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UNDERGRADUATE STUDENTS' ATTITUDES ABOUT THE COLLECTION, USE, AND
PRIVACY OF SEARCH DATA IN ACADEMIC LIBRARIES:
AN INTERPRETIVE DESCRIPTION

A dissertation submitted in partial fulfillment of the requirements for the degree of Doctor of
Philosophy at Virginia Commonwealth University

by

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Dedication

This study is dedicated to the 27 incredible students who spent their valuable time participating in interviews. You made this study possible and allowed me to make this important contribution to research. You also surprised me, impressed me, moved me, made me laugh, and gave me hope for the future. You reminded me why I love working in higher education, and why I love Virginia Commonwealth University, in particular. So, I dedicate not only this study to you, but my career in higher education, as well. To you and every other college student, because you and your success will always be the reason for the energy and enthusiasm I bring to work each day.

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From start to finish, this degree has taken me nearly seven and a half years, and a lot of life happened during that time. I had both of my children and lost my father. My career at VCU Libraries has taken me to new places and roles that I have only dreamed about that required serious time commitments. I put down deeper and deeper roots in the Richmond area, and through it all, my pursuit of the PhD has been a constant and usually manageable companion. Innumerable friends, family, professors, and coworkers helped me make it this far, and although it would be impossible to credit each one by name, I am broadly thankful for the village of people who have encouraged me. I am especially grateful to some specific people without whom this simply could not have happened.

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ABSTRACT

The purpose of this study was to understand undergraduate students' attitudes about search data privacy in academic libraries and their preferences for how librarians should handle information about what students search for, borrow, and download. This is an important area of study due to the increasingly data-driven nature of evaluation, accountability, and improvement in higher education, along with libraries' professional commitment to privacy, which has historically limited the amount of data collected about student use. Using a qualitative approach through the lens of interpretive description, I used the constant comparative method of data collection and analysis to conduct semi-structured interviews with 27 undergraduate students at a large, urban public research institution. Through inductive coding, I organized the data into interpretive themes and subthemes to describe students' attitudes, and developed a conceptual/thematic description that illustrates how they are formed.

Students revealed that a variety of life experiences and influences shaped their views on search data privacy in academic libraries. They viewed academic library search data as less personally revealing than internet search data. As a result, students were generally comfortable with libraries collecting search data so long as it is used for their benefit. They were comfortable with data being used to improve library collections and services, but were more ambivalent about use of search data for personalized search results and for learning analytics-based assessment. Most students expressed a desire for de-identification and user control of data. Some students expressed concern about search data being used in ways that reflect bias or favoritism. Participants had moderate concern about their library search data privacy being used by government agencies to protect public safety. Although some disagreed with the practice in concept, most did not feel that the search data would be useful, nor would it reveal much about

their personal interests or selves. Students who were not comfortable with the idea of search data collection in academic libraries often held their convictions more strongly than peers who found the practice acceptable.

The results of this study suggest that academic libraries should further explore student perspectives about search data collection in academic libraries to consider how and if they might adjust their data collection practices to be respectful of student preferences for privacy, while still meeting evaluation and improvement objectives. This study achieved the intended purpose of contributing a foundational body of knowledge about student attitudes regarding search data privacy in academic libraries. It positions librarian-researchers to develop studies that further this line of inquiry in an area that has significant implications for both user privacy and libraries' practices for assessment and evaluation.

Limitations of this study include its limited generalizability as a result of the qualitative research design, and the fact that it relied primarily on a convenience sampling method.

I. INTRODUCTION

Background and Context

For decades, institutions of higher education have been called upon to demonstrate their value and accountability with increasing frequency to members of their university communities and their accreditors. Accordingly, the emphasis on assessment and evaluation at colleges and universities continues to grow, and academic libraries are no exception in the widely held expectation for academic and administrative departments to demonstrate their contributions to student success (Oakleaf, 2010; Prindle & Loos, 2017). In light of these expectations, libraries have the opportunity to use summative evaluation processes to meet accountability requirements, and to enhance their curricula, programs, and services through formative evaluation approaches (Fitzpatrick, Sanders, & Worthen, 2012; Rossi, Lipsey, & Freeman, 2004). Continually refining and improving library collections, and the means by which users discover and access them, is critical to connecting students and faculty to the most appropriate resources for their learning and research, and to ensure libraries are seen as useful providers of such information.

Research shows that undergraduates most often choose to start their academic research process with internet search engines (Schonfeld, 2014; 2015) rather than academic libraries, even when the latter are more likely to have the type of content they most need. Students might still connect with library resources by way of technological solutions like proxy servers that connect users to subscription-based library content after they have located an item on the internet, but overall, libraries are not students' starting point for discovering information. The search experience that most users expect and are accustomed to is based on search engines or online companies that leverage data about individuals to provide a smooth, personalized search experience in order to reduce information overload (Pekala, 2017). Google Search, America's

most frequently used search engine (comScore, 2016; Purcell, Brenner, & Rainie, 2012), is well-known for leveraging user data to shape the search experience (Vaidhyanathan, 2011). Searchers generally enjoy the convenience and ease of internet search engines (Ho, 2006), while they often find library search interfaces unintuitive and challenging, and expect a more “simplified, fast, all-inclusive... research experience that mirrors their use of Google and other search engines” (Asher, Duke, & Wilson, 2013, p. 465). Accordingly, libraries feel pressure to enhance the usability and effectiveness of their search interfaces (Asher, Duke, & Wilson, 2013). It is incumbent on libraries to build and refine their collections based on user needs in an era of shrinking higher education budgets. In addition, libraries have begun to explore engagement with learning analytics models that more directly tie library use to measures of student success (Oakleaf, 2010; Oakleaf, 2018b).

In order to meet demands for accountability, provide an appealing search experience, and provide the most relevant types of information for their users, libraries must embrace assessment and evaluation practices to understand and act upon user needs (Oakleaf, 2010, Prindle & Loos, 2017). Data about individual students’ use of library collections and services could aid in achieving these goals, even if the data were de-identified. However, unlike many commercial entities such as Google, librarians emphasize the importance of user privacy, and in many cases resist collecting information about what their users search for, borrow, or download (Malinconico, 2011; Matthews, 2012; Shuler, 2004). Librarians’ resistance to this type of data collection significantly impacts the types of evaluation that libraries can engage in.

Privacy as a Core Value of Librarianship

Historically, the library profession in the United States has valued free and open access to information as a core professional value. Librarians’ commitment to this value is based on the

belief that users cannot search freely for information if there is risk of someone examining their searching, browsing, or borrowing habits. The American Library Association's (2008, para. 4) *Code of Ethics*, Article III, states that libraries should "protect each library user's right to privacy and confidentiality with respect to information sought or received and resources consulted, borrowed, acquired, or transmitted." For the purpose of this study, this type of information is referred to as "search data." This conviction towards privacy stems from public libraries' commitment to provide access to information for the purpose of creating a well-informed citizenry, and from academic libraries' role as a bastion of academic freedom. The American Library Association (ALA), which wields significant influence over the philosophical and practical approaches of libraries across the United States, defines privacy as "the right to open inquiry without having the subject of one's interest examined or scrutinized by others" (American Library Association, 2014a, Introduction, para. 2). The ALA advances the notion that a lack of privacy or confidentiality can have a "chilling effect on users' choices," thereby limiting access to information and ideas (American Library Association, 2014a, Rights of Library Users, para. 2). In addition to the prominence of privacy in codified professional values, it is also deemed important by many individual librarians. Most consider the monitoring and collection of search data an invasion of library users' privacy (Zimmer, 2014).

Although it is a longstanding professional value, librarians' sensitivity to privacy of search data was heightened with the passage of the USA PATRIOT Act in the early 2000s ("Uniting and Strengthening America by Providing Appropriate Tools Required to Intercept And Obstruct Terrorism," 2001), which gave the federal government broad authority to seize data from a variety of agencies, including libraries, as needed for national security concerns. Although Section 215, the provision of the USA PATRIOT Act that entitled the federal

government to seize library records, was not renewed in 2015, the 10+ year period in which librarians feared the federal government's confiscation of library users' online search data and circulation records reaffirmed many librarians' commitment to safeguarding privacy (Malinconico, 2011). More recently, Ayre (2017) expressed concern with President Donald J. Trump's administration, which "uses religion to justify surveillance, is threatening to deport large numbers of members of our communities, and has redefined accepted definitions of freedom of expression and libel" (p. 1). As a result, Ayre suggests that protecting library users' privacy is more important now than ever.

In an attempt to protect user privacy and therefore preserve users' abilities to search freely for desired information, many libraries seek to retain as little data as possible about what individual library users are searching for, borrowing, and downloading. The goal in doing so is to safeguard unfettered access to information, and to prevent the scrutiny of library users' search habits by third parties (Malinconico, 2011; Matthews, 2012; Shuler, 2004). While libraries' intentions to protect privacy are meant to benefit users, it comes at a cost. In an effort to protect the rights of users through minimal retention of data, libraries also relinquish the ability to leverage robust information for the purposes of designing, evaluating, and improving library services and collections. At the same time, despite the staunch philosophical commitment to privacy within the profession, there is some evidence that libraries have not prioritized privacy in practice (Sturges et al., 2003) and may lack the technical expertise to properly delete or secure user data in a complex information environment (Gressel, 2014; Sturges et al., 2003). This is noteworthy given academic libraries' heavy reliance on third-party vendors to provide research databases and search interfaces (Prindle & Loos, 2017), many of whom may not share the same commitment to privacy as libraries (Magi, 2010).

Despite a large body of literature and policy documents supporting libraries' philosophical commitment to user privacy, there are signs that at least a subset of librarians' perspectives on how this should be executed are changing. Some argue for approaches that focus on de-identification and protection of library data at the individual level, instead of their deletion (Brown & Malenfant, 2015; Brown & Malenfant, 2016; Brown & Malenfant, 2017; Matthews, 2012; Oakleaf, 2010; Oakleaf, 2018). Similarly, standards documents from organizations outside of the ALA make a stronger case for thoughtful collection, retention, and protection of library user data in order to improve services and collections (National Information Standards Organization, 2015). The literature offers a number of examples of how individual-level library search data could be used, which are further explored in the literature review.

User Perspectives on Search Data Privacy in Libraries

Despite a proliferation of publications presenting librarians' views on privacy in libraries (most of which are philosophical in nature as opposed to empirical), users' perspectives are not present in the literature. A few studies examine students' attitudes about how or if libraries should collect and use data about what they search for (Johns & Lawson, 2005; Jones, Perry, Gobin, Asher, Briney, Robertshaw, & Salo, 2019; Sturges et al., 2003; Sutlieff & Chelin, 2010), but they lack methodological rigor, and generally take a surface level approach to investigating the subject matter via survey methods that fail to elicit in-depth knowledge about student perspectives. Although one study takes a more in-depth qualitative approach (Jones et al., 2019), the findings have only been released as preliminary and thus only tentative conclusions can be drawn from them. Two of the three studies (Sturges et al., 2003; Sutlieff & Chelin, 2010) survey students in the United Kingdom, which may also limit the applicability of the findings to the United States, since privacy perspectives may be formed in part based on cultural values,

national identity, and regulatory privacy practices in specific countries (Bellman, Johnson, Kobrin, & Lohse, 2004; Cho, Rivera-Sánchez, & Lim, 2009; Milberg, Smith, & Burke, 2000). In addition to these limitations, the results of the studies paint a mixed picture of student attitudes about privacy, and suggest further inquiry is needed. These studies are examined in more depth in Chapter Two.

Overall, the literature about students' perceptions of search data privacy in academic libraries is scarce. The mostly quantitative methods are insufficient in providing a deep understanding about the topic, and the only qualitative research is still incomplete. This suggests the need for an in-depth, qualitative study. The broader area of online information privacy research, specifically perceptions of privacy when using internet search engines, provides useful context for shaping a study about privacy in academic libraries. Because the nature of searching for and browsing information on the internet resembles the process of searching and browsing via libraries' search interfaces, studies about the former informs the approach of inquiry within the library context.

Complex Attitudes About Online Privacy

Research suggests that attitudes about information privacy in the online environment are complex and multifaceted. Individuals' privacy attitudes and behaviors vary considerably based on context (Aguirre, Roggeveen, Grewal, & Wetzels, 2016; Panjwani, Shrivastava, Shukla, & Jaiswal, 2013; Rainie & Duggan, 2016). Rainie and Duggan (2016) explain that people often view privacy-related decisions as a "tradeoff" (p. 2) in which they determine whether or not giving up personal information is outweighed by the value of what they get in return. This calculus means that individuals' comfort level about disclosing personal information hinges on the particulars of the situation, including the extent to which they trust the organization they are

working with (Rainie & Duggan, 2016), and the perceived gains of disclosing information (Li, 2012; Panjwani, et al., 2013, Rainie & Duggan, 2016).

The complexity of internet users' attitudes about privacy as compared to their actual behavior also points to the complicated nature of online information privacy. Many users express concerns about what information is being collected about them online, and even believe that individuals should have the ability to use the internet completely anonymously (Rainie, Kiesler, Kang, & Madden, 2013). Many also perceive that they have lost control of their ability to manage how information is collected about them by companies (Madden, 2014), and feel cynical about their ability to protect their online privacy in general (Hargittai, 2016). Recently, the harvesting of personal Facebook data by Cambridge Analytica heightened the general public's awareness of privacy issues in the digital age, as evidenced by many Facebook users' decisions to adjust their privacy settings or remove the Facebook app from their phones (Perrin, 2018). However, users continue to engage with search engines, online retailers, and social media sites that leverage personal data to provide services (Aguirre et al., 2016). This further illustrates the complexity of attitudes about information privacy, and how or if those attitudes influence behavior. The relationship between attitudes about privacy and user behavior is germane in the library context as well, since some of librarians' convictions about privacy stem from the presumption that a lack thereof is likely to affects users' searching behavior.

Using an online search engine such as Google Search to find information is in many ways analogous to searching for information through an academic library's website. Therefore, studies that examine users' concerns about information privacy when using internet search engines not only reveal the attitudes searchers have about a similar phenomenon, but also provide guidance about the types of questions that might elucidate student attitudes about searching for

information in academic libraries. Public opinion research from the Pew Research Center on search engine use suggests that users are not comfortable with the idea of search engines monitoring their activities (Purcell et al., 2012). Most respondents took issue with the idea of search engines tracking their behavior for the purpose of delivering personalized search results because they viewed it as an invasion of their privacy. In other words, they expressed a preference for privacy over a more convenient search experience. On the other hand, when Conti & Sobiesk (2007) surveyed college students about web-based information disclosure, focused particularly on searching, they found that respondents were largely unconcerned with privacy.

Overall, literature specifically pertaining to users' attitudes about the privacy of search data in academic libraries is limited and does not explore the concept with sufficient depth or rigor. This, along with the complex – and at times contradictory findings – in the related literature about online information privacy and search engine privacy indicates the need for further study to deepen the understanding of search data privacy attitudes in the academic library context. Considering the methodological limitations evident in the literature about this concept, a qualitative approach is the most appropriate and useful way to understand users' complex attitudes about these issues.

Purpose of the Study and Research Questions

The goal of this study was to understand undergraduate students' attitudes about search data privacy in academic libraries and their preferences for how librarians should handle information about what students search for, borrow, and download. In addition, the study explored students' descriptions of how or if their attitudes influence their searching behavior. Focusing on undergraduate students revealed the attitudes of one of the largest cohorts of library constituents at all types of academic institutions, ranging from community colleges to liberal arts

institutions to research universities. In addition, the fact that undergraduate students are often (although not always) representative of a younger age cohort than graduate students and faculty means that a study focused on undergraduates resulted in findings that reflected the perspectives of a group whose attitudes are likely to impact the future of higher education practice and policy.

The findings of this study provide some of the first in-depth, exploratory information about student perspectives on this matter, contributing to knowledge in this area of librarianship. The findings of this study could guide future research by identifying major themes and relationships pertaining to student attitudes about library search data privacy, laying the groundwork for future studies that could further contribute to knowledge and practice as it relates to privacy, continuous improvement of services and resources, and evaluation.

The central research questions that guide this study were:

1. What are undergraduate students' attitudes about whether academic libraries should collect and maintain user search data, and why?
2. What are acceptable and unacceptable uses of students' library search data according to undergraduate students, and why?
3. In what ways do undergraduate student attitudes about search data privacy differ in the context of using academic libraries and commercial search engines such as Google?
4. What do students perceive as the risks and benefits of libraries collecting student search data, and how do these perceptions influence their search behavior?

Methodological Approach

I approached this study through the lens of interpretive description, a qualitative research approach designed to gain in-depth understanding of phenomena or subjective knowledge in clinical or applied disciplines (Thorne, 2016). Since librarianship is an applied discipline and the

intent of the study is to gain a deep understanding of student attitudes about search data privacy in academic libraries, interpretive description is a fitting approach. I conducted a series of in-depth, semi-structured interviews composed of questions and vignettes with undergraduate students at a large, urban research university to explore their attitudes about search data privacy in academic libraries. The research site was Virginia Commonwealth University (VCU).

Summary

Overall, the library profession's commitment to privacy, while intended to benefit library users, is librarian-driven and not grounded in user attitudes or preferences. Gaining a more in-depth understanding of students' perspectives on this matter is an important first step in building a knowledge base which can subsequently be used to guide future studies in this area.

II. REVIEW OF LITERATURE

Overview

This chapter provides a summary and critique of the literature either directly or indirectly related to search data privacy in academic libraries. The chapter begins with a brief description of expectations for accountability in academic libraries. The chapter then explicates the ways in which privacy is addressed in the library literature, practices libraries adopt in an effort to maintain user privacy, and the relationship between user data and evaluation. Next, it describes the limited literature regarding student attitudes about search data privacy in academic libraries. Since few studies have examined attitudes specifically in the library context, the chapter also includes an overview of user attitudes about privacy in the online environment – including research involving college students and/or young adults – and offers a theoretical framework for considering the relationship between privacy attitudes and behaviors that can be applied in a variety of contexts, including libraries. Because conceptualizations of and attitudes about privacy vary by cultural and political/legislative context (Bellman et al., 2004; Cho, Rivera-Sánchez, & Lim, 2009; Milberg, Smith, & Burke, 2000) -- which is also explored in this chapter – the majority of the literature included is focused on libraries, user groups, and information contexts in the United States.

The overall purpose of the literature review is to demonstrate the need for the proposed study. The content presented in this chapter demonstrates that despite libraries' philosophical commitment to privacy, the literature lacks rigorously conducted studies that present library user perspectives on search data privacy. Additionally, the review of literature elucidates the paucity of sufficient instrumentation or methodological approaches that facilitate in-depth understanding

of undergraduate student attitudes about search data privacy in academic libraries, making clear the need for a qualitative study.

Academic Libraries, Accountability, and the Rise of Learning Analytics

Beginning with the rise of external accreditation in the 1960s, institutions of higher education have been increasingly called upon to demonstrate their value (Garipey, Stout, & Hodge, 2016). Today, colleges and universities exist in an era characterized by expectations for accountability and continuous improvement. Academic libraries are no exception to this trend (Oakleaf, 2010). For decades, they have responded to calls for accountability with quantitative performance data: collection size, gate counts, number and type of interactions at service desks, and so forth. In addition, academic libraries are often part of higher education accreditation processes (Malone & Nelson, 2005). For example, at VCU, the Southern Association of Colleges and Schools Commission on Colleges (SACSCOC), the university's accrediting body, expects articulation of the ways in which the library system contributes to the overall success and health of the institution.

But the shape of accountability and evaluation in academic libraries is changing (Hufford, 2013). Increasingly, librarians are striving to take a more active role in student learning and to be viewed as equal academic partners with university faculty. Libraries have responded to direct and indirect calls for accountability through user surveys such as LibQual+ to capture library users' perceptions about the role of the library in advancing student and faculty success (Association of Research Libraries and Texas A&M University, 2018). Librarians have also administered instruments for measuring information literacy such as the Standardized Assessment of Information Literacy Skills (Radcliff, 2015).

Increasingly over the past decade, libraries have sought ways to provide evidence that they advance student achievement of learning outcomes, degree completion, and other proxies for student success such as GPA (Oakleaf, 2010; Oakleaf, 2018b). Accordingly, libraries have begun to explore engagement with learning analytics models that directly tie library use to measures of student success. Although a number of definitions of the term “learning analytics” exist, a concise and clear one is provided by EDUCAUSE (2011) as the “collection and analysis of usage data associated with student learning. The purpose of [learning analytics] is to observe and understand learning behaviors in order to enable appropriate interventions” (p. 1). In learning analytics models, “interventions” can be large-scale, such as adjusting a library’s collection based on available data. Or, it can be individual and direct, such as models in which advisors reach out to students who have not used library resources in a research-intensive course (Alhadad et. al, 2015).

The rise of learning analytics as a method of accountability and strategy for enhancing student success is not without critics. A major critique of this model pertains to the collection and use of student data and the extent to which it may violate students’ privacy and autonomy. Some scholars advocate for models of informed consent when collecting data for learning analytics (Jones, 2019). However, the burgeoning body of learning analytics literature in higher education and in libraries suggests that it is a model on the rise. The increasing pervasiveness of such approaches in higher education has led librarians to explore what role libraries might play in the learning analytics enterprise. Possibilities include linking library use data such as circulation, receipt of librarian-led instruction, and to some extent, use of collections, to larger indicators of student success such as GPA or retention (Oakleaf, 2018a). Some studies have identified relationships between these types of variables, and thus could be considered evidence

of the role libraries might play in advancing student success, although the correlational nature of most of these studies limits their utility.

However, given current trends in higher education, it is likely that libraries will further consider this type of approach, which draws to light the tension between potential learning analytics approaches contingent on user data, and the fact that libraries tend not to collect data that can be linked to individual students (Oakleaf, 2018b). This illustrates the some ways in which libraries' historical commitment to user privacy and deleting user search data impact models for evaluation and assessment.

Library Professional Organizations and Privacy

The library profession's commitment to privacy and confidentiality is reinforced in numerous professional codes and throughout the literature. In this section of the literature review, I examine in detail the ways in which privacy and confidentiality are addressed in professional guidelines or are otherwise endorsed by relevant professional organizations.

The American Library Association

The American Library Association (ALA) is the premier professional organization that guides practice for academic and public libraries in the United States. It has taken a firm stance on the importance of protecting user privacy since 1939 (American Library Association, 2014a). This commitment is affirmed in numerous ALA codes, interpretations, and guidelines (American Library Association, 1986; American Library Association, 1996; American Library Association, 2008; American Library Association, 2014a; American Library Association, 2014b; American Library Association, 2016; American Library Association, 2017; American Library Association, 2018a), and library scholars' frequent citation of the ALA when discussing matters of privacy conveys the organization's significant influence on libraries' philosophical commitment to

privacy. In general, the ALA's focus on privacy is based on the belief that it is a critical element of intellectual freedom, and a foundational element of democracy (Magi, 2013).

The ALA affirms the importance of privacy in numerous documents. The organization's overarching position on privacy is articulated in its *Code of Ethics* (2008), Article III, which states that "We [members of the ALA] protect each library user's right to privacy and confidentiality with respect to information sought or received and resources consulted, borrowed, acquired or transmitted" (para. 4). (For the purposes of this study, "information sought or received and resources consulted, borrowed, acquired or transmitted" is synonymous with search data.) This position is consistent with that of the majority of librarians across the nation, who consider the monitoring and collection of search data an invasion of library users' privacy (Zimmer, 2014).

In addition, the ALA (1996) implicitly states that privacy and confidentiality are essential values in another seminal policy statement, the *Library Bill of Rights*, which emphasizes the right of all users to access library materials and also issues the directive that libraries should not deny the use or acquisition of particular types of materials based on doctrine, views, or partisanship. A more detailed elucidation of the ALA's position on privacy can be found in *Privacy: An Interpretation of the Library Bill of Rights* (2014a). The document states that

Privacy is essential to the exercise of free speech, free thought, and free association. Lack of privacy and confidentiality chills users' choices, thereby suppressing access to ideas. The possibility of surveillance, whether direct or through access to records of speech, research and exploration, undermines a democratic society. (Introduction, para. 1)

The *Interpretation* (2014a) also defines both privacy and confidentiality. Privacy is "the right to open inquiry without having the subject of one's interest examined or scrutinized by

others.” Confidentiality, a closely related concept, “exists when a library is in possession of personally identifiable information about users and keeps that information private on their behalf” (Introduction, para. 2). It goes on to state that confidentiality should be extended to the protection of library users’ search data, which should be collected only to fulfill the library’s mission (American Library Association, 2014a). Implicit in this messaging is the suggestion that no one – including library employees – should monitor or collect users’ search, borrowing, or download habits unless it is necessary to deliver library services and programs.

In addition to the suggestion that members of the library profession themselves should be minimally invasive in terms of collecting and reviewing users’ search data, strong emphasis is also placed on protecting users’ library records from third parties, including vendors and law enforcement agencies. The *Interpretation* (2014a) indicates that

Law enforcement agencies and officers may occasionally believe that library records contain information that would be helpful to the investigation of criminal activity. The American judicial system provides a mechanism for seeking release of such confidential records: a court order issued following a showing of good cause based on specific facts by a court of competent jurisdiction. Libraries should make such records available only in response to properly executed orders. (Responsibilities in Libraries, para. 5)

Confidentiality is further addressed in ALA’s *Policy on Confidentiality of Library Records* (1986), which instructs librarians to resist requests for users’ library records that include names or other personally identifiable information by non-library entities unless required by law to provide them. Although it is beyond the scope of this review to deeply examine the legal status of library records by locality, the confidentiality of library records is protected by statutes, attorney general opinions, or state constitutions in all fifty states and the District of Columbia

(American Library Association, 2018b). However, as previously implied in the *Interpretation* (2014a) law enforcement and other government agencies are able to obtain library records through a course of due process.

In addition to the emphasis placed on privacy and confidentiality in the ALA codes, policies, statements, and resolutions already mentioned, the organization's commitment to privacy is illustrated through other aspects of its organizational structure and programming. The ALA's Intellectual Freedom Committee's (IFC's) Privacy Subcommittee is active in developing and maintaining resources, such as their *Library Privacy Guidelines* (American Library Association, 2016), to assist libraries in protecting user privacy. The IFC's Privacy Subcommittee also collaborated with the ALA's Library Information Technology Association (LITA) Privacy Interest Group to develop *Library Privacy Checklists* (2017), which offer practical suggestions for protecting user privacy. The recommendations in both the *Guidelines* and *Checklists* generally suggest minimal collection and retention of user data, and their prompt deletion when no longer operationally necessary. Although there is occasional mention of anonymizing any data that are retained for analysis (presumably for the purpose of improving services), this is usually included without specific detail on how one might ensure data are appropriately scrubbed of identifiers. Finally, the ALA offers additional philosophical and practical support for user privacy through its web resources and initiatives such as "Choose Privacy" (American Library Association, 2018a).

Overall, the ALA's position on privacy is notably conservative when compared to the practices of many commercial enterprises who have readily embraced "big data" – the process of intentionally accumulating information about individuals in order to make predictions about their future behaviors or needs (Harper & Oltmann, 2018). Facebook, Google, Amazon, Netflix, and

many other major retailers and commercial entities actively collect information about customer purchases and behaviors in order to create tailored advertising or search results (Harper & Oltmann, 2018; Mai, 2016; Pariser, 2011; Vaidhyanathan, 2011). While there are numerous critics of the big data approach (Pariser, 2011; Pekala, 2017; Vaidhyanathan, 2011), the prevalence of this practice leads to user expectations for a certain type of personalized experience when searching for information (Asher, Duke, & Wilson, 2013).

In addition to potentially limiting the ways in which libraries can enhance search experiences through their discovery tools and databases, the conservative stance espoused by the ALA limits other forms of evaluation. A minimalist approach to collecting data about the ways users engage with library materials eliminates some possibilities for evidence-based evaluation, practice, and continuous improvement. As a result, libraries do not typically develop targeted services and programs based on data about specific individuals' use of collections. It raises the question of whether libraries' commitment to privacy, which prevents the full use of data about their users' search behavior to shape services, results in a user experience that is significantly different than what students are accustomed to in other areas of their lives. This could decrease the probability that students will use the library for academic research. In other words, libraries' resistance to collecting/using search data to shape user experiences and demonstrate their effectiveness – a resistance encouraged by the ALA – could diminish libraries' abilities to fulfill their missions.

Other professional organization statements

Although the ALA wields the greatest influence on American libraries, numerous other library and information professional organizations affirm the profession's commitment to privacy. The International Federation of Library Associations and Institutions' (IFLA's)

Statement on Privacy in Library Environments (2015) recommends that “library and information services should respect and advance privacy both at the level of practice and as a principle” (Recommendations, para. 1).

