table 4

Pedagogy and Library Research Appointments Crosstabulation

Pedagogy Modification * Library Research Appointments Crosstabulation

Count

		Library Research Appointments		
		Yes	No	Total
Pedagogy Modification	Yes	26	13	39
	No	7	7	14
Total		33	20	53

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	1.218[a]	1	.270		
Continuity Correction[b]	.612	1	.434		
Likelihood Ratio	1.196	1	.274		
Fisher's Exact Test				.341	.216
Linear-by-Linear Association	1.195	1	.274		
N of Valid Cases	53				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 5.28.

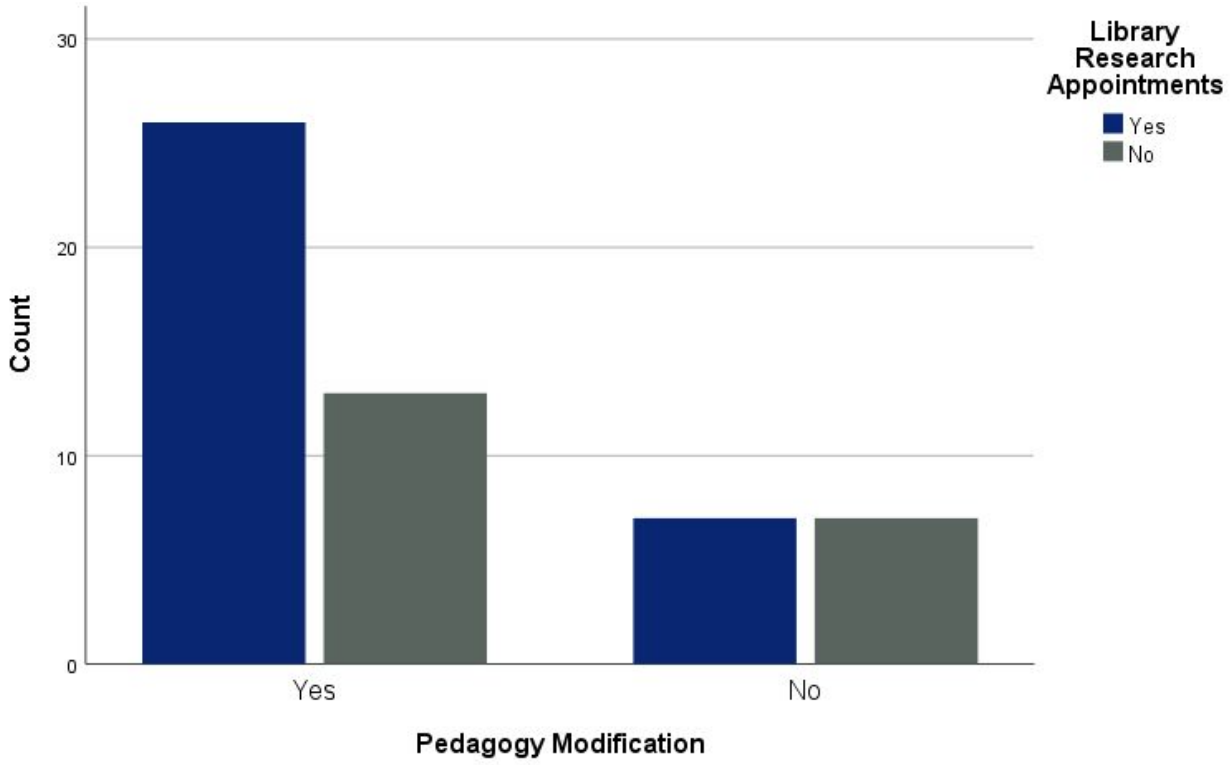
b. Computed only for a 2x2 table

Symmetric Measures

		Value	Approximate Significance
Nominal by Nominal	Phi	.152	.270
	Cramer's V	.152	.270
N of Valid Cases		53	

Figure 6

Pedagogy Modification and Library Appointments



Note. The relationship between utilization of library research appointments and the respondents' pedagogical modification was not found to be statistically significant.

Instructor Citations vs. Student Citations

A Pearson chi-square test (Table 5) was performed in order to determine if there was any connection between faculty perceptions of the student IL skill of citing sources appropriately, and their use of formatted citations in their own instructional material. Unfortunately, it is not possible to make any statistically significant assertions, because the assumptions of the test were violated. However, it is notable that participants who disagree or strongly disagree that their students perform well with this task were unlikely to report that they themselves do not use

formatted citations. In other words, those with more negative perceptions of student performance were much more likely to report modeling the desired behavior for their students.

Table 5

Instructor Citations and Student Citations Chi-Square

Instructor Citations * Student Citations

Count

		In general, the average student in my class performs well with citing sources appropriately.					
		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Total
Do you utilize formatted citations in your instructional materials?	Yes	6	8	5	14	3	36
	Sometimes	0	2	3	11	0	16
	No	0	0	0	2	0	2
Total		6	10	8	27	3	54

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	8.948[a]	8	.347
Likelihood Ratio	12.153	8	.145
Linear-by-Linear Association	3.597	1	.058
N of Valid Cases	54		

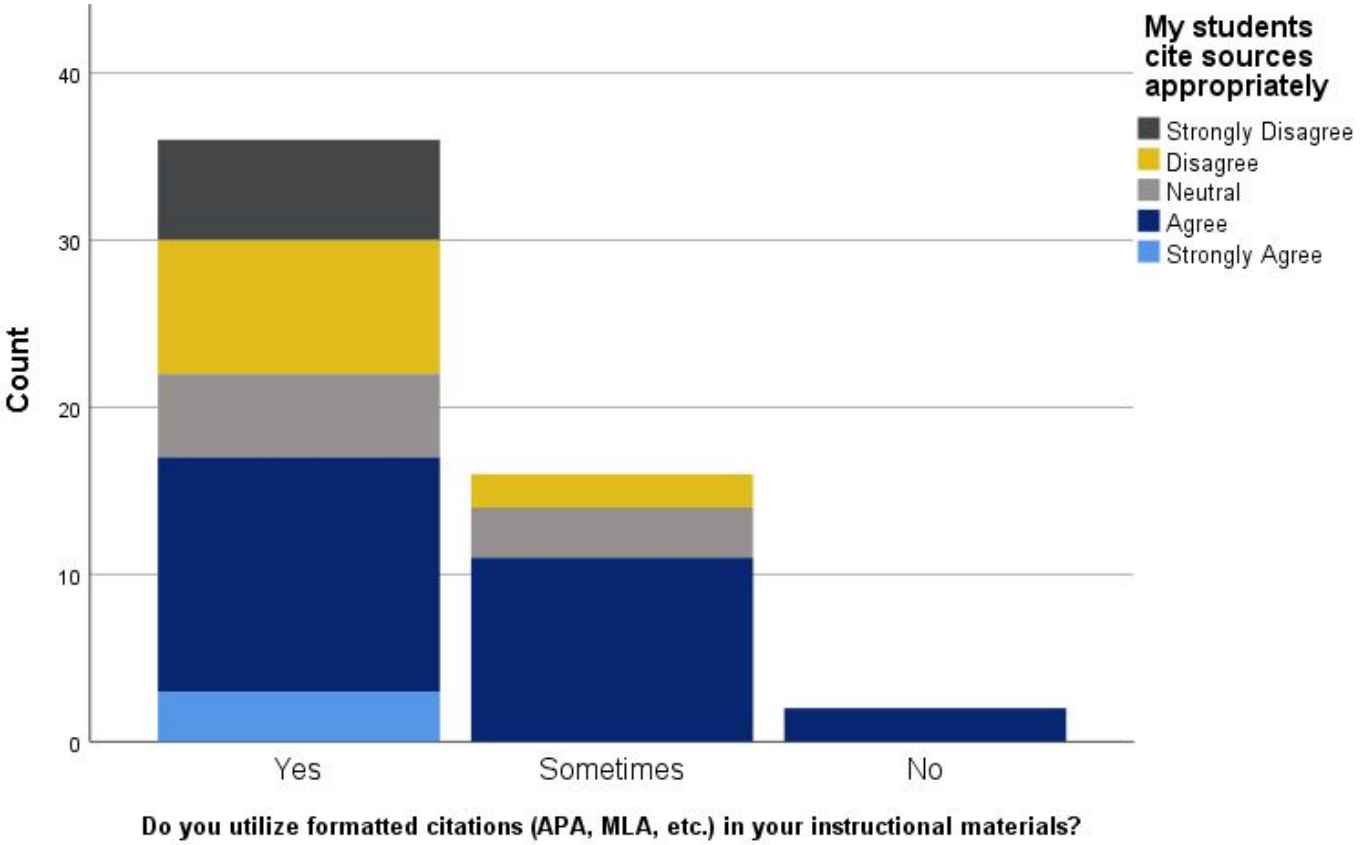
a. 11 cells (73.3%) have expected count less than 5. The minimum expected count is .11.

Symmetric Measures

		Value	Approximate Significance
Nominal by Nominal	Phi	.407	.347
	Cramer's V	.288	.347
N of Valid Cases		54	

Figure 7

Instructor Citations and Student Citations



Note. The stacked chart indicates the respondent's utilization of formatted citations in instructional materials, juxtaposed against the perceptions of their students' performance with citing sources. This result was found to be interesting, though not statistically significant.

Class Readings

According to the literature, simply providing information resources to students rather than encouraging or requiring them to independently source the titles themselves is a form of "spoon feeding" (McKeever, Bates & Reilly, 2017, p. 61). A Pearson chi-square test (Table 6) was performed in order to understand whether or not this practice has any relationship with

students' ability to acquire the search skills which such practices may circumvent. It is notable that tests related to this variable violated the assumptions of the chi-square test because nearly all participants indicated that they do provide class readings in some format, whether physical or digital. This is one area in which further exploration is recommended.

Table 6

Class Readings and Searching Databases Crosstabulation

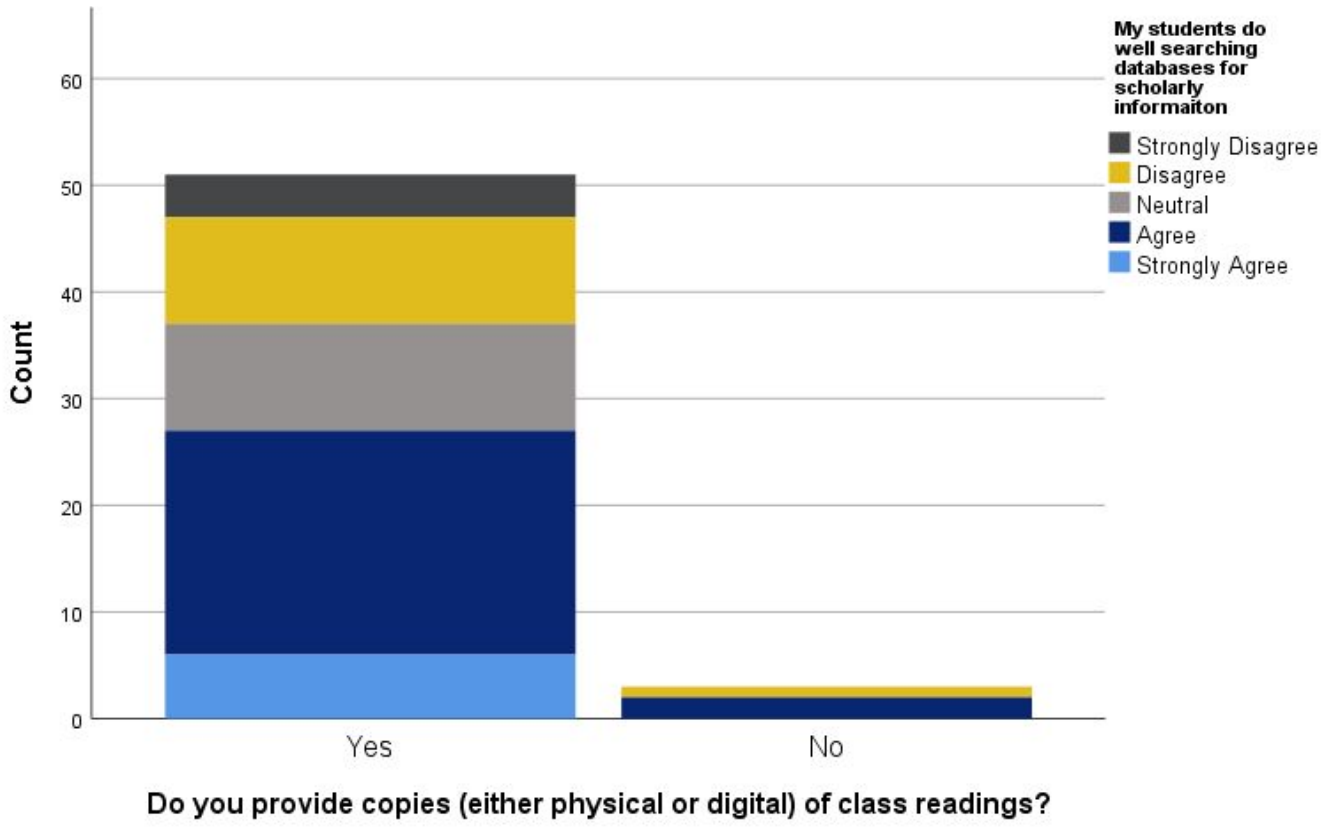
Class Readings * Searching Databases Crosstabulation