The National Information Standards Organization (NISO) adopts a perspective that acknowledges the modern challenges of respecting user privacy and the opportunity for improvement of services through leveraging data in a respectful and trustworthy way. The *NISO Privacy Principles* (National Information Standards Organization, 2015) state the following:

Certain personal data are often required in order for digital systems to deliver information, particularly subscribed content. Additionally, user activity data can provide useful insights on how to improve collections and services. However, the gathering, storage, and use of these data must respect the trust users place in libraries and their partners. There are ways to address these operational needs while also respecting the user’s rights and expectations of privacy. (Preamble, para. 2)

The *Privacy Principles* address several strategies for finding this balance, including but not limited to increasing users’ awareness of privacy issues, being transparent about data collection and use practices, anonymizing data, and providing access to users’ own data.

Privacy is highly valued in all examined professional organizations’ codes, policies, and resolutions, although the ALA’s position is the most conservative. NISO, in particular, provides more nuanced statements on privacy reflective of the modern information context, and suggests a possible middle ground for libraries and information organizations to both protect user privacy and make meaningful use of search data in order to evaluate the use of collections and information resources. Although the phrases “privacy” and “confidentiality” are used somewhat indiscriminately within and across the different library professional organizations’

documentation, one might describe the ALA's position as one rooted in protecting patron privacy even from library employees as much as possible, while NISO's position reflects a higher tolerance for collecting and using data that is stored responsibly and confidentially. In considering ways to elicit student attitudes about the ways in which search data should or should not be collected and used in an academic library context, researchers would discover the richest information by seeking to understand users' perspectives on both privacy and confidentiality.

Library Privacy Policies, Technical Implementations, and Challenges

Despite the emphatic support for user privacy from professional organizations and within the literature, many libraries lack formal privacy policies or statements. Magi (2007) found that more than half of Vermont's public and academic libraries lacked privacy policies, even during a time of heightened awareness of patron privacy and confidentiality due to the USA PATRIOT Act. In the United Kingdom, Sturges et al. (2003) found in a survey of 1,000 libraries that only 14% had a privacy policy, which they attributed to a "lack of awareness, complacency or confusion" (p. 48) among libraries given the emphasis on privacy and confidentiality in many relevant codes of professional standards. Sturges et al. indicated that 64% had data protection policies, but the authors do not explain how these differ from privacy policies. Ninety-three percent (93%) of responding institutions could generate some sort of electronic archive about users' activities in the library, and some even went so far as to archive websites visited and emails, although this type of data was sometimes harvested by the libraries' parent organization, central administration, or a computer services department, as opposed to by the library itself. Finally, Sturges et al. (2003) found that libraries were much more inclined to state that service to their clientele was a higher priority than maintaining privacy. Although it is important not to infer too much from two geographically specific studies of this nature (particularly since the

Sturges et al. study was in the United Kingdom as opposed to the United States), these findings suggest that at least in some cases, the support for user privacy that is nationally and internationally prominent may not always result in practical, local implementation.

In addition to the evidence that individual libraries sometimes lack formal privacy policies, a separate set of issues exists in the realm of third-party vendors with whom libraries contract services. Libraries contract with vendors to provide access to information databases, streaming audio and video, downloading e-books, loanable technology, and more (Ayre, 2017). In fact, most ways in which users engage with library collections online are likely to involve a third-party vendor (Breeding, 2015). This means that the majority of library use data is theoretically controlled by library vendors as opposed to libraries themselves, and libraries may have little influence over how the vendors handle this information (Ayre, 2017).

There is some evidence that library vendors' privacy standards fail to meet the high expectations for user privacy articulated by professional organizations such as the ALA, although few studies examine this issue. This is especially true of licensing agreements with database vendors. Magi (2013) examined the privacy policies of 27 major library vendors and found all of their privacy policies (if they even existed) to be inconsistent or inadequate when compared to the ALA's stance on privacy (American Library Association, 2014). Magi (2013) recommends that libraries must be extremely vigilant in negotiating contacts with vendors to ensure users' privacy is protected. Based on interviews with fourteen (14) software engineers/system providers in the United Kingdom, Sturges et al. (2003) reported that libraries rarely, if at all, asked any questions about privacy, confidentiality or data protection when acquiring systems from vendors.

In addition, the literature suggests that libraries are not always successful in implementing practices to delete or anonymize search records and circulation data, or in protecting them from third parties (Breeding, 2016; Gressel, 2014; Sutlieff & Chelin, 2010; Zimmer, 2013a). This has created what Moor (1985, p. 266) referred to as a “policy vacuum,” in which libraries are committed conceptually to protecting user privacy, but may not always have sufficient policy and technological processes in place to do so (Sutlieff & Chelin, 2010; Zimmer, 2013a). Sturges et al. (2003) note that although librarians have collected some data about their users for as long as libraries have existed, the robust and ever-expanding digital library environment has resulted in a much higher volume of data potentially collected and transmitted, whether intended or not. Gressel (2014) suggests that librarians’ efforts to keep up with technological advances in information provision have resulted in the adoption of new technologies without a full understanding of what information is being collected about patrons, for what purpose, and how it can be protected. Breeding (2016) suggests that some libraries may put users’ privacy at risk because they are not equipped with practical solutions for managing the transmission of search data between library and vendor servers. He also found that the security features of the various vendor-provided library systems he examined were sufficient but often optional, and libraries did not always do their part to utilize the features that would best protect patron data.

Privacy and Evaluation in Practice

In addition to the policies, codes, and statements of the ALA, library literature emphasizes the importance of collecting as little user search data as possible (Malinconico, 2011; Matthews, 2012; Shuler, 2004). However, the literature does not reveal empirical studies that indicate the extent to which libraries actively protect user privacy. Most often, published articles

are focused on reaffirming libraries' philosophical commitment to same, and/or address ways to protect patron privacy anecdotally, through case studies, or present a series of steps or guidelines for how to protect patron privacy. However, two broad categories of practices are revealed that pertain to search data privacy and evaluation in libraries, which I will refer to as *conservative practices* and *evolving practices*. Broadly speaking, the former are privacy practices that reflect the conservative position of the ALA, while the latter more closely resemble the position of NISO, wherein meaningful data might be collected but then stored confidentially and protected through various technological means.

Conservative practices

Libraries' commitment to privacy has led to measures within the profession to ensure that library users' search data cannot be seized (Malinconico, 2011; Matthews, 2012; Shuler, 2004). Most libraries strive only to maintain the minimum amount of information needed to make sure that items are safely returned from those who borrow them, or to ensure that only authorized individuals are using library resources. For example, it has become common practice for libraries to purge records of what individual library users have searched for or borrowed from the library once items have been returned (Estabrook, 1996; Harper & Oltmann, 2017; Zimmer, 2013a). Although library users' personally identifiable data such as name, address, etc., are maintained in a library's integrated library system (ILS) software, decoupling that information from what they have used at the library reduces the probability of third parties, be it a government agency or a hacker, procuring the type of information that would threaten users' free inquiry. Although libraries often maintain search information such as how many times a particular item has been checked out or the types of search strings typed in library databases, those data are not linked to

individual users (Malinconico, 2011; Matthews, 2012; Oakleaf, 2010; Shuler, 2004), which limits the types of decision-making and evaluation that can be supported by the data.

Evolving practices

Despite a large body of literature supporting libraries' firm philosophical commitment to user privacy, there are signs that at least some librarians' perspectives on how privacy should be maintained in practice are changing. These shifts are rooted in enhancing libraries' capacity for evaluation, decision-making, and continuous improvement. Some argue for learning analytics approaches that focus on de-identifying and protecting library data at the individual level instead of deleting them which would enable evaluation and research more consistent with the increasingly possible learning analytics models on university campuses (Brown & Malenfant, 2015; Brown & Malenfant, 2016; Brown & Malenfant, 2017; Matthews, 2012; Oakleaf, 2010; Oakleaf, 2018a; Oakleaf, 2018b). Similarly, standards documents from organizations outside of the ALA support the thoughtful collection, retention, and protection of library user data in order to improve services and collections (National Information Standards Organization, 2015). Retaining data in this fashion would enable a number of evaluation approaches that have previously been unavailable to librarians, and provide access to rich descriptive data that may enhance current services or affect the design of new ones. The literature offers a number of suggestions and examples of how individual-level search data about use of library resources could be used.

Developing collections based on specific use. Understanding which types of users most frequently engage with certain collections and information resources could enhance libraries' ability to select new items for purchase and to promote them appropriately to their most likely users. On the other hand, if individual-level data suggested that certain materials were underused

by a group expected to engage with those materials, libraries could seek additional information from those groups in order to understand how the collection might better serve the intended users (Estabrook, 1996).

Developing differentiated services and programs. Understanding how different groups of library users engage with the collection has the potential not only to shape the collection itself, but also the services and programs developed for subsets of library users (Estabrook, 1996). For example, social work faculty might use different types of materials than social work undergraduates. If data revealed that social work faculty members are heavier users of print materials than undergraduate students, they might benefit from a reminder of the ways in which their library system can most efficiently retrieve and deliver requested books. On the other hand, librarians might tailor messaging for undergraduates to best support their particular uses of collections. Similarly, certain services could be further refined and differentiated to suit the needs of the groups that use them most frequently.

Leveraging personalization features. Library discovery systems and databases sometimes offer personalization features and/or tailor their results based on individuals' previous information use. In some cases, librarians choose not to make such features available to users. However, an option for patrons to participate in them may increase the likelihood of students and faculty connecting to relevant materials for their research (Estabrook, 1996; Garcia-Rivadulla, 2016).

Linking library use to measures of success. Borrowing records and data about the use of library resources can be connected with other institutional data to examine relationships between library use and student and faculty success (Oakleaf, 2010; Matthews, 2012). Examples of dependent variables that could be examined include student retention, student learning, faculty

research productivity, tenure passage rates, and more. In recent years, several studies have focused on the link between collection use and student success, suggesting that some momentum toward this approach is already under way (Davidson, Rollins, & Cherry, 2013; Nackerud, Fransen, Peterson, & Mastel, 2013; Stone, & Ramsden, 2013). The relationship between students' use of library services (as opposed to collections) and student success has been subject to even more momentum. For example, a recent Institute of Museum and Library Science (IMLS) grant-funded project called *Assessment in Action* resulted in several reports showcasing data about students' use of library instructional services and measures of student success (Brown & Malenfant, 2015; Brown & Malenfant, 2016; Brown & Malenfant, 2017). The literature is rich with additional examples of the relationship between students' library classroom/instructional experiences and grades, grade point average, and retention (Bowles-Terry, 2012; Coulter, Clarke, & Scamman, 2007; Wong & Cmor, 2011).

Cost-benefit analyses. By knowing precisely who uses which materials, librarians would be positioned to produce cost-benefit analyses by academic department, as well as by major and constituent type (students, faculty, etc.) (Oakleaf, 2010). This approach may be particularly useful in difficult budgetary climates.

Learning analytics. As previously described, the learning analytics movement has recently gained significant momentum as a technique for accountability, evaluation, and student intervention in higher education (Jones, 2019). In the library context, burgeoning learning analytics models are heavily contingent on the collection of students' library use data, including search data. Common models of "library analytics" (Oakleaf, 2018b, p. 20) typically consist of correlational research studies described in the *previous Linking library use to measures of student success* section. In other models, library use data, along with other types of university

level data, may be used to identify students as “at risk” so that educators can intervene early in hopes of ensuring student success. (Oakleaf, 2018a; Oakleaf 2018b).

Although this list is not comprehensive, it does offer insight into some of the ways in which individual-level user search data could be used to demonstrate libraries’ value, to improve collections and services, and potentially to improve student outcomes. In the literature, librarians who call for this type of data collection continue to emphasize the importance of collecting and maintaining it in such a way that it can be protected and kept confidential through anonymization and other means (Matthews, 2012; Oakleaf, 2010).

Summary of privacy practices and evaluative approaches

As evaluation in libraries is increasingly emphasized, librarians should carefully consider the extent to which they need to engage in evidence-based practices (Matthews, 2012; Oakleaf, 2010). Doing so requires the acquisition and use of many types of information such as user search data. In both conservative and evolving privacy practices, one thing is clear: privacy remains a core professional value. Librarians and library professional organizations are wary of potential abuse of user information in the era of big data and the threats posed to individuals’ privacy in general. The difference between librarians who promote evolving privacy practices and those who are engaged in or advocate more conservative approaches is their method of ensuring privacy. The former are more inclined to embrace technology to protect rather than to delete data, while the latter prefer to delete data to eradicate all risk of inappropriate access or privacy violations. Understanding the landscape of library privacy practices as they pertain to evaluation is essential to developing meaningful data collection procedures that are reflective of current library procedures in future studies about search data privacy in academic libraries.

Student Perceptions about Privacy of Library Search Data

Despite statements affirming the importance of privacy from professional organizations (American Library Association, 1986; American Library Association, 1996; American Library Association, 2008; American Library Association, 2014a; American Library Association, 2014b; American Library Association, 2016; American Library Association, 2017; American Library Association, 2018; International Federation of Library Associations and Institutions, 2015; National Information Standards Organization, 2015) and librarians' generally strong opinions on search data privacy (Zimmer, 2014), only four studies closely examine user perceptions of search data privacy issues specific to academic libraries (Johns & Lawson, 2005; Sturges et al., 2003; Sutlieff & Chelin, 2010; Jones, Perry, Goben, Asher, Briney, Robertshaw, & Salo, 2019). Three of the studies employed quantitative approaches to collect data (Johns & Lawson, 2005; Sturges et al., 2003; Sutlieff & Chelin, 2010). Jones et al. (2019) used a qualitative approach to understand student perceptions of privacy in academic libraries, but the findings have only been released as preliminary as of the time at which this study was completed. This section offers a summary and critique of these studies.

Johns & Lawson (2005) administered a survey to 444 primarily undergraduate students regarding their awareness and attitudes about universities' and libraries' use of "online private information." The researchers found that most respondents (58%) felt that it was justifiable for universities and libraries to use online private information to track down unauthorized computer users or aid law enforcement officers with a search warrant, but that few (23%) felt that it was appropriate for university libraries to use students' private online data to enhance library services. In fact, 32% of respondents felt there was no reason that would justify a university or library looking at their private online information. Some respondents indicated that it may be

acceptable for libraries to view private online information, but only under certain conditions: libraries should obtain informed consent before obtaining/using students' private information, should only obtain it for a clearly stated purpose, and should not disseminate it to third parties. More than a third of respondents (41%) were unsure about how effective the library at their institution was in terms of protecting their online privacy.

Unfortunately, it is unclear how or if "online private information," "private information," and "online information," were defined, and these expressions seemed to be used interchangeably throughout the survey based on the authors' presentation of results. The stated purpose of the study was to understand students':

- knowledge about what types of information their library collections about them;
- familiarity with legislation (particularly the USA PATRIOT Act) that could require librarians to disclose some of that information to other entities; and
- their opinions about reasonable uses of the information that their library collects about them.

However, the manner in which the results of the study were presented suggests that the survey also focused on numerous other topics, such as students' familiarity with their university's computer regulations, and their perceptions about privacy and ill-defined "online information." In fact, the authors described the content of the survey as follows:

The questions included the following: two demographic questions, one question on computer literacy and skills, one question about the ISU's Code of Computer Ethics and Acceptable Use Policy (Iowa State University, 2004), seven questions about the Patriot Act and how it might affect online privacy, and 20 questions about knowledge and opinion of online privacy issues. (Johns & Lawson, 2005, p. 489)

Because the researchers did not include their survey items in the published study, it is difficult to ascertain what degree of clarity students may have had about what constitutes “online information,” “online privacy,” and “online privacy issues.” Even if this was made clear to the students via the survey, it is unclear to readers, which greatly limits the extent to which the study’s findings should be considered when developing future research proposals. Although it may be difficult to completely differentiate between online information and search data privacy, referring simply to “online information” may conjure many types of information to students, including web browsing habits, contents of emails, payment information used for online purchases, and more. As a result, it is possible that while the authors may have had a clear and specific notion of what constitutes online information, student respondents may not have had the same understanding. The study also lacks indications of the survey’s psychometric properties. As a result, the findings from this study should be cautiously interpreted.

Sutcliffe & Chelin (2010) surveyed 566 undergraduate students in the United Kingdom (UK) about their perceptions of user privacy and their trust in academic libraries to maintain it. Respondents indicated high levels of trust in libraries’ management of their private search data, and nearly 60% were comfortable with the notion of libraries using their borrowing histories to make improvements to the library’s collection, a finding that is in sharp contrast with Johns & Lawson’s (2005) findings, in which very few of their survey respondents indicated that their “online private information” should be used for the purposes of improving library services or collections. This difference could be explained by the different settings in which the studies were conducted, including different countries, institutions, and survey instruments. A potential difference in the survey instruments that may be significant in explaining such disparate findings is Sutcliffe & Chelin’s more precise use of the phrase “borrowing histories” – a phrase more

clearly associated with what one checks out from a library than Johns & Lawson's use of phrases such as "private online information," which based on its vague nature may seem more threatening to students. Sutlieff & Chelin used more precise descriptions of how the library might hypothetically use search data for various purposes, and it may therefore be reasonable to assume that students likely understood the questions being asked of them. However, the study provides no evidence of the reliability or validity of scores from the instrument they developed to collect data.

Sutlieff and Chelin (2010) describe their study as being one largely focused on the user – library trust relationship, and they compare students' trust in the library to their trust in the United Kingdom (UK) government. Based on their survey results, they indicate that survey respondents' trust in the UK government was low, and therefore their privacy demand was high. They subsequently argue that trust in libraries is high, and thus privacy demand in the library context is lower than that which students demand from the government. However, no statistical analyses are offered to support these findings beyond simple descriptive statistics describing percentage-based results for individual questions, none of which suggest relationships between trust and privacy. The lack of rigor in their data collection and analysis means that these findings must be interpreted with great caution. However, relationships between trust and privacy are articulated elsewhere in the literature. Several studies about internet searchers' habits suggest a positive relationship between trust and information disclosure (Chellappa & Sin, 2005; Milne & Boza, 1999).

Sturges et al. (2003) conducted a study of libraries in the United Kingdom (some of which were academic libraries) examining numerous issues relating to privacy, including the types of data collected or accumulated, the practices for managing those data, and users'

concerns about libraries' collection of the same. Their three-pronged approach to data collection included a postal survey to just over 1,000 libraries (approximately 10% of which were academic libraries), an administered survey to library users, and telephone interviews with software engineers/vendors who provide third-party systems for libraries. The survey also included questions about users' concerns about privacy when searching the internet.

They used convenience sampling at academic libraries to administer the user survey in person (Sturges et al., 2003). Users were stopped as they exited the library and invited to complete the survey, and 400 responses were ultimately collected. The survey sought user perspectives related to privacy concerns, both when using libraries and when using the internet. The findings indicate that users indicated low levels of anxiety in terms of privacy when using the internet, and that the concerns they had were about commercial intrusion more than official or governmental bodies trying to gain access to their information. Most respondents felt that libraries should not pass along information about their activities in the library to commercial or official entities, but 75% accepted that libraries should/could monitor use of electronic resources for misuse (for example, unauthorized users accessing materials). The authors interpreted this finding as a sense of trust in libraries as compared to internet providers.

Like the studies conducted by Sutcliffe and Chelin (2010) and Johns and Lawson (2005), Sturges et al. (2003) fail to provide evidence of methodological rigor. There is no evidence of survey reliability or validity, no evidence of the credibility of their qualitative data collection and analysis with librarians and software engineers, and no intentional explanation for the mixed methods approach they used to collect data. In addition, it is unclear whether or not all of the users who participated in the administered survey were students, as opposed to other types of users at their libraries, such as faculty, staff, or community users.

In March of 2019, once this study was already in progress, Jones et al. (2019) presented preliminary findings from the first phase of a multi-stage, grant-funded study about privacy and learning analytics with an emphasis on data collection in academic libraries. The findings of Phase 1, comprised of qualitative interviews with undergraduate students, were presented preliminarily in the form of conference proceedings. At the time of this study's completion, full findings have not been released. As such, results that were presented at the 2019 Association of College and Research Libraries conference and subsequently accounted for in the conference proceedings (Jones et al., 2019) must be interpreted with caution.

In this study, Jones et al. (2019) conducted 120 interviews with undergraduate students at eight different higher education institutions. However, as a result of their particular methodology, only 24 of the interviews conducted by the research team focused specifically on "libraries and learning analytics," (p. 268), while the other 96 interviews focused on other related topics such as privacy (generally), data sharing and use, data protections, and awareness and reactions to learning analytics.

The researchers report that students were, on the whole, positive about various types of data collection in academic libraries, because they could see the potential benefits of how that data might be used to enhance students' experiences such as improving access to resources and providing personalized search results. Students were clear, however, in stating that their liberal privacy attitudes should not dictate privacy-related issues for their peers who may feel differently. Many students expressed trust and a belief in good intentions from the library and their institution. In general, students assumed that their institutions collected data about them, but expected that it would only be used within the institution in ways that would benefit them. They opposed the idea of libraries/universities sharing any data about them with third parties with the

exception of third-party vendors like learning management systems, library databases, etc. Overall, students' concerns about data access were alleviated with the idea of data being de-identified or presented in aggregate.

These findings, although preliminary, are promising in terms of revealing deeper understanding about student attitudes about search data privacy in academic libraries, especially as they pertain to learning analytics. The qualitative interview phase, once complete, will set the groundwork for Phase 2, in which the research team develops a survey instrument based on findings from Phase 1 (Jones et al., 2019).

Limitations of library search data privacy literature

Overall, the literature pertaining to student and user perceptions of search data privacy in academic libraries provides few reliable findings. Three of the four studies were quantitative and lacked methodological rigor in multiple ways. None provided adequate evidence for reliability or validity for the instruments used. All of the quantitative studies used convenience samples, and therefore the results are not generalizable even within each study's target population, much less to other populations. The significant limits of these studies' sampling approaches were not acknowledged by the authors. For these reasons, the implications of these studies' findings are quite limited, and results were mixed. They found little in common and in some cases had diametrically opposed findings, particularly regarding whether or not students believe that their search data should be used to improve collections and services (Johns & Lawson, 2005; Sutlieff & Chelin, 2010).

Although the qualitative study by Jones et al. (2019) reveals several interesting findings, their preliminary nature means the results must be considered with great caution. In addition, a

fairly limited subset of what initially sounds like a very large sample size actually focused specifically on data privacy in the academic library environment.

In addition, two of the four studies detailed in this section – those by Sturges et al. (2003) and Sutlieff and Chelin (2010) – were conducted in the United Kingdom, which further reduces their relevance to the current study. Because attitudes about privacy vary by cultural and political context (Bellman et al., 2004; Milberg, Smith, & Burke, 2000), findings from studies conducted in other countries should not be considered transferrable to undergraduate students in the United States, even if the sampling approaches had been more appropriate for generalization.

Despite their limitations, these studies still inform the design of future studies in several ways. First, the fact that the literature is not only scarce and contradictory, but also poor in quality, means that little is known about this topic. This demonstrates a clear need for qualitative research that deeply explores student attitudes about search data privacy in academic libraries. This body of literature also elucidates the importance of using well-defined terms in the data collection process to ensure that both the researcher and the participants address the same issues with an appropriate degree of precision. Also, Sutlieff & Chelin's (2010) emphasis on trust as a factor that may affect the extent to which students are comfortable with the collection and use of their library search data provides an interesting line of future inquiry.

In addition to how the literature about student perceptions of search data privacy in academic libraries affects this research proposal, the broader area of information privacy research, particularly as it pertains to general internet use and the use of search engines, provides useful context for this study.

Attitudes about Online Information Privacy Issues

Despite the wide-ranging scope of research on many aspects of online privacy, the definitions of privacy in the literature are mostly similar. A common phrase used when referring to privacy in the online environment is “information privacy.” According to Bélanger & Crossler (2011), “information privacy refers to the desire of individuals to control or have some influence over data about themselves” (p. 1017).

Although the definitions of information privacy are similar throughout the literature, research suggests that it is not a simple concept, and that individuals’ privacy attitudes and behaviors vary considerably based on context (Aguirre et al., 2016; Panjwani et al., 2013; Rainie & Duggan, 2016). In general, Rainie and Duggan (2016) explain that people often view privacy-related decisions as a “tradeoff” (p. 2) in which they determine whether or not giving up personal information is outweighed by the value of what they get in return. They elaborate on findings from a Pew Research Center survey on privacy and information sharing:

...the phrase that best captures Americans’ views on the choice between privacy vs. disclosure of personal information is, “It depends.” People’s views on the key tradeoff of the modern, digital economy – namely that consumers offer information about themselves in exchange for something of value – are shaped by both the conditions of the deal and the circumstances of their lives. (Rainie & Duggan, 2016, pp. 2-3)

The complexity of information privacy and the importance of context mean it is difficult to make broad statements about users’ perceptions of online privacy in general. Therefore, a brief review of privacy attitudes as they relate to various forms of internet privacy issues, both from the perspective of college students and other adult age groups, is warranted. In the interest of brevity, this section of the literature review will not cover all possible information privacy

scenarios on the internet, but will discuss these issues to the extent necessary to provide adequate context for considering how the current literature might apply to information privacy issues in libraries.

The majority of studies examining people's perspectives on information privacy in an online environment -- including those focused specifically on search engine use -- indicate that most users are concerned about online information privacy in some capacity (Aguirre et al., 2016; Paine, Reips, Stieger, Joinson, & Buchanan, 2007; Panjwani et al., 2013; Purcell et al., 2012; Rainie et al., 2013; Rainie, & Duggan, 2016; Madden, 2014; Madden & Rainie, 2015). Much of the literature is survey based, and a large portion of the surveys were administered by the Pew Research Center (Purcell et al., 2012; Rainie et al., 2013; Rainie & Duggan, 2016; Madden, 2014; Madden, & Rainie, 2015). Other studies have used quasi-experimental designs, qualitative approaches (Panjwani et al., 2013) or taken the form of literature reviews (Aguirre et al., 2016). Few studies focused exclusively on young adults, but some notable findings related to the online privacy attitudes and behaviors of undergraduate students will be addressed as applicable throughout this section.

Privacy, online retail, and online advertisements

Chellappa and Sin (2005) examined the relationship between personalization preferences and privacy for online consumers. Overall, they found that online consumers' decisions about what type of information they were willing to disclose in order to receive personalized shopping results depended on their perceived risk and benefit of doing so. These findings are consistent with a 2015 survey conducted by Madden & Rainie (2015), which found that most adults are willing to exchange some information about themselves in exchange for free services, even when those services are provided by commercial entities. Chellappa and Sin (2005) also found that

consumers' willingness to provide information about themselves for personalization was tempered by their trust in the vendor that they were working with.

However, internet users express some concerns about whether or not various commercial enterprises will keep their online data private and secure. More than three-quarters of adults said they were not confident that online advertisers who place ads on the websites they visit will keep data about their activities secure (Madden & Rainie, 2015). In another survey, 91% of respondents agreed or strongly agreed that "consumers have lost control over how personal information is collected and used by companies" (Madden, 2014, p. 3).

Understanding some of internet users' concerns related to the personalization of search results and advertising in a commercial context is useful for considering issues that may be important to users in a library setting, as well. For example, themes related to a perceived inability to control what happens to personal data, as well as trust in the organization collecting such data – a notion also mentioned in privacy-related library literature – are worthy of exploration in this study.

Privacy, the government, and nationality in the online environment

Understanding the extent to which internet users are concerned about government invasion of private online activity is particularly pertinent to this study given the fact that librarians and library professional organizations are especially concerned about the US government's power to seize user search data for criminal investigations or matters related to suspected terrorism. In fact, it is this very type of worry that has spurred conservative data management practices such as deleting users' borrowing records when items are returned to the library. The literature suggests that US internet users are concerned about this: adults do not believe that their online information is adequately protected from government invasion. Sixty-

five percent (65%) of Americans believe that there are not adequate controls on what internet activity the government can access (Madden & Rainie, 2015). On the other hand, only 5% of American adults indicate they have taken steps to try to hide online activities or information from the government or law enforcement (Rainie et al., 2013). However, the latter data point was collected prior to Edward Snowden's release of evidence of global surveillance programs run by the National Security Administration (NSA), while the former data point was collected afterwards. It is plausible that concerns of government surveillance have increased in the post-Snowden era.

These findings are from studies conducted in the United States, and are therefore highly pertinent to this research proposal. However, there is evidence that nationality, cultural values, and the regulatory environment as it pertains to privacy in specific municipalities are related to attitudes about privacy (Bellman et al., 2004; Cho, Rivera-Sánchez, & Lim, 2009; Milberg, Smith, & Burke, 2000), which could significantly affect the way ones considers government's role as it pertains to protecting or infringing on information privacy. For example, some studies have found that individuals who live in individualistic cultures are more likely to be concerned about privacy than those living in more collective cultures (Cho, Rivera-Sánchez, & Lim, 2009; Milberg, Smith, & Burke, 2004). The same has been found of individuals living in countries with high levels of masculinity and power distance (Milberg, Smith, & Burke, 2004). However, at least one study has found the opposite: that survey respondents in cultures with high masculinity, power distance, and individualism are less concerned about information privacy (Bellman et al., 2004). Some studies also found a relationship between the types of information privacy regulations in place respondents' countries, and the types of privacy attitudes individuals held (Bellman et al., 2004; Cho, Rivera-Sánchez, & Lim, 2009; Milberg, Smith, & Burke, 2000).

Bellman et al. (2004) suggest that “privacy regulation preferences reflect differences in cultural values and internet experience, but are also shaped by the prevailing regulatory regime” (p. 314). It is beyond the scope of this proposal to examine these incongruences deeply, but the fact that several studies have identified statistically significant relationships between cultural value indices, regulatory privacy practices, and information privacy attitudes is important for several reasons as it relates to the study of student attitudes about search data privacy in American academic libraries.

First, it is difficult to separate the relationships between culture, nationality, government, and regulatory practice. These are often, if not always, interrelated. Accordingly, one’s nationality, experiences with privacy regulations, and/or cultural values are likely to affect or be closely related to one’s attitudes about the government in general, and about the role of government and privacy. Because librarians convey concern about government invasion of privacy in the literature and in professional codes, and because these concerns have been impactful in shaping libraries’ commitment to privacy, it is especially important to understand library users’ attitudes about this.

In addition, findings from these studies further affirm that attitudes about privacy are heavily dependent on context, and create an even more compelling argument that studies conducted in the United Kingdom – which was the case for two of the three studies presented about search data privacy in academic libraries – cannot be considered generalizable or even transferrable to a study of American library users. Finally, it signals the importance of being attentive to study participants’ cultural values, nationality, and related experiences with privacy regulations when considering why they might hold particular privacy attitudes.

Privacy and social media

Privacy issues as they pertain to social media use are not closely related to the types of privacy concerns likely to arise for students engaged in research at a library, because the interactions with library systems and social media networks differ significantly. However, research on social media and privacy does illustrate the complexity of privacy attitudes and privacy-related behavior, which is useful in developing questions for interviews in this study.

While library systems are typically designed to be searched – an activity that is, in most cases, solitary – social media sites are designed specifically for the disclosure of information. Information sharing on social media sites has at times been perplexing to scholars, who have noted that even individuals who express privacy concerns continue to disclose information relatively freely on social media (Acquisti & Gross, 2006). When investigating students' engagement with Facebook, Acquisti and Gross found that privacy concerns were only a weak predictor of the likelihood that they would join and disclose information on Facebook. They advised that some privacy concerned individuals who continued to share on social media indicated that they felt they could control their own privacy on Facebook by being judicious about what they share and with whom, and by adjusting privacy settings. However, they also found evidence that in some cases, students lacked full understanding of the risks and mechanics of sharing information on Facebook.

Similarly, Tufekci (2008) found little to no relationship between privacy concerns and membership on social network sites. College students studied by Tufekci indicated that they managed privacy concerns by adjusting profile visibility, and by using nicknames or other aliases on social media sites so their posts were not so easily tied to their real names. Tufekci theorized that students' engagement with social media was a balance between “competing pressures for

disclosure and withdrawal” (p. 20), which recalls the themes related to balance, tradeoff, and complexity pertaining to privacy that were previously mentioned in this literature review.

Hargittai (2016) offers a similar theory, suggesting that participation in social media may be less related to privacy concerns and more related to young people’s perceptions that these sites play an important role in one’s socialization. In other words, the perceived benefit of participating in social media outweighs their privacy concerns.

Hargittai (2016) also notes important themes of apathy and cynicism from the young adults with whom she held focus groups about the possibility of protecting their online privacy. She reports that participants in her study believed that privacy violations could not be avoided, and thus, their willingness to disclose information on social media is a pragmatic response to students’ beliefs that social media is important to their socialization, and that they cannot control whether or not their privacy is violated. When considering these two beliefs in tandem, students would have little incentive to closely guard their privacy online.

Although social media engagement is very different from the way students typically use library systems, Hargittai’s (2016) findings of cynicism and apathy in undergraduate students about their ability to protect their privacy in general is relevant to the study, as are the findings from other studies in this section. All of them point to areas worthy of exploration, including third-party access to private information, balancing perceived risks versus benefits when making choices about privacy online, and trust as it relates to privacy.

Privacy and search engines

In addition to the array of studies focused on general and specific aspects of online information privacy, several studies focus in whole or in part on privacy as it pertains to search engines or other personalized search services that resemble search engines. These are especially

relevant to this research proposal due to the similarities in using an internet search engine and searching for information on an academic library's website. A survey from the Pew Research Center on search engine use (Purcell et al., 2012) suggests that users are not comfortable with the idea of search engines monitoring their activities. Seventy-three percent (73%) of respondents took issue with the idea of search engines tracking their behavior for the purpose of delivering personalized search results because it is an invasion of privacy, and two-thirds indicated that they would prefer no personalization at all, even if it meant loss of certain functionalities related to personalized search. On the other hand, Panjwani et al. (2013) found that most of their study participants in India indicated a slight preference for personalization above privacy when using search engines, but preferred to forego personalization when searching for a sensitive topic in order to maintain privacy.

Madden & Rainie (2015) found that only 16% of survey respondents were confident that their search engine providers kept their records private and secure. Forty percent (40%) of respondents suggested that search engine companies should not retain data about their search activity. Those who indicated high awareness of government surveillance issues, particularly following Edward Snowden's release of data about the National Security Administration's (NSA's) surveillance activities in 2013, were more likely to believe that certain types of online records should not be saved for any length of time. In addition, internet users sense a loss of control over their information privacy and report distrust for organizations of many types – search engines and others – who have access to their information (Madden 2014; Madden, & Rainie, 2015; Rainie et al., 2013).

Conti & Sobiesk (2007) surveyed 352 college students about web-based information disclosure, focused particularly on searching. The authors found respondents to be largely

unconcerned with privacy, stating that 80% agreed or strongly agreed with the statement “I am comfortable with the privacy I have when I use search engines” (p. 115). However, survey results suggested students may not be fully aware of the extent to which their data were being tracked, and interestingly, 43% indicated they had limited or little trust in Google, despite their overall comfort with the privacy they have when using search engines. This study also examined the balance between the value respondents placed on privacy versus “perfect search” – the authors’ way of describing a highly relevant search response that is only feasible by tracking information about users and their previous searches. Respondents were split, with about 55% of respondents favoring perfect search over privacy, and 45% the opposite. Although Conti and Sobiesk’s (2007) findings are pertinent to this research proposal, the implications are limited since the authors provide no evidence of their survey’s reliability or validity.

Privacy attitudes of young adults

All of the studies previously discussed that are related to social media and privacy focused on young adults and/or college students, but few focused exclusively on college students. However, some studies have looked at the practices of college students and/or young people as compared to older cohorts. Rainie et al. (2013) found that young adults are the most likely age group to take steps to make themselves less visible online, but also the ones most likely to have significant or personally identifiable information about themselves online. Paine et al. (2007) found that older individuals were more likely to be concerned about privacy issues online, but that the predictor of whether or not individuals act to protect their identities online is not age, but the amount of time they have spent online. The more someone uses the internet, the more likely it is that they will take some steps to protect their privacy, perhaps as a result of both

an increased awareness of potential privacy issues and the increased efficacy of using the internet that often comes with regular use over time.

Madden (2014) found that young people were more likely to see online surveillance programs as beneficial than their fellow internet users over the age of 50, and, as previously mentioned, Hargittai (2016) discovered a sense of apathy and cynicism in young adults regarding the inevitability of online privacy violations. Also, as previously described, Conti & Sobiesk (2007) found college students to be largely unconcerned with privacy issues when using search engines. Finally, Jones, Johnson-Yale, Millermaier, and Seoane Perez (2009), in a survey of more than 7,000 college students at 40 higher education institutions, found that

the majority of college students, nearly three-quarters, are at least somewhat concerned about the privacy of their personal data on the internet (and only three percent are not at all concerned), but they continue to post personal information online. This is not a contradiction for them, but rather a matter of multiple definitions of the personal, private, and public. While they are concerned about the security of passwords, credit card numbers, and social security numbers, they are not very concerned about sharing what might seem like private behavior on social networking sites such as Myspace and Facebook. (Conclusion, para. 4)

Sutlieff & Chelin's (2010) study primarily focused on understanding the user-library trust relationships, but their study also examines the overall privacy orientation of students surveyed. Measurement in this portion of their survey of undergraduate college students was based on the work of Joinson, Paine, Buchanan, and Reips (2006), who built upon Harris-Westin privacy segmentations (Louis Harris & Associates & Westin, 1999) to categorize individuals based on their privacy-related attitudes as privacy fundamentalists, privacy pragmatists, and privacy

unconcerned. Sutcliffe & Chelin (2010) further refined the privacy pragmatist category to be split into “privacy concerned” and “privacy unconcerned” (p. 169). Ultimately, they found that students were more privacy-relaxed than privacy-concerned.

These findings illustrate the complex nature of the young adults’ information privacy attitudes, in which perspectives might vary considerably based on the respective platform or the type of information transmitted. Overall, literature suggests that while young adults may be less concerned about online information privacy than older adults, they are not wholly unconcerned. Their lack of concern may be partially rooted in a lack of awareness of how their data are tracked and used, or in a sense of apathy or cynicism.

Summary of online information privacy attitudes

The literature repeatedly affirms that information privacy attitudes are complicated, multifaceted, and heavily dependent upon context. This strengthens the argument that understanding students’ specific perspectives on search data privacy in academic libraries is worthwhile, since literature makes clear that individuals are likely to have different attitudes and concerns about data privacy depending on particular scenarios or circumstances, including location and/or nationality. However, even within specific and clearly defined contexts – such as using a search engine as opposed to making purchases online – internet users sometimes express attitudes that are incongruent with their behavior.

Theoretical Framework: The Dual-Calculus Model

Many theoretical frameworks have been developed to explain how individuals’ information privacy attitudes and behaviors vary depending on context, and sometimes even seem to conflict within the same context. Some of the established theories that feature most prominently throughout the literature are social contract theory, the theory of reasoned

action/theory of planned behavior, the privacy calculus theory, and the expectancy-value theory (Li, 2012). Of these, the privacy calculus theory is among the most established. It is a process by which an individual weighs the risks of disclosing personal information against the perceived benefits of doing so in order to make a decision (Aguirre et al., 2016; Dae-Hee, Hettche, & Clayton, 2015; Garcia-Rivadulla, 2016; Li, 2012). A concept closely related to the privacy calculus is that of the “privacy paradox,” a phenomenon in which individuals express concerns about providing personal data about themselves, but do so nonetheless (Hargittai, 2016; Norberg, Horne, & Horne, 2007).

The theoretical framework that guides the development of this study is one that incorporates the privacy calculus and the privacy paradox. Li’s (2012) *dual-calculus model* includes elements of the privacy calculus as well as another process known as the risk calculus. In the risk calculus, individuals consider “perceived net risks (such as net privacy risks) in dealing with online transactions [related to privacy] based on threat appraisal and coping appraisal” (p. 478). The risk calculus suggests that if a user feels that her ability to mitigate a risk is outweighed by the risk itself, then she is more inclined to participate in activities that may require the disclosure of private information. By combining both the privacy calculus and risk calculus, Li (2012) proposes the dual-calculus model, in which internet users consider three major factors when making decisions about privacy online:

- Perceived benefits of disclosure (part of the privacy calculus)
- Risk appraisal: perceived risks of disclosure (part of the privacy calculus and the risk calculus)
- Coping appraisal: perceived ability to cope or mitigate risks (part of the risk calculus)

In this model (which Li has not tested empirically), all three factors play a role in

predicting privacy behaviors. For example, an individual who sees him/herself as self-efficacious when it comes to protecting his/her privacy through technological means may be willing to engage in high-risk but perhaps just medium-benefit activities that require disclosure of information. However, a user who does not perceive him/herself as particularly savvy in taking measures to protect his/her own privacy might only be willing to engage in information disclosure if s/he perceives the overall model as high benefit and low risk. Li (2012) provides a table to explain the dual-calculus model and related behavior intentions (see *Table 1*). Li's theory provides a model for explaining the variation in privacy attitudes and behaviors from person to person, and in different contexts

Table 1.

Li's dual-calculus model and behavior intention to provide information online.

Coping appraisal	Risk Appraisal	Perceived benefits	
		High	Low
High	High	Strong	Weak
	Low	Very strong	Moderate
Low	High	Moderate	Very weak
	Low	Strong	Weak

It is not the primary intent of this study to rigorously assess the relationship between students' attitudes versus behaviors related to search data privacy in academic libraries. However, it is an important area to explore to some extent, because one of the underlying assumptions librarians hold about the importance of privacy is that it is a prerequisite to open inquiry, and that without it, users will change their search behaviors. The dual-calculus model (Li, 2012) provides a useful framework for designing methods of inquiry in order to explore students' descriptions of how their attitudes about search data privacy in academic libraries affect their behavior in the same environment. Li's (2012) framework will also be useful in organizing findings and relating them to the extant literature.

Instrumentation for Measuring Online Information Privacy Attitudes

There are several established instruments for measuring information privacy attitudes, although none are specifically designed to examine information privacy attitudes in the library context. The two most prominent instruments for measuring information privacy attitudes are the Concern for Information Privacy instrument (CFIP) (Smith et al., 1996; Stewart & Segars, 2002) and the instrument for Information Users' Information Privacy Concerns (IUIPC) (Malhotra, Kim, & Agarwal, 2004). Of the two, the CFIP is more established in information privacy research (Bélanger & Crossler, 2011).

The CFIP is a 15-item instrument described by Stewart and Segars (2002) as indicative of “individuals’ concerns about organizational information privacy practices” (p. 37). The 15 items reflect four factors of concern: collection, errors, secondary use, and unauthorized access. The IUIPC, which was developed after the CFIP, is a 10-item scale comprised of three subscales: control, awareness (of privacy practices), and collection. Malhotra et al. (2004) assert that the IUIPC is focused more closely on internet users’ concerns about information privacy, while the CFIP is more geared toward organizational information privacy practices and a primarily offline environment.

In addition to these two well-known instruments, other measures have been developed with varying degrees of evidence of their psychometric properties. Chellappa and Sin (2005) developed a scale that measures preferences for personalization and privacy as two constructs that can then be used to consider how attitudes predict behavior. Buchanan, Paine, Joinson, & Reips (2007) developed and validated an instrument focused on three dimensions of information privacy: privacy concerns, general caution, and privacy protection. In addition, the Pew Research Center administered numerous surveys related to information privacy (Purcell, et al., 2012;

Rainie et al., 2013; Rainie, & Duggan, 2016; Madden, 2014; Madden, & Rainie, 2015).

However, the IUIPC and CFIP remain the most frequently used and assessed instruments for measuring information privacy (Chellappa and Sin, 2005).

Despite the availability of several validated instruments for measuring information privacy concerns, none are precisely aligned to examine student attitudes about privacy of search data in academic libraries. Combined with the fact that little is known about student attitudes on this matter, this further bolsters the argument for a more exploratory and qualitative approach to gain initial insight into students' perceptions in this context.

Summary of Literature Review

Overall, the literature about student attitudes regarding search data privacy in academic libraries is sparse and lacking in quality. However, the more robust literature about online information privacy findings and data collection instruments informed this proposal. In general, the literature about search data privacy in academic libraries and in other contexts point toward several domains worthy of exploration in this study, including but not limited to:

- Student perspectives on acceptable collection and use of search data
- Potential concerns about third-party access to search data, including government
- The role of trust in shaping attitudes about information privacy in different contexts, including libraries
- The extent to which attitudes shape students' search behavior, and why.

III. METHODOLOGY

Research Design: Interpretive Description

The scarcity of well-designed, rigorous research examining student attitudes about search data privacy in academic libraries affirms the need for an in-depth understanding of this issue and calls for a qualitative approach. Questions well-suited for qualitative methods are those for which themes, patterns, and understandings have not been well documented or reported (Thorne, 2016). Moreover, qualitative methods are best suited to obtain the “thick description” (Ryle, 1949; Geertz, 1973; Lincoln, & Guba, 1985) needed to create a knowledge base about student attitudes pertaining to search data privacy in academic libraries in order to shape future research and practice in the applied field of librarianship.

However, many of the most established qualitative traditions emerged from disciplines such as sociology and anthropology, which primarily focus on the development of grand theories (Hamilton, 1994). As a result, these approaches are not wholly appropriate for applied disciplinary research. During my doctoral coursework, I considered approaches such as narrative inquiry, phenomenology, and grounded theory as possible methodologies for this study. In each case, I found myself manipulating the research questions I wished to ask to make them fit those approaches, even in instances where doing so entirely changed the nature of the study. For narrative research (Creswell, 2013), I attempted to craft questions that would allow me to restory students’ lived and told experiences to develop applicable answers to my questions about search data privacy in academic libraries. For phenomenology, I rephrased questions to uncover someone’s “lived experience” of a phenomenon related to library search data privacy (Creswell, 2013). For grounded theory (Glaser & Strauss, 1967), I imagined a study culminating in a comprehensive theory. However, none of these modifications positioned me to understand

students' attitudes about search data privacy in academic libraries in such a way that it would be a meaningful contribution to knowledge for library practitioners. I was, as Wolcott put it, "posturing" (1992, p. 4): employing certain qualitative approaches in order to make my study sound credible, as opposed to providing a meaningful framework for the actual question(s) I wished to ask.

I continued to investigate qualitative approaches and ultimately discovered interpretive description, a methodological framework developed for practical, applied research questions (Thorne, 2016; Thorne, Reimer Kirkham, & MacDonald-Emes, 1997; Thorne, Reimer Kirkham, & O'Flynn-Magee, 2004). Interpretive description studies are designed to gain in-depth understanding of a particular phenomenon and/or subjective knowledge in clinical or applied disciplines (Thorne, 2016), achieving the goals of the present study.

The approach emerged in the field of nursing, an applied discipline that has embraced qualitative methods in health research due to nurses' holistic approach to healthcare, which often requires methods outside the quantitative tradition to reveal the types of information sought. The interpretive description approach was developed by Sally Thorne, a nursing researcher who saw the need for a new methodology given the limitations for applied health sciences research within the traditional qualitative approaches. She attributes some of her inspiration for developing this approach to her observation of educational studies, noting in particular the significant contributions to qualitative research made by Michael Quinn Patton (1980; 1987; 2002) and Yvonna Lincoln and Egon Guba (1985).

Interpretive description is a strategy for "excavating, illuminating, articulating, and disseminating the kind of knowledge that disciplines with an application mandate tend to need in order to enact their mandate—whether it be healing, educating, serving, or building something

on behalf of society” (Thorne, 2016, p. 11). Interpretive description studies “explicitly attend to the value of subjective and experiential knowledge as one of the fundamental sources of applied practice insight” (p. 82). The approach provides an intentional and rigorous framework for asking research questions best answered through qualitative methods, without suggesting that the result must be a grand theory. It encourages the thoughtful utilization of methods from various qualitative traditions to answer specific research questions, which are posed in a way that allows answers to be resituated within the context of the applied field. Built upon a critical realist ontology (Bhaskar, 1989), interpretive description straddles the spectrum of objectivity and subjectivity, relying on both “factual information as well as social construction of participants’ realities” (Thorne, 2016, p. 11).

Interpretive description is not a discrete method, but rather an overall approach for applied qualitative research. Its purpose is based on three things:

1. “An actual real-world question,
2. An understanding of what we do and don’t know on the basis of all available empirical evidence, and
3. An appreciation for the conceptual and contextual realm within which a target audience is positioned to receive the answer we generate” (Thorne, 2016, p. 40).

Interpretive description is similar in some ways to Sandelowski’s (2000) articulation of a *basic* or *fundamental* descriptive approach to qualitative research. Sandelowski suggests that basic descriptive information gleaned from qualitative data collection methods can make important contributions to research in some circumstances. Furthermore, she suggests that in those instances, there should be no need for researchers to resort to “methodological acrobatics” (p. 335) in which they claim use of qualitative research approaches such as grounded theory,

phenomenology, and ethnography in order to increase the “epistemological credibility” of their studies (Thorne et al., 1997, p. 170). A basic qualitative description would in some ways achieve the goals of this study by providing descriptive data that is not currently available.

However, interpretive description is a more clearly articulated methodological approach than Sandelowski’s (2000) basic qualitative description. Basic qualitative description is rooted in the traditions of naturalistic inquiry (Lincoln & Guba, 1985), but Sandelowski (2000) does not emphasize the importance of designing a study based on epistemological integrity in which research questions, data collection, data analysis, and interpretation are aligned with the overarching research paradigm and underlying ontology (Thorne, 2016). Interpretive description emphasizes the importance of epistemological credibility and the importance of interpretation and identification of meaningful patterns in the data beyond just mere description – a process which is described further in this chapter. Figure 1 explicates the epistemological underpinnings of interpretive description as defined by Thorne.

Interpretive description studies:
<ul style="list-style-type: none"> • are conducted in as naturalistic a context as possible in a manner that is respectful of the comfort and ethical rights of all participants,
<ul style="list-style-type: none"> • Explicitly attend to the value of subjective and experiential knowledge as one of the fundamental sources of applied practice insight,
<ul style="list-style-type: none"> • Capitalize on human commonalities as well as individual expressions of variance within a shared focus of interest,
<ul style="list-style-type: none"> • Reflect issues that are not bound by time and context, but attend carefully to the time and context within which human expressions are enacted,
<ul style="list-style-type: none"> • Acknowledge a social “constructed” element to human experience that cannot be meaningfully separated from its essential nature,
<ul style="list-style-type: none"> • Recognize that, in the world of human experience, “reality” involves multiple constructed realities that may well at times be contradictory, and
<ul style="list-style-type: none"> • Acknowledge an inseparable interaction between the knower and the known, such that the inquirer and the “object” of that inquiry influence one another in the production of the research outcomes.

Figure 1: Epistemological underpinnings of interpretive description (Thorne, 2016)

In addition, interpretive description is a more rigorous framework than basic qualitative description because it makes explicit its undergirding ontology, rooted in critical realism (Bhaskar, 1989), and encourages the development of research questions that can be situated back into the appropriate disciplinary context. Thorne (2016) also encourages an intentionally eclectic approach to utilizing specific methods that are often associated with well-known qualitative approaches, particularly phenomenology (Moustakas, 1994), ethnography (Howard & McKim, 1983); and grounded theory (Glaser & Strauss, 1967). to the extent that those approaches enable researchers to answer their stated questions. Interpretive description

“shamelessly encourages borrowing from the full universe of available design techniques as appropriate to the nature of the research question at hand. But instead of forcing an overall design logic that had often proved a very poor fit with the questions applied researchers wanted to ask, it invites researchers to move beyond rule structures imposed by any disciplinary worldviews or standpoints that need not apply, and replace them instead with more relevant and meaningful disciplinary logic” (Thorne, 2016)

She supports the idea of borrowing methods from different traditions as long as the selection is justified. For example, a social worker interested in homeless individuals dealing with mental illness might engage ethnographic techniques for data collection. An educator seeking to understand what motivates teachers in order to develop meaningful professional development and/or incentive programs for performance might draw on approaches common to grounded theory such as the constant comparative method of data collection. In both cases, the intent would be to develop findings that can be used in practical and applied fields. Interpretive description invites researchers to consider how research design decisions from a variety of

qualitative approaches – including methods that may not typically be paired in their original methodological tradition – to be utilized to the extent they are the right fit for answering a particular research question.

Given the applied nature of librarianship as a profession and the practical nature of the purpose of this study, interpretive description is the ideal methodological approach.

Positionality

Like most qualitative approaches, interpretive description studies acknowledge the subjective role the researcher plays in the development of research questions, data collection, and data analysis. However, Thorne warns against the “over-inscription of self” (p. 196), noting that the focus must remain on the subjective knowledge of the study participants, rather than on the perspectives and experiences of the researcher. It is therefore important that I articulate my position and identity as it relates to the goals and content of the study (Maxwell, 2013; Thorne, 2016), and to be reflexive about how my position is likely to influence the study (Bailey, 2018).

I have been a member of the library profession for a decade, and am currently the Associate University Librarian for Research and Learning at VCU. Although my daily responsibilities do not include routine evaluation responsibilities or require me to engage in the management of library users’ search data, I have long been interested in librarians’ strong commitment to user privacy and its relationship to evaluation. At times, I have found this conviction and the ways in which it has manifested inspiring, admiring libraries’ refusal to adopt big data practices during an era when many internet users feel it has become increasingly difficult to retain any privacy online (Hargittai, 2016; Madden, 2014; Madden & Rainie, 2015). At other times, I have found the profession’s staunch commitment to privacy naïve, lacking nuance, and reflective of resistance to embracing technological change and solutions. Although I

agree with the philosophical assumption that privacy and confidentiality are prerequisites to free and open inquiry, I have become increasingly interested in ways libraries can collect and protect user data so that they can be used to implement sophisticated evaluative practices, enabling libraries to improve services and showing the usefulness of the library as a contributor to student success.

Despite any inclinations I may have about the best way to approach user privacy, my greatest motivator for pursuing this study is that libraries should develop their policies and practices about user privacy based not only on the profession's commitment to privacy, but also with consideration of user perspectives on the matter. I am not advocating for a particular way forward in terms of whether or not libraries should or should not collect user data. Instead, I am advocating for a more user-centered approach to making these types of decisions.

Student perspectives are largely missing from the literature, and their absence has developed my genuine curiosity and interest in understanding their attitudes in this area. I have informally examined user perspectives on library search data privacy over the years through my doctoral studies. When I attempted to examine students' privacy attitudes quantitatively using Likert-type questions with agreement scale response options, respondents frequently selected "neutral" or "don't know." I suspected that these responses were not indicative of the fact that students had no opinions on the matter or that they did not care; instead, I hypothesized that students had little familiarity with how libraries handled their search data and had no previous reason to consider the matter. Coupled with evidence that attitudes about information privacy are often complex, this suggested to me that students could not respond meaningfully to a quantitative instrument that failed to elicit in-depth information about their attitudes. When I began to use qualitative methods in my coursework to explore student attitudes on library search

data privacy, I was able to gather richer data. These methodological test runs, coupled with the minimal research available about user perspectives on library search data privacy, clarified the need for a formal qualitative study.

Thorne (2016) warns against qualitative researchers' perspectives and beliefs unduly influencing the outcomes of a study. Throughout this chapter, I describe some of the techniques I used to prevent that. In addition, that search data privacy is a professional interest of mine as opposed to a notable portion of my job responsibilities means that my interest in this topic is genuine, but also low-stakes for me as a library practitioner. The fact that I am not over-invested in this area on a practical level at VCU Libraries was one safeguard to my ability to ensure that data analysis and interpretation were focused on participants' attitudes as opposed to my own.

Research Questions

The interpretive description approach is well suited to applied research questions designed to uncover information through available sources, and to subsequently resituate the findings into the context of the discipline (Thorne, 2016). The content and syntax of the questions should reflect a degree of practicality. Questions should also be free of signifying language that is often associated with specific disciplinary approaches, such as references to "lived experiences" for phenomenology or "basic social processes" for grounded theory (Thorne, 2016, p. 56). The central research questions that guided this study were well aligned with this approach:

1. What are undergraduate students' attitudes about whether academic libraries should collect and maintain user search data, and why?
2. What are acceptable and unacceptable uses of students' library search data according to undergraduate students, and why?

3. In what ways do undergraduate student attitudes about search data privacy differ in the context of using academic libraries and commercial search engines such as Google?
4. What do students perceive as the risks and benefits of libraries collecting student search data, and how do these perceptions influence their search behavior?

Interpretive description invites use of data collection and analysis techniques from a variety of qualitative traditions depending on what methods will be most effective in answering a particular research question. Although the intent of this study was not to produce a theory that defines a social process, which is characteristic of Glaser & Strauss's (1967) grounded theory approach, many of the sampling, data collection, and data analysis techniques used in grounded theory were employed in this study to effectively answer the research questions.