Count

		Searching Databases					
		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Total
Class Readings	Yes	4	10	10	21	6	51
	No	0	1	0	2	0	3
Total		4	11	10	23	6	54

Figure 8

Class Readings and Searching Databases



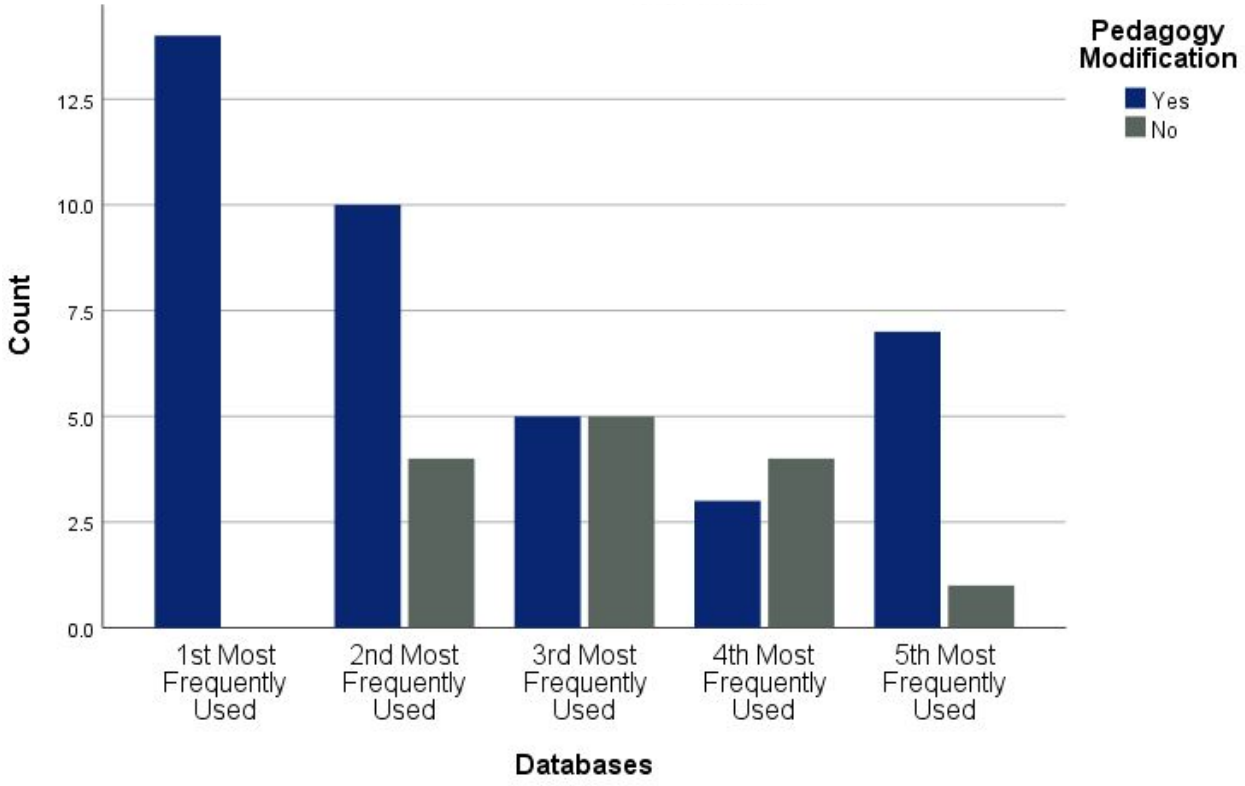
Note. This test violated the assumptions, and is therefore not statistically significant due to the overwhelming agreement between participant responses.

Pedagogy and Search Preference

In order to determine if the information-seeking habits of teaching faculty influence their pedagogical choices regarding information literacy, the PED_MOD variable was compared with each of the five search tool options (OneSearch, Specific Databases, Google Scholar, Search Engines, and Colleague Recommendations), shown in Figures 9 - 12 below. A Pearson chi-square test was performed; however, the assumptions were violated due to the small sample size. This prohibits us making any statistically significant assertion; however, there were some notable trends, which should be explored in a larger context. In order to explore this further, the search preferences of participants were subsequently collapsed into broader categories and subcategories, which will be discussed below.

Figure 9

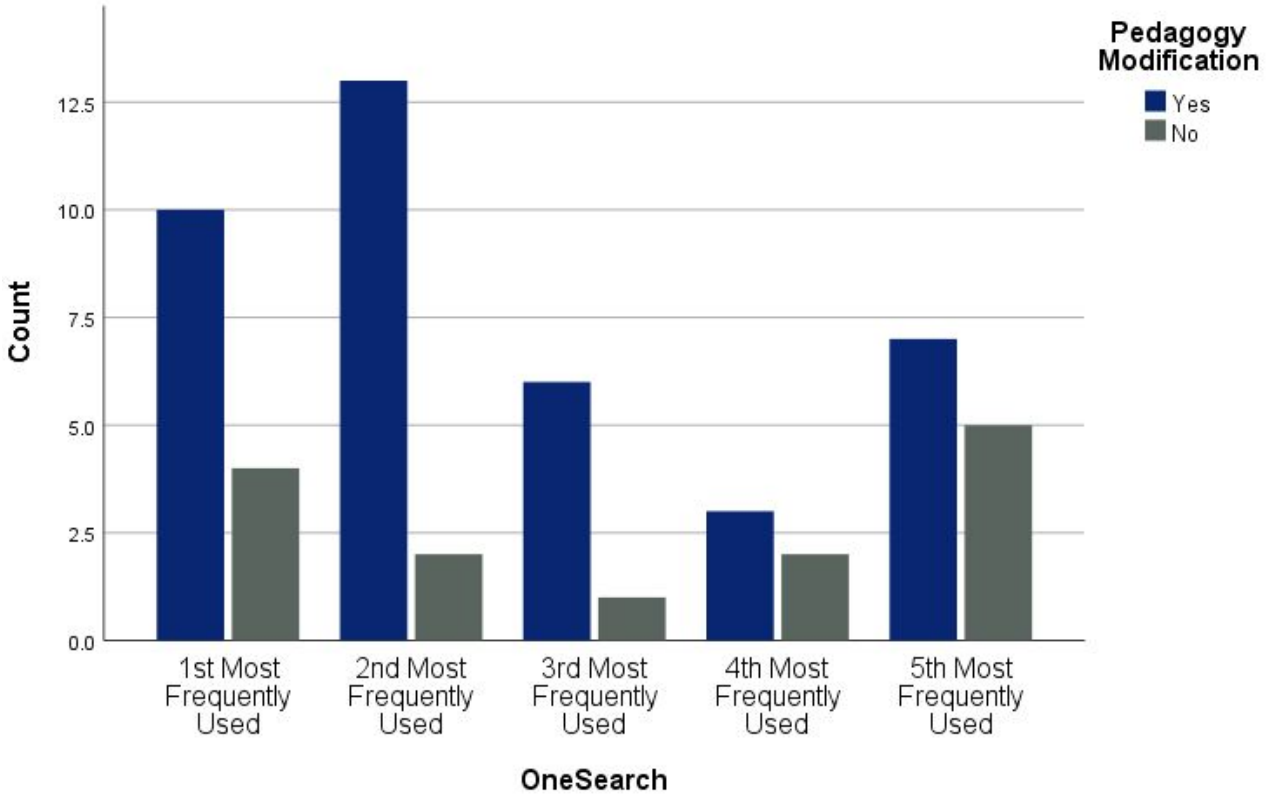
Pedagogy Modification by Search Preference - Databases



Note. This chart illustrates the respondents' modification of pedagogy, grouped by their search preference for specific databases.

Figure 10

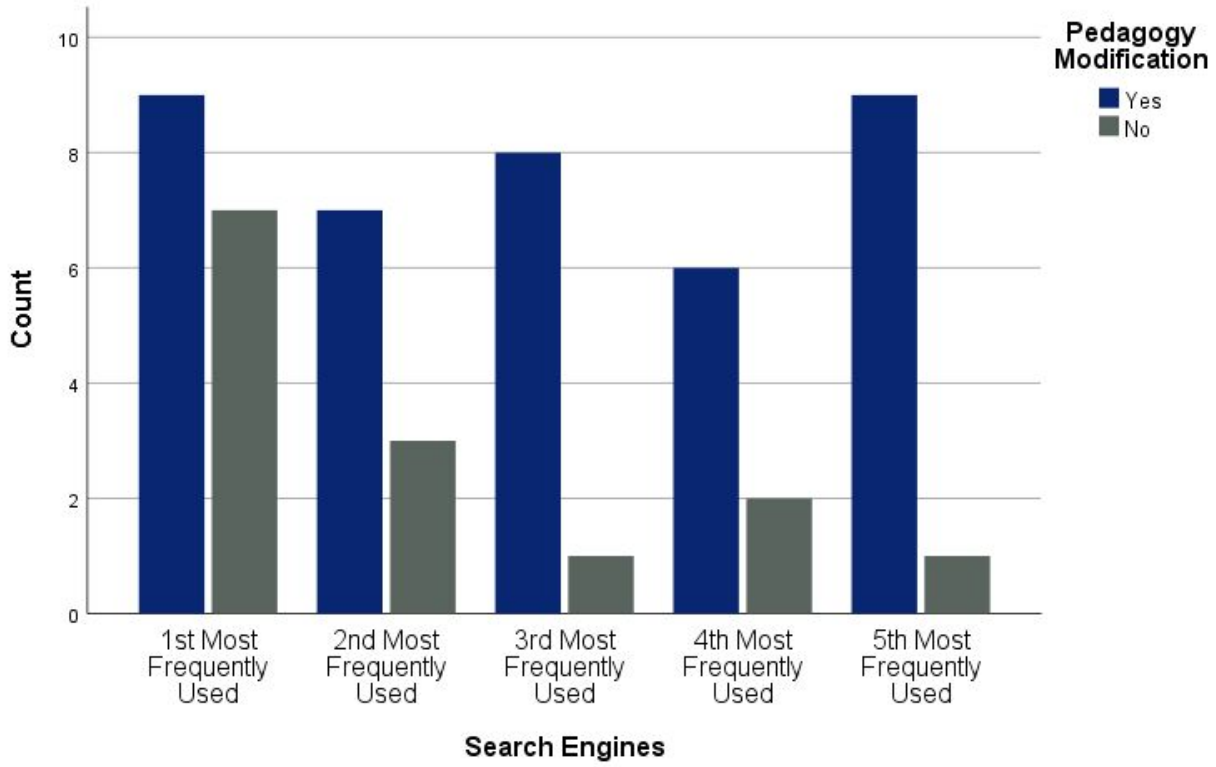
Pedagogy Modification by Search Preference - OneSearch



Note. This chart illustrates the respondents' modification of pedagogy, grouped by their search preference for the library's OneSearch tool.

Figure 11

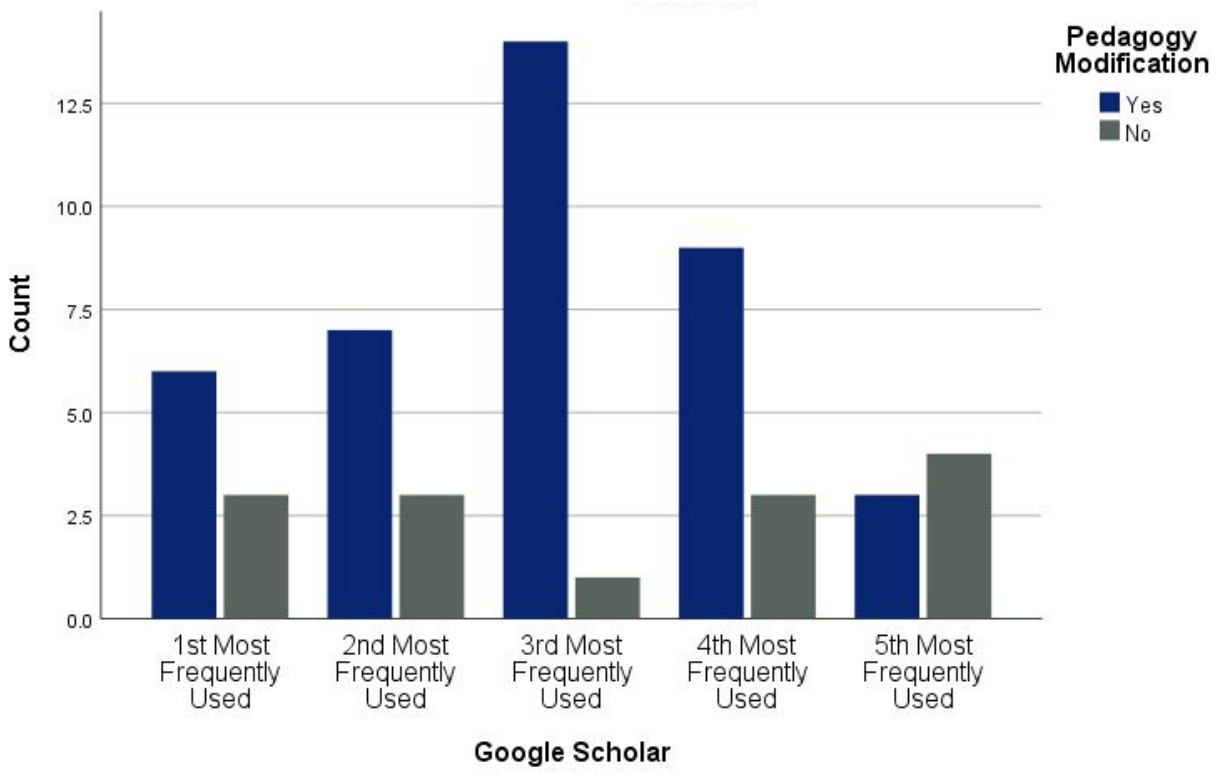
Pedagogy Modification by Search Preference - Search Engines



Note. This chart illustrates the respondents' modification of pedagogy, grouped by their search preference for commercial search engines, such as Google.