Sampling Method

The research questions were explored via in-depth, semi-structured interviews with undergraduate students. The research site was Virginia Commonwealth University (VCU), an urban, public, comprehensive research university in Richmond, Virginia with more 31,000 enrolled students. VCU is known for its ethnic diversity; nearly half of the student body indicates that they are a member of an ethnic/racial minority group. (Virginia Commonwealth University, 2019). In general, the institution is deeply committed to inclusion, access, and experiential and service-based learning for undergraduate students. It is one of 54 universities designated with a Carnegie classification of "Very High Research Activity" and a "Community Engaged" classification. VCU has a robust library system with two main academic research libraries, one of which is located on the general academic campus, and the other on the health sciences campus. The participants in this study were all currently enrolled undergraduate students at VCU.

The study employed a convenience sampling approach (Creswell, 2013) combined with elements of purposeful, theoretical, and maximal variation sampling (Maxwell, 2013; Thorne, 2016). Glaser and Strauss (1967, p. 45) describe theoretical sampling as “the process of data collection... whereby the analyst jointly collects, codes and analyses his data and decides what data to collect next and where to find them, in order to develop his theory as it emerges.” An important component of theoretical sampling is maximal variation sampling, in which the researcher seeks participants who, based on the emerging themes and theory of the data, might illuminate a new angle of a particular concept or phenomenon (Thorne, 2016).

However, exclusive use of a purposeful sampling strategy with emphasis on maximal variation and theoretical sampling was not the appropriate or practical approach for this study. First, the paucity of research available on student attitudes about search data privacy in academic libraries provides minimal direction for how one might approach a purposeful sampling technique. The information privacy literature offers somewhat more guidance; for example, literature suggests that conceptualizations of and attitudes about privacy vary by national, cultural, and political/legislative context (Bellman et al., 2004; Cho, Rivera-Sánchez, & Lim, 2009; Milberg, Smith, & Burke, 2000). Accordingly, nationality and other indicators of culture could be worthwhile characteristics to consider in a purposeful sampling approach to answering this study’s research questions. However, developing a sampling strategy that would ensure inclusion of a sufficient number of study participants with different national/cultural heritage would require interviews with far more participants than what I could accomplish within the practical constraints of this study. In addition, it would be premature to engage in qualitative research focused on the differences between specific groups since the literature lacks more fundamental, rigorous studies on search data privacy in academic libraries in general.

Given both of these reasons, beginning with a convenience sampling method – as opposed to relying exclusively on a purposeful, theoretical, or maximal variation sampling methods – to recruit undergraduate students was an appropriate way to select an initial group of study participants. Because no in-depth analysis of students’ attitudes about search data privacy in academic libraries currently exists, recruiting students who were available and willing to share their perspectives was a reasonable first step in establishing foundational knowledge in this area. I determined that the best method to explore potential differences related to nationality, ethnicity, and other demographic factors that might influence student attitudes about search data privacy in academic libraries was to incorporate questions about participants’ background into the data collection process. Doing so afforded the opportunity for me to learn more about participants’ demography and backgrounds which I could consider as part of my analysis.

Accordingly, a limited set of inclusive criteria was delineated for the parameters of the convenience sampling approach. These criteria were developed to ensure that participants were well-positioned to share their attitudes about library search data privacy:

- Participants must be undergraduate students at VCU.
- Participants must have at least some experience with searching for information in or borrowing materials from an academic library.
- Participants must be proficient in English to the extent that no interpreter is required for interviews (thereby ensuring that we can achieve the level of nuance and depth that speaking the same language will afford).

Convenience sampling was the initial sampling method for the study. However, as data collection and analysis progressed, I was able to employ elements of purposeful, theoretical, and maximal variation sampling when selecting students to interview from the pool of students who

expressed interest. Specifically, I was able to be attentive to diversity as it pertained to gender, race, and ethnicity in order to seek a heterogeneous panel of participants. This approach is consistent with Maxwell's discussion of convenience sampling as a method of participant selection that can also be purposeful, especially when intended to increase the heterogeneity or richness of the participant pool (Maxwell, 2013). The process of selecting participants from the initial convenience sampling pool is further detailed in the Recruitment, Data Collection, and Data Analysis sections of this chapter.

Ultimately, 53 students expressed interest in participating in the study, and I conducted interviews with 27 participants. This exceeded the number of participants I initially anticipated interviewing, which was projected at 15-25. This initial range assumed that less than 15 interviews would likely be too few to elicit both differences and commonalities in terms of student attitudes about search data privacy in academic libraries, and that more than 25 interviews would not be necessary to develop a foundational body of knowledge in this area. I acknowledged, however, that if new themes were still emerging after interviewing 25 participants, that I would recruit more.

I had no trouble recruiting potential participants in the study, and the richness and complexity of the data collected in the interviews led me to conduct two more interviews than the maximum number I anticipated. Doing so enabled me to fully address the research questions and the overall goals of the study. Thorne (2016) challenges the traditional notion of saturation in which a researcher can be confident that s/he has captured all variations in a subjective body of knowledge when one begins to hear the same information from different participants with no variation (Sandelowski, 2008). She asserts that a lack of new information from study participants does not mean that all perspectives or manifestations of a phenomenon have been captured, and

recommends that researchers acknowledge that even when they reach the point at which no new information is emerging, other perspectives probably exist that will not or cannot be captured within the practical constraints of most studies. Accordingly, I acknowledge that although by the 27th interview no new themes were emerging, I do not presume that others do not exist. In fact, I engaged in a “practice-informed imaginal exercise” to consider what perspectives might have emerged if I had interviewed more or different participants (Thorne, 2016, p. 179), which shaped the nature of my presentation of findings.

Thorne (2016) also recommends returning to participants who have already been interviewed as necessary to seek additional clarification or elaboration about themes or concepts, in addition to recruiting additional participants. I determined that it was not necessary to do so in this study based on the data-rich nature of the initial interviews with most students, and my ability to follow up on emerging themes and concepts with other participants who were subsequently interviewed.

Recruitment and Participants

Study participants were recruited through a variety of methods, including emails to faculty and students with whom I had a pre-existing relationship, posts in the VCU daily newsletter, social media posts, and flyers (recruitment text is included in Appendix A). Potential participants were asked to complete a short screening survey administered via Google Forms (Appendix B) to ensure they met the designated inclusion criteria and to provide demographic information. Responses received via the Google Form were kept confidential.

I staggered calls for participation in order to avoid a situation in which I received more interest than I could accommodate in a timely fashion, since I anticipated completing no more than 4-6 interviews per week. Accordingly, calls for participants were intentionally distributed

throughout the data collection process, beginning in late February with the final recruitment occurring in April 2019. Interviews took place from early March through mid-May.

The staggered timeline for recruitment also allowed me to engage in some elements of purposeful, theoretical, and maximal variation sampling even within a convenience sampling framework. Specifically, I was able to assess which potential participants may be most likely bring new perspectives or enrich existing themes based on their demographic and informational responses to the screening survey (Appendix B) with the benefit of some data collection and analysis already in progress. For example, early in the study, I received more interest in the study from women than men or transgender/nonbinary people. In the second round of recruitment, the inclusion criteria remained minimal, but I focused my selection of participants on those who indicated their gender as male or transgender/nonbinary. This was useful not only for increasing the overall diversity of the participant pool; it also allowed me to follow some initial themes suggesting that minoritized people sometimes expressed more concerns about privacy than others. Therefore, I determined that interviewing trans and nonbinary students who had expressed interest in my study may enrich the demographic diversity and the pool and permit more voices from a minoritized/oppressed group of people.

Over the course of the entire recruitment process, 53 students expressed interest in the study, and 27 were selected to participate and completed an interview. Those invited to participate in the study received an email inviting them to participate and schedule an interview (Appendix C). Scheduling was managed via Doodle (www.doodle.com), through which students were able to select an appointment time for their interview. Students' identity on the Doodle poll was only visible to me. Students were advised in the recruitment process that they may be invited to participate in one or more interviews, depending on the need for additional clarification of

detail. Ultimately, each of the 27 students who participated in one interview each, and all of them received a \$15 Amazon gift card as an acknowledgment of their participation in the study.

Because I employed a convenience sampling approach, I did not expect a demographically representative sample of the undergraduate student population at VCU. However, the significant interest I received in my study allowed me to seek demographic diversity more intentionally than I anticipated, since I could not interview all 53 students who expressed interest within the practical constraints of the study. Accordingly, I elected to seek demographic diversity in terms of race and ethnicity as the closest corollary available based on the screening survey. This aligned well with findings in the information privacy research suggesting that culture and nationality can play a role in shaping individuals' attitudes about privacy (Bellman et al., 2004; Cho, Rivera-Sánchez, & Lim, 2009; Milberg, Smith, & Burke, 2000), although race/ethnicity are distinct characteristics from culture and nationality.

As a result, the study participants represented a level of diversity that exceeded my expectations for a convenience sample. This was especially true in terms of race/ethnicity, with more than half of the participants being members of ethnic/racial minority groups. In addition, nearly half of the students were members of families with immigrant parents, and two participants were immigrants themselves. One area in which the sample was homogenous was age: all participants were between the ages of 18-24. There was also a disproportionately high number of first year students and also Honors students in the sample (more than 50% of both groups, respectively), which was likely a result of two Honors professors who promoted the study to their primarily first-year students with great enthusiasm.

Participants' demographics are summarized in Figure 2. Each participant has been assigned a pseudonym.

Name	Gender	Race/ethnicity	Enrollment Status	Hometown	Immigrant Parents
Yoofi	Male	Black/African	Junior	Mid-Atlantic suburb, diverse area	No
Chandler	Female	White/Caucasian	Junior	Mid-Atlantic suburb, limited diversity	No
Angelica	Female	Black/African	First Year	Mid-Atlantic suburb, very diverse area	No
Galina	Female	Black/African	First Year	Born in Ethiopia; raised in Mid-Atlantic suburb, limited diversity	Yes
Corey	Female	White/Caucasian	Junior	Mid-Atlantic suburb, limited diversity	No
Abeo	Male	Black/African	Sophomore	Mid-Atlantic suburb, diverse area	Yes
Kavya	Female	Asian	Sophomore	Mid-Atlantic suburb, moderate diversity	No
Ava Grace	Female	Asian	Sophomore	Mid-Atlantic suburban/rural area, moderate diversity	Yes
Clayton	Male	White/Caucasian	First Year	Mid-Atlantic small town, moderate diversity	No
Raelyn	Female	White/Caucasian	First Year	Mid-Atlantic small town/rural area, limited diversity	No
Selena	Female	Hispanic/Latinx	First Year	Mid-Atlantic city and small town; diversity varied by location	Yes
Maria	Female	Hispanic/Latinx	Sophomore	Mid-Atlantic suburb, moderate diversity	Yes
Stephen	Male	Asian	Sophomore	Mid-Atlantic suburb, diverse area	Yes
Tahmina	Female	Asian	First Year	Born in Pakistan; raised in Mid-Atlantic suburb, diverse area	Yes
Eliza	Female	White/Caucasian	First Year	Mid-Atlantic suburban/rural area, diversity varied by location	No
Robert	Male	Asian	First Year	Midwestern suburb, moderate diversity	Yes

Savannah	Female	White/Caucasian	First Year	Mid-Atlantic suburb, moderate diversity	No
Lakshmi	Female	Asian	First Year	Mid-Atlantic suburb, diverse area	Yes
Cameron	Female	White/Caucasian	First Year	Mid-Atlantic small town, limited diversity	No
Samaira	Female	Asian	First Year	Mid-Atlantic suburb, diverse area	Yes
Alexandra	Female	White/Caucasian	First Year	Midwestern small town; limited diversity	No
Erica	Female	Asian	First Year	Raised in many locations; diverse in total	Yes
Erin	Transgender/Nonbinary	White/Caucasian	Sophomore	Southern small town, moderate diversity	No
Phillip	Male	White/Caucasian	Senior	Mid-Atlantic suburb, diverse area	No
Rashid	Male	Asian	First Year	Mid-Atlantic suburb, moderate diversity	Yes
Spencer	Transgender/Nonbinary	White/Caucasian	Junior	Mid-Atlantic rural area, limited diversity	No
Elliott	Male	White/Caucasian	First Year	Mid-Atlantic suburb, limited diversity	No

Figure 2: Participant demographics and background

Participants represented a wide array of majors, as well, although they are not presented in Table 1 in order to protect the confidentiality of participants. However, students came from all major disciplinary areas, including humanities, STEM fields, the arts, social and behavioral sciences, and interdisciplinary studies. A small number of participants had not yet declared majors.

The Constant Comparative Method

Interpretive description encourages the thoughtful selection of data collection techniques and analytic strategies based on particular goals and research questions, borrowing freely from other qualitative traditions in order to meet the goals of the study as successfully as possible. Although the goal of this study does not rise to level of developing an original or explanatory theory, some methods rooted in the tradition of grounded theory (Glaser & Strauss, 1967) were deemed to be the most effective methods of inquiry. Data collection and analysis occurred simultaneously using the constant comparative method (Glaser & Strauss, 1967). Thorne (2016) states that “while straight description could occur in a study that gathers data first and thinks later, interpretive description will inevitably require that the ongoing engagement with data be strategically employed to confirm, test, explore, and expand on the conceptualizations that begin to form as you enter the field” (p. 109). A constant comparative approach assures the ability to develop the richest possible findings by enabling the researcher to explore themes as they emerge throughout the data collection and analysis process.

Data Collection

The primary method of data collection was in-depth semi-structured interviews. In-depth interviews were the ideal data collection technique for this study, given their emphasis on developing a deep understanding of individual perspectives (Guest, Namey, & Mitchell, 2013; Peräkylä & Ruusuvuori, 2011) which were used to understand commonalities and differences among student perspectives. A semi-structured interview approach ensured that pertinent questions were asked in each interview, while still allowing flexibility and the use of probing questions in order reveal information germane to the study as data collection and analysis progressed (Guest et al., 2013; Roulston & Choi, 2018).

Although focus groups also seek to elicit understanding of subjective knowledge and illuminate consensus and diversity, the interactivity among several participants precludes the level of depth that can be pursued in individual interviews (Morgan & Hoffman, 2018). In addition, the primary purpose of focus groups is to capitalize on group interactions to form certain types of knowledge about beliefs shared among groups that might influence collective behavior (Thorne, 2016), which was not the intent of this study. Furthermore, focus groups were not likely to be a successful format in eliciting information from individuals about privacy since an open discussion of fears or concerns about this topic may have felt too vulnerable for open sharing within a group. From a more practical perspective, finding an amenable time to conduct a focus group for students who consented to participate in the study would have been challenging and a barrier to participation. Individual interviews resulted in richer data and more scheduling flexibility for individual participants.

Interview logistics

All 27 interviews were held in person and recorded with a digital audio recorder. Transcripts of the recordings were professionally made. I also took detailed notes in the interviews, which were used for my immediate engagement in the constant comparative method of data collection and analysis (Glaser & Strauss, 1967) while I awaited receipt of the interview transcripts. Informed consent was secured at the beginning of each interview via the provision of a participant information/informed consent document (Appendix D). The same document was also sent to individual participants for review prior to their interview time as part of the scheduling confirmation notification (Appendix E). Because the inclusion of students' names and signatures would have increased the risk of revealing participants' identities, VCU's Institutional Review Board (IRB) suggested that no signature be required to confirm informed consent and

approval of the study was granted with a waiver of document of consent (VCU IRB Number: HM20015222).

Interviews took place in my office at Cabell Library, which is comfortably appointed and sufficiently quiet for an interview. Because the office is located in an administrative suite, I could not unequivocally guarantee the privacy of individual participants' identities. However, scheduled meetings with visitors are not uncommon and thus attracted minimal attention. Data collected during the interview process was kept confidential.

In general, students were very engaged in the interviews, and it was not unusual for an interview to exceed the hour allotted. In rare instances, interviews took considerably less than an hour. The shortest interview was 32 minutes long, and the longest was 83 minutes. The average number of minutes per interview was 56.

Semi-structured interviews and use of vignettes

A semi-structured interview approach ensured that a set of common questions were asked in each interview, while allowing flexibility and the use of probing questions in order reveal information that each study participant was uniquely poised to share (Guest et al., 2013; Roulston & Choi, 2018). This combination of structure and flexibility made the semi-structured approach ideal for ensuring consistency in the core set of questions asked in each interview so that data could be compared (Bogdan & Biklen, 2007; Guest et al., 2013), while also allowing flexibility so that each participant could contribute meaningfully to the study based on their individual attitudes, experiences, and background.

The interviews were composed of both questions and vignettes (Finch, 1987). When previously piloting interview questions for this area of study, I observed that most students had not considered search data privacy issues in academic libraries, and sometimes struggled to

articulate their thoughts or respond when presented with questions about their attitudes. The inclusion of vignettes, defined by Finch (1987) as “short stories about hypothetical characters in specified circumstances, to whose situation the interviewee is invited to respond,” (p. 105) enabled participants to respond to concrete situations in order to elicit more abstract ideas and attitudes (Hazel, 1995).

Vignettes are typically designed so that participants are invited to state how they – or a third person – would react to a particular scenario (Barter & Renold, 2000). When designed effectively, they are concrete enough that the respondents feel equipped to consider and react to the situation being described (Neff, 1979). However, they should also be ambiguous enough that respondents have space to ask clarifying questions that reveal the type of information they deem pertinent to make value judgments and decisions about the issue being depicted (Barter & Renold, 2000).

The literature reveals instances in which vignettes have been used as a part of or in addition to interviews. Rahman (1996) used vignettes at the conclusion of interviews about conflict sensitivity with caregivers of elders, moving the conversation from the personal to the more abstract and situational possibilities vignettes afford. Barter and Renold (2000) used a combination of semi-structured interview questions followed by vignettes with follow-up questions to understand children’s experiences with and perceptions of peer violence in their homes.

A limitation of vignettes is that asking study participants how they would respond to a particular situation is a hypothetical exercise as opposed to an actual indication of what one would do in a particular situation. In addition, participants may feel inclined to provide socially desirable responses (Barter & Renold, 2000). However, given that the subject matter being

considered in this study was not especially sensitive, this did not emerge as a significant issue, and since the primary goal of the vignettes is to reveal student attitudes about search data privacy in academic libraries as opposed to predicting behavior, these were not significant limitations of the proposed study.

In order to invite participants to imagine and respond to experiences that may not be their own, vignettes were written in third person – a strategy that was also intended to reduce the probability of social desirability bias (Barter & Renold, 2000). All vignettes were followed with a series of flexible follow-up questions to facilitate conversation about the scenario described. Because the description of each vignette was specific and usually several sentences long, participants received a printed copy of each vignette to respond to during the interview.

Overall, vignettes proved useful in “compensate[ing] for a lack of direct experience” (Barter & Renold, 2000, p. 321) when seeking to understand participant perceptions. Although it was a requirement that students participating in this study had experience searching for information in academic libraries, most had not experienced situations in the library context in which they felt their privacy was violated or at risk. Therefore, vignettes that were organized by topic throughout the interviews provided a useful avenue to understanding their perceptions of such a situation by asking them to imagine situations with hypothetical characters in which student privacy might come into question.

Domain-organized interview guide

In order to provide a flexible structure for the interviews, I developed a domain-organized partially sequential interview guide (Initial interview guide: Appendix F; Final interview guide; Appendix G). This approach allowed flexibility to ask questions at the most logical time in the

interview based on participants' responses, as opposed to adhering to a strict order (Guest et al., 2013).

Each interview began with an overview of the study, which served multiple purposes. First, providing context about the nature and goals of the study enabled participants to speak comfortably and increased familiarity with some key aspects of the services academic libraries provide, regardless of their individual level of familiarity with academic libraries. Finally, the introduction gave each participant time to relax and allowed me to present myself as friendly and approachable, creating an environment conducive to open communication.

Questions and vignettes were grouped around several topical areas pertaining to searching for information on the internet and in academic libraries. Focusing on internet searching as well as library searching achieved two things. First, it provided students an opportunity to respond to questions about a type of searching they engage in every day, thereby creating a sense of ease and comfort with the types of questions they were asked to address in the interview. Second, it illuminated differences in students' attitudes about searching the internet and academic libraries, revealing information about trust and privacy regarding two different types of information providers.

The interview guide (Appendix G) included questions in the following areas, all of which are informed by the literature referenced in Chapter Two:

- *Questions about the participant.* Because literature suggests that culture and nationality can play a role in shaping individuals' attitudes about privacy (Bellman et al., 2004; Cho, Rivera-Sánchez, & Lim, 2009; Milberg, Smith, & Burke, 2000), participants were invited to share information about where they and their parents grew up and have lived. They were asked to describe the area and their experiences

growing up there. As appropriate, I returned to this information as appropriate throughout the interview.

- *Experiences with searching for information, both in an every-day context and in academic research.* Understanding students' search habits when using search engines such as Google as well as academic libraries provided valuable context for the rest of the interview and informed my ability to ask meaningful probing questions
- *Perceptions of and expectations for privacy when searching for information in libraries and other environments.* The literature indicates that users' privacy-related attitudes are complex and often based on specific context (Aguirre, Roggeveen, Grewal, & Wetzels, 2016; Panjwani, Shrivastava, Shukla, & Jaiswal, 2013; Rainie & Duggan, 2016). Findings are mixed even within the specific context of academic libraries (Johns & Lawson, 2005; Sutlieff & Chelin, 2010; Sturges et al., 2003). Understanding students' privacy attitudes specifically regarding academic libraries as compared to other environments was the central focus of this study. This grouping of questions and vignettes explored students' perceived risks, benefits, and coping mechanisms in shaping their privacy related attitudes, and the extent to which they believe their attitudes affect their behavior in various searching environments. In addition, I asked students to share their perspectives on acceptable data collection and use policies in academic libraries, including use of search data for individual search tailoring, to improve search functionality and/or engage in evaluative practices, or to participate in learning analytics (Oakleaf, 2018a; Oakleaf, 2018b). The role of trust in specific organizations as it relates to privacy attitudes was also explored (Chellappa & Sin, 2005; Milne & Boza, 1999; Rainie & Duggan, 2016; Sutlieff & Chelin, 2010).

- *Concerns about access to search data and borrowing histories from third parties.*

Much of librarians' concerns related to search data privacy is related to apprehension about third-party access to user data (American Library Association, 2014a; Malinconico, 2011; Matthews, 2012; Shuler, 2004). It is echoed as a concern by some library users (Johns & Lawson, 2005), and "unauthorized access" is a factor/subscale on the CFIP, one of the most dominant measures in information privacy research (Stewart & Segars, 2002).

The overall structure and content of the interview guide remained the same over the course of the data collection process. However, some small changes were made from the initial interview guide (Appendix F) to ultimately comprise the final interview guide (Appendix G). Changes to the interview guide were documented by saving each iteration as a separate document, and by recording the rationale for changes in analytic memos.

Some changes were a result of the first few interviews taking longer than anticipated. I discovered better ways to order the questions and vignettes to avoid duplication of content and to elicit the information needed in a way that was respectful of students' time. In other instances, I discovered that some questions only elicited information that, while interesting, was not germane to this study's research questions.

I also made some adjustments for clarity, such as splitting one vignette into two. I made other additions and modifications in areas that warranted additional exploration based on my review of interview notes of the first several interviews, including: the addition of specific follow-up questions about anonymity and de-identification; the addition of a vignette about libraries and learning analytics; the addition of a vignette about using library search data to improve library collections, services, and outreach, replacing a question intended to elicit this

information; consolidation of two scenarios about internet and library searching and government access to data, plus modified follow-up questions. The interview guide reached its final state following the first three interviews, with only very minor adjustments thereafter. However, depending on the particular attitudes and experiences of each participant and the themes and patterns that were emerging over the course of the data collection process, I embraced the flexibility of the semi-structured interview guide in order to focus on domains/areas where individuals could contribute to the findings of the study most deeply.

Data Analysis

Data collection and analysis occurred simultaneously using the constant comparative method (Glaser & Strauss, 1967). Thorne (2016) states that “while straight description could occur in a study that gathers data first and thinks later, interpretive description will inevitably require that the ongoing engagement with data be strategically employed to confirm, test, explore, and expand on the conceptualizations that begin to form as you enter the field” (p. 109).

Data analysis during data collection

Data analysis that took place concurrent with data collection was primarily focused on review and reflection on the interview notes following interviews, coupled with analytic memoing and reflexive journaling (Miles, Huberman, & Saldaña, 2014; Srivastava and Hopwood, 2009; Thorne, 2016). Analytics memos were intended to document an accurate account of the analytic process and decisions made, and they served an important function in ensuring the credibility of the study’s findings (Miles, Huberman, & Saldaña, 2014). The reflexive journaling process was guided by three questions presented by Srivastava and Hopwood (2009): “What are the data telling me? What is it I want to know? What is the dialectical relationship between what the data are telling me and what I want to know?” (p. 79).

In addition, Thorne (2016) recommends asking oneself questions such as “How else might I understand this aspect of the data?” and/or “If I decide to think about it in this way, what possible aspects of a[n] issue might I be missing?” (p.179). Although the reflexive journaling process was, by its very nature, flexible, these questions provided a useful framework to encourage regular and thoughtful writing of my observations and experiences throughout the study, and to be aware of my own positionality within the study. Over the course of data collection and analysis, I completed a combined total of 26 reflexive journal entries and analytic memos.

Engagement in the iterative process of reflecting on interview notes as I prepared for future interviews not only led to the adjustments to the interview guide (Appendix G), but also enabled me to ask subsequent participants to speak more deeply to emerging themes. In addition, this reflective process allowed me to engage in some elements of theoretical and maximal variation sampling even within a convenience sampling framework. Although I continued to recruit for participants with the original set of minimal inclusion criteria, the amount of interest in the study from potential participants along with my careful review and reflection of notes from prior interviews allowed me to assess which participants would most likely bring new perspectives or enrich existing themes based on their demographic and informational responses to the screening survey (Appendix B).

Full analysis of data collected

Interview recordings were professionally transcribed in the interest of time and accuracy. The transcripts totaled 703 pages altogether, with an average number of 27 pages per interview. In order to ensure that I spent sufficient time “dwelling” in the data (Thorne, 2016, p. 167), I began the inductive analysis process by listening to each interview while reading the associated

transcript. This ensured that the nuance of tone, pauses, and inflections remained intact in my analysis of participants' perceptions prior to beginning formal coding.

Interpretive description warns against becoming overly specific in the early stages of analysis, and Thorne (2016) emphasizes taking care to avoid coding prematurely as it may reduce the willingness of the researcher to see or reconsider new ways in which the data might be conceptualized or organized. Accordingly, while I listened to the interviews and read the transcripts, I made notes and "jottings" (Miles, Huberman, & Saldaña, 2014, p. 93) of my observations, but refrained developing codes. The process of note-taking took place primarily in the qualitative data analysis software ATLAS.ti version 7.5.18 (ATLAS.ti, 2019), as opposed to on printed copies of interview transcripts. ATLAS.ti is a software system designed for the analysis of large bodies of text, audio, or video data through coding processes. Using ATLAS.ti for this early stage of data immersion and analysis afforded the flexibility I needed to have access to all interview materials in any location with internet access. This was important because I engaged in the analysis process at a combination of home, work, and other environments, and having easy access to the working copies of interview transcripts wherever I was allowed me to continue the momentum of the data analysis process. It also allowed me to save a record of all notations I made at this stage of analysis in a format that served as an easily adapted basis for subsequent stages of coding.

Only after fully immersing myself in the data did I begin the coding process. All codes were developed based on the transcripts and without the aid of a coding schedule to ensure that they authentically reflected the attitudes of study participants. I engaged Miles, Huberman, & Saldaña's (2014) approach of First Cycle and Second Cycle Coding to advance a thorough and reflective process. However, I ultimately engaged in three cycles of coding, which involved

elements of First and Second Cycle Coding approaches. For clarity, I will describe these cycles as Coding Cycles A, B, and C.

Coding Cycle A. Coding Cycle A, which included the hallmarks of Miles, Huberman, & Saldaña's (2014) First Cycle Coding process, consisted of re-reading all interview transcripts and developing and applying codes. The codes were developed iteratively, evolving as I read and re-read interview transcripts, and were based in large part on the observations and reflections from the notes and jottings I had made during my initial review of the interview transcripts. In the early stages of Coding Cycle A, I used holistic coding, in which codes were applied to "large unit[s] of data in the corpus... to capture a sense of the overall contents and the possible categories that may develop" (Miles, Huberman, & Saldaña, 2014, p. 77). This approach aligns well with Thorne's (2016) recommendation to refrain from granular coding too early in the analytic process. Throughout the entire coding process, I found that this practice of applying codes to larger portions of text, as opposed to granular segments, worked well to maintain the context in which participants expressed their thoughts. However, I diverted from the practice usually employed in holistic coding in which only one code is applied to a segment of text, and instead embraced the flexibility afforded by simultaneous coding, in which I freely applied more than one code to text that "suggests multiple meanings... that necessitate and justify more than one code" (Miles, Huberman, & Saldaña, 2014, p. 81).