Figure 12

Pedagogy Modification by Search Preference - Google Scholar



Note. This chart illustrates the respondents' modification of pedagogy, grouped by their search preference for Google Scholar.

Information-Seeking Habits

In order to further examine the data illustrated in Figures 9 - 12, the following categories were developed by examining the top two information-seeking tool preference, collapsing existing categories, and grouping respondents into those new categories:

- **Library Centric**
    - **Library Pure** - the top two search preferences fall within the academy, such as OneSearch, Specific Databases, or Colleague Recommendations.
        - **Hybrid-Google Scholar** - The top two search preferences include one of the academic options (OneSearch, Specific Databases, or Colleague Recommendations), plus Google Scholar.
- **Search Engine Centric**
    - **Search Engine Pure -** The top two choices include a commercial Search Engine and Google Scholar.
        - **Hybrid-Search Engine -** The top two responses combined a commercial Search Engine with any other option (minus Google Scholar).

Search Category and Pedagogy Modification

The statistical analysis (Two-sided Fisher's exact test) suggested that participants who adopted library-centric information seeking habits were less likely to say that they do not modify their pedagogies than their counterparts who adopt SE-centric search methods (Table 7). This trend was notable, though not statistically significant ($p = .066$, Fisher's exact test).

Table 7

Search Categories and Pedagogy Modification Fisher's Exact Test

Chi-Square Tests

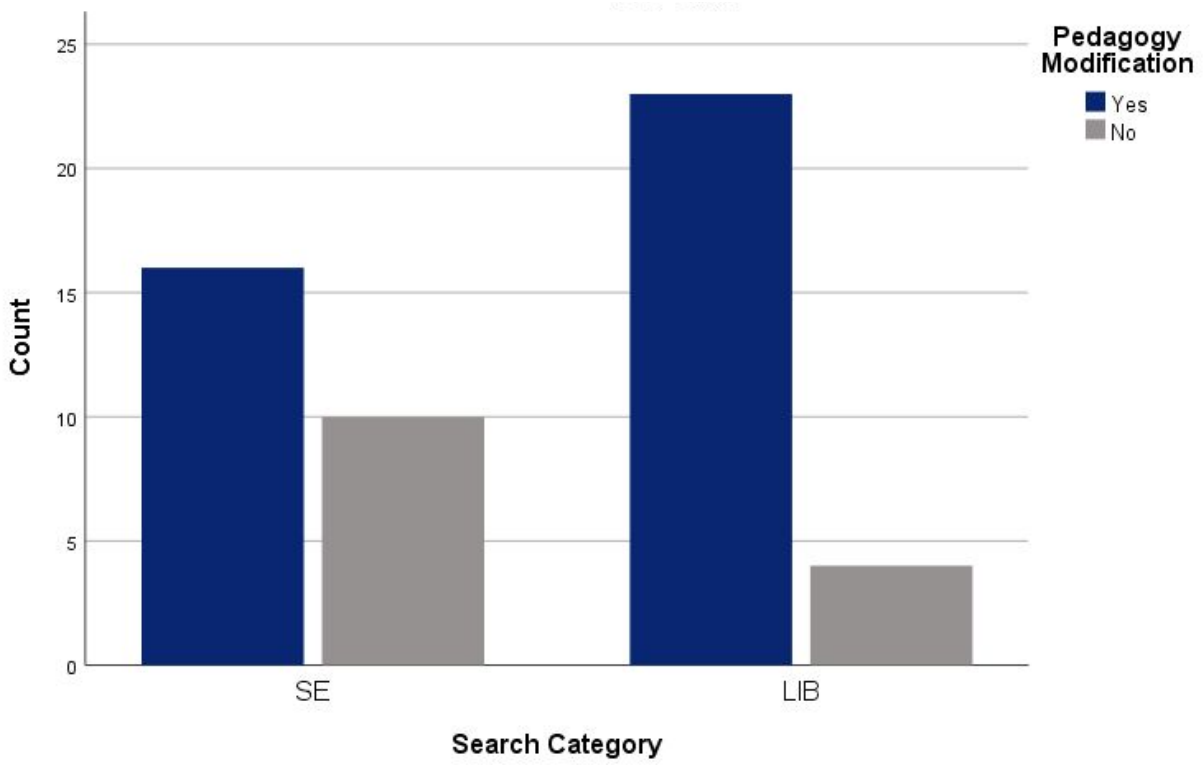
	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	3.810[a]	1	.051		
Continuity Correction[b]	2.691	1	.101		
Likelihood Ratio	3.901	1	.048		
Fisher's Exact Test				.066	.050
Linear-by-Linear Association	3.738	1	.053		
N of Valid Cases	53				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 6.87.

b. Computed only for a 2x2 table

Figure 13

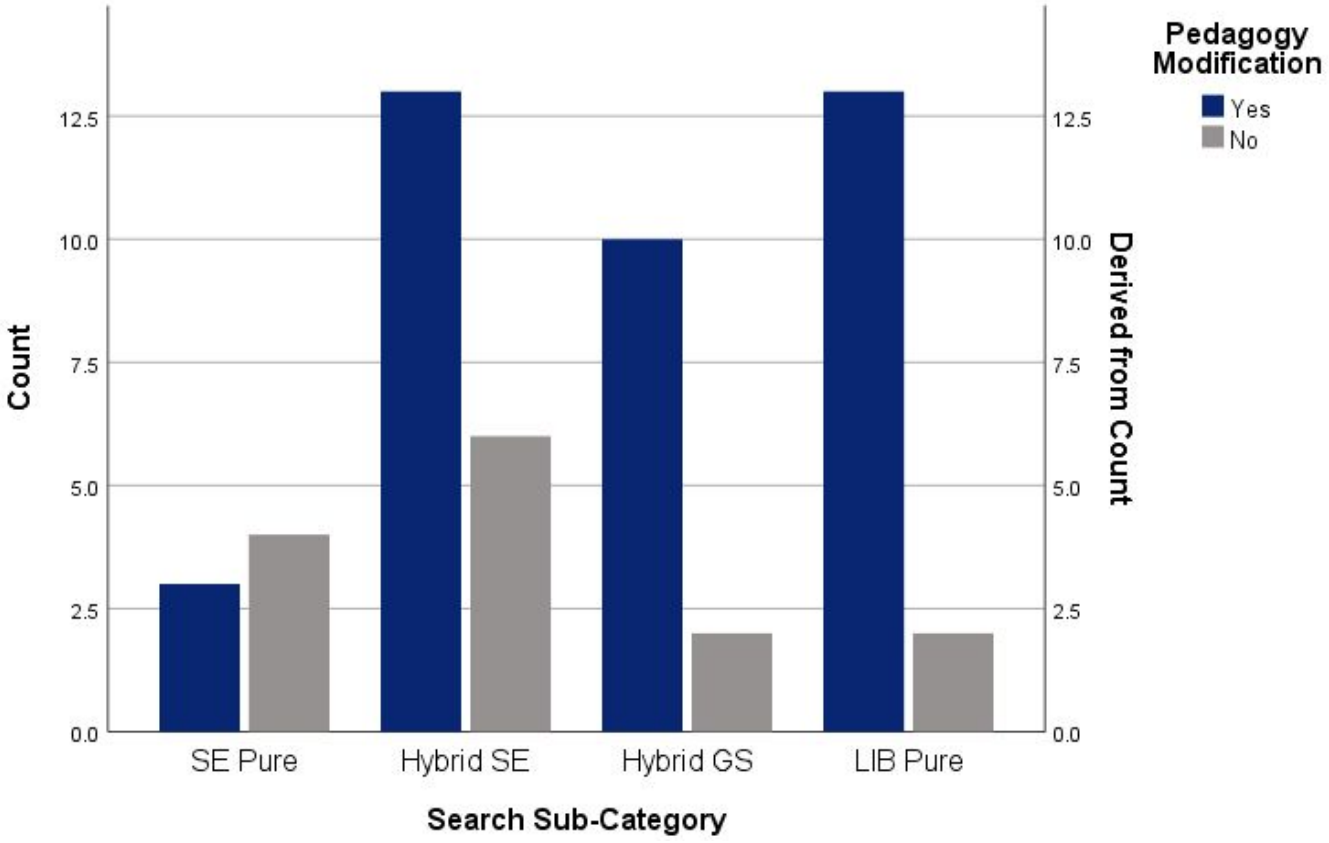
Search Category and Pedagogy Modification



Note. This chart illustrates the participants' modification of pedagogy, grouped by their search category, including Library Centric (LC) and Search Engine Centric (SE).

Figure 14

Search Preference Sub-Categories and Pedagogy Modification



Note. Participants with a Search Engine (SE) Pure approach to information seeking were the only group which was unlikely to modify their pedagogies, while all other categories including Hybrid Search Engine, Hybrid Google Scholar (GS), and Library (LIB) Pure were much more likely to indicate pedagogy modification. However, the low number in the SE Pure category limits our ability to make generalizations about this observation.

Search Category and Experience Level

A Pearson chi-square test (Table 8) was performed to examine the relationship between years of experience and information-seeking habits, as evidenced by the search categories variable. The relationship was found to be statistically significant X^2 (2, N =62) = 6.311, p = .043. More experienced participants tended to favor search engine centric discovery methods. The effect size for this finding, Cramer's V, was moderate, .32 (Cohen, 1988). In other words, participants with 1-7 years of experience were more likely to adopt library-centric habits, those with 8-15 years of experience were fairly evenly split, and those with 16+ years of experience were much more likely to adopt search engine centric habits.

Table 8

Search Category by Experience Level Crosstabulation

Search Category * Experience Level Crosstabulation

			Experience Level			
			1-7 Years	8-15 Years	16+ Years	Total
Search Category	SE	Count	8	7	18	33
		Expected Count	11.7	8.0	13.3	33.0
	LIB	Count	14	8	7	29
		Expected Count	10.3	7.0	11.7	29.0
Total		Count	22	15	25	62
		Expected Count	22.0	15.0	25.0	62.0

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	6.311[a]	2	.043
Likelihood Ratio	6.475	2	.039
Linear-by-Linear Association	5.956	1	.015
N of Valid Cases	62		

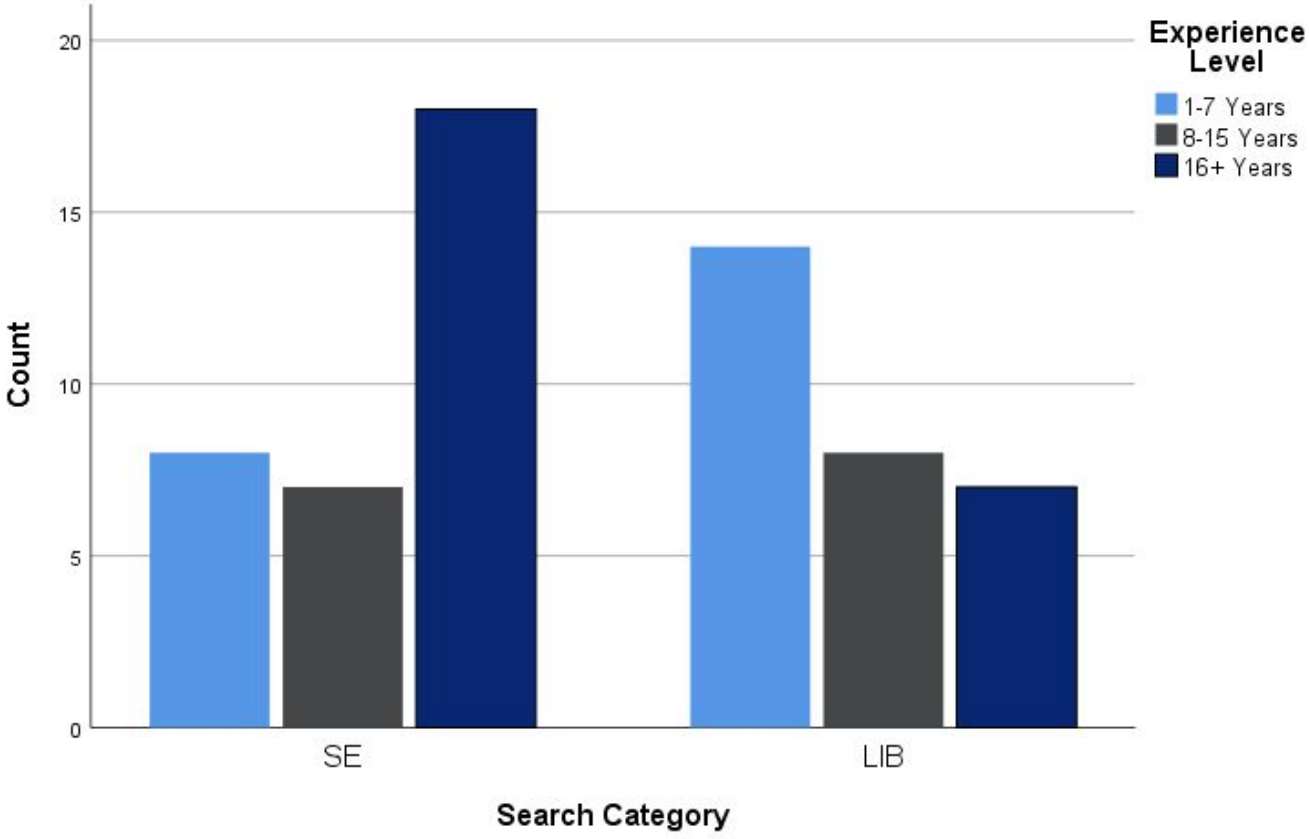
a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 7.02.