I also made frequent use of descriptive and process coding as appropriate to make meaning of the data, with particular focus on emotion and values coding (Miles, Huberman, & Saldaña, 2014). Additionally, I began the process of developing code families in ATLAS.ti in which I grouped codes under unifying themes or concepts, a process which was extended subsequently in the Second Cycle Coding processes characteristic of Coding Cycle B and

Coding Cycle C. At the conclusion of Coding Cycle A, all transcripts had been reviewed and coded.

Coding Cycle B. In Coding Cycle B, I carefully reviewed the codes generated in Coding Cycle A and consolidated codes as appropriate, seeking to maintain a balance between a parsimonious coding structure and appropriately detailed description of the data. I also considered whether or not the name of each code accurately reflected the quotes attached to it, and either adjusted code names or reassigned codes as needed. This resulted in a list of still-tentative codes (Appendix H) that served as the basis for Coding Cycle C. I continued to consider the way the codes might be grouped and/or relate to one another.

Coding Cycle C. Coding Cycle C most closely resembled Miles, Huberman, & Saldaña's (2014) notion of Second Cycle Coding, which is intended to identify patterns and relationships among codes (Miles, Huberman, & Saldaña, 2014). This stage began with another review of all interview transcripts. In this process, I extended the process I began in Coding Cycles A and B of grouping codes together to serve as the foundation for themes and concepts using pattern codes. In this process, I completed a final review of the codes assigned to the data in interview transcripts based on the list of codes generated at the end of Coding Cycle B (Appendix H). I gave special consideration to extreme cases: transcripts of interviews with students who fell at extreme ends of attitudes about search data privacy in academic libraries, whether they were highly concerned or highly unconcerned about privacy (Thorne, 2016). Few adjustments to the ways in which codes were applied to the data were needed, and the changes I made mostly consisted of the application of simultaneous codes. In the course of this review, some small modifications to the list of codes generated at the end of Coding Cycle B (Appendix H) were made, which culminated in a final list of codes (Appendix I). Most changes made were

consolidation of codes that were closely related or slight rewording of codes. Data that was associated with any adjusted code during Coding Cycle C was reviewed again to make certain that the code was still accurately descriptive of the data associated with it.

The final step of Coding Cycle C was finishing the process of grouping codes into pattern codes, which are intended to “identify an emergent theme, configuration, or explanation.” (Miles, Huberman, & Saldaña, 2014, p. 86). I used the code families feature in ATLAS.ti to develop pattern codes, grouping codes together that coalesced to form a larger theme or concept. My decision to use simultaneous coding in earlier stages of data analysis proved to be an effective decision in the pattern coding process. By assigning individual codes to multiple code families, simultaneous coding permitted me to associate an individual datum with not only multiple codes, but now multiple code families/pattern codes. This process of simultaneous coding in both all coding cycles served an important role in allowing me to visualize and make connections among emerging themes by utilizing ATLAS.ti’s Code Manager. The final codes organized by pattern codes/code families is represented as the final coding structure in Appendix J.

Figure 3 provides an example of how Codes evolved from Coding Cycle B to Coding Cycle C, ultimately to be organized by pattern codes/code families in ATLAS.ti.

Coding Cycle B Codes	Coding Cycle C Codes	Organized by Pattern Codes
Controlling data/privacy Internet tailoring: ambivalence/context/nuance Internet tailoring: fine/good Internet tailoring: negative Internet: wary of filter bubbles Libraries: tailoring ambivalent/context/nuance Libraries: tailoring control options Libraries: tailoring could decrease convenience* Libraries: tailoring could increase convenience**	Controlling data/privacy internet tailoring: ambivalence/context/nuance internet tailoring: fine/good internet tailoring: negative internet: wary of filter bubbles Libraries tailoring: acceptable/positive Libraries tailoring: ambivalence/context/nuance Libraries tailoring: control options Libraries tailoring: negative	Tailoring

Libraries: tailoring fine/good*** Libraries: tailoring negative Libraries: wary of filter bubbles		
* In Cycle C, code was consolidated into “Libraries tailoring: negative” ** In Cycle C, code was consolidated into “Libraries tailoring: acceptable/positive” *** In Cycle C, code was renamed to “Libraries tailoring: acceptable/positive”		

Figure 3: Sample of Coding Process

I used the final list of codes organized by code families/pattern codes, in addition to details from reflexive journal entries and analytic memos, to organize how emerging themes and concepts relate to each other and to each research question. For this stage of the analytic process, I switched to an analog process in which I used notecards with pattern codes written on them to visualize the relationships to one another. This process served as the final step in preparing the findings of the study that include a description and interpretation of themes, patterns, and relationships within the data, culminating in a conceptual/thematic description (Sandelowski and Barroso, 2003).

Privacy, Confidentiality, and Data Management

Responses to the screening survey, audio files of participant interviews, and interview transcripts were all stored in Google Drive and on a private network drive on my computer. The data was accessible only to me and to the chair of my dissertation committee upon request. Data will be retained for five years after the completion of this study per VCU’s Office of Research policies, and in alignment with the study’s IRB approval. This will allow time to consider publishing and disseminating the study findings beyond the dissertation document. The audio recordings of interviews will be deleted when the dissertation has been successfully defended.

Generalizability

As is the case with most qualitative approaches, interpretive description studies are not intended to provide widely generalizable results. However, the methodology and findings of this study are worthy of discussion in the context of Maxwell's (2013) criteria for internal generalizability. He defines this concept as "the generalizability of a conclusion within the case, setting, or group studied, to persons, events, times, and settings that were not directly observed, interviewed, or otherwise represented in the data collected." In this study, assessing internal generalizability means considering the extent to which the findings are representative of other undergraduate students at VCU who were not interviewed. Maxwell advises that the intent of considering internal generalizability is not to suggest that individual findings apply across an entire research site or setting, but rather to consider whether or not the variation of the findings captures the diversity of viewpoints in the larger population from which participants were selected.

The heterogeneity of the sample in terms of race and ethnicity, in particular, are a boon to the findings' internal generalizability. In addition, the depth and richness of the data collected and the absence of new themes emerging suggests that the study's findings should reflect a nuanced portrayal of the variation of students' attitudes. These factors suggest that the study's findings may be internally generalizable to other undergraduate students at VCU. However, the homogeneity related to gender (mostly women), academic rank (mostly freshman or sophomores), and age (all were between 18-24 years) limits the extent to which this study can claim internal generalizability to all VCU undergraduate students. This study does not seek to claim external generalizability of findings.

Evaluating Quality and Rigor

Although quality and rigor should be expected of all qualitative studies, Thorne (2016) emphasizes the special importance of quality imperatives in research in the applied disciplines. She states that

The... researcher who presents qualitative research findings to an audience of professionals in the field understands that, regardless of how carefully the assumptions and limitations are stated, any potentially useable insights deriving from the findings may well find their way into clinical applications. Thus, the quality standard... must therefore be somewhat different than theoretical fields.” (p. 233)

The intent of this study was not to provide widely generalizable or immediately practical knowledge. Rather, the goal is to make an initial contribution to knowledge about student perceptions of search data privacy in academic libraries. Although the findings from this study are not intended to be applied directly to practice, practitioners are often quick to apply new information if it is relevant to their particular situations (Thorne, 2016). Although the limitations of this study, including that findings are neither generalizable nor transferable, are made explicit, it is possible that some librarians may apply the findings in their particular settings nonetheless.

Accordingly, it is important to articulate the ways in which I upheld appropriately high levels of quality and rigor throughout the study implementation. To do so, I employed strategies provided by Thorne (2016) and Lincoln and Guba (1985), both of whom provide evaluative criteria for qualitative studies, and strategies to ensure those criteria have been met. Thorne’s (2016) four criteria – epistemological credibility, representative credibility, analytic logic, and interpretive authority – have been developed specifically for the purposes of evaluating interpretive description studies. Lincoln and Guba’s (1985) criteria – credibility, authenticity,

transferability, and dependability – were developed more generally for an array of qualitative or naturalistic studies, and remain prominent in the literature today. In many cases, these two sets of criteria are related or overlapping, and are described together when appropriate in the remainder of this section.

Epistemological credibility

Thorne (2016) indicates that research questions, data collection, data analysis, and interpretation of a given research study should be aligned to each other and to the overall research paradigm employed. In this study, I sought to understand subjective knowledge – students’ attitudes about search data privacy in academic libraries – in an applied field. Interpretive description is a qualitative approach designed specifically for this goal, grounded in a critical realist ontology in which one assumes that reality is both objective and constructed (Bhaskar, 1989). The research questions and the data collection procedures of semi-structured interviews were designed to elicit student perceptions, and inductive coding was the appropriate analysis technique to showcase participants’ authentic perspectives. The presentation of findings as a thematic/conceptual description (Sandelowski and Barroso, 2003) represents student attitudes about search data privacy in academic libraries by identifying patterns and themes while highlighting the diversity of student viewpoints on the matter. The results are intended to be easily understood by librarians and researchers alike. Overall, the research design, questions, data collection, and data analysis procedures are congruent with one another, and with the overall tenets of interpretive description.

Representative credibility and transferability

Qualitative studies should show representative credibility “such that the theoretical claims they purport to make are consistent with the manner in which the phenomenon under

study was sampled” (Thorne, p. 234). Alternatively stated, it is important to understand the extent to which findings could be applied to the populations a study purports to research. In this study, I only make limited claim that the findings may be internally generalizable to other undergraduate student attitudes at VCU, and I do not suggest generalizability beyond VCU. It is common for qualitative studies to make minimal claims to generalizability, but it is especially important to be clear about this limitation in the present study since it primarily employs a convenience sampling method.

Thorne’s concept of representative credibility is related to Lincoln and Guba’s (1985) notion of transferability, in which a researcher uses “thick description” (Geertz, 1973) to provide detailed information about the context in which data were collected and how conclusions were developed in order to allow readers to ascertain the extent to which the findings of the study might be applicable to their own environments. While the intended knowledge claim of this study is to provide the first in-depth information on the topic without the goal of transferability or generalizability, sufficient detail about the research site and study participants permits readers to consider how/if the context in which this study was conducted is similar to their own. Findings of this study are also presented with depth, nuance, and rich description. In general, the rigor of the study is enhanced by the detailed presentation of methods and findings that give readers the necessary information to assess possible applicability of the findings in their own environments or in their own research.

Analytic logic, credibility, and dependability

Readers should be able to understand the way in which researchers arrived at their findings, and to do so, researchers must explicitly demonstrate their analytic logic (Thorne, 2016). Throughout the research process, I engaged in reflexive journaling that made explicit my

thinking during data collection and analysis (Srivastava and Hopwood, 2009; Thorne, 2016). For example, the entry below is illustrative of different stages of my thinking as I grappled with an emergent theme of cynicism and powerlessness as related to search data privacy:

Also, I'm still grappling with this category of rationalizations/cynicisms/acceptances that students have to reconcile the fact that they don't generally like being monitored so much, but keep doing it anyway. Is it a benefit? That they perceived the collective benefit of using Google or social media or the library outweighs those risks? Or is it something else? A sense of absence of choice? (Portion of a Reflexive Journal Entry, April 27, 2019)

Months later, when more deeply immersed in the data analysis process, I reflected on this theme again:

There's also a very clear theme of resignation/cynicism/acceptance about data tracking in general. I'm not sure where that fits into Li's calculus yet, but it seems related. It's almost like the opposite of a coping mechanism. Rationalizing mechanism?? (Portion of a Reflexive Journal Entry, August 31, 2019)

Both of these entries make explicit my thinking as I developed this theme and considered how it related to both the dual-calculus model (Li, 2012), and to the research questions. This intentional, reflective process, which is representative of more entries related to other emerging themes, bolsters the strength of my analytic logic.

Reflexive journaling was coupled with analytic memos that were written to provide a record of how I arrived at decision points related to the data collection and analysis process. In these, I collated dated lists of emerging themes, questions about the relationship between them, and nascent patterns. I also accounted for data collection decisions such as changes to the

interview guide, recruitment/sampling decisions, and a detailed account of the analysis process. I used Google Documents for both reflexive journaling and the development of analytic memos. Both of these approaches served an important role in the theoretical sampling process, in which I continued to refine and develop questions asked of study participants and sought additional participants as needed.

Thorne's notion of analytic logic is closely related to Lincoln and Guba's (1985) concepts of credibility and dependability. Establishing credibility requires evidence that researchers have spent sufficient time and depth in the data collection and analysis process. In this study, I have provided evidence that I have spoken to an adequate number of interviewees, and at a sufficient level of depth. The richness of the data, the extensive and iterative coding process I undertook, and the fact that I exceeded the anticipated number of interviewees all enhance the study's credibility and dependability. Lincoln and Guba also recommend negative case analysis, which is similar to Thorne's (2016) recommendation to carefully consider extreme cases. Evidence of my engagement in the process of considering extreme cases is present in the following snippet from a reflexive journaling entry:

As I wrap up my second cycle coding, I had an epiphany while I was considering my "extreme cases." I have four of them -- two folks who are really concerned about privacy, and two folks who really just don't seem to care at all. And I realized that part of what makes their views extreme is not just that their feelings are at one end of the privacy spectrum or the other, but it's that their views are so... unambiguous. It's not to say that they're not thoughtful -- some of them were very, very thoughtful. They just seem to have come down on one side or the other more equivocally than their peers. They seem to know what they think, and even if they acknowledge the rich and complex context that

underpins attitudes about privacy, they seemed to have reached a level of comfort and confidence in their own convictions that other participants have not. (Portion of a Reflexive Journal Entry, September 16, 2019).

Another recommendation Lincoln & Guba (1985) make to increase the credibility of a study is member checking – an approach that Thorne (2016) does not recommend. Her concern is that specific requests for confirmation of interpretations from study participants can result in the researcher either gaining false confidence if a participant affirms an understanding, or disregarding a conceptualization in error if the participant refutes it. Instead of member checking, I engaged in a limited form of theoretical sampling within a convenience sampling framework to select participants who would be well-suited to deepen my understanding of emerging themes, or to reveal new ones. In addition, as I reviewed notes from previous interviews, I considered areas to explore in more depth with future participants to seek additional clarity. For example, the segment below led me to seek clarity on the different perspectives students held about social media and search data privacy, and the extent to which they are related:

A couple of students have made interesting and nuanced remarks about how social media has shaped their views on privacy. They indicate that they're used to being open and sharing a lot, but have also stated that they're very thoughtful and cautious about what they put out there. So, it's less about not wanting to people to know about them, and more about wanting to make sure they can control WHAT people know about them. It does raise the question of whether or not students understand how much is out there about them in composite data profiles with market research firms, etc., but these students express a different way of thinking about things that they understand to be obviously

shared (social media) and things that they think are unlikely to be discovered or used against them (search logs). (Portion of a Reflexive Journal Entry, March 28, 2019).

Establishing dependability requires researchers to demonstrate that their findings would be consistently found if the data collection and analysis process were repeated. Lincoln and Guba (1985) suggest peer debriefing and/or an external audit as one way to achieve this goal.

However, the time and costs required for these strategies were not feasible within the scope of this study. Instead, I was careful to keep detailed records of all aspects of data collection and data analysis. This mostly took the form of saving multiple iterations of ATLAS.ti files at various stages of coding, and detailed analytic memoing. For example, I returned to this portion of text from an analytic memo when writing this chapter to report my procedures accurately:

Began with jottings in margins of transcripts. As data progressed, I switched to a more digital approach instead of written, and transferred the jottings I'd done on paper to ATLAS.ti as very loose notes/descriptors. (Portion of an Analytic Memo, August 10, 2019)

This documentation of process and decisions allowed me to provide a detailed account of the data collection and analysis procedures in order to increase the overall credibility and dependability of the study as recommended by Miles, Huberman, & Saldaña (2014). This included presentation of how sampling decisions were made, the specific nature of the interview guide and how it evolved, the way in which the interviews progressed, and detailed coding, analysis, and interpretation processes.

Interpretive authority & confirmability

In Thorne's notion of interpretive authority, she emphasizes the importance of assuring "that a researcher's interpretations are trustworthy, [and] that they fairly illustrate or reveal some

truth external to his or her own bias or experience” (2016, p. 235). This resembles Lincoln and Guba’s (1985) criterion of confirmability, in which the researchers must demonstrate that findings are not a result of researcher bias. Although I do not have significant responsibility for maintaining library users’ search data privacy, I do have a vested interest in it based on my role at VCU Libraries. That, coupled with the fact that I am a librarian with an ongoing professional interest in this topic, could threaten my credibility. Readers may perceive me as “too close” to the topic being studied. Therefore, it was important that I take precautions to avoid the “over-inscription of self” (Thorne, 2016, p. 196). Reflexive journaling and memoing (Lincoln & Guba, 1985; Thorne, 2016) were key components in ensuring that preconceptions I may hold about students’ search data privacy attitudes did not play too strong a role in data analysis and interpretation. These processes also served as a quality control check that challenged me to “out” myself and the attitudes and opinions I bring to the research process as a practicing librarian (Finlay, 2002). For example, in this reflexive journaling entry, I warn myself (and the library profession at large) to refrain from assuming that because students’ opinions may still be developing, that they should be viewed as insignificant when compared to librarians’ views on privacy:

...I guess what I’m saying is that even though some students don’t care about their privacy, it doesn’t mean they won’t care in the future, or that we shouldn’t take the time in the profession to consider how to protect aspects of their privacy that they may not be thinking about. But, we have to be sure we’re not taking too much advantage of that and simply inserting our opinions into our practice based on the excuse that students’ opinions are not well-informed or well-developed. (Portion of a Reflexive Journal Entry, August 31, 2019)

Lincoln and Guba (1985) also recommend the use of audits as a validation strategy for increasing confirmability in the same way they recommend audits for the purposes of increasing dependability. For the reasons previously stated, an audit was not a feasible undertaking for this study, and I instead provided a detailed account of the overall data collection and analysis process as described above.

Summary of strategies for increasing rigor

Overall, the strategies used to increase the rigor of this study include: analytic memoing, reflexive journaling, careful attention to extreme and negative cases, and clarifying or confirming findings during data collection with participants as appropriate. In addition, including a clear and detailed description of my data collection and analysis procedures over the course of the study substantiate the rigor and quality of the research process.

IV. FINDINGS

Presentation of Findings

Thorne (2016) suggests that findings from an interpretive description study often take the form of a “thematic survey” or a “conceptual or thematic description” (Sandelowski and Barroso, 2003, p. 908). This study culminates in a conceptual/thematic description, a presentation of findings that “move[s] beyond surveying the topical or thematic landscape of events, phenomena, or cases toward interpretively integrating portions of data” (Sandelowski & Barroso, p. 913). Thorne (2016) advises that researchers should focus on “finding the ideal thematic structure that will showcase the main elements of the phenomenon you are studying in the context of their relationship to one another, if not within an entirely new conceptual or theoretical schema” (p. 183). The conceptual/thematic description presented is not intended to be as original or abstract as a theory; the emphasis is on practicality.

Research Questions and Organization of Interpretive Themes

The research questions in this study were:

1. What are undergraduate students’ attitudes about whether academic libraries should collect and maintain user search data, and why?
2. What are acceptable and unacceptable uses of students’ library search data according to undergraduate students, and why?
3. In what ways do undergraduate student attitudes about search data privacy differ in the context of using academic libraries and commercial search engines such as Google?
4. What do students perceive as the risks and benefits of libraries collecting student search data, and how do these perceptions influence their search behavior?

Findings of this study are presented as interpretive themes and are organized in a way that both answers the research questions and provides for a sensible order of information. First, I present foundational themes about participants' background knowledge about search data privacy and/or the overall assumptions they brought to the interview setting. Next, themes addressing students' general attitudes about search data privacy in academic libraries are presented, followed by acceptable and unacceptable uses of library search data. Then the data is presented as students' perceived risks and benefits of library search data collection, and their perspectives on behavioral impact based on same. Throughout the chapter, I elucidate the logic by which students arrived at their attitudes as appropriate, and then include a section on influences to more deeply explore significant experiences or perspectives that shaped their privacy-related attitudes. Finally, the chapter concludes in a holistic conceptual description of interpretive themes and the ways in which they relate to one another.

Foundational Themes

The data revealed several themes about students' mindsets, awareness, and assumptions related to privacy, academic libraries, and related topics. These themes were often indicative of views or experiences that played a pivotal role in students' formation of thoughts about search data privacy in academic libraries. They provide important background information that readers should possess in order to fully understand students' nuanced attitudes regarding the study's research questions. Because these findings undergird other themes detailed in this chapter, it makes sense to present these themes first. Figure 4 presents a summary of the themes and subthemes related to participants' foundational attitudes, experiences, and perspectives that served as a backdrop the for their library search data privacy attitudes.

Theme 1: First-time/evolving thoughts and limited awareness of library practices
Theme 2: Academic libraries are mostly used for academic assignments
<ul style="list-style-type: none"> • Library search data is less personal than internet search data • Intellectual freedom matters
Theme 3: Acknowledgement of different privacy-related perspectives or experiences
<ul style="list-style-type: none"> • Controversial or sensitive searches may require additional privacy. • People who are members of vulnerable populations may need more privacy.
Theme 4: Privacy and convenience as a continuum

Figure 4: Foundational Themes and Subthemes

First-time/evolving thoughts and limited awareness of library practices

Students consistently expressed awareness that their internet search habits were being tracked, monitored, sold, and shared. However, they had not often considered whether their library search data was being monitored, nor had they reflected on their attitudes about search data privacy in academic libraries until very recently. For example, when asked about feelings of trust or distrust they might hold for libraries, one participant stated:

This is the first time that I've ever thought about it, if we're being honest. This is really, actually, the first semester I've ever thought about search data and libraries..."

(Clayton)

Some students' lack of prior thought about search data privacy in academic libraries resulted in the evolution of their attitudes over the course of the interview. As they learned more based on the questions and vignettes presented and/or sought clarity through questions they posed to me, participants indicated that the newness of their considerations sometimes resulted in uncertainty about their attitudes. For example, when I asked participants if they had considered whether or not their searches were being monitored in an academic library, one participant said:

So that's something that I didn't think about until I got, you know, the invitation.

And to be honest, I was kind of intimidated on coming here, because I'm like, well, I

don't really have a really polarizing stance on this for libraries... (Robert)

The data suggested that students were working through their own thoughts and opinions over the course of their interviews. One participant indicated that the interview led to deeper consideration about where they stood on matters related to search data privacy in academic libraries, and privacy in general:

Well, it [the interview] just made me question more in general the situation as a whole -- if my opinions are really the best ones or if that's just... not that I'm closed minded but that's just what I think right now and I'm stubborn about it or if there are just better answers out there, I guess, maybe. (Maria)

This type of perspective was not a surprise to me, given my prior experiences interviewing students about similar issues over the course of my doctoral coursework. Although there were exceptions, the nascent nature of most participants' thoughts on library search data privacy was prevalent. Some acknowledged that while they did not view issues related to privacy and search data in general as impactful to their lives right now, they could imagine having a different perspective in the future. When considering attitudes about how internet search companies collect search data and with whom they share it, one participant offered this perspective, revealing an awareness that they could become concerned about privacy issues in the future, even if they are not concerned now:

...and you know, it's not affecting my life right now, but one day it could all just like come crashing down... So, like all that stuff, it's frightening almost..." (Rashid)

Attitudes indicating that students were considering privacy related issues in academic

libraries – and privacy-related issues in general – were especially prevalent with underclassmen, who more frequently noted that they had not considered the issue previously, and who generally indicated having less experience using academic libraries overall.

Academic libraries are mostly used for academic assignments

Most interviewees indicated that they used academic library collections exclusively for academic assignments that required research. Some indicated that they also used academic libraries for personal use such as leisure reading, and one participant explained that they used the academic library for a blend of academic, personal, and professional use in their role as an activist for an LGBTQ anti-violence organization. Some students who used academic library materials exclusively for academic purposes described their library search data as something distinctly different from other types of search data such as that on Google:

...but I mean, libraries aren't getting a full picture of patrons just because our research is so skewed. Like I feel like if you were to look up like what I like, I'd be weirdly into like whatever project I have rather than like who I am. (Yoofi)

Participants sometimes implied that the narrow searching they do in academic libraries influences their level of concern about privacy as compared to other internet search data:

...because in the library search engine you're typically like using it for academic purposes, and also maybe leisure reading, and so I think that that data is a lot less sensitive to what could be put into Google and stuff like that. And so, I never really considered data collection in like a library [search] engine to be that scary..." (Robert)

Participants' inclinations to think of their library search data as impersonal and separate from themselves may be due to the fact that most undergraduate student research projects are assigned with significant direction/oversight by faculty members, and leave little space for

student choice. Graduate students and faculty, who often have more autonomy in the way they direct their research pursuits, may have different perspectives about the extent to which their research is “personal.”

Most students were not familiar with instances in which scholars’ ability to research controversial topics were threatened in the academic environment. However, some expressed concern about potential censorship of publications or types of research, and numerous participants emphasized the importance of intellectual and/or academic freedom in internet and library environments. A small number of students mentioned the dangers referenced in *1984*, George Orwell’s dystopian novel in which the “Thought Police” monitor and punish people for their thoughts. Many others acknowledged that research about controversial subject matter may be especially scrutinized if academic or intellectual freedoms are threatened. When asked how they felt about search data monitoring in general, a participant responded:

Mild annoyance. A little bit of caution as well. Like some things I'll search up purely for curiosity or academic interest. And they might be concerning topics to a third-party viewer. Or I'll search up really intimate details about myself that I would want to explore and I feel like I'm giving a very deep part of myself to someone I don't even know.

(Galina)

Another participant explained how monitoring searches could change search behavior if intellectual curiosity or academic research were misconstrued as a basis for potentially dangerous action:

Like I want to do a research paper on how easy it is to remove blood. That might sound really, really suspicious. But I'm just a chemist. (Selena)

Although they acknowledged the importance of intellectual and academic freedom, most participants affirmed that the type of searching they do in academic libraries is primarily for schoolwork and that it was therefore not especially sensitive from their perspective. In addition, they often expressed that they have nothing to hide when searching in academic libraries or when searching online:

I know that like I don't really care as much if like people track what I'm looking for, because I'm not doing anything wrong. (Samaira)

Acknowledgement of different privacy-related perspectives and experiences

As participants shared their own views on search data privacy in academic libraries, they also assumed that a plurality of viewpoints exist among fellow students. This expressed awareness was most prevalent when a student expressed low levels of concern about privacy themselves and also acknowledged that some data collection and data use practices, while acceptable to them, would likely not be to others. Participants particularly noted that search data privacy may be more important for students who are members of vulnerable populations, or who are researching controversial or sensitive topics. Some participants who were members of vulnerable or minoritized groups had firsthand experience with bias and described an increased need for privacy. A Muslim student of Middle Eastern descent commented:

Well, I know Muslim communities have faced a lot of monitoring, especially in a post-9/11 America. So sometimes I will not Google like a recent terrorist attack that has happened or like, I don't know – I just always stay aware of like my ethnicity, my background, and what I'm searching, and how it may connect me to certain events. (Tahmina)

The fact that students who were not concerned about privacy were attuned to – and at times even concerned about – the fact that some of their peers held different views or needed more privacy was notable and speaks to their own awareness of the range of perspectives that exist about privacy-related matters.

Privacy and convenience as a continuum

Participants were asked to reflect on where they imagined themselves on a spectrum with privacy at one end, and convenience at the other. Most indicated that they were somewhere in the middle, often erring on the side of convenience to varying degrees:

I feel like if I had to pick one I'd pick more convenience just because that makes things more efficient and I don't have enough time for all the stuff. (Raelyn)

Although most students expressed some concern for their information privacy on the internet and/or in academic libraries, a small number expressed a notable lack of concern. This willingness to significantly prioritize convenience over privacy was usually based on a belief that the student had nothing to hide even if someone came across their search data:

I think less privacy at the expense of convenience 'cause at the end of the day, I don't really care about my privacy. I know it's an issue for other people. It's just 'cause I know I'm not doing anything bad. (Maria)

On the other hand, some participants indicated that they valued privacy more highly than convenience, and were willing to endure some additional work on their part to maintain their privacy:

I'd probably go more towards privacy, assuming that it was still something that I could figure out on my own, search-wise. As long as I could still figure out how to search ... I'd

rather do a little bit more work and know that my privacy is slightly better protected than to just say, "Here's all my information. You do the work for me." (Corey)

So, I'm definitely more privacy than I am convenience. Convenience is just a supplement.