Symmetric Measures

		Value	Approximate Significance
Nominal by Nominal	Phi	.319	.043
	Cramer's V	.319	.043
N of Valid Cases		62	

Figure 15

Search Category by Experience Level



Note. This chart illustrates a count of respondents' experience level, grouped by search category - either Search Engine Centric (SE) or Library Centric (LIB). This indicated that more experienced participants were more likely to adopt search engine centric discovery methods than their early career counterparts. This observation was statistically significant.

Pedagogy Modification Themes

As established above, those who do not modify their pedagogies are less likely to utilize library instruction. Additionally, a high concentration of those respondents who do not modify their pedagogy fall within the group that adopts search engines as their preferred method of information seeking. Further, more experienced faculty are much more likely to adopt search engine centric information-seeking habits. Therefore, future models of faculty support should take this knowledge into account and look to target more experienced faculty, and those who prefer search engines for developmental programming in the future

Among the participants who described in an open-ended question how they had modified their pedagogies, certain themes emerged upon analysis in NVIVO. Those themes include:

- Additional instruction time / Remediation (14)
- Scaffolding (11)
- Supplemental Resources and/or Examples (7)
- Reduced Difficulty (6)
- Clarify Expectations (6)
- Student Challenges (5)
- Vetting Sources (5)
- Specifying Resources (databases, titles, etc.) (2)
- Individual Assistance (2)
- Ancillary Support (2)

Interview Data

Thirteen semi-structured interviews were conducted and transcribed. The transcriptions were then uploaded into NVIVO and coded utilizing a constructivist grounded approach. After each interview was coded, all prior interviews were also re-examined to compare with the new transcript, and determine if new codes applied to the previously examined transcripts. Next, cluster comparison charts between each interview were examined to identify emerging themes. Finally, the codes were re-examined, and codes which in the end were not meaningful, or which were extremely similar with other codes (for example, preconceived notions and confirmation bias) were either merged or eliminated as appropriate.

Perceptions of Student Challenges

Participants were asked to reflect on the struggles of their students with regard to information tasks. Interestingly, the responses varied by the academic division of the participant. Participants in the divisions of STEM, Health Sciences, and Social Sciences were more likely to express their students' challenges in terms of content-related interactions, such as synthesizing, comprehension, and attribution of sources. Conversely, participants in the divisions of Business; Education, Leadership Studies, and Counseling; Humanities; and Visual and Performing Arts were more likely to also observe internal challenges among their students, such as competing demands, confidence level, work ethic, attention span or engagement, etc.

In addition to academic division, the reported challenges also varied by experience level of the participant. For example, early career faculty were more likely to report writing skills as a student challenge than their more experienced colleagues. This could be a reflection of a higher number of entry-level courses taught to entrance-level students on the plates of early career

faculty compared with their more senior counterparts. Additionally, the coding density with regard to perceptions of student challenges increased with the experience level of the participants, potentially reflecting the accumulation of observations over a greater time span.

While there were observed differences in participant responses, there was one notable area of unanimous agreement. All participants reported that there was a high degree of variance in the preparedness and aptitude of their students, which posed a pedagogical challenge.

Perceptions of the Library

Participants were asked to speak about any experiences they had had collaborating with the library. The purpose of this line of questioning was to reveal areas in which the library can target improvements to its existing services in order to better support the curriculum. Feedback was generally positive; however, there were some notable observations.

Participants from the social sciences division reported that there had been previous issues with library instruction, and that their experiences had been a "mixed bag". Issues reported included being out-of-date, as well as presentation styles which were boring and failed to capture and maintain the attention of students. Such issues with library instruction may damage faculty confidence, and deter future requests for such services.

Participants from the humanities division, as well as participants with 16+ years of experience, were much more likely to express the library's value in terms of its physical space, as a place of exploration. Participants noted that it was important for students to walk into the library doors, and physically speak with the people that work there in order to "break the ice" and to become comfortable with the future research tasks required to be successful with their academic pursuits.

Early career participants were much more likely to perceive the librarian as an expert. This may be a reflection of library services that they received in the course of their own educational upbringing, as participants in that experience bracket were more likely to report receiving formal instruction from a librarian. The perception of librarians as experts was also shared by participants in the division of Health Sciences, which may be a reflection of the specialized role of librarians within the health sciences disciplines.

Learning the Ropes

Participants were asked about their manner of upbringing and how they learned the skills of researching the literature. The purpose of this line of questioning was to determine if the academic upbringing presents an alternate explanation for differences in pedagogical and information seeking practices, as opposed to disciplinary culture, or experience level.

Early career participants were more likely to have received formal instruction from a librarian, while mid and late career participants were generally either self-taught, or received formal instruction from a disciplinary faculty instructor. This may explain why early career participants were more likely to reference the librarian as an expert (36.4%) compared to their mid-career (0%) and late career (2.2%) counterparts; as well as the survey findings that early career respondents were more likely to adopt library-centric information seeking methods than their more experienced colleagues.

Aside from the method of instruction, whether formal or informal, rapid changes in the technology emerged as an important theme. In other words, the way in which the participant was taught to conduct their own information seeking research was made irrelevant by the changes in the information landscape since that time. Nearly all participants (even early career participants)

made mention of their “analogue” upbringing to some extent, such as the utilization of physical indices and card catalogs. The analogue upbringing also sometimes presented a barrier to the students and faculty relating with each other. This can be seen in the sentiments that Participant 6 expressed, comparing their students' upbringing to their own.

> I think one thing that current students don't have any appreciation for is how easy it is now, because it's all they've ever known. Where - you know, if I tell them like “oh back when I was in school and I had to go to the library and I had to find the journal and make photocopies”… I'm just some old [person], and that that’s just not helpful. So I think that they fail to appreciate how easy it is now, because they've never known anything different. You know technology has been such a part of their lives - since they were born, really.

Participant 9 described similar sentiments as well.

> So maybe I'm just an old fogey professor who still remembers card catalogs, and they don't. You know, I guess it's the same thing. They just don't know how good they have it, so maybe just a generational difference. But to me, it's ideal. And I mean . . . I don't think information has ever been more readily available since... Ever in time.

While it may be tempting to think of this as a generational issue, as Participant 9 suggested, these sentiments were shared by faculty of all ages and stages in their career. This reflects just how rapidly the landscape has shifted, and how all faculty must manage the related pressures.

Faculty Struggles

All participants reflected on their personal struggles in some way or another. Their struggles varied broadly, though a couple of recurring themes emerged.

Participants from Education, Leadership Studies, and Counseling; Social Sciences; STEM; and Visual and Performing Arts disciplines indicated that issues with programmatic organization and continuity presented instructional challenges. The challenges voiced included a lack of awareness of what key topics were being addressed elsewhere in the program, as well as a lack of communication about content expectations for the faculty instructor.

Participants from the divisions of Visual and Performing Arts; Business; Humanities; and Education, Leadership Studies, and Counseling all expressed similar struggles and frustrations with student postures towards information received. This theme, coded as "give it to them" saw expressions ranging from a student tendency to want the relevant information to be explicitly given to them so that they could simply regurgitate it back; to a feeling that the convenience of easy information via Google was inhibiting their students' ability to think critically and develop their own positions. These feelings emerged as a significant theme. Participant 7 described the students' attitude as thus: "I have to go look for stuff. So it's your fault. You're not being clear. You didn't give me a lecture on it so I could just give it back to you." Participant 14 described slightly different sentiments.

> My fear in Wikipedia (really, just anything that pops up when they do a search) is that they will not trust their instincts that they will just consume it, and let it think for them, which is just very different from how we were taught 20 years ago, because we didn't have somebody telling us. So we formed our own thoughts, and then could look, and

> then find research - because it was just an emptiness... there was an emptiness. We didn't have, and so you had to create it in your mind, and then go research. But now I have a crutch, and you can just... it's easy just to let somebody tell you how to think about it and what you're seeing.

Participant 11 utilized a metaphor, which aptly summarizes the full range of responses.

> It's a zoo mentality: "just give me what I need and I'll be happy to survive;" instead of the jungle where "I have to go find it, I'm hungry for it, and I want to learn more, and I want to take responsibility and really be critical."

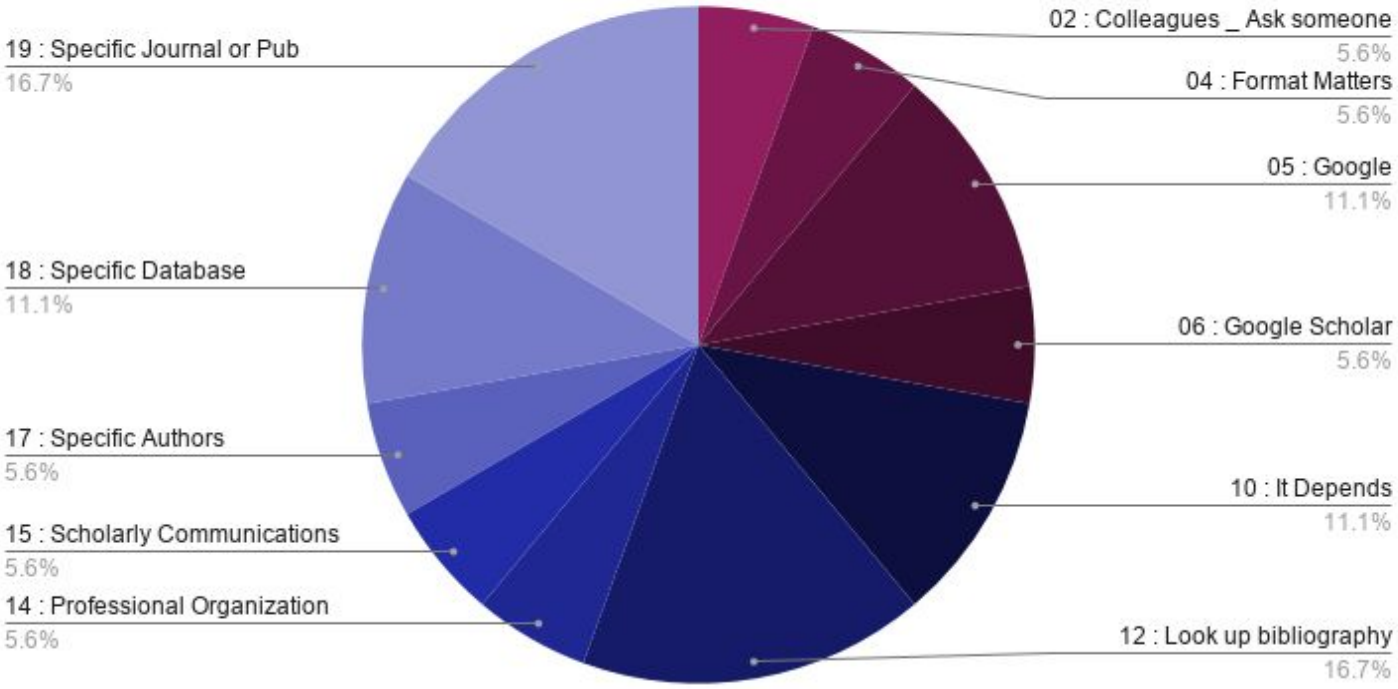
Information Seeking Variances by Experience Level

Participants were asked to reflect on their own information seeking routines - specifically with regard to their academic work. Participants were then grouped by experience level to determine if practices varied over the course of the career.

Generally, as experience levels increased, so too did the participants' engagement in social information-seeking behaviors such as asking colleagues, email listservs, and participation in scholarly activities (Figures 16-18). This could denote that the accumulation of professional networks occurs gradually over the course of a career, but those social networks increase in importance to participants over time. This observation is consistent with the literature review indications that the level of seniority in the academy accompanied variations in information seeking behaviors, with senior faculty increasingly relying on social interactions with networks of professional contacts and advanced scholarly activities (Pontis, Blandford, Greifeneder, Attalla & Neal, 2015, p. 32; Nicholas et al., 2017, p. 27).

Figure 16

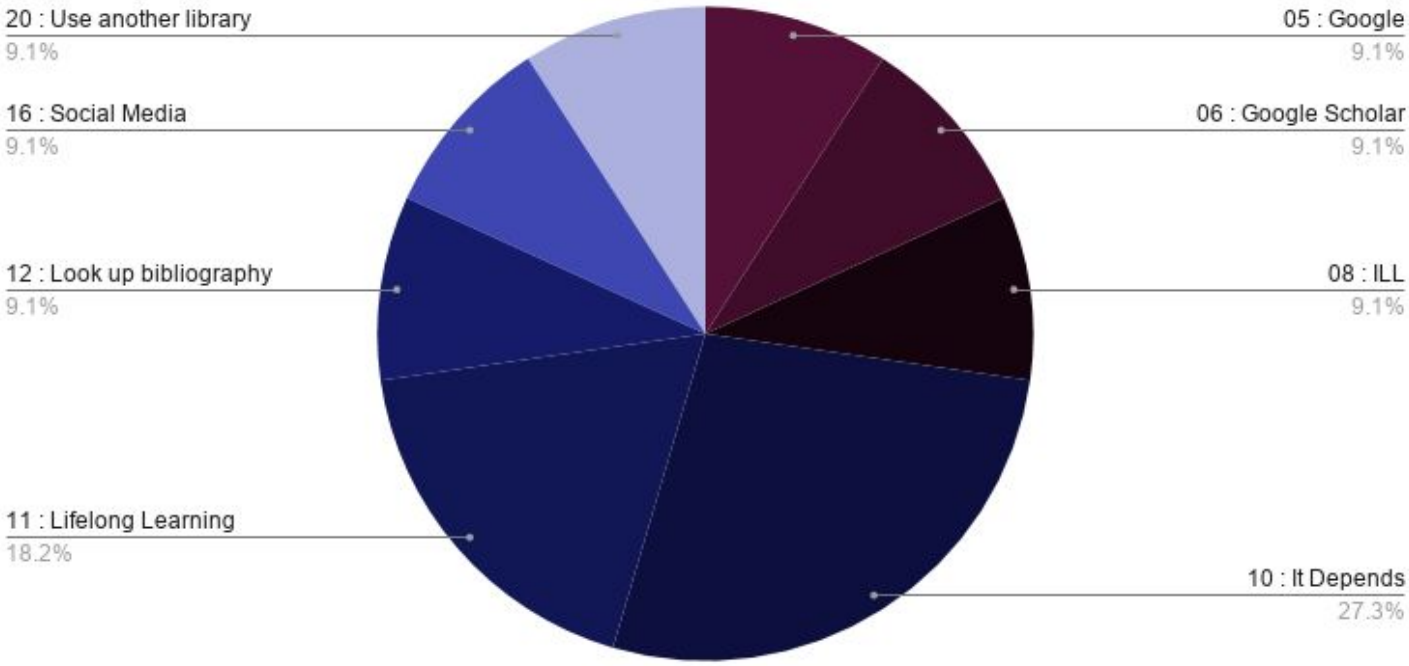
Information Seeking Behaviors by Experience - 1 - 7 Years



Note. Social information seeking methods such as scholarly communications, professional organizations, or asking a colleague comprise 16.8% of references relating to information seeking behaviors among participants with 1 - 7 years of experience.

Figure 17

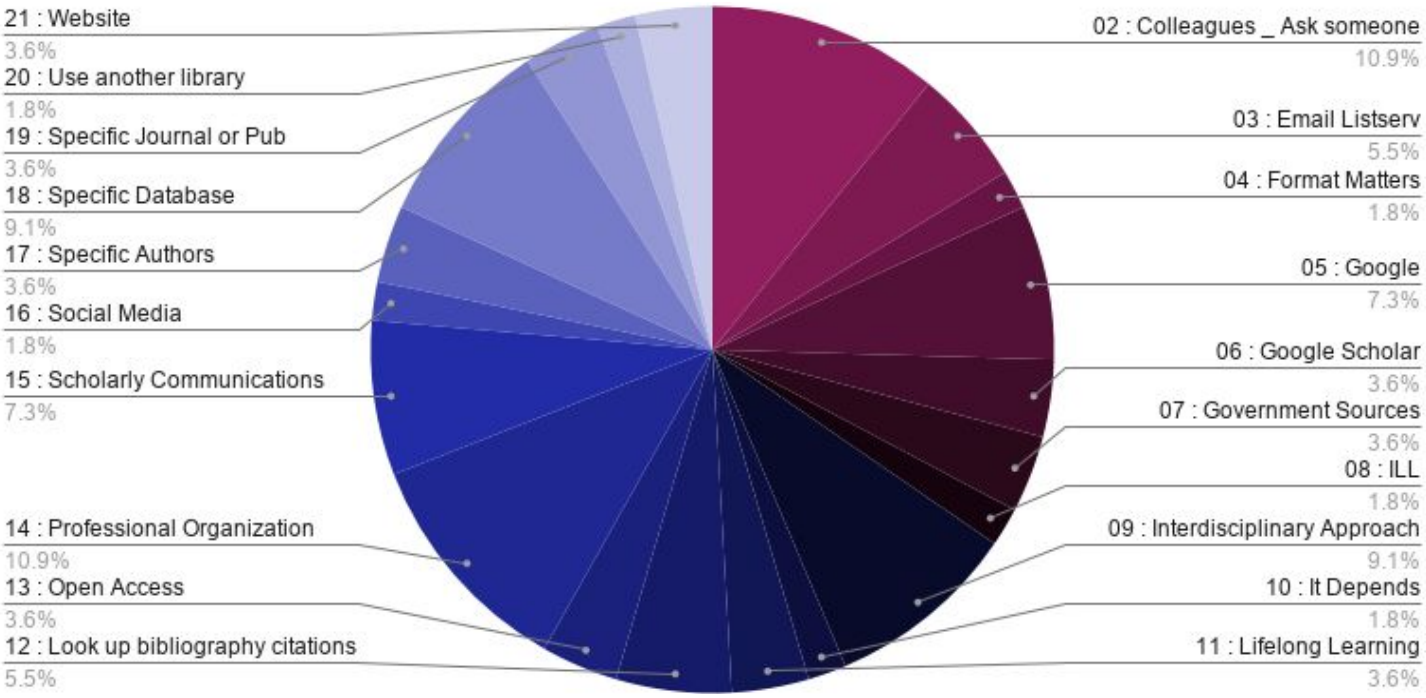
Information Seeking Behaviors by Experience - 8 - 15 Years



Note. Social information seeking methods included social media, and comprised 9.1% of related references among participants with 8 - 15 years of experience.

Figure 18

Information Seeking Behaviors by Experience - 16 + Years



Note. Social information seeking methods such as asking a colleague, social media, scholarly communications, professional organizations, and email listservs make up 36.4% of the coded references for participants with 16+ years of experience.

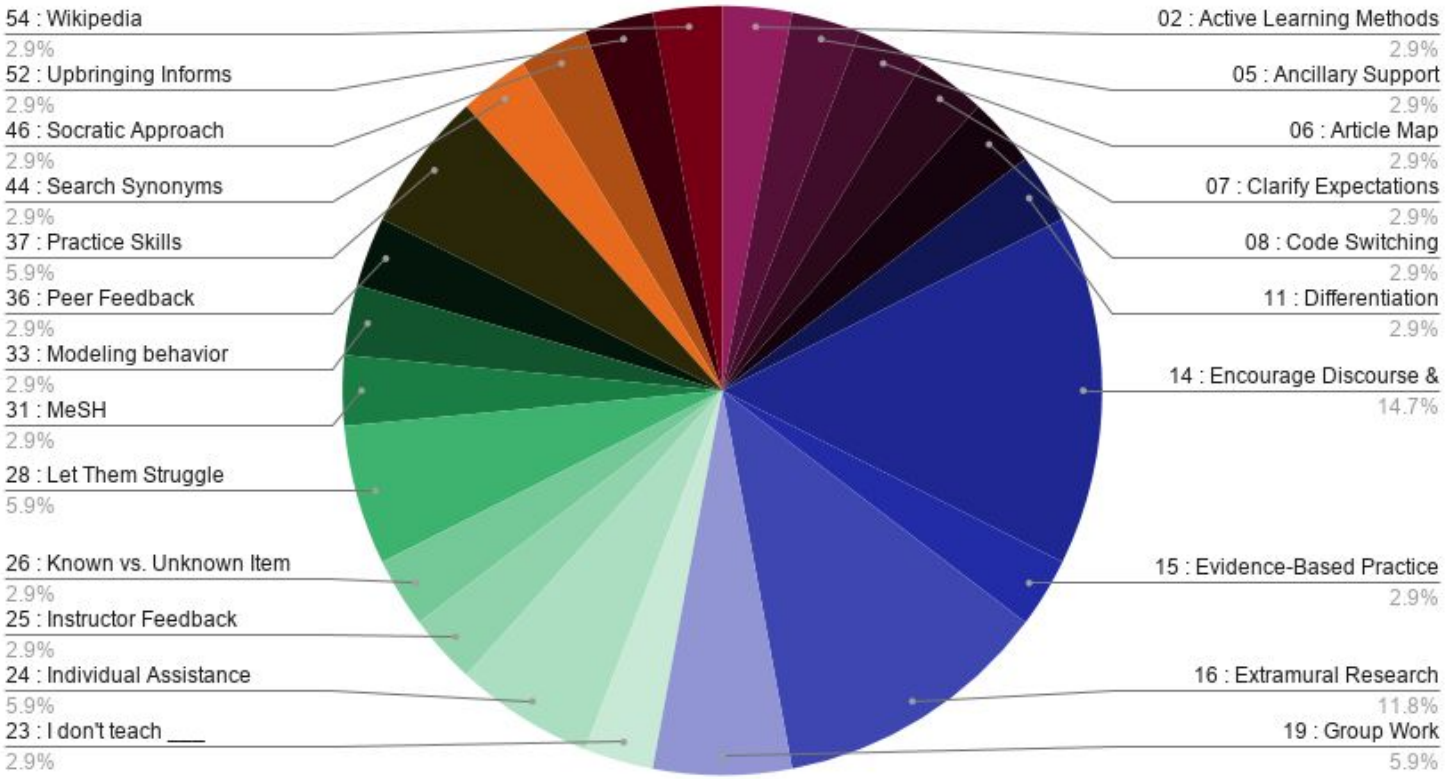
Pedagogical Variances by Experience Level

Interview codes were examined by grouping the experience level of the participant, which revealed variances in pedagogical approaches. Higher levels of experience generally accompanied increased density of coding, suggesting that participants added techniques to their repertoire as they advanced in their careers (Figures 19 - 21). Additionally, encouraging discourse and disagreement emerged as an important theme among early career participants, who

asserted that students needed permission to disagree with the scholarly literature, and enter into meaningful discourse with professors.

Figure 19

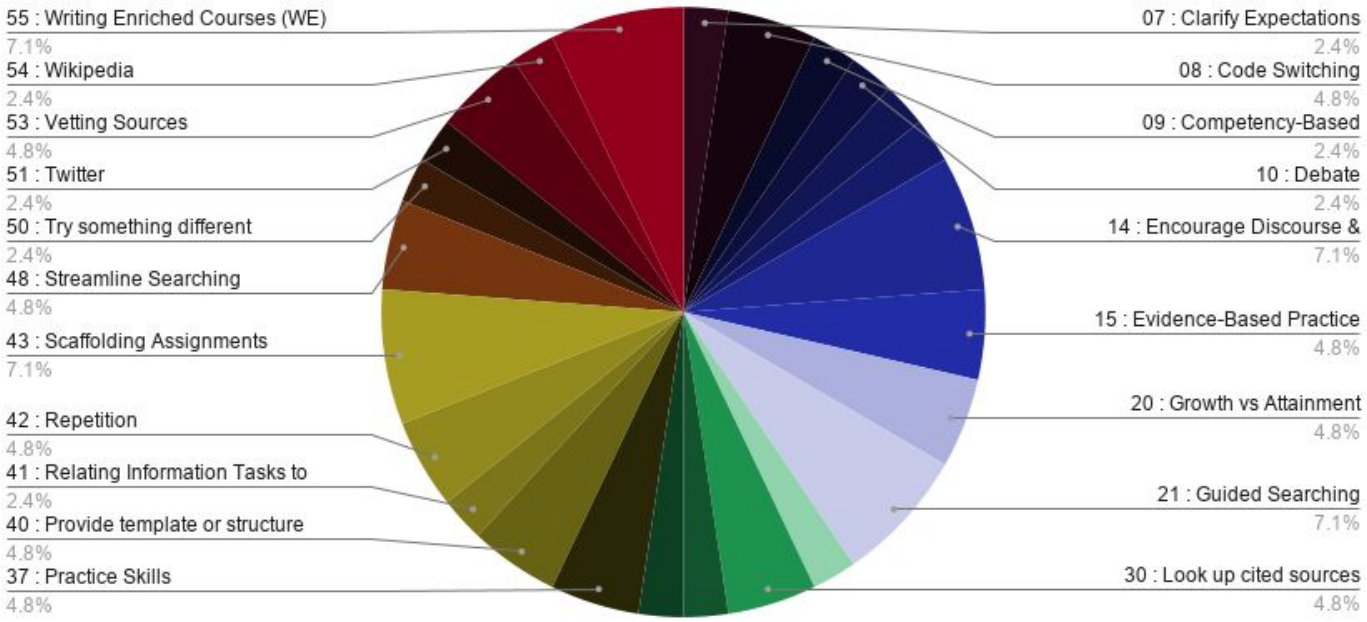
Pedagogical Approaches by Experience: 1 - 7 Years



Note. There were 23 unique codes applied to the group with 1 - 7 years of experience.