It's secondary to privacy. Privacy is more important to me than that. (Abeo)

And finally, some students expressed their views on the privacy/convenience continuum as balanced, complex, and/or heavily dependent on context. One participant described the complexity of her views in this way:

I think it depends on what I'm searching. So, I am definitely less worried about my privacy in a place like a library or an academic database where it does feel more like a private server and it's a little bit more secluded than like the World Wide Web. I'm not on Facebook, but... I'm going to be more worried about my privacy there. I'm on Instagram, so like any social media really, I'm going to be more worried about my privacy – and being able to trust that those servers are not releasing my data everywhere – than convenience. Like if I have to input my password every time I want to get in, that's okay because I can trust that I'm not like being hacked or something. (Alexandra)

Participant Attitudes about Library Search Data Collection and Privacy

The themes presented in this section primarily address Research Question 1: "What are undergraduate students' attitudes about whether academic libraries should collect and maintain user search data, and why?" Themes also address elements of Research Question 3: "In what ways do undergraduate student attitudes about search data privacy differ in the context of using academic libraries and commercial search engines such as Google?" Figure 5 illustrates the themes presented in this section.

Theme 5: Comfort with libraries using search data in ways that benefit students
<ul style="list-style-type: none">Libraries are trusted and altruistic.

- “The least of my concerns.”
- De-identification of search data.
- Transparency and user control of data.
- Sharing data beyond the library.
- Preferences for privacy are infrequent but strong and often relate to concerns about bias and oppression.

Theme 6: Potential over-reliance on and misuse of quantitative data.

Figure 5: Participant attitudes about library search data collection and privacy:

Themes and subthemes

Comfort with libraries using search data in ways that benefit students

Participants were largely comfortable with academic libraries collecting search data for purposes that benefit students, and several subthemes illustrate students’ perspectives on this more fully. Most students describe a general sense of trust in libraries. In addition, participants indicate that they are desensitized to search data collection based on their experiences on the internet and social media. Students’ comfort levels with search data collection in academic libraries often increases in instances where the data is de-identified, although they have varied perspectives on who should have access to the data. Students who prefer that their library search data is not collected hold their convictions strongly.

Libraries are trusted and altruistic. A sense of trust – one that generally exceeded the trust students felt for commercial search engines – often underpinned students’ comfort with data collection in the academic library context. Participants suggest that they “trust the library completely” (Clayton) and saw it as “a benevolent force” (Galina). Many students who participated felt considerable affection and positive feelings for libraries. This was not surprising, since students with positive feelings about libraries were probably more inclined to participate in the study than others who do not hold such feelings.

Many shared positive memories of the role libraries played in their lives in the past and currently. Students specifically mentioned librarians' roles in developing their positive and trustful impression of libraries, since they routinely encountered library employees who helped them and demonstrated "care" (Galina) for them. Some students held a reverent view for the altruistic nature of libraries:

...growing up, the library was like a student's church. So, just as someone religious would go to the church for guidance and support, and you would get that guidance and support and love, I guess, from your priest or your pastor or whatever. Or, if you don't even know what you're doing and you go to the church, they would guide you... if a student comes in and they're lost, librarians are there to help you, right? (Robert)

Participants indicated that they find libraries to be "helpful" (Samaira) and that they act as a service to their respective communities. They viewed libraries as "respected" (Elliott), and also expressed trust for them based on the quality and veracity of the information academic libraries make available. They saw libraries as organizations with good intentions, and assumed accordingly that any use of search data would be used for good. This is something they distinguished from commercial search engines, which may have more self-serving motivations for data collection.

The fact that academic libraries are affiliated with their parent universities – which students also trust – increased libraries' trustworthiness, too. The high esteem in which participants hold their universities and academic libraries sometimes reduced or eliminated their expectations for search data privacy. They believed it reasonable for the parent organization to have access to the data that describes the way in which users engage with the library as defined as a service:

...I think it's a service. Like I'm using the library, and I'm part of the VCU community, so I think that if there is, you know, a way that VCU wants to use my search history... that's fine. (Chandler)

The fact that academic libraries are subsidiary units of larger universities that students trust made participants feel more comfortable about who may be looking at their library search data. Because they saw both the library and the university as entities interested in advancing their success, they held a sense of trust and security that their data would be used for good. They also expressed comfort in having some understanding of who would have access to their library search data, acknowledging that it feels less inscrutable than who might have access on the internet. As a result, their level of trust about what might be happening with their internet search data was often lower than the trust they feel for libraries/universities/. This was in part due to their uncertainty about who might have access to their internet search data, and that the possibilities seemed limitless:

And I think one of those reasons is probably because I know who's looking at my data when I'm thinking about the academic databases. I know there's a specific party and that's the librarians at Cabell. But for Google, it's such a large entity. I'm not sure who is looking at it or why. (Erica)

A small number of students had neutral or noncommittal perspectives on their level in trust in libraries, usually indicating that they had not spent much time considering it. However, it is important to acknowledge that students may not have felt comfortable sharing feelings of distrust when being interviewed by a librarian. In addition, students who volunteered to participate in this study were likely to be library enthusiasts in general. Regardless, the positive feelings participants had towards libraries, librarians, and towards the university as a parent

organization was an important component of many participants' positive attitudes about library data collection:

...I think in an environment like an academic library, that privacy can be somewhat sacrificed... I feel safe – I feel like my information is safe here. (Alexandra)

“The least of my concerns.” In the commercial search engine environment, students expressed less trust and less positive attitudes about the collection and use of search data as it pertains to privacy. They were keenly aware of the constant collection of their search data on the internet. Many of them had negative feelings about it, but there was a palpable sense of resignation, acceptance, and cynicism regarding their ability to change things. They described that they cannot just stop using Google or other major internet companies and platforms, even if they disagree with their data collection practices, as they are too integrated into their daily lives. Participants also expressed that it is too late to change their habits now based on the amount of information that has already been collected about them:

There's no way for my generation to stop. All of our parents are like hey, don't use Facebook, or don't use this, or be careful what you say because the internet never goes away. We were all young and we were like no, you're too old, you don't understand. And now I'm older and I'm like nope, that's so right, and now it's too late. (Yoofi)

In a similar vein, students felt that because so much data has already been about them by various entities, that there's no point in stopping use of platforms or services that track them now:

I've done this my whole life. So, I feel like they already have a really good idea of who I am. And there's really no use for me to try to conceal it anymore because they already have everything from before. (Galina)

Participants felt that the routinization of data collection and monitoring, although perhaps at one point concerning, has desensitized them to privacy violations that may have at one time concerned them. Giving away data has become the norm:

I feel like it should make me more wary, but I haven't really felt that. I've just grown accustomed to it. (Erica)

Finally, students expressed cynicism about the future direction of search data collection practices on the internet, anticipating that more and more data will be collected about them in the future:

I don't think it's going to stop any time soon. I just feel like it's going to get worse.
(Savannah)

A few students acknowledged and appreciated the conveniences afforded by the data collection practices that are so prevalent for commercial search engines, such as tailored search results and advertisements. However, they also indicated awareness that the search engines were using them – the consumers – as products, and the convenience was a result of the corporations' focus on profit.

Understanding students' perceptions about internet data collection is important because these perceptions are connected to how they think about search data privacy in academic libraries. Their perceptions illustrate the importance of organizational intent and the way trust in an organization shapes overall attitudes. Because libraries are seen as having benevolent intentions whereas corporations seek profit, libraries are more trusted. Students often distinguished differences in their comfort levels about data collection by commercial search engines versus libraries. It was not uncommon for students to describe internet data collection as

“creepy” or “scary,” and then clarify that their feelings about library search data are different. As one participant put it:

VCU libraries... they're the least of my concerns in terms of websites or parts of the internet that are collecting my data... (Kavya)

Participants expressed discomfort with their perception that internet companies are sharing search data with one another, but explained that they did not generally share this concern about academic libraries. One participant elaborated on this perspective:

And now I'm just like, it seems like everything I do is like being tracked and it's kind of scary in that way. I don't know if I should be concerned about it or not. But with academic libraries that hasn't really crossed my mind... I wouldn't really mind personally if that data was being tracked or seen or collected with academic searches because I feel like that's not something that's really private for me. Like I don't I really mind if people see that. But then... if it's like everything I'm doing on the internet, then that's like a whole 'nother thing. (Kavya)

When asked if they had thought about whether their data was being collected in the academic library context and if so, how they felt about it, one participant responded:

I've never thought about it, and it doesn't bother me either way. I feel like any data would be only to help other students or to help the library know what materials to get or something. I can't imagine it being used for anything malicious. (Chandler)

A number of participants assumed that libraries were already collecting data about them. As such, some expressed a degree of perplexity or surprise at the idea that libraries would actively go out of their way to get rid of data that could be useful. One participant described libraries' propensity to purge search data as “a little bit drastic” (Alexandra). Another indicated

that “getting rid of it and not making use of it is a waste” (Stephen). Some students’ attitudes about collecting search data in academic libraries went beyond simply accepting the idea, and instead framed it as an important undertaking:

I feel like collecting it is important for you guys in terms of how to utilize what you have and what you don’t have. (Eliza)

Students who expressed high levels of comfort with libraries collecting search data often referred to the fact that their primary use in academic libraries was searching for information for academic assignments, recalling a theme previously described in this chapter. Consequently, they did not consider their search data to be especially private:

But as for the academic databases, even if I did feel like my privacy was being breached, I [wouldn’t] have major concern for it. Because the topics I was searching for weren't dangerous or anything. All I search for is academic information I could use in classes. (Galina)

Many students who stated that they were comfortable with the library collecting search data also shared caveats and nuanced recommendations for how that should happen. Recommendations for the ways in which libraries could most responsibly manage student search data, if it were collected, included de-identification of data and ways for students to control the nature and extent of data the organization collects about them.

De-identification of search data. Many students expressed a preference for separating users’ identities from their library search data through a process of de-identification or anonymization. They felt that de-identification would strike a good balance for the library’s ability to maintain search data that can be used to enhance students’ experiences, while still protecting academic and intellectual freedom. When asked if they preferred that their name was

or was not attached to their search data, one transgender/nonbinary participant shared the following:

I personally don't mind that much, but I can see where people would mind. So... I err on the side of, like, separate the information, if not for my sake then for theirs. Because again, while I have a very accepting family and things like that, there are, like, people in my community who do not, so I just sort of feel like sometimes privacy is more important for them than it is for me, and it's good to sort of consider that. (Erin)

Another participant affirmed the value of maintaining data after anonymizing it, as opposed to purging it:

... I don't see any reason to purge the data like that... I feel like it's if it's not connected to my name specifically, and like you said, like first-year student, female... that would be beneficial. Because you guys would be using it... to figure out our students' needs... so I don't really see an issue with collecting the data instead of just throwing it away. (Erica)

And if people are concerned about privacy, I feel like there's always the potential to omit names and like not like attach profiles with the searches, just look at them through a purely quantitative lens. (Lakshmi)

The preference for de-identification was a prominent theme throughout the interviews, although a few students felt that it was an unnecessary step to take, usually because they did not consider their library search data to be particularly sensitive or something that they wished to keep private from the academic library and/or university.

Transparency and user control of data. Participants recommended models of search data collection that centered on library users' ability to control their own data through a variety of means. Some recommended opt-in or opt-out models in which students had to either consent to

data collection, or, if the default was to collect data, to allow people an option to request to be omitted from that process:

Yeah, consent. Like people should choose if they want... their data – like what they search for – to be tracked or not. Because like for me, I know that like I don't really care as much if like people track what I'm looking for... But there might be other people who are like oh, privacy's really big for me, like I don't want them to look at anything that I search for. (Samaira)

I think this is the best route to go, and I think that there are other ways to design those tools to inform what people need that's actually consensual... that whole fully informed, freely giving kind of thing. Instead of just, you know, check the box of "we collect cookies" or whatever, because I don't think that's consent. Which I think is what a lot of the user agreements at VCU do: like they don't really give you an option to not consent, which isn't consent anymore. (Spencer)

Participants also recommended other ways in which users could control data, such as the ability to request that their data be purged any time, or to receive reminders inviting them to delete or adjust the data the library has about their search history. Students also expect the library to be transparent about the data they collect and what they plan to do with it. Some called for an alternative approach to the dense "terms of use" agreements that are common in commercial environments. One participant said:

If you can explain it in a way that a student can understand it... because like I said I'm young, most of the people around my age... we don't like to read, we like to sit and listen... Look at Apple for example. Like you know when you get the updates on your

phone they give you the terms of conduct. And who's gonna read all 87 pages of that?

The only person that read it was the guy that made it. (Abeo)

Along the same lines, another participant suggested that if the library were to collect and maintain search data – which was not their first preference – that library should approach transparency not in a perfunctory way but in a truly accountable way:

I would like in an ideal data driven world for the library to – if it is to collect data – just that there's some sort of radical accountability, transparency system about how it's being used... (Spencer)

Sharing data beyond the library. Students expected libraries to make reasonable efforts to create a secure information environment in order to protect student data from unauthorized parties. Participants who expressed comfort with the collection of library search data were agreeable to library employees having access to it. However, opinions varied as to whether or not other employees at VCU should have access to student search data, despite the fact that most students expressed general trust for VCU as the library's parent organization. One participant suggested that it could be convenient to share search data with their professors at the students' discretion, but he and other participants did not feel that university faculty should have automatic access to it. Some also specifically mentioned that potential employers should not have access to student search data.

A few participants explicitly stated their hope that libraries would not resort to selling data to library publishers and vendors, or to others who might have corporate interest, such as the Starbucks that is located in James Branch Cabell Library. This was noted with acknowledgement that university budgets are ever-diminishing and an awareness that universities are often looking for new sources of revenue.

Students had widely varying opinions about the extent to which government entities should have access to student search data in academic libraries, and under what circumstances. These ideas will be fully explored in a latter section of this chapter about acceptable and unacceptable uses of search data.

Preferences for privacy are infrequent but strong and often relate to concerns about bias and oppression. Some students favored non-collection and/or routine purging of library search data to protect academic freedom and the ability to search without interference. As one student explained:

I wrote this paper on the constitutionality of FOSTA-SESTA and so a lot of the work I was looking up was, you know, arguing about legalizing sex work or things like that, like things that in Virginia are very, very illegal, and so you know, I'm not necessarily worried that that would ping someone the wrong way, because I could, you know, hold up this paper and say, no, look this was for a class, but... that feels gross to me, because I don't feel like I should have to prove it. And I also ... I worry that some searches and some people making the searches will be monitored differently. (Spencer)

Another participant cited that maintaining privacy was paramount, and that libraries should engage other methods to gather the kind of data they need for improvement:

I don't think that they should be prioritizing search tools over privacy. And if they [libraries] really wanted to know what could be helpful or useful or what they should purchase, then it's super easy to send out a survey. (Corey)

Another reflected on the fact that collecting and maintaining search data could diminish the sense that libraries are available to everyone, for whatever type of learning purpose they might have:

So, like if I was in charge of a library, I would want to make it as inclusive as possible so that anybody would feel welcome to come in and get a resource for any reason, whether it's for academic or recreational [purposes]. And I feel like by tracking people's information, it would make people feel more [self-]conscious about what they're doing.

(Ava Grace)

Some students who expressed dissatisfaction about library search data collection were concerned with the ways in which the data might be shared intentionally or inadvertently with other parties:

Like I'd be cool I guess if you all [libraries] have it. At the same time, if there's something where the police – campus police suddenly decide we're interested in this information, not sure if I would want them to be able to subpoena you, so really, I have no idea. (Spencer)

Although the view that academic libraries should purge search data was not one held by many participants, those with that perspective held it with a level of conviction that exceeded that of their peers who were unconcerned or even positive about academic libraries collecting search data. One referred to her desire to have “just one place” (Selena) where her search data was not being tracked. Others were direct in expressing their preference that search data should be purged:

I would like to see the purging of information. I would also like to see that that's made widely available that you do that. I had no idea. (Spencer).

Participants who had the most fervent opinions about maintaining user privacy in libraries often spoke of their own experiences as members of minoritized or oppressed groups, or similar experiences of others, which significantly contributed to their perspectives on search data

privacy. All of the students who indicated a preference for an approach in which libraries do not collect or maintain search data were people of color, people who were disabled or chronically ill, members other minoritized groups such as the LGBTQ community or minority religions in the United States, or had intersectional identities across many of these groups. They also expressed increased awareness of bias-related issues as compared to other students who were interviewed. The most passionate and personal expressions occurred when students were asked about the potential use of library or internet search data for the purposes of protecting public safety. One student with strong preferences for privacy described:

My understanding of how these things work is that... the whole Patriot Act thing is like “but we’re trying to catch the bad guys,” but like the people who end up being the bad guys are, you know, people of color, queer people, disabled people, you know, all that stuff. So really, I – Fuck that. And so, I’d rather you just not have the information. The only real reason I would want you all to collect the data would be one, so that you could get to know us more as like people and help with research that way, and two would be I guess to show VCU writ large what’s actually important to students. (Spencer)

This quote illustrates the complexities that exist in student attitudes about search data in academic libraries, even when a student’s views are held strongly. This participant, whose intersectional identity includes membership in multiple oppressed groups, was the most deeply concerned with privacy of all participants interviewed. However, in just a few sentences, they express their preference that data is not collected at all, followed immediately by reasons that make data collection potentially acceptable, which demonstrates the nuance, complexity, and at times, ambivalence of perspectives held by student participants.

In addition, some participants who were comfortable with library data collection in general still expressed concerns about biased use (or misuse) of search data in certain contexts to target minorities. Again, these concerns were often shared in the context of questions about other entities such as the government having access to library search data records. One participant who immigrated to the United States when she was five years old shared the following when asked about search data collection for the purposes of maintaining public safety:

And of course, let's say someone who's Muslim does search up information about... past terrorist attacks, just for a pure curiosity, and the federal government was observing that person and realized who they are, what their ethnicity is, what their religion is. They're definitely more inclined to consider that individual as a dangerous person.

(Galina)

Another participant who is a member of the LGBTQ community shared the following to express their awareness of the need for search data privacy for vulnerable groups:

... some of my friends who also identify as trans and non-binary aren't necessarily out to their parents but are still dependent on their parents. Their parents can sometimes access this kind of thing [search data]. So, I think if there's anything that would show like, hey, this person is searching for trans stuff, like – that could be very dangerous for them.

(Spencer)

Another Muslim participant of Middle Eastern revealed his concerns about the assumptions people might make about him based on search history when considered alongside his ethnicity, particularly if the content of searches in any way related to terrorism, violence, or national security. To express his concern about bias based on his religion and race/ethnicity, he simply said: "I'm just a guy, you know?" (Rashid).

Potential overreliance on and misuse of quantitative data

Although participants acknowledged possible benefits of search data collection in academic libraries, some were also attuned to potential issues of over-relying on or misinterpreting or misusing search data and quantitative data in general. Some of the issues participants raised were based on the presumption that a library might try to analyze data by academic variables (such as major) or demographic variables (such as race). Participants were cognizant of the risks of stereotyping or oversimplifying certain user groups in models relying on quantitative data alone, for example:

Like you kind of have to be careful with the groups because there is that like sort of tendency that we have as humans to generalize and stereotype. (Erin)

Some also expressed concerns about favoritism, in which high profile or large majors on campus might receive focus from the library to such a degree that it is detrimental to smaller or less recognized programs. A participant explained:

I mean, maybe just like knowing by group, it might give some sort of like favoritism. So, like say there's, you know, a million history majors here, the library might say okay, well we're going to pour all of our funding into history and then a biology student comes and they don't have anything new because all of the new stuff has gone into history majors. (Cameron)

Some students also expressed concern that there would be no way to protect the anonymity of library users' search data for those who are enrolled in smaller majors if any other demographic information is attached to them. Although one way to protect their privacy and ensure effective research design would be to strike smaller cohorts from analysis, those students' use patterns are then excluded from consideration altogether, which participants identified as

suboptimal. Students noted that search data is likely to be imperfect and not tell the whole story. One student indicated that she often used books while in the library but did not check them out to take with her. There would be no way to account for her use of those items in a quantitative library search data model on which potentially significant decisions might be made.

In order to mitigate the potential risks and issues associated with quantitative search data collection and use, some participants recommended that libraries consider learning about users' search habits and preferences through other means. They specifically suggested methods such as survey research and qualitative studies.

Acceptable and Unacceptable Uses of Library Search Data

The themes presented in this section primarily address Research Question 2: “What are acceptable and unacceptable uses of students’ library search data according to undergraduate students, and why?” Figure 6 illustrates the themes and subthemes presented in this section.

Theme 7: Search data for improvement of library services/collections is generally acceptable.
<ul style="list-style-type: none"> • Deleting search data is wasteful. • Importance of transparency, user control of data, and limited data sharing.
Theme 8: Views on uses of search data for individually tailored search results varies.
<ul style="list-style-type: none"> • Uncertainty about net gain in convenience. • Limited exposure to varied research materials. • Transparency and user control of data.
Theme 9: Use of library search data for learning analytics initiatives is controversial.
<ul style="list-style-type: none"> • Students do not see low library use as clearly indicative of an academic performance problem. • Learning analytics models elicit mixed opinions. • Comfort with aggregate data analysis, but for what purpose?
Theme 10: Students hold varied and often ambivalent opinions about using search data for public safety and preventing bad behavior.
<ul style="list-style-type: none"> • Privacy should be sacrificed to save lives. • Privacy should be preserved. • Library search data will not protect public safety.

Figure 6: Acceptable and Unacceptable Uses of Library Search Data: Themes and Subthemes

Search data for improvement of library services is generally acceptable

Students had generally positive feelings about using search data for improving library services and collections. One participant described the role data can play in creating an effective environment for student research:

I think it's fine if our institutions track our search data. They should sort of limit who they share it with, yeah, and I think then that just like fosters a better research environment, which I think is like ultimately what I want from my library. (Tahmina)

Participants' views that search data should be used for library improvement were often based on perceptions that *not* using data for this purpose is wasteful. Participants also reiterated their preferences for transparency, user control, and limited data sharing in a model where libraries would be collecting data for this purpose.

Deleting search data is wasteful. Some students expressed that not using search data for this purpose would be wasteful. At times, their comments suggested some degree of confusion as to why libraries would make such a choice:

So... they already have the data, right? So, getting rid of it and not making use of it is a waste to me. (Stephen)

Participants saw using search data for overall improvement as an opportunity to ensure that funds are invested in the most high-demand resources, and to improve search tools:

I think this is all viable, because I think it's natural to be using data to further improve, you know, a collection or something. If a certain type of book is getting a lot more traction than others, then it would make sense to, you know, order more of that type of

book. And so, I think this is all justified. (Robert)

I think it's very much driven by the purpose of collecting the data. I think if it's for academic reasons and if it's for maintaining the freedom of academia within that, improving searches, making it easier for people to find information that they're looking for, while not too greatly filtering out other information, it would definitely be a good thing. (Phillip)

Importance of transparency, user control of data, and limited data sharing. When students expressed ambivalence and/or views about libraries collecting search data to improve collections and services, they often referenced concerns discussed previously in this chapter about who the data might be shared with, either intentionally or inadvertently. When asked to consider the use of search data specifically to improve library collections and services, participants reaffirmed their previously stated preferences for users' ability to control their own data through opt-in/opt-out options. They also reiterated the importance of libraries being transparent, and seeking user consent before collecting data.

Students who were not in favor of using search data for improvement indicated more over-arching concerns with their privacy, or concerns about the way in which quantitative data might be used. One participant who is in a small major program and is also a member of some demographic groups on campus that make her highly identifiable stated:

Yeah, there's no way I can have any privacy ever because I'm so specific with everything about me. (Corey)

Some students also expressed concerns that have been previously elucidated in this chapter related to quantitative analysis models, such as favoritism, stereotyping, and poor representation or risk of privacy violations for smaller groups on campus. In addition, one

participant noted that the frequency with which undergraduate students sometimes change majors could also limit the credibility of statistics disaggregated by major.

Attitudes about search data for individually tailored search results vary

Students held varying attitudes about using library search data for individually tailored search results based on their previous search history. When sharing their perspectives, students considered the potential increase or decrease in convenience, and the possibility of limiting exposure to a variety of research materials. Students reemphasized a preference for user control of search data and transparency as it pertains to tailoring, as well.

Uncertainty about net gains in convenience. There was appreciation for potentially increased convenience of receiving search results based on prior search history. This approach is familiar to students based on their day-to-day internet use:

... I know that it could really help just as Amazon collects data to help with their searches. YouTube collects a lot of data about their algorithm for pushing different videos out there for people to watch. (Stephen)

See, I wouldn't mind that. I actually feel like it would be helpful, like especially if you're doing research on something that's like kind of niche and like you're just scouring all of these sources and then you find some that work and you actually download those. And then you come in the next day and there's a bunch of other sources that actually, like, are pertinent to what you're researching, I think that would be kind of cool. (Cameron)

Some participants articulated that keeping a record of the items they had searched for, downloaded, or checked out could be a convenient byproduct of a system in which search data is collected for individually tailoring results:

If there's some sort of tool that tracked what I downloaded and what I searched, it would be able to jog my memory or I can reference it for a future project or paper. (Galina)

However, students were skeptical about how much a tailoring feature in libraries would actually increase convenience, particularly for undergraduate students. Some felt that it might create inconvenience. Specifically, participants expressed that because individual undergraduate students' research assignments vary widely due to general education courses or diversified interests, the type of research they do for one class would be different from their needs in the next class. This could result in unhelpful tailored search results:

So, I mean, I think especially for undergraduates specifically, I feel like what we're searching for is really going to be tailored towards what assignment we're working on. And that changes just from semester to semester based on the classes we're taking and things like that. I could kind of see if you're almost like pursuing a profession in academics, like maybe a PhD or you are a professor or a librarian or something and you're... studying this one concentrated topic for years and years. I could see how that could be helpful and good. But for someone like me I'm just doing so many different things that I have. I'm taking anatomy now, but then I'm a dance major, but I'm a psychology minor, so I'm kind of like looking at different things there... So, it's just kind of like, I don't need to constantly be being told like, hey, there's these other articles about this vital chemical you can look at. I don't really care anymore. (Kavya)

Some students were also uncertain about how well the recommendations in search results based on prior searches would capture the complexity and intersectionality of many research topics:

...especially because so much of the research I do is, I guess, intersectional in ways that aren't common, it would be hard for me to make the connections that I do if an algorithm just handed me what I thought I should have. (Spencer)

Limited exposure to varied research materials. Some participants also expressed concern that they would enter an “echo chamber” based on a system of tailored search results wherein they would only be exposed to information that aligned with their prior searches. Students expressed concern about this ideologically, acknowledging that it is important to be exposed to a wide array of information in the research process:

I guess it could possibly, like, limit your research, because I think sometimes the best things come up when you just start putting together new search terms. So, if they're tailored based on things you've already looked at, they're kind of cutting off avenues that you haven't explored yet... (Alexandra)

Some also emphasized the importance of learning to sift through information and assess its relevance to the topic under study as a skill that students need to develop:

I feel like, right now, part of my job, as a student in searching databases, is to find those resources. I think using the filtered data is a good idea but I also feel like it's part of my job. It helps me, as a researcher, to improve my skills and practice, is to dig through those databases. (Clayton)

Based on the quality of their experiences when using other recommendation/tailoring services online, students also occasionally questioned whether or not the technology would work effectively in general:

...it's kind of similar to like a Spotify playlist where you'll search something and then you'll be in a weird mood one day and put on a bunch of sad music. And then you come

into the library the next day and then your recommended searches are all messed up.

(Cameron)

...sometimes YouTube's algorithm... is a bit of a raging house fire sometimes. It'll be like I accidentally click on a video and then all the videos in my dashboard are basically related to that video. So sometimes it feels like databases, like, go a little bit too hard on the recommendation feature. Personally, I feel like there has to be like a consistent pattern, and then like recommend like one or two things that are related to it. Don't make like the ... entire dashboard that content... (Erin)

Transparency and user control of data. Participants recommended that users be afforded control of whether they receive tailored results. This was in part due to some of their reservations about the overall effectiveness of individually tailored search results, especially for undergraduate students. Some suggested opt-in or opt-out features, and others recommended other ways in which they could control their data, such as erasing history, as one participant describes below:

But when you're just like looking stuff up and especially when you're in a class that writes papers and some aren't related to the last one, when you're looking into the next one and you keep getting results from the previous thing that you were researching, that can get frustrating. So, if there's a button or some way to be able to clear the past and like start... with a new one then I think that would be helpful. (Elliott)

Finally, some students felt uneasy about their search data being retained to provide personalized search results, even if it is likely to increase convenience:

So, it's [tailoring's] definitely good for time efficiency. I know that for sure. But I guess a negative about it too is also just you know -- who's watching me? why are you watching

me? ... Maybe I changed my major; I don't need this stuff anymore. Why do you have this stuff on me? (Abeo)

Another participant expressed the following when asked how she would feel if she started receiving tailored search results at the library:

I would be sketched out. Everyone else is already following me. (Selena)

Overall, students revealed mixed opinions about their comfort level and preferences for collecting search data to provide individually tailored search results. They questioned how helpful such a service would be in practice for undergraduate students, and also expressed some concerns about the overall impact on the extent to which they would be exposed to an appropriately wide array of research materials.