Figure 20

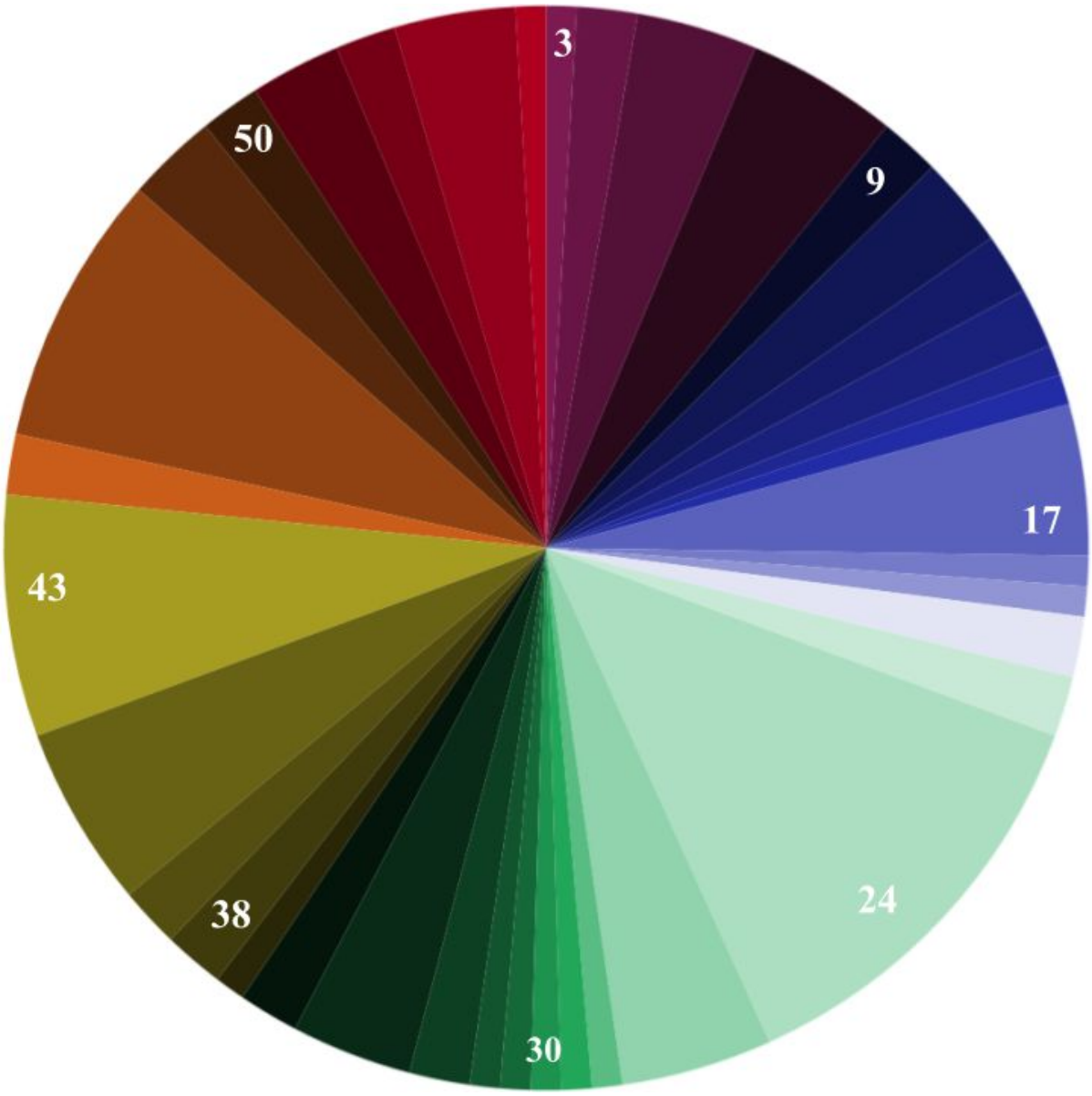
Pedagogical Approaches by Experience: 8 - 15 Years



Note. There were 20 unique codes applied to those with 8 - 15 years of experience.

Figure 21

Pedagogical Approaches by Experience: 16+ Years



Note. There were 38 references coded among this cohort of participants. The chart was so large that it could not be fit legibly into the document. Therefore the key has been split into a separate table below, and the pie chart enlarged to better distinguish between colors. Code number labels have been added to the compass points for added clarity.

Table 9

Key for Figure 21

Color	Code Name
	03 : Additional Reading
	04 : Additional Time
	05 : Ancillary Support
	07 : Clarify Expectations
	09 : Competency-Based
	11 : Differentiation
	12 : Don't Use Textbooks
	13 : Elicit Student Self-Motivation
	14 : Encourage Discourse & Disagreement
	15 : Evidence-Based Practice
	17 : Flipped Class
	18 : Gamification
	19 : Group Work
	22 : Hand Holding
	23 : I don't teach ___
	24 : Individual Assistance
	25 : Instructor Feedback
	27 : Learning Disabilities
	29 : Limit time

Color	Code Name
	30 : Look up cited sources
	32 : Metaphorical Graphics
	33 : Modeling behavior
	34 : Oral Exams or Presentations
	35 : Pedagogical Adaptation
	36 : Peer Feedback
	37 : Practice Skills
	38 : Pre Post Test
	39 : Primary vs Secondary Sources
	40 : Provide template or structure
	43 : Scaffolding Assignments
	45 : Simplify
	47 : Specify Sources
	49 : Student Research
	50 : Try something different
	53 : Vetting Sources
	54 : Wikipedia
	55 : Writing Enriched Courses (WE)
	56 : Written Outline or Transcript

Intersections Between Pedagogy and Information Seeking

In order to understand the ways in which information seeking practices may influence their pedagogical cousins, node matrices were extracted from NVIVO, and sorted by discipline and experience levels. Information seeking practices were then examined side-by-side with pedagogical approaches for each respective grouping of participants. Generally speaking, greater variation in information types sought for the purposes of academic research within the discipline accompanied greater variety in the pedagogical approaches voiced by participants. Figures 22 - 25 below are representative of this observation.

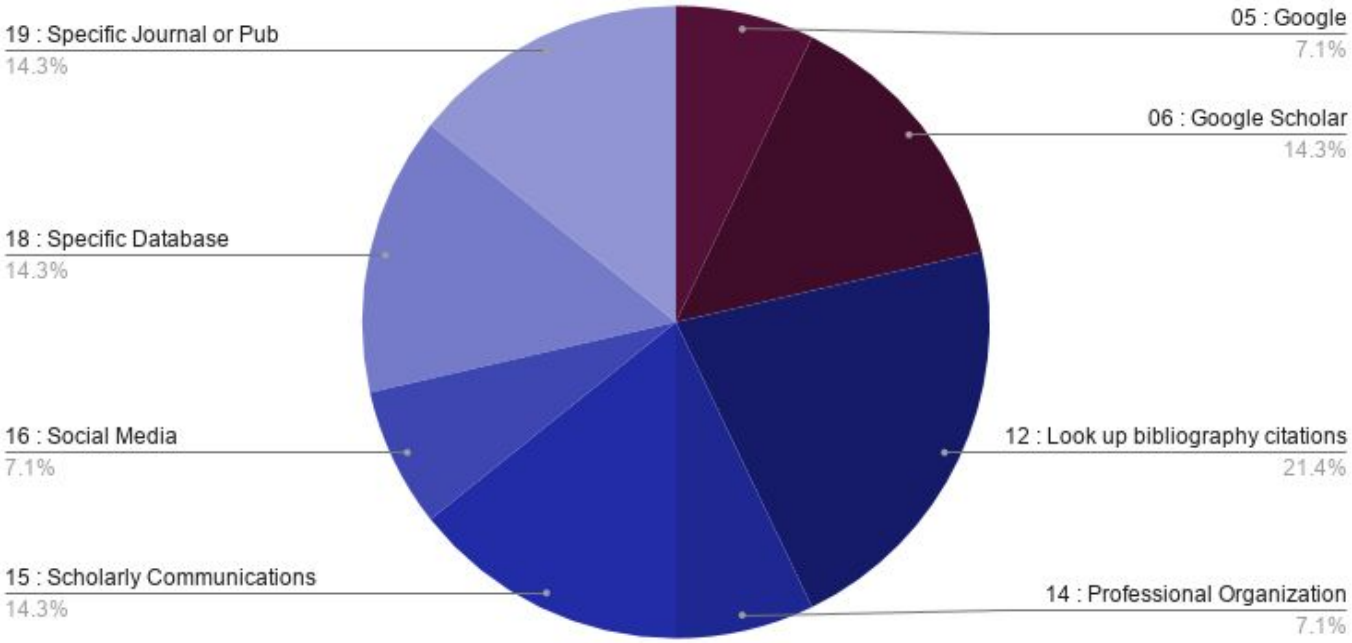
Participants from the divisions of STEM, Health Sciences, and Business expressed less variety in both pedagogical and information-seeking approaches. This could reflect a more standardized approach to empirical and quantitative research and its respective dissemination in those fields. For example, those participants were more likely to report reliance upon a specific title or database for their information needs. Health sciences information has the added benefit of the standardized MeSH (Medical Subject Headings) classification system, which assists researchers in downstream information retrieval. These well-trodden paths of information dissemination and discovery may alleviate some of the challenges of teaching information seeking techniques reported by participants in other disciplines. There could also be something in the nature or culture of the empirical and quantitative disciplines which lends itself to a more rigid or prescriptive pedagogical approach. Further exploration is recommended in this area.

The highest density of coding both in information seeking and pedagogical approaches appeared in the divisions of Education, Leadership Studies, and Counseling; and Humanities. Those disciplines generally call upon a large variety of information source types and formats

which are important to research in their fields. This may introduce a greater variety of discovery tools and techniques which must be learned and utilized by students in those fields in the course of their academic studies.

Figure 22

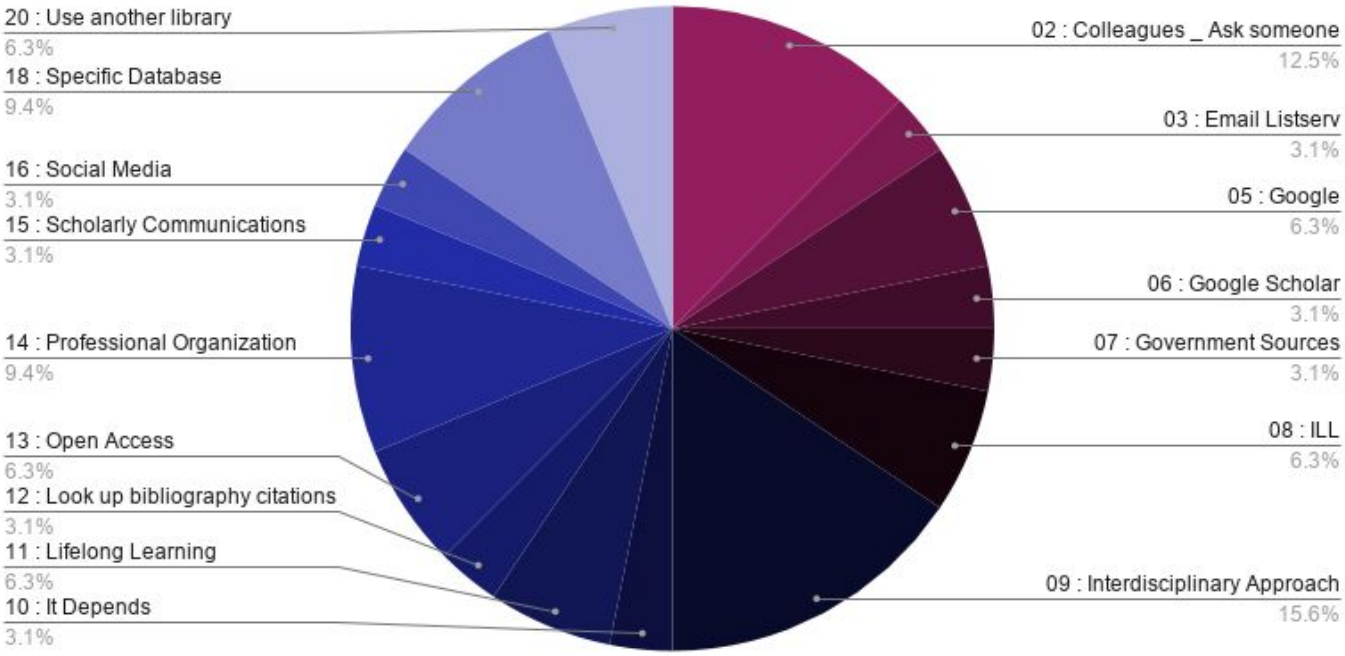
Information Seeking References of Health Sciences Participants



Note. There were eight unique codes referenced by health sciences participants regarding their professional information seeking routines.