Use of library search data for learning analytics initiatives is controversial

In the interviews, participants were presented with a scenario that invited their views on library search data being used as part of a learning analytics model in two potential ways. One was to monitor students' library use (through circulation of materials and use of electronic resources, tracked by database logins) and alert academic advisors when students enrolled in research-focused courses had not used the library at the expected level. In this portion of the vignette, low use of library collections was presented as an academic risk factor. The second portion of the vignette invited students to contemplate a model in which aggregate library use data is correlated with aggregate data like students' GPAs to look for statistical relationships. Student responses revealed that they were mostly disapproving of learning analytics models as they related to library use, and found the learning analytics movement at large, even independent of the library, to be controversial.

Students do not see low library use as a clear indicator of academic performance

problems. Most participants felt negatively about learning analytics approaches that treat low library use as a sign of potential academic issues, although some saw potential benefits. A few students acknowledged that it could be useful for giving advisors an opportunity to increase students' awareness of available university support systems. One student explained:

I mean, it might scare some people, because it might make them think oh my God, they're sending this to Professor X, she's going to kill me. But it could also be helpful because you know, I mean, in such a big university, you can forget that the library is an option, you know, and it can kind of become something where you're like oh my god, I have this paper due, I have to do it now, you know, I'm going to use Google as opposed to a library database because it's accessible and I don't have time to go to the library.

...So, I think it could be helpful, but it also might scare some people. (Cameron)

While this student's perspective is primarily positive, most participants felt otherwise. The most widely repeated element of the negative attitudes about this scenario was that students did not see failure to use the library as indicative of potential academic risk. Several mentioned that such an approach rests on a confused model of correlation versus causation, and that library use is not necessarily a prerequisite to academic success. Participants elaborated:

The student might be excelling in their classes but they might not use library resources.

They might use internet databases instead to fulfill their goal or their paper, et cetera... I mean there are tons of other resources now and you can totally excel without going to the library. (Galina)

...first of all, somebody could be going to a different library. They could be getting their information from Google. Just because somebody's not using a library doesn't

necessarily mean that they're not getting their information somewhere else. And also, all students learn differently, you know? ...Then it feels like they'd be forced into... turning to a service that doesn't actually help them that much. (Erin)

Learning analytics models elicit mixed opinions. Regardless of whether they believed low use of library resources was perceived as a legitimate indicator of potential academic risk, most participants held negative opinions about the use of library search data in learning analytics models. Participants advised that engaging in the practice of reporting “anonymous tips” (Yoofi), using library search data as an “academic issue detector” (Robert), or acting as the “GPA Police” (Alexandra) could erode the trust that students have for libraries, and cause them to view a place they once perceived as helpful instead as a place that is engaged in “tattletaling” (Lakshmi). Some suggested that if students became aware of this type of monitoring and intervening action, the perception that their library use habits (or lack thereof) could get them in trouble with their academic advisor may cause students to become concerned about whether or not they are using the library correctly, as opposed to whether or not they are using to fulfill their actual academic needs. One participant suggested that it might cause students to use the library disingenuously, logging into systems or checking out books that they do not need in order to fulfill a real or perceived requirement of some kind. Instead of feeding library search data to academic advisors for intervention, one participant suggested other mechanisms for increasing students’ awareness of available library resources:

See, I almost feel like it could just be something where like periodically, you just send them [emails] to everyone and just be like – Hey, remember the library’s a thing.

(Cameron)

Finally, some participants who held more conservative views about privacy overall felt

that collection of search data for use in learning analytics was a general overreach in the library context, and one that put students' privacy at risk in ways that may not be intended, but is still possible. One participant who lives with a chronic illness/disability expressed the following when asked how she would feel if the library were to contribute search data to a learning analytics model:

Absolutely not. That's not okay... That's absolutely inappropriate. If someone has a disability they could be using other resources. And that would be putting them under scrutiny with their advisors where they would be forced to disclose, which is not okay.

(Corey)

Through follow-up questions, students also offered more general opinions about learning analytics models independent of library involvement. Some students acknowledged that they appreciated notifications that were based on grades as opposed to library use, because the former is more clearly indicative of actual academic issues. One participant explained their comfort level with "early alerts" that are designed to make students aware if their midterm grades, for example, are lower than what the university considers to be ideal:

I definitely have been in classes where I don't know how I'm doing because the – you know, maybe they're just not a professor that uses Blackboard really often or not a really communicative professor, so I appreciate an alert if I am, you know, doing worse than I thought... (Chandler)

Others acknowledged that students who are coming from high school to college may benefit from the additional support of a learning analytics model in which the university uses data to cue special outreach to students if there are signs of academic issues, including low library use:

But yeah, I think this is like a really good step to take, especially maybe coming out of high school, not a lot of people realize the importance of, you know, sort of establishing just like good habits when it comes to research. So yeah, I mean, I'm not against this.

(Tahmina)

However, other students expressed discomfort with any sort of learning analytics model, whether the library is involved or not. They explained it was likely to hurt students' feelings or upset them. One participant offered the following reflections when asked how she would feel about learning analytics models in which students receive notifications related to low midterm grades:

That's got to be so disheartening if you're already upset with your midterm grade. And if they hit you right at the perfect fragile moment, you're like I'm just going to go sob in a dark room, thank you. (Alexandra)

Others found the learning analytics model to be generally patronizing, resembling a "helicopter parent:"

I get the intention but I don't feel like academic advisors or librarians should feel obligated to be responsible for the students. I'm not gonna say "screw 'em," but I'm gonna say... college is where you become more of yourself, where you figure yourself out. I feel like doing that kind of stuff to me would make me feel like I'm back in high school. (Abeo)

Some students also expressed ambivalence about learning analytics models, acknowledging that they seemed to be well-intended and that it might prompt some students to take better advantage of university resources and improve their grades. However, participants

also acknowledged that even those students may feel hurt or anxious about receiving an indication from their advisor that they have done something wrong.

Comfort with aggregate data analysis, but for what purpose? The second portion of the scenario about learning analytics focused on libraries using search data to look for a relationship between libraries and student GPA. Overall, students were not as negative about employing a research model that looks at data in aggregate as compared to the learning analytics model previously described, which hinged on individual level data and intervention. Some were supportive of this type of model based on their understanding of how the data would be used:

I would be comfortable with it, because usually when it comes to data like this I feel like it's used for research studies. If it's used for research studies it's used for a good purpose. That's how I see it. And if it's anonymous, I mean, I don't really care who knows about my GPA really... (Rashid)

I mean, like I've seen like surveys that are like the more sleep you get, the higher GPA you have. So, I feel like that would be beneficial for that. Like students who search in the library more have higher GPAs. (Erin)

Others expressed concerns about confusion between correlation and causation in this type of research study, and also questioned whether or not there is too much emphasis on grades and not enough on learning in such a quantitative model. Another student elaborated on the limitations of the research design described in the scenario:

So now I'm taking a course... it's an honors topics course called "Diving into Qualitative Research." And if there's one thing that the professor has really emphasized throughout the whole thing, it's kind of just stressing the benefits of qualitative versus quantitative research and just how qualitative gives you so much more just like depth and meaning

and understanding behind the findings. Whereas this just, I don't know, the relationship between use of library materials and GPA. Like okay, if there may be any correlation or anything between specific sources in GPA or something like that, then I just like don't think that's enough to like really say much of anything or draw any sort of conclusions generally like about either students or about the source. I don't know. Cause there's so many other variables with things like this and it just really is kind of a case by case thing.

(Kavya)

Overall, students expressed reservations about learning analytics models that hinge on individually identifiable student search data with the intent to intervene in situations where library use was lower than expected. While some acknowledged that such initiatives were rooted in good intentions, they sometimes saw them as ways to get them in trouble. While participants were more open to aggregate-level exploration of library use and student GPA, some saw the research design as faulty and thus not worth pursuing.

Attitudes about using search data for public safety are varied

When students were presented with a vignette asking them to consider the government's role in monitoring user search data from Google and/or academic libraries to prevent terrorism, they presented a wide range of positions. Ambivalence, uncertainty, and nuance were especially prevalent in participants' views regarding government access to Google and internet search data. Students were often torn between protecting the public good, making regular references to school shootings and terror attacks, and preserving intellectual freedom:

...I guess I'm a little conflicted if anything because I mean, if it does end up preventing terrorism then, like, great. I think it can be, again, really hard to identify what is suspicious searching behavior and I don't know. You just never know. I feel like it's kind

of an ethics question almost just like, is this, should every person, no matter what type of person, like terrorist or not, should they have that kind of, like, privilege? That right of privacy? I don't know exactly how I feel. To me this sounds kind of wrong, I think in the context of terrorism or really anything like the government monitoring search data and looking for suspicious behavior just because I think it is kind of neglecting someone's... right to privacy. So, it's a tough one. (Kavya)

Participants presented nuanced views and questions about how such an endeavor might be approached if it were going to be implemented at all, exploring the particular methods and circumstances under which government access to search data would be appropriate:

I believe it is necessary to do this, but I ... I'm not sure to what extent. Because I definitely don't think that there should be a free for all for Google. And that some suspicious searching behavior might just be really curiosity... I guess when there's repeated, continued use of it over a certain interval of time. (Galina)

Privacy should be sacrificed to save lives. Some participants were confident in prioritizing public safety and national security at the expense of user privacy. When asked if the government should have a right to routinely monitor internet search histories, participants answered:

I would rather that we save lives ... if my privacy has to be jeopardized a little bit, I'm personally okay with it if it means that we could be preventing some kind of terrorist attack or... Even to a smaller degree, like what I was saying about seeing signals of, say, you had somebody that was registered as a teacher or a professor or somebody that worked with kids or disadvantaged populations. And you see them starting to search red-flag type of things. Then I think it's worth having that because you have... that extra

thing to rely on because so many people get away with their stuff because they can say,

"Oh, you don't have that authority to look at my internet searches." (Ava Grace)

...I feel like if you're planning to murder people then you kind of lose the right to

privacy. (Selena)

Privacy should be preserved. Students who felt most strongly that the government should not have access to internet search data were often concerned with intellectual/academic freedom and the way that misunderstandings, false accusations, and/or bias might play out in the system. Participants explained:

...there are plenty of people who could be doing research or writing books or reading, who don't have any sort of motive like that, that then end up getting caught up in this kind of stuff. And I don't necessarily think that their definition of what they're looking for as far as terrorism search terms is very clear. So, like say an ultraconservative or ultraliberal government might say well, you're a political opponent and I'm going to flag this one word in Google because I want to see who's searching it and I'm going to flag all of you as terrorists. (Cameron)

Library search data will not protect public safety. However, student perspectives about whether or not the government should have access to search data in academic libraries, while still nuanced, were not as diverse. Some students felt that the government should have access to library search records, some thought they should have access in only very specific circumstances, and others thought they should have no access at all. The key difference in student perspectives about government access to library search data versus government access to internet search data was related to the perceived utility of the information. Most participants did not feel that the type of data that libraries would maintain about the searches would be useful to

government or law enforcement agencies who are investigating or seeking to prevent mass shootings, terror attacks, or other potential acts of violence. Participants shared the following opinions, referring to the types of searches performed in library databases and other library-owned search tools:

I feel like the government would not find out anything from what you're searching in an academic library... I feel like there's not going to be some book or like some like great scholarly article on how to be a terrorist. (Kavya)

I just don't feel like that would be effective at all. I feel like... monitoring Google makes more sense or online video chats, if they're trying to communicate with their people overseas for how they're going to plan so and so attack or something, that makes sense.

But I really don't think there's anything in a library that's really going to help them that much. (Clayton)

Since many students did not see library search data as useful for preventing public safety issues, they did not tend to hold strongly convicted views about whether or not the data should be accessible to the government, in general. They saw it as a fruitless effort for the government, and thus were not very invested in considering whether or not it should or should not happen.

However, other participants shared different views. Some felt that the highly credible materials available in academic libraries could be useful to persons planning violent acts. Accordingly, they indicated there was justifiable cause for the government to monitor/access library search records as needed. A small number of participants suggested that libraries themselves should play a role in monitoring searches for suspicious searching behaviors, as explained by one participant:

...like if there is something really alarming... like something about like weapons or some violence or something, then that should be something that they [libraries] should look into... (Samaira)

Some students were firm in their opinion that safety should be the number one concern, and that search data monitoring in libraries should happen as necessary to ensure the community is safe. On the other end of the spectrum, some students saw this type of monitoring in the library setting as a flagrant disregard for academic freedom, and that there is no circumstance in which the government should gain access to academic library search data.

Overall, student attitudes about using internet or library search data to monitor for and prevent violent behavior varied significantly. In the library setting, however, a distinct perspective emerged: that academic library search data may not be of value in such an investigation, and therefore need not be pursued.

Risks and Benefits of Library Search Data Collection and Behavioral Impact

The themes presented in this section primarily address Research Question 4: “What do students perceive as the risks and benefits of libraries collecting student search data, and how do these perceptions influence their search behavior?” The purpose of this section is to distill content that has already been expressed through themes in prior sections into a more coherent structure that illuminates students’ perceptions about risks and benefits of library search data collection. Figure 7 presents as a summary of the previous sections in this chapter by enumerating the major benefits and risks of library search data collection. A subsequent narrative portion of this section discusses impact on participant behavior.

Possible benefits of library search data collection
<ul style="list-style-type: none">• Improved search experience for library users through collections and services developed based on search data.

<ul style="list-style-type: none"> • Increased convenience based on tailored search results. • Data-driven investment of funds in library collections. • Some potential for demonstrating the library's value based on relationships between library use and measures of student success. • Possible use of search data to ensure public safety.
Possible risks of library search data collection
<ul style="list-style-type: none"> • Collections and services built on majority groups, diminishing minority groups' needs. • Decreased convenience and student agency in the research process based on tailored search results. • Erosion of trust in libraries based on use of data for learning analytics interventions. • Violating students' privacy and academic/intellectual freedom. • Third party access to search data that can be misused.

Figure 7: Risks and Benefits of Library Search Data Collection

Impact on behavior and coping mechanisms

The research question that guides the presentation of findings in this section asks how students' perceived risks and benefits of search data collection in academic libraries impacts their searching behavior. Since VCU Libraries collects minimal search data and actively seeks to separate data about use of resources from students' personally identifiable information, the best way to approach this question was to invite students to share how these perceived strengths and risks might hypothetically impact their searching behavior.

The majority of students indicated that they had not previously considered whether or not their search data was being monitored or collected in academic libraries. Over the course of their interviews, most students stated that they would be unlikely to change their search habits if they learned that library search data was being collected and used for improving collections/services or to provide individually tailored results, particularly if the data were anonymized. Students' preferences for data control features like the ability to delete their own data or opt out of data collection practices suggests that some students might take advantage of such features should

they be implemented. Such behaviors would be consistent with Li's (2012) concept of coping mechanisms, in which users engage in strategies to minimize privacy risks.

However, if VCU Libraries began collecting library search data with the intention of using it for intervention-based learning analytics models, some students indicated that they would have strong negative reactions, although few behavioral impacts were specified by participants. One student indicated that she would drop out of VCU if such a model were implemented, given her perception that it would place students with disabilities at particularly high risk for privacy violations.

One student revealed that they had been uncomfortable, and at times cautious, about what they searched for at VCU Libraries. This was due to the fact that they did not know the extent to which VCU Libraries collected search data, and were concerned about third-party access. It stands to reason that if VCU Libraries was ever in a situation in which library search data was being routinely monitored by government agencies that this individual may cease their use of VCU Libraries.

The primary purpose of this section was to explore students' perceived risks and benefits related to library search data collection, and to consider how that impacts behavior. However, it is also worth considering the ways in which students change their behavior when searching the internet given their awareness of the ongoing data collection in that environment. Many students indicated that internet data collection did not change their search behavior, either because they felt they had nothing to hide based on the types of searches they did, or because they are resigned to the fact that they cannot reverse the trend of increasingly intensive data collection. On rare occasion, students indicated that they employed coping mechanisms (Li, 2012) such as using incognito windows on their internet browsers or in YouTube. Some indicated that they tried to

phrase their searches about controversial topics in a way that seemed unthreatening, and others indicated that on occasion they simply didn't search for something at all, depending on how it might look to third parties.

Influences on Privacy-Related Perspectives

Many of the research questions in this study ended with the phrase “and why?” The questions were intended not only to reveal students' attitudes related to search data privacy in academic libraries, but also clarify how they arrived at them. Many influences shaped their perceptions, some of which they stated explicitly, and some of which I interpreted based on the information they shared over the course of their interviews. Throughout this chapter, many of these influences have been described in detail as part of the findings about students' attitudes. Prominent influences that shaped participants' attitudes about search data in academic libraries that have already been covered include:

- Desensitization to privacy issues as a result of a data intensive internet experience;
- Awareness of and/or experiences related to bias as it relates to information access, use, and monitoring, particularly if one is a member of a minoritized group;
- A general feeling that if one does not have anything to hide, that they need not worry;
- The notion that library search data does not reveal much personal information about students;
- Concerns/fears about aspects of students' lives being revealed through the course of data, collection, even if unintended.

This section provides a brief overview of other life experiences, influences, and additional factors that emerged as significant in shaping students' attitudes about search data privacy that have not been previously explicated in this chapter. It is worth noting that the

influences described did not necessarily impact students' perspective in a linear or formulaic way. Similar experiences from one student to another may have resulted in very different attitudes based on a variety of other experiences, factors, and/or influences they have had.

Routinization of technology monitoring and tracking. Many participants indicated that they are accustomed to being tracked and monitored, which has shaped their frame of mind when considering privacy and data collection practices in general:

My mom still has location tracking on my phone, right? Like to make sure I'm not kidnapped and things like that. So, if it's not my parents, it's my local government, it's not my local government it's the entire government, if it's not the entire government it's a national security organization, and if it's not them, it's Google. (Erin)

The prevalence of data monitoring practices is likely a combined product of increasing technological capacity to do so, and living in a post-9/11, post-Columbine era. Students referred to feelings of anxiety and paranoia, and referenced school shootings. However, influences of being routinely monitored and living with a sense of paranoia or anxiety manifested in different attitudes about privacy among participants. For example, some students were accustomed to being monitored and thus felt minimal worry about continuing to be tracked in various environments. Others were concerned about the increasingly pervasive nature of monitoring and felt paranoid about their own privacy being exploited or invaded:

I think I'm just a bit of a paranoid person when it comes to privacy. (Eliza)

Students often referred to how growing up with technology, the internet, and social media affected their privacy perspectives. Nearly all participants acknowledged the pervasiveness of increasing technology as they have grown up. One participant explains how she and technology "grew up" together:

I grew up with technology. But it also grew up with me. The most high-tech thing I owned as a kid was a Wii. And Wii did not track my search history. I remember when Netflix came out we were so excited because we could watch it on the Wii and Netflix would do like “Recently Watched” and stuff. And then growing up you just thought that Google was a cool way to get resources and stuff. And ... then they would start putting advertisements everywhere. That's when people started realizing this untapped advertisement space. And then the older you get the more advertisement there is. (Selena)

Some students explained how the increasing pervasiveness of the internet in their lives has increased their familiarity and savvy with using it, which as a result, reduces their fears and concerns about it:

I think the people that do fear government... didn't grow up with the internet like I did...

But I feel like because I understand it, I don't really see it as a threat. (Ava Grace)

Others noted how they have chosen to opt out of the increasing pervasiveness of Technology around them, including social media:

I care about my privacy. I'm not a big social media person. I only have Facebook... and LinkedIn. That's because I have LinkedIn for looking for jobs and things like that. I only have Facebook for messages from teams that I'm on and for group chats and stuff like that. (Clayton)

Family and cultural influences. Many students referred to the important ways in which their families (especially their parents), their culture, and their communities have shaped their perspectives on privacy. A number have parents who emphasized privacy. Participants described the ways in which that emphasis has played a role in shaping their attitudes:

I just don't like random people knowing personal information about me.... My dad is ... I won't say he's a safety nut but he's definitely very protective. I think he passed that on to me a little bit. I'm just always very aware of things. (Clayton)

And so, I know my parents are fairly concerned with that, but for me, I would say I'm a lot less, because I know... of the possibility of the government being like yeah, what are you searching up, but I also know that what I'm searching up for isn't anything malicious or like what they care about, you know? And also, like there's so many people using the internet and searching for, stuff way worse and stuff like that. So, like it's not too big of a concern for me. (Robert)

Participants also acknowledged their family's culture – and particularly the culture of their parents – in shaping the way they think about privacy. Some students who were born from parents who had immigrated to America remarked upon the different expectations for privacy (or lack thereof) in their family's culture:

I guess the only other experience... is my parents. Indonesia is very open... No one really worries about privacy there as much as in the US, from what I've compared and also what my parents tell me, so that also shaped me. (Stephen)

...my parents, they were brought up in India and like they didn't really have that much privacy there either, because like it's a really big extended family and everything, they're always together and they didn't have as much technology as us. Like whatever they said, their entire family knew. And, like, when I was brought up at least, I didn't really have to hide anything with them too because like my parents always understood what I was trying to say, so being in that atmosphere and then coming to college, it's just like I'm close with people who are like really open and everything, so I feel like I don't need to

have like a filter or like worry about my privacy or anything like that. So yeah. Because I feel like as long as everyone has mutual respect, privacy shouldn't be an issue. (Samaira)

One participant also described how their experiences growing up in a family/community that emphasized keeping private or personal issues within the home influenced their perspectives on privacy, increasing their worry about others' ability to see what they are searching for or seeking to learn:

I know we sort of started with the whole growing up in [a] rural [area] thing, but that's something I don't really talk about much here in general. So, I think it is just important to me that the whole, you know, privacy was really valued, and it was really beyond just being private from other people, it was also, you know, making sure things stay in the home. That kind of thing. So I think that really impacts – it has impacted what I've been willing to search in the database or check out because I don't necessarily – I'm getting better, but there are still parts of me that aren't comfortable with folks necessarily knowing some of the things that I feel the need to educate myself on for whatever reason, just because there was that very ingrained like just this stays in the home, we deal with this here, don't let everybody know. (Spencer)

Finally, participants' views on privacy were shaped by whether or not they had experienced negative repercussions related to privacy. As described in this chapter, some students had experiences wherein they felt discriminated against or were aware of situations in which others were discriminated against in a way that relates to internet search data privacy. In addition, students referenced recent privacy breaches like the Facebook/Cambridge Analytica scandal in 2018. These types of experiences and/or awareness often resulted in negative feelings

about data tracking and monitoring. Those who had not had a negative privacy-related experience tended to be less concerned.

Conceptual/Thematic Description

This chapter concludes with a conceptual/thematic description: a presentation of findings that “move[s] beyond surveying the topical or thematic landscape of events, phenomena, or cases toward interpretively integrating portions of data” (Sandelowski & Barroso, p. 913). Thorne (2016) advises that researchers focus on “finding the ideal thematic structure that will showcase the main elements of the phenomenon you are studying in the context of their relationship to one another, if not within an entirely new conceptual or theoretical schema” (p. 183). Overall, the themes that emerged in this study can at times be identified as related to one another. However, the complexity of the way in which privacy attitudes are formed, and the specific way in which each factor shapes students’ attitudes about search data privacy in academic libraries, is not linear or formulaic. It was not the intention of this study to develop a theory to explain how students arrive at these attitudes. Instead, the goal was to provide some of the first in-depth information about student perspectives on this matter, contributing to knowledge in an important area of librarianship.

Based on the findings of this study, Figure 8 illustrates the relationships between interpretive themes to demonstrate how students form their perspectives about search data privacy in academic libraries. Because the complex and multi-faceted influences that shape students’ attitudes do not formulaically shape student perspectives, I do not purport an explanatory model in this study. Instead of describing with specificity how certain influences/factors shape student attitudes, this model elucidates how major categories of influences, including life experiences, attitudes about search data privacy on the internet, and the

particular ways in which students use and trust academic libraries, shape their perspectives on search data privacy in academic libraries.

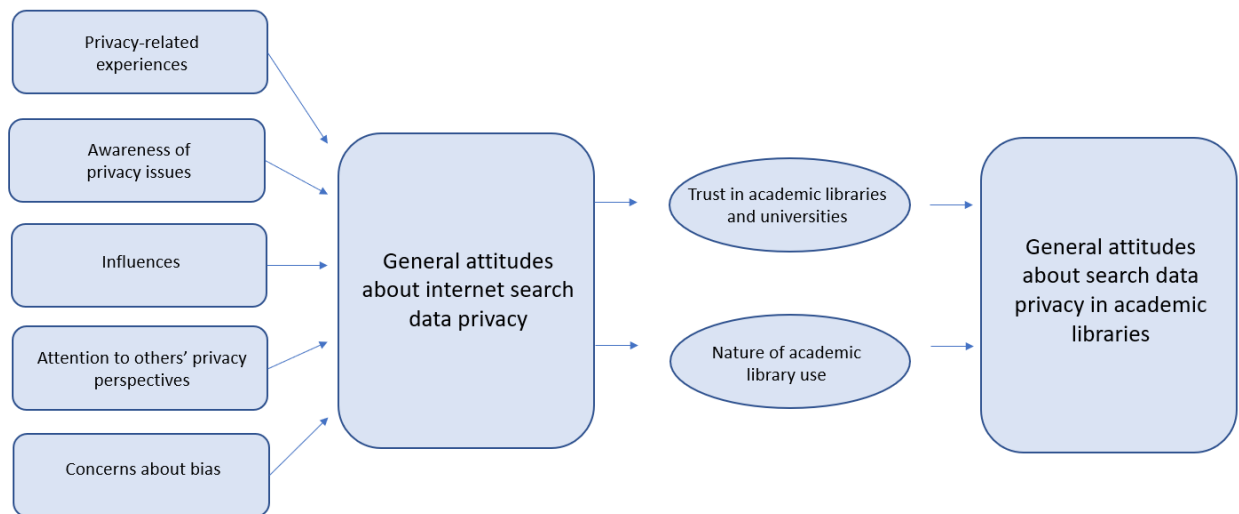


Figure 8: Conceptual Illustration of Search Data Privacy Attitude Formation

Overall, a variety of influences impact students' general attitudes about search data privacy on the internet. These influences range from privacy-related experiences, students' awareness of privacy issues, attention to others' privacy perspectives, their concerns about bias, and a variety of other factors from the influence of technology in their lives to the extent to which their parents emphasized privacy. These influences coalesce to shape students' attitudes about information privacy in general, and in particular, privacy on the internet. Those attitudes serve as a basis and a point of reference for their attitudes about search data privacy in academic libraries. In instances where students' attitudes were different in terms of internet search data privacy versus search data privacy in academic libraries, the differences were usually a result of the extent to which participants trusted the library and/or saw it as a benevolent force, and the particular ways in which they used academic libraries. Most students expressed high levels of trust in academic libraries, and indicated that they considered the ways in which they used

academic libraries to not be indicative of their whole selves. As a result, most students were more positive about how academic libraries might use their search data than they were about how internet search companies might, although students reacted more favorably to some potential uses of search data than others. Overall, students saw libraries as organizations with good intentions whose primary goal was to help students succeed, which predisposed them to an openness to how/if libraries might make use of search data.

V. DISCUSSION

The purpose of this chapter is to examine the findings of this study in the context of previous literature, to acknowledge the strengths and limitations of the study, and to consider the implications for future policy, practice, and research.

Summary of Interpretive Themes and Key Findings

The interpretive themes that emerged in this study can be helpfully represented as major, notable, and nascent themes, as represented in Figure 9 below. Major themes are those that emerged from the data most clearly, either due to the frequency with which participants spoke of them, or the strength of the conviction with which they were held. Notable themes were not as prominent as major themes, but still had significant evidence from participants to support them. Finally, nascent themes were those that emerged from the data, but had limited data supporting them either in terms of quantity or the emphasis students placed on them. While it is not possible or necessary based on the goals of this study to list the themes in particular order of prominence, these general groupings are helpful for readers to understand the notability of each theme. In addition, asterisks are used to identify subthemes within major themes that were particularly prominent.

Theme Category	Theme and subthemes
Major	Theme 1: First-time/evolving thoughts and limited awareness of library practices
	Theme 2: Academic libraries are mostly used for academic assignments <ul style="list-style-type: none">• Library search data is less personal than internet search data*• Intellectual freedom matters
	Theme 5: Comfort with libraries using search data in ways that benefit students <ul style="list-style-type: none">• Libraries are trusted and altruistic.*• “The least of my concerns.”• De-identification of search data.*• Transparency and user control of data.