Figure 23

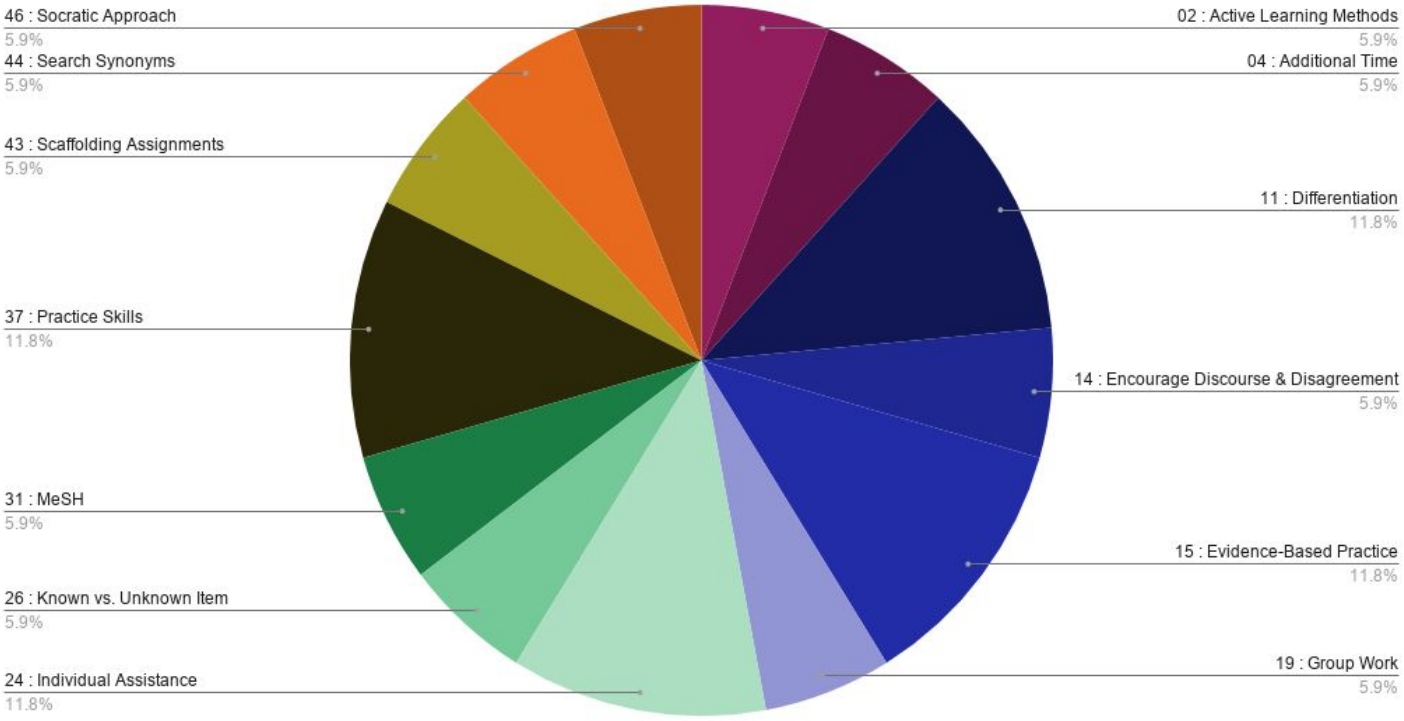
Information Seeking References of Humanities Participants



Note. There were 16 unique codes referenced by humanities participants regarding their professional information seeking routines.

Figure 24

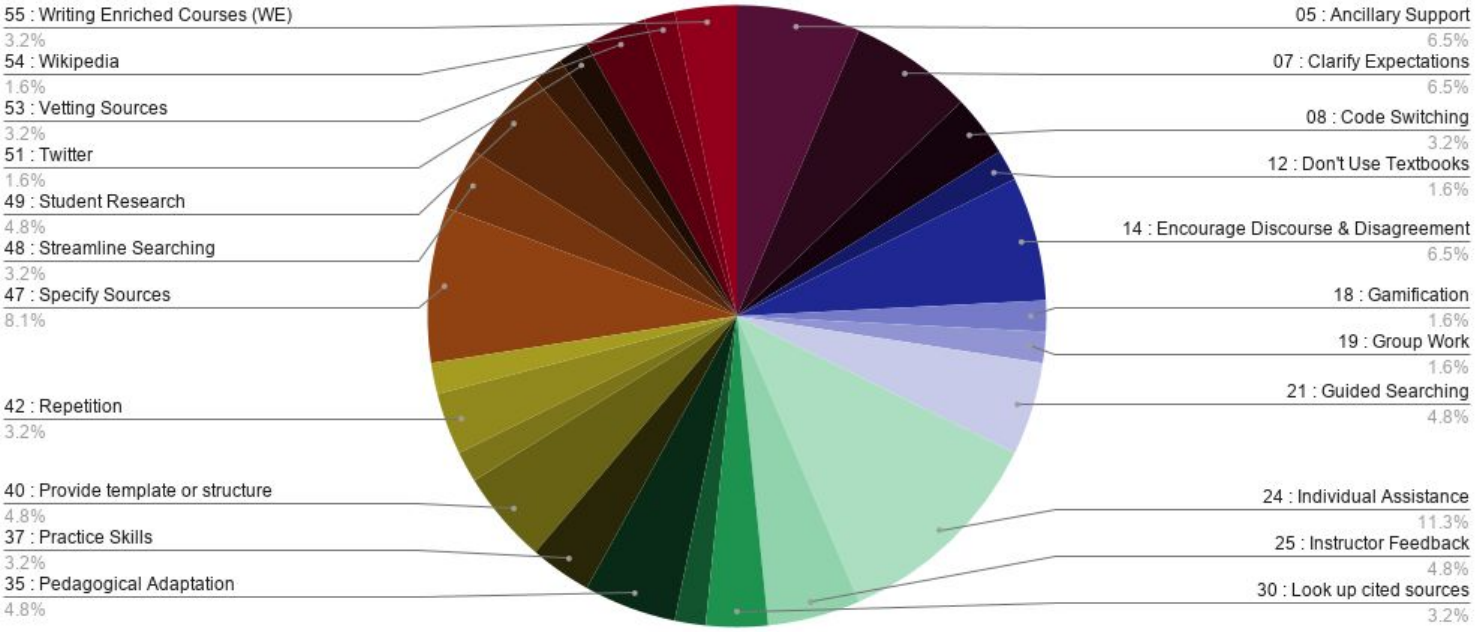
Pedagogical Approaches of Health Sciences Participants



Note. There were thirteen unique codes referenced by health sciences regarding their pedagogical approaches to information literacy.

Figure 25

Pedagogical Approaches of Humanities Participants



Note. There were 26 unique codes referenced by humanities participants regarding their pedagogical approaches to information literacy.

Discussion of Findings

While the data above was presented and interpreted in terms of emergent themes, the discussion below will be organized around the original research questions.

Research Question 1

What pedagogical approaches do teaching faculty utilize to address information literacy?

The pedagogies employed were as varied as the participants themselves, and reflected the participants' broader context of disciplinary culture, experience, and academic upbringing. The most common approaches shared among the participants included offering individual assistance to struggling students; providing regular feedback; scaffolding assignments; specifying sources; encouraging discourse and disagreement; providing a template or structure; and clarifying expectations. All codes shared by two or more participants are listed below in Table 10. Importantly, the pedagogies adopted seemed to vary based upon both the level of experience, as well as the primary academic division, with more empirical or qualitative fields displaying more prescriptive methods and pedagogical rigidity, while other fields reflected on larger variety of pedagogical approaches.

Table 10

Pedagogical Approaches Discussed in Interviews

Code Name	Participants Coded	Total References
24 : Individual Assistance	9	16
25 : Instructor Feedback	7	7
47 : Specify Sources	6	9
43 : Scaffolding Assignments	5	11
07 : Clarify Expectations	5	7
11 : Differentiation	5	5
14 : Encourage Discourse & Disagreement	4	9
40 : Provide template or structure	4	8
37 : Practice Skills	4	5
54 : Wikipedia	4	4
55 : Writing Enriched Courses (WE)	3	7
05 : Ancillary Support	3	5
53 : Vetting Sources	3	5
15 : Evidence-Based Practice	3	4
35 : Pedagogical Adaptation	3	4
12 : Don't Use Textbooks	3	3
19 : Group Work	3	3
23 : I don't teach ___	3	3
33 : Modeling behavior	3	3
34 : Oral Exams or Presentations	3	3
36 : Peer Feedback	3	3
17 : Flipped Class	2	5
09 : Competency-Based	2	3
30 : Look up cited sources	2	3
49 : Student Research	2	3
50 : Try something different	2	3
04 : Additional Time	2	2
08 : Code Switching	2	2
13 : Elicit Student Self-Motifvation	2	2
22 : Hand Holding	2	2

Research Question 1.A

How are pedagogies influenced by information-seeking habits?

It is difficult to answer one question 1.A without also addressing 1.B at the same time, because both pedagogical and information-seeking approaches seem to be formed and maintained within a broader context, including disciplinary culture, years of experience, and the academic upbringing of the individual. In other words, the information seeking habits and information literacy pedagogical approaches of an individual cannot be divorced from the lenses and contexts in which they exist. Therefore both questions will be addressed together below.

Research Question 1.B

How do pedagogies and information-seeking habits vary across the disciplines?

Generally, participants from disciplines which utilize a greater variety of information types also described greater variety in their IL pedagogical approaches. This is likely attributable to differences in disciplinary culture rather than to any individual information literacy knowledge gaps or practices. For example, health sciences disciplines primarily seek scholarly information, and rely heavily on specific well-known sources of trusted information, which are findable using the standardized MeSH terms that are utilized across all health sciences literature. This pattern was also reflected in other disciplines with a high emphasis on quantitative or empirical research, such as STEM and business, and may explain the pedagogical rigidity observed in the survey responses among those same divisions.

Conversely, researchers in the humanities, education, or visual and performing arts may be calling upon a wider array of information types and formats including scholarly literature,

magazines, newspapers, open access repositories, government information, popular websites, etc. This greater variety in information types needed for research may introduce additional instructional considerations in terms of finding, selecting, and critically evaluating those information sources.

Research Question 1.C

What types of support or development would be most beneficial to faculty and students?

Participants indicated that greater availability of instructional workshops geared toward faculty needs would be helpful. Additionally, participants voiced confidence in similar services already offered by the Teaching & Learning Center, suggesting that increased collaboration between the library and the Teaching & Learning Center is a desirable outcome.

Some participants voiced a desire for a service that the library already offers, which suggests that regular outreach and communication from the library to the teaching faculty would ensure that existing services are matched with the corresponding needs.

Chapter Summary

This study examined the information seeking behaviors and pedagogical approaches of teaching faculty in Central Virginia University. Based upon the findings from the survey and interview portions of the study, both the information seeking and pedagogical practices of teaching faculty are a product of the broader context in which they exist, and must be understood as such. Additionally, those practices change over time as the faculty member moves through the phases of their career, integrates into the professional network, and builds their pedagogical knowledge base. However, that accumulation of knowledge is placed under the pressures of

rapid change in the information landscape; which challenges all to continue to learn and adapt. The library can support this by offering developmental opportunities through trusted channels so that teaching faculty can add new knowledge and skills to their pedagogical and information seeking repertoire. However, the library also faces the same pressures expressed by teaching faculty, and must work to ensure that librarian instructors remain current and utilize effective pedagogical techniques in order to maintain the confidence of the teaching faculty.

Chapter 5 - Recommendations and Conclusion

Chapter Overview

This chapter includes a review of the problem, purpose, and methodology of the study. Additionally, it summarizes major findings, and recommendations for future practice and research.

Overview of the Problem

Information Literacy refers to the repertoire of skills, knowledge, and habits of mind required to effectively find, utilize, and communicate information effectively and ethically (ACRL, 2016). The importance of these skills have increased as the complexity and scale of the information landscape has rapidly evolved. Students require strong IL skills to succeed in their academic pursuits as well as beyond college, as employers increasingly place a high value on skilled workers who can deftly navigate the information landscape (NACE Staff, 2016; Head, 2012). Despite the importance, institutions of higher education have struggled to operationalize a curriculum that effectively develops these skills for all students in a cohesive and consistent manner. This study explores existing IL instructional approaches employed by teaching faculty. A deeper understanding of this context helps us to identify and develop an effective IL instruction program that better meets the curricular needs of the institution.

Review of the Study

Purpose

The purpose of this study was to learn what approaches teaching faculty already use in order to address information literacy in their classrooms across various disciplinary contexts, and how those approaches may be informed by their respective information-seeking habits. This

understanding helps us to identify the ways in which an effective IL instruction program might be developed intentionally to fit within the curricular and cultural fabric of an institution of higher education.

Methodology

This study design sought to consider the entire information cycle from searching to dissemination. In order to accomplish this goal, the study adopted a two phase mixed methods approach composed of a survey instrument and interviews. The study design enabled the researcher to capture both quantitative and qualitative descriptions which allowed for a granularity of analysis not afforded to one approach alone.

Survey

The first phase of the research design consisted of a survey, which was distributed to all teaching faculty at Central Virginia University. The survey featured 19 questions within six categories:

1. Information-Seeking Behaviors;
2. Information Literacy Teaching Behaviors;
3. Information Dissemination Behaviors;
4. Library Collaboration;
5. Contextual Information; and
6. Interview Participation (optional).

This enabled the broad identification of common preferences and practices, and the identification of potential participants for the second phase of the study.

Interviews

The second phase of the study consisted of thirteen semi-structured interviews. The structure of the interviews was in the form of discussion topics. Topical categories of discussion (Appendix C) included:

1. Information seeking behaviors;
2. Student readiness and performance with information seeking tasks;
3. Instructor pedagogical approaches and adaptation with regard to those student information competencies and needs;
4. Collaboration with the library (if any); and
5. Professional support or development needed.

Summary of the Findings

The information seeking and IL pedagogical approaches of teaching faculty must be recognized as a product of the broader context in which they are developed and practiced. Those practices change over time as faculty members move through the phases of their career, integrate into the professional network, and build their pedagogical knowledge base. That accumulation of knowledge; however, is placed under the pressures of rapid change in the information landscape; which challenges all to continually learn and adapt. The library can support this adaptation by offering developmental opportunities through trusted channels so that teaching faculty can add new knowledge and skills to their pedagogical and information seeking repertoire. However, the library also faces the same pressures experienced by teaching faculty,

and must work to ensure that librarian instructors remain current and utilize effective pedagogical techniques in order to maintain the confidence of the teaching faculty.

Implications

Libraries have traditionally invested a high volume of time and effort teaching students, both in classrooms and individually. This labor intensive method may not be ideally effective for consistent student learning outcomes, or logistically sustainable. This is particularly true at smaller institutions where the librarian to student ratio (516:1 at the target institution), and limited funding exacerbates the library's ability to reasonably achieve institution-wide learning outcomes. While it is tempting to look for a centralized, library-led IL solution in broad strokes, there may not be a feasible one-size solution that will at once meet all of the IL learning outcomes of the students and related needs of the faculty.

Additionally, the data indicated that faculty with 1 - 7 years of experience were more likely to have had formal library instruction themselves; view the librarians as experts; and to adopt library centric search habits. This implies that investing instructional resources at the graduate level also lays the foundation for future library-faculty collaborations.

Limitations

While it is possible to infer the ways in which faculty practices might affect student learning, by not collecting data directly from students the researcher cannot positively connect specific practices with specific student outcomes (or lack thereof). However, faculty perceptions of student learning were explored in the interview setting.

As seen in Chapter 4, the interview participants represented a variety of experience levels and academic divisions. However, the researcher was not able to ensure a balance between the

academic division and experience levels. For example, the 16+ years of experience group contains eight participants; the 8 - 15 years group contains 2 participants; and the 1 - 7 years group contains 3 participants. This asymmetry between experience level and academic division may skew the data or its interpretation. Therefore, an observation attributed to experience, may actually be related to disciplinary affiliation, and vice versa.

Finally, this study focused on a small university. Its findings and recommendations may not be generalizable or appropriate for the scale of an institution that is substantively different either in size, or mission. Much larger institutions may find economies of scale making their libraries better able to centralize approaches to IL than their smaller counterparts.

Recommendations

Professional Development

These findings underline the importance of the regular professional development both to teaching faculty, and librarian instructors. Focusing efforts on development opportunities for faculty supports the IL missions of the library and its institution, and helps to ensure that teaching faculty are equipped with the IL repertoire needed to address information challenges in their respective disciplinary contexts. Like their disciplinary colleagues, teaching librarians must also engage in regular professional development, for pedagogical issues in library instruction results in an erosion of confidence between the teaching faculty and the library.

Course Flagging

In light of these considerations, the practice of course flagging, discussed in Chapter 2, emerges as an area of interest for future study. Course flagging is the practice of identifying research-intensive courses within the existing college catalog. These courses are taught by

faculty instructors, with requirements to demonstrate that research-intensive courses comply with specified goals. Students may then be required to take a given number of flagged courses as a requirement for graduation. Combining the practice of course flagging with a robust faculty professional development program may address the concerns highlighted above, and merits further exploration and assessment.

Graduate and Postgraduate IL Programs

Additionally, it is recommended that IL programs adopt an intentional approach to graduate and postgraduate IL instruction. While first year experience and undergraduate IL education often consumes the bulk of labor and resources within the library's instruction program, There is reason to believe that graduate and postgraduate IL instruction is equally important. Beyond general considerations of academic success, IL education for advanced students lays the foundational skills of future teaching faculty and sets the tone and expectation for future library-faculty collaborations.

Faculty Mentorships

Finally, it is recommended that senior faculty mentor their junior counterparts. This is supported by the observation of the importance of social information seeking among more senior faculty, as well as increased coding density across experience levels, suggesting the addition of knowledge and experience over time. Additionally, increased rapport between senior and junior faculty may alleviate the pressures expressed regarding programmatic expectations, by giving faculty a trusted venue in which to pose questions, which may otherwise remain unvoiced.

Future Research

This study did not investigate the efficacy of faculty-delivered IL instruction versus library-delivered IL instruction by examining student outcomes and experiences directly. Therefore, future research should be targeted towards the student experience of IL instruction, and the efficacy of that instruction. Additionally, future research should attempt to tease out the particular characteristics observed among STEM and Health Sciences disciplines with regard to rigidity of information seeking and IL teaching practices. Finally, any institutions utilizing a distributed model, such as course flagging, should be examined. Research questions should explore whether there are any information literacy gaps exposed in the distributed model as opposed to a library-centric model of delivery, and how to address those gaps.

Chapter Summary

This chapter reviewed the research problem and purpose; summarized the mixed methods research design; and discussed the study findings, implications, limitations, and recommendations.

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Appendix A

Survey Instrument Outline

I. Information-Seeking Behaviors - the following questions seek to understand the academic information-seeking habits of teaching faculty.

   A. Please indicate how frequently you use the tools listed below for academic information seeking by ranking the list items in order from most frequently used to least frequently used.

      1. Library Catalog (OneSearch)
      2. Specific Databases
      3. Google Scholar
      4. Colleague Recommendations / Word-of-mouth
      5. Search Engine (Google, Bing, etc.)

   B. Please describe your normal information-seeking routine when searching for academic information.

II. Information Literacy Teaching Behaviors - the following questions seek to understand the classroom teaching methods that may impart research skills to students.

   A. Do you issue research assignments to your class(es)?

      1. Yes
      2. No
      3. Other (please specify)

   B. What type of research assignments do you issue to your classes?

      1. Papers

2. Projects
3. Presentations
4. Annotated Bibliographies
5. Literature Reviews
6. Other (please specify)

C. When you issue research assignments, do you normally provide feedback prior to submission?

1. Yes
2. No
3. Other (please specify)

D. Please indicate your agreement (from strongly disagree to strongly agree). *In general, the average student in my class performs well with the following information literacy skills:*

1. Searching databases for scholarly information
2. Selecting appropriate information sources
3. Critically evaluating information sources
4. Seeking information from multiple perspectives
5. Synthesizing information from multiple sources
6. Citing sources appropriately

E. Have you ever modified your teaching methods in response to the research skill level of your students?

1. Yes

2. No
3. Other (please specify)

F. Please explain how you have modified your teaching methods in response to the research skills of your students.

III. Information Dissemination Behaviors - The following questions seek to understand the ways in which teaching faculty disseminate information resources to students.

A. Do you provide copies (either physical or digital) of class readings?
   1. Yes
   2. No
   3. Other (please specify)

B. How do you provide access to course readings? *Select all that apply
   1. Photocopies
   2. Library reserves
   3. Online classroom environment (Moodle / Google Classroom)
   4. Hyperlinks in course materials (syllabus, etc.)
   5. Other (please specify)

C. Do you utilize formatted citations (APA, MLA, etc.) in your instructional materials?
   1. Yes
   2. Sometimes
   3. No
   4. Other (please specify)

IV. Library Collaboration - the following questions seek to understand the frequency of library collaboration with teaching faculty.

A. Have you ever invited a librarian to teach a library instruction session to your class(es)?

1. Yes
2. No
3. Other (please specify)

B. Do you encourage or require your students to schedule research consultations with a librarian?

1. Yes
2. No
3. Other

C. What types of programs or development do you feel would be most beneficial to support students and faculty?

V. Contextual Information - the following questions seek to understand the ways in which information behaviors may change over the course of a career in various disciplines.

A. How many years of teaching experience do you have in higher education?

1. 1 - 7 years
2. 8 - 15 years
3. 16+ years

B. What is your primary academic division?

1. STEM
2. Humanities
3. Social Sciences
4. Visual and Performing Arts
5. Business
6. Education, Leadership Studies, and Counseling
7. Health Sciences

VI. Interview Participation - in order to further understand teaching faculty information behaviors, we will also be conducting interviews with a select number of willing participants.

A. Are you interested in being interviewed for this study?

1. Yes
2. No

B. Please provide contact information below.

1. Name
2. Email Address
3. Phone Number

C. How may we contact you? *select all that apply

1. Phone

2. Email
3. Physical Mail
4. Other (please specify)

Appendix B

Survey Recruitment Email/Cover Letter

Hello,

My name is Katie Glaeser, and I am a doctoral student at the University of Lynchburg, as well as a librarian in the Knight-Capron Library. I am conducting dissertation research in fulfilment of program requirements for the Doctor of Education (EdD) in Leadership Studies.

Overview:

You are invited to participate in this investigation by answering a short Survey Monkey questionnaire (Link Below). You are being invited to participate because you are a faculty member at the University of Lynchburg. Please read this form and ask any questions you may have before proceeding with the survey.

Purpose:

Rapid changes in the information landscape may place additional pressures on teaching faculty to move beyond their content area in order to ensure that students have the skills required to successfully overcome information challenges and accomplish required research tasks.

The purpose of this study is to understand the information literacy pedagogies employed by

teaching faculty, and the ways (if any) that teaching methods are influenced by the information behaviors of the respective faculty member. Additionally, we hope to understand if information behaviors change over the course of a career, and how they may vary by discipline.

This study will provide much-needed context to understand and identify ways that the library can better support the needs of teaching faculty and the student body.

Procedures:

This survey will take around 5 - 10 minutes to complete. If you elect to proceed, you will be asked to complete a survey which consists of 19 total questions distributed across 6 subtopics:

1. Information-Seeking Behaviors;
2. Information Literacy Teaching Behaviors;
3. Information Dissemination Behaviors,
4. Library Collaboration;
5. Contextual Information; and
6. Interview Participation (optional)

Voluntary Participation:

Participation is voluntary. The researchers respect your right to not respond to any question which causes discomfort. If, at any time, this survey causes you duress, please feel free to stop.

For assistance from the University of Lynchburg Counseling Center, call 434-544-8616, or visit their website by visiting this <link>. There is no penalty for deciding to not complete the survey.

Risks & Benefits:

There are no anticipated risks or known direct benefits to participation in this survey. However, the information gained from analysis of the responses may inform the design of future information literacy instruction programs, and related faculty development programs which will benefit both teaching faculty and their respective students.

Anonymity:

These questions will be answered anonymously via Survey Monkey. Personally identifiable information will only be collected for those respondents elect to volunteer for the interview phase of the study.

Questions:

The investigators welcome all questions regarding this study. Please feel free to contact Katie Glaeser at glaeser_l@lynchburg.edu or Dr. Ghislaine Lewis at lewis_g@lynchburg.edu.

Consent:

Should you decide to continue, selection of the link/box below and completion of the survey will indicate your consent to participate. Please print this page for your records.

Survey Link: https://www.surveymonkey.com/r/VCPRTWZ

Appendix C

Interview Topics / Questions

- Information-Seeking Behaviors
    - Please describe your normal information-seeking routine when searching for academic information.
- Student Readiness and Performance
    - Reflecting on a specific assignment that you issue to a class, what sort of information or research tasks are required?
        - Searching databases for academic information
        - Selecting appropriate information sources
        - Critically evaluating information sources
        - Seeking information from multiple perspectives
        - Synthesizing information from multiple sources
        - Citing sources appropriately
    - How well do you think students are prepared to complete the information or research tasks required for your assignments?
- Information Literacy Pedagogies and Adaptations
    - What methods (if any) do you use to teach the information literacy and research skills required for your students to succeed in your classes?
    - Have you made adjustments to your teaching approaches in response to your students' existing level of preparedness with regard to IL skills? If so, please describe: (pedagogy, expectations, etc.)

        - Please talk about the outcome of those adjustments - what seemed to work or not work with regard to how your students performed on research tasks?

- Collaboration with the Library
    - Have you ever collaborated with the library in the past? (instruction or research support)
    - If you have collaborated with the library in the past, please describe your feelings about that process and any affect on your student performance with regard to research tasks.
- Professional Support & Development
    - If anything was possible, what types of support programs do you feel would be most beneficial? (students or faculty)
        - What topics should be covered in support programs?

Appendix D

Interview Confirmation Email

Dear <Name>,

Thank you for your willingness to participate in the interview portion of this study! This email contains preparatory information that will help our time together to be the most productive. Your confirmed interview time and date are listed below.

Overview:

The interview will take approximately 30 minutes and will explore topics including

- Information-seeking behaviors
- Student readiness and performance
- Information literacy pedagogies and adaptations
- Collaboration with the library
- Professional support and development

Preparation:

- In the days leading up to your interview, I encourage you to take notice and reflect upon your information-seeking routines. How do you normally go about finding academic information?
- Please provide instructions or a class syllabus that describes a specific research assignment that you have utilized in class to frame our discussion. Assignment

information can be sent via email to gleaser_l@lynchburg.edu .

Voluntary Participation:

Participation is voluntary. The researchers respect your right to not respond to any question which causes discomfort. You may discontinue participation at any time. If any part of the interview causes you duress, assistance is available from the University of Lynchburg Counseling Center, call 434-544-8616, or visit their website by visiting this <link>. There is no penalty for deciding to not complete the interview.

Confidentiality:

Your individual privacy will be maintained throughout this study. In order to preserve the confidentiality of your responses, the researcher will not identify you by name or function in any reports using information obtained from this interview.

Questions:

The investigators welcome all questions regarding this study. Please feel free to contact Katie Glaeser at glaeser_l@lynchburg.edu or Dr. Ghislaine Lewis at lewis_g@lynchburg.edu

Your Interview Details:

<Date>

<Time>

<Location>