	<ul style="list-style-type: none"> • Sharing data beyond the library. • Preferences for privacy are infrequent but strong and often relate to concerns about bias and oppression.
	<p>Theme 3: Acknowledgement of different privacy-related perspectives or experiences</p> <ul style="list-style-type: none"> • Controversial or sensitive searches may require additional privacy. • People who are members of vulnerable populations may need more privacy.*
Notable	Theme 4: Privacy and convenience as a continuum
	<p>Theme 7: Search data for improvement of library services/collections is generally acceptable.</p> <ul style="list-style-type: none"> • Deleting search data is wasteful. • Importance of transparency, user control of data, and limited data sharing.
	<p>Theme 8: Views on uses of search data for individually tailored search results varies.</p> <ul style="list-style-type: none"> • Uncertainty about net gain in convenience.* • Limited exposure to varied research materials. • Transparency and user control of data.
	<p>Theme 9: Use of library search data for learning analytics initiatives is controversial.</p> <ul style="list-style-type: none"> • Students do not see low library use as clearly indicative of an academic performance problem.* • Learning analytics models elicit mixed opinions.* • Comfort with aggregate data analysis, but for what purpose?
	<p>Theme 10: Students hold varied and often ambivalent opinions about using search data for public safety and preventing bad behavior.</p> <ul style="list-style-type: none"> • Privacy should be sacrificed to save lives. • Privacy should be preserved. • Library search data will not protect public safety.*
Nascent	Theme 6: Potential over-reliance on and misuse of quantitative data.
* Represents prominent subtheme within a major theme	

Figure 9: Summary of Major, Notable, and Nascent Themes

In addition, the interpretive themes and other findings as presented in Chapter 4 can be summarized and/or restated as key findings that are central to the discussion in this chapter, including:

- A variety of life experiences, influences, and background characteristics shape students' views on search data privacy in academic libraries. Participants acknowledged that members of vulnerable populations (sometimes including themselves) may need more privacy protections than others.
- Students see library search data as distinct from internet search data, and consider it to be far less revealing of their personal interests or activities.
- Students expressed high levels of trust and generally positive feelings towards libraries. As a result, they were mostly comfortable with libraries using search data in ways that benefit students. They were especially open to using search data to improve library collections, services, and search tools. However, those who were not comfortable with search data collection held their convictions strongly.
- Participants' views on the benefits and disadvantages of tailored search results varied.
- Most students were uncomfortable with library learning analytics models intended to draw conclusions about individual students, but were more comfortable with analytics models that are looking for aggregate relationships between library use and student success.
- Students preferred that their search data is de-identified, and advocated for models in which students have control of data collected about them, including opt-in and

opt-out options and the ability to reset one's search history. Some emphasized the importance of libraries being transparent about their data practices.

- Participants had only moderate concern about their library search data privacy being used by government agencies to protect public safety. Although some disagreed with the practice in concept, most did not feel that the search data would be useful, nor would it reveal much about their personal interests or selves.

Comparison of Findings with Relevant Research

In this study, students described the ways in which they consider search data in academic libraries distinct from internet search data, both in terms of its sensitivity and their preferences for privacy. They revealed that they do not view library search data as representative of their personal and/or whole selves, which significantly shaped the way they thought about their preferences for privacy. They also shared numerous life experience and influences that affected their views on library search data privacy, ranging from experiences related to bias or discrimination, their family's culture, and whether they had endured a negative privacy experience themselves. These findings are consistent with information privacy research suggesting that preferences and attitudes about privacy are complex and context-dependent (Aguirre et al., 2016; Panjwani et al., 2013; Rainie & Duggan, 2016). Rainie and Duggan (2016) explain that people's privacy attitudes and the reasons they choose whether or not they are comfortable giving up personal information "are shaped by both the conditions of the deal and the circumstances of their lives" (Rainie & Duggan, 2016, pp. 2-3).

Because of the limited number of studies focused on student attitudes about search data privacy in academic libraries, plus the fact that those that do exist often lack methodological rigor, it is difficult to situate the findings of this study into previous literature. The literature in

this area is emerging and mixed, which leaves many unanswered questions. Accordingly, the findings make significant *additions* to the current literature more than they provide points of contrast. However, some findings do warrant comparison to earlier studies.

The positive feelings towards libraries and the important role that trust played in influencing student attitudes was a clear and prominent finding from this study. Students referenced the important role libraries and the people who worked in them played in their lives, and a sense that they were cared for and respected in libraries. In turn, students felt more comfortable with the idea of libraries collecting and using their search data for purposes that benefit students, particularly in the context of improving services, search tools, and collections. This is consistent with findings from previous studies in the library literature. For example, both Sutlieff & Chelin (2010) and Jones et al. (2019) found that students expressed trust in academic libraries, which was significant in shaping their attitudes and comfort levels regarding the collection of library search data. Both studies also found that students were generally comfortable with search data being used to improve library collections, which was consistent with the findings of this study, as well. The important relationship between trust and privacy is also articulated elsewhere in the broader information privacy literature (Chellappa & Sin, 2005; Milne & Boza, 1999).

Findings from this study were also consistent with many of Jones et al.'s (2019) other preliminary findings. In both inquiries, students were wary of their own privacy-liberal viewpoints being implemented in a way that would affect other people who may prefer more privacy. Participants in both studies were cautious about the way in which library search data might be shared, particularly with third parties, but felt a sense of ease and relief at the prospect of data being de-identified or anonymized. The similarities between the findings of this study

and Jones et al.'s are noteworthy in part due to the fact that they are the only two qualitative studies that have sought to understand student attitudes about search data privacy in academic libraries. However, the fact that the results of the Jones et al. (2019) study are only published preliminarily in conference proceedings limits the extent to which conclusions can be drawn from the findings.

The fact that students trust libraries to collect and make appropriate use of their search data should compel libraries to live up to users' expectations, and to advocate that the third-party vendors libraries rely on for information products to do the same. There is some evidence that library vendors' privacy standards fail to meet the high expectations for privacy articulated by professional organizations such as the ALA (Magi, 2013). Given libraries' heavy reliance on third-party companies to provide access to this type of information, they should feel obligated to advocate for practices that align with the high level of trust students have placed in them. In addition, libraries must ensure that they are engaging the appropriate policy and technical solutions to protect students' privacy and confidentiality in technology environments that libraries control more directly (Breeding, 2016; Sutlieff & Chelin, 2010; Zimmer, 2013a).

Although it was not a goal of the study to examine differences in student attitudes based on ethnicity, race, or nationality, findings did suggest that students' background characteristics may play a role in shaping privacy-related perspectives, consistent with extant literature in the information privacy research. For example, some students who expressed more conservative views about privacy, especially if it involved the government, were members of racial, ethnic, and/or religious minorities, or were the children of immigrant parents. This aligns to some extent with evidence that nationality, cultural values, and the regulatory environment in specific municipalities are related to attitudes about privacy (Bellman et al., 2004; Cho, Rivera-Sánchez,

& Lim, 2009; Milberg, Smith, & Burke, 2000). In addition, the participants who held the most conservative privacy views in this study, while not ethnic/racial minorities nor children of immigrant parents, were members of other minoritized groups. Some participants who were least concerned about privacy still acknowledged the role of privilege and bias when thinking about the importance of privacy, and how abuses thereof can go most wrong.

Other findings from this research cannot be meaningfully compared to previous studies about students' search data privacy attitudes in libraries, but can be compared and contrasted to the broader information literacy research. For example, students' cynical perspectives about how much data had already been collected about them on the internet and their inability to stop the process was consistent with Hargittai's (2016) findings reflecting cynicism and apathy in college students' views about their ability to protect their privacy online. This resigned perspective played a role in shaping some students' attitudes that the academic library was the "least of their worries." This sense of cynicism also played an explanatory role in describing why students' attitudes did not always comport with their behavior: even in instances where students wished less data was being collected about them, they sometimes felt that they could not stop because there was either a) no point in doing so given the amount of data that had already been collected about them, or b) they found more value in the service or product they were receiving either on the internet or in academic libraries to stop using it for the purpose of protecting their search data.

Many of the significant findings of the study are new contributions to the body of related research. No previous studies revealed, for example, that many undergraduate students view search data in academic libraries as largely impersonal as compared to internet search data, and

that this perception is influential in shaping students' attitudes about privacy expectations in the academic library environment.

This is also the first study that offers in-depth understanding of how students think about third-party access to academic library search data, including potential acquisition of search data by the government, and when such access is appropriate. This finding is important since libraries' professional commitment to privacy often hinges on concern about third-party access and/or abuse of people's private information. This study revealed complex and nuanced views about the government's right to use search data to protect public safety. When it came to internet search data, sometimes student participants were conflicted, and in other instances, they held their opinions strongly either in favor of the use of search data for such purposes, or against it. Although opinions also varied about the extent to which government should have access to search data in academic libraries and under what circumstances, many participants expressed that library search data would not be useful to the government, which reduced their conviction in the opinions they held about it. This sense of apathy was furthered because they viewed library data as neither reflective of their whole selves, nor likely to be of help in an investigation or screening for behaviors that could affect public safety. This resulted in a sense from some students that it would be a waste of time for government to access that information. Although there were exceptions, this contrasts significantly with many of the reasons that librarians emphasize the importance of deleting user search data (Estabrook, 1996; Harper & Oltmann, 2017; Zimmer, 2013a), which is to protect users from third-party access to data.

In addition, this study offers an unprecedented degree of depth related to students' attitudes about potential uses of library search data, including general improvement of collections and services, individualized tailoring, and learning analytics. In all cases, students'

attitudes were rich and varied, revealing a fairly high tolerance for using search data for collections and search data improvement, mixed feelings about whether or not tailored results would be beneficial to undergraduate students, and largely negative views about learning analytics scenarios. Students' distaste for the latter should be considered carefully as libraries increasingly consider the role of learning analytics in evaluative practice and as a strategy to demonstrate impact on student success (Oakleaf, 2010; Oakleaf, 2018b).

This study also revealed the importance of transparency and user control of data, such as the ability to opt in or out of data collection, seeking informed consent, and the ability to delete or reset data about their search histories. These are themes that align in many ways with the subscales included in some of the most prevalent quantitative instruments for measuring information privacy attitudes, such as the CFIP (Smith et al., 1996; Stewart & Segars, 2002) and the IUIPC (Malhotra, Kim, & Agarwal, 2004).

Overall, student attitudes about search data privacy in academic libraries align more strongly with some of the evolving practices for search data collection and management in academic libraries espoused by the National Information Standards Organization (2015), as opposed to conservative approaches including data dumping espoused by the ALA (American Library Association, 1986; American Library Association, 1996; American Library Association, 2008; American Library Association, 2014a; American Library Association, 2014b; American Library Association, 2016; American Library Association, 2017; American Library Association, 2018a). While participants clearly expect libraries to manage their search data with integrity and good intent, most do not expect libraries to delete their search data if it could be used in a way to benefit students. The *NISO Privacy Principles* (National Information Standards Organization, 2015) promote several strategies for finding this balance, including but not limited to increasing

users' awareness of privacy issues, being transparent about data collection and use practices, anonymizing data, and providing access to users' own data. NISO provides nuanced statements on privacy reflective of the modern information environment, and suggests a possible middle ground for libraries and information organizations to both protect user privacy and make meaningful use of search data in order to evaluate the use of collections and information resources. In general, students expect libraries to keep their search data confidential, but do not necessarily expect complete privacy of their search data, although most prefer that their data be de-identified.

Finally, this study proffers a conceptual illustration (see Figure 8) of how students arrive at their attitudes about search data privacy in academic libraries. The illustration does not seek to explain with specificity what types of experiences lead to what types of attitudes. Instead, it emphasizes the ways in which a variety of life experiences and influences contribute to the development of perspectives about internet search data privacy. Then, the model suggests that two major themes can moderate or change students' attitudes about search data privacy in academic libraries as opposed to on the internet: trust in libraries and the nature of their academic library use. This is the first model in the literature that seeks to describe how students' attitudes about search data privacy in academic libraries are developed, and how they relate to attitudes about internet search data privacy. This conceptual illustration proves useful in answering the "why" portions of this study's research questions.

To broadly summarize the ways in which this study's findings relate to information privacy research, it is useful to consider Rainie and Duggan's (2012) explanation that people often view privacy-related decisions as a "tradeoff" in which they determine whether or not giving up personal information is worth it for what they get in return. Many participants in this

study did not see library search data as personal, and they were able to see potential benefits for themselves and other students when considering how libraries might use that data for improving collections and services, especially. Accordingly, most students did not see the collection of library search data for the exchange of improved service as much of a tradeoff at all. However, not all participants felt this way. Those with stronger privacy orientations often referred to concerns about how search data might be used in ways that would reflect bias and/or favoritism in how decisions are made. This points to the relevance of theoretical frameworks that provide context for how people's privacy attitudes and intended behaviors are formed.

Relevancy of Theoretical Framework

The theoretical framework that guided the development of this study was Li's (2012) *dual-calculus model* in which internet users consider three major factors when making decisions about privacy online:

- Perceived benefits of disclosure
- Risk appraisal: perceived risks of disclosure
- Coping appraisal: perceived ability to cope or mitigate risks

In this model, all three factors play a role in predicting privacy behaviors. Li's theory provides a model for explaining the variation in privacy attitudes and behaviors from person to person, and in different contexts. Referring to the dual-calculus model was useful in developing the domain-organized interview guide (Appendix G) for this study, including the development of questions about perceived risks, benefits, and ways in which students attempt to protect their privacy on the internet and in academic libraries. In Chapter Four, Li's (2012) framework was used to describe students' perceived risks and benefits of search data collection in academic

libraries, and was used to explore attitudinal impacts on behavior, including students' coping mechanisms when using academic library resources.

Ultimately, the dual-calculus model was useful for framing the interview guide and for coherently organizing risks and benefits of search data collection in academic libraries as perceived by study participants. It did not prove as useful for assessing students' coping mechanisms in academic libraries, primarily because most participants did not perceive significant enough search data privacy risks in the library environment to engage coping mechanisms. Only once did a participant indicate that they had been cautious in what they searched for in the academic library due to their uncertainty about what, if anything, was being collected. As a result, the key components of students' attitude formation and behavioral intentions were focused nearly exclusively on an assessment of benefits and risks, reflecting the key components of a framework known as the privacy calculus (Aguirre et al., 2016; Dae-Hee, Hettche, & Clayton, 2015; Garcia-Rivadulla, 2016; Li, 2012), more so than Li's dual-calculus framework (2012).

Strengths and Limitations of the Study

A major strength of this study was the careful selection of interpretive description as the most appropriate methodology to answer the research questions. This approach ensured the epistemological integrity of the relationship between the research questions, data collection and analysis, and subsequent interpretations. Interpretive description's emphasis on research in applied disciplines was well-suited to this study and ensured that I avoided "methodological acrobatics" (Sandelowski, 2000, p. 335) in which researchers force the purpose of the study to be congruent with other established qualitative approaches to the detriment of achieving the intended goals.

Although the study relied primarily on a convenience sampling approach, the diversity of undergraduate students represented in the sample was impressive and another strength of the study. This was especially true in terms of race/ethnicity, with more than half of the participants being members of ethnic/racial minority groups. This level of diversity was especially welcome since VCU is a majority-minority institution. In addition, nearly half of the students were members of families with immigrant parents, and two participants were immigrants themselves. This level of diversity allowed for some exploration of how ethnicity and/or nationality may have played a role in the way students think about privacy. In addition, using elements of purposeful, theoretical, and maximal variation sampling allowed me to enhance the gender diversity of the pool by selecting non-women participants to be interviewed when I had surplus interest in the study.

However, the convenience sampling method also resulted in limitations. One area in which the sample was homogenous was age: all participants were between the ages of 18-24. There was also a disproportionately high number of Honors students in the sample (more than 50%), which was likely a result of two Honors professors who enthusiastically promoted the study to their students. This is not representative of the VCU student population, and thus results of the study may be skewed. The majority of the participants in the study were also first-year students, and another quarter of the participants were sophomores. The fact that so many of the students were underclassmen may mean that the opinions of students who are further along in their degree programs are not adequately represented. For example, upperclassmen may have used academic libraries frequently, and may also have more distance from the K-12 environment and their lives as minors in which they may have been accustomed to the routinization of tracking/monitoring at school and at home. It is plausible that a sample with an older cohort of

undergraduate students would have been more likely to consider search data issues in academic libraries prior to the study, whereas many first- and second-year students indicated they were thinking about the issue for the first time. In addition, despite the use of theoretical sampling to increase the gender diversity of the pool, the majority of interviewees were women. It is possible that if any of these demographic proportions were different that new themes would have emerged or that some that were identified may have been augmented.

Over the course of the interviews, I reached a point at which no new themes were emerging. While this does not suggest that no other perspectives exist, it does mean that the study reached the appropriate level of saturation to cease additional interviews. While no new themes were emerging, the nature of the information students shared during interviews suggested that some themes had the potential to become richer and more nuanced. This led me to consider whether or not more interviews should be conducted to more fully explore those. Upon reflection, I determined that doing so would be beyond the scope of this study's purpose, which was focused on making an initial contribution to knowledge about student attitudes about search data privacy in academic libraries. Deeper exploration of some of the themes that emerged in this study would be better achieved through separate studies focused on particular user populations, which is further addressed in this chapter.

Although a major goal of interpretive description studies is to generate knowledge and understanding that can be resituated within the discipline or applied to practice, it should be noted that findings from this study, although perhaps internally generalizable to other VCU undergraduates, are not generalizable to other environments, or even fully representative of the population of the site of the study at which the data were collected. The primary goal of this

study was to take the first step in establishing a foundation of knowledge in this area, which could serve as the basis for future research, and was not intended to be generalized.

Implications for Library Policy and Practice

Thorne (2016, p.112) warns that research in applied disciplines is likely to be read and applied quickly by practitioners. As a result, it is important to be explicit about the ways findings can and cannot be used immediately, both in terms of the development of library policy and practice. Librarians should not assume that the findings of this study will provide a clear path forward for developing privacy policies or day-to-day practice in libraries, particularly because this is the first in-depth study of its kind. More research is needed before these findings could be put into practice with assurance.

Implications for library policy

However, the findings of the study raise questions that may be useful in shaping future library policies related to privacy. It invites librarians to consider, for example, who they should seek to protect when developing privacy policies: the many, or the few? Libraries should investigate whether privacy policies should be based on the most conservative privacy related views held by students, even when those views are infrequent, or more liberal privacy views held by many. This is an important consideration especially given the finding that some people who hold the most convicted privacy-related avenues are members of vulnerable or minoritized groups.

Participants in this study expressed views about their preferences for search data collection, use, and privacy that are more closely aligned to the approaches stated in the *NISO Privacy Principles* (National Information Standards Organization, 2015), as opposed to the views espoused by the ALA (American Library Association, 1986; American Library

Association, 1996; American Library Association, 2008; American Library Association, 2014a; American Library Association, 2014b; American Library Association, 2016; American Library Association, 2017; American Library Association, 2018a). The latter is the more influential professional organization in defining privacy related ideology and policy in American libraries, but the results of this study suggest that libraries may benefit from considering privacy stances and approaches embraced by other professional organizations while developing their own local policies.

In general, libraries must be attentive to avoiding what Moor (1985, p. 266) referred to as a “policy vacuum,” in which libraries are committed conceptually to protecting user privacy, but lack policies that guide approaches to actually protecting it. Although more research in this area is necessary to gain the breadth of knowledge about student and user perspectives to impact library privacy policy as comprehensively as possible, the findings of this serve as a useful catalyst to consider how such policies might be evolved to reflect not only librarians’ perspectives, but the perspectives of users, as well.

Implications for library practice

The findings of this study may have practical implications in guiding individual libraries that are designing ways to inquire about their own users’ attitudes about search data in academic libraries. The findings could be useful for the purposes of crafting qualitative or quantitative data collection methods that libraries could use locally to better understand their users. This may allow libraries to move towards practical changes related to assessment and evaluation that are considerate of their local students’ privacy preferences. Findings of this study also suggest that libraries may need to increase efforts to ensure that technological solutions are in place to protect user privacy of search data that is already collected, given students’ preferences for de-

identification, and to consider carefully the implications of collecting additional user data and the particular ways students should be able to control what data is collected about them and how it is used. In addition, libraries should advocate strongly that third-party vendors of library databases and platforms adopt privacy practices consistent with libraries' standards.

Overall, the most immediate practical implication of the findings of this study is not to provide generalizable insight into student attitudes about search data privacy, but rather to help other librarian-researchers to ask better and deeper questions, based on the insights this study offers about what types of issues might be important to some users.

Implications for Future Research

The findings of this study set forth many potential paths for future research. Some of the findings of the study suggest that students who are either attuned to challenges faced by minoritized groups or those who are members of those groups themselves may be more concerned about privacy than others, which suggests that future studies focused on specific groups could make meaningful contributions to the literature. Possible studies might include inquiries focused on LGBTQIA+ students; students with disabilities; students of color; and/or students who are children of immigrant parents. Qualitative studies in particular would allow for in-depth exploration of these groups' attitudes about search data privacy in academic libraries. Understanding the views of those who are members of potentially vulnerable groups could play a meaningful role in shaping libraries' philosophical and practical approaches to user privacy.

This study focused exclusively on undergraduate students, all of whom happened to be between the ages of 18 and 24. Themes emerged throughout the interview that suggested that other cohorts, such as graduate students or faculty, may have different perspectives about search data privacy in academic libraries, and how/if search data should be used. For example,

undergraduate participants' acknowledgement that advanced researchers may have more interest in tailored search results illustrates an area worthy of exploration. Advanced researchers may also offer different perspectives about academic or intellectual freedom, as well, since graduate student and faculty research tends to be more autonomous and is also sometimes personally meaningful.

In addition to creating studies that explore the perspectives of various user groups who were not part of this study, this research could serve as a useful foundation for the development of a quantitative instrument to measure users' attitudes about search data privacy in academic libraries. This would allow libraries to collect more generalizable data about students' perspectives in such a way that would capture the scope of issues and considerations that are meaningful to library users in the specific context of academic libraries. Future researchers might consider reviewing established measures for information privacy such as the CFIP (Smith et al., 1996; Stewart & Segars, 2002) or the IUIPC (Malhotra, Kim, & Agarwal, 2004) to consider the extent to which certain subscales might apply and/or be adapted for an instrument focused on search data privacy in academic libraries, and what remains unaccounted for entirely on existing scales based on the findings of this study.

Conclusion

This study has achieved the intended purpose of contributing a foundational body of knowledge about student attitudes regarding search data privacy in academic libraries. It positions librarian-researchers to develop studies that further this line of inquiry in an area that has significant implications for both user privacy and libraries' practices for assessment and evaluation.

Although these results are not intended to be applied immediately and should instead serve as a basis for future research and continued exploration, the findings of this study do raise some important philosophical questions for libraries and librarians to consider going forward. For example, what is the balance between providing students with a level of convenience and effectiveness they have become accustomed to in the age of Google and big data, versus protecting data privacy? This is an especially important consideration in an age in which libraries are typically not students' first starting points for academic research.

How will libraries respond to calls for accountability in higher education in the era of learning analytics if they do not have data about students' library use? It also raises questions about the extent to which student attitudes about search data privacy, which are often nascent and evolving, should be considered given the lack of understanding many undergraduate students have in this area. In addition, even in instances when many students express privacy-liberal attitudes in which they are comfortable with (or at least accepting of) search data collection, libraries must ask themselves whether or not the profession's commitment to privacy is rooted in response to the preferences of the many, or in protecting the few, especially when the few are often among the most vulnerable.

While these questions cannot be answered directly by the findings of this study, they can serve as a meaningful basis for establishing a future research agenda about search data privacy attitudes in academic libraries, and how that pertains to evaluative practices, continuous improvement of services, and accountability to students, universities, and accreditors in the future.

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APPENDIX A

Recruitment Text

Recruitment text for social media and VCU Newsletter

Looking for undergraduate students to participate in study about libraries and privacy

Undergraduate students at VCU are invited to participate in a research study about academic libraries and search data privacy. To be eligible, you must have some experience using an academic library or academic library website to search for information. Participants will participate in one-on-one interviews with the researcher to answer questions about how/if academic libraries should collect and/or maintain search data and borrowing histories in academic libraries, and for what purposes. Participants will receive an Amazon gift card for participating in the study. For more information, contact Laura Garipey at lwgariepy@vcu.edu or complete the eligibility survey at www.tinyurl.com/libraryprivacystudy.

Recruitment email to be sent to students and/or faculty for forwarding

Subject line: Invitation to participate in study about libraries and privacy

Hello,

You are invited to participate in a research study about academic libraries and search data privacy. The purpose of this research study is to understand undergraduate students' attitudes about how/if academic libraries should collect and/or maintain search data and borrowing histories in academic libraries, and for what purposes.

To participate, you will be asked to attend a one-on-one interview with a researcher, in which you will answer questions about your perceptions of how/if academic libraries should collect and/or maintain search data and borrowing histories in academic libraries, and for what purposes. Questions will also cover related topics such as perceptions on information privacy, internet privacy, and nature of your searching experience when and if you have searched for information at an academic library. The interview will take one hour or less, and will be held in Cabell Library at VCU. The interview will be recorded, but your identity will be kept confidential.

To be eligible for the study, you must be a current undergraduate student at VCU and you must have some experience searching for information in academic libraries. You will be asked to complete a short screening survey to determine your eligibility for the study.

Participants will receive an Amazon gift card at the conclusion of their interview.

If you are interested in participating, please email lwgariepy@vcu.edu or complete the eligibility survey at www.tinyurl.com/libraryprivacystudy.

APPENDIX B

Text of Screening Survey for Potential Participants

Thank you for your interest in this study about undergraduate student attitudes about search data privacy in academic libraries. So that I may determine your eligibility for the study, please tell me a little bit about yourself.

1. Are you currently enrolled as an undergraduate student at VCU?
 - a. Yes
 - b. No
2. Have you searched for information in an academic library or using an academic library's website in the past two years?
 - a. Yes
 - b. No
 - c. Unsure
3. Please describe your experiences searching for information in academic libraries or on an academic library's website.

Information about your gender, race, and ethnicity will only be used in order to understand and describe the study participants, generally speaking. Your identity will be kept confidential.

4. What is your gender?
 - a. Male
 - b. Female
 - c. Non-binary/Other
 - d. Prefer not to answer
5. Please specify your ethnicity/race.
 - a. White/Caucasian
 - b. Hispanic/Latino
 - c. Black/African American
 - d. Native American or American Indian
 - e. Asian/Pacific Islander
 - f. Other
 - g. Prefer not to answer
6. How old are you?

- a. 17 years or less
- b. 18-24 years
- c. 25-34 years
- d. 35-44 years
- e. 45-54 years
- f. 55-64 years
- g. 65 years or more

7. What is your VCU email address? This information will only be used to communicate with you about your eligibility for the study.

Thank you for your time! You will be contacted soon regarding your eligibility for the study.

APPENDIX C

Confirmation of Eligibility and Scheduling Email

Subject: Scheduling an Interview about Search Data Privacy in Libraries

Hello,

Based on your responses to a screening survey about your eligibility to participate in a study about search data privacy in academic libraries, I have determined that you are eligible for participation. Thank you for your interest!

I would like to schedule a time for a one-on-one interview in which you will answer questions about your perceptions of how/if academic libraries should collect and/or maintain search data and borrowing histories in academic libraries, and for what purposes. Questions will also cover related topics such as perceptions on information privacy, internet privacy, and nature of your searching experience when and if you have searched for information at an academic library. The interview will take one hour or less, and will be held in Cabell Library at VCU. The interview will be recorded, but your identity will be kept confidential. At the conclusion of your interview, you will receive a \$15 Amazon gift card.

Please use the link below to select a time that you are available for an interview. You will only be able to select one appointment time.

[insert Doodle link]

After you have selected a time, I will send you a confirmation email with additional details.

I have attached a document outlining more specific information about the interview, and what your participation will entail. Please take a moment to review it. Assuming you choose to move forward with participating in the study, you will also be provided a printed copy of the document on the day of your focus group.

Thanks so much,

--

Laura W. Gariepy
Associate University Librarian for Research & Learning
Cabell Library | VCU Libraries
Doctoral Candidate, VCU School of Education
(804) 828-8562 | lwgariepy@vcu.edu

APPENDIX D

Research Participant Information and Consent Form

TITLE: Undergraduate students' attitudes about the collection, use, and privacy of search data in academic libraries: An interpretive description

VCU IRB NO.: HM20015222

PURPOSE OF THE STUDY

The goal of this study is to understand undergraduate student attitudes about search data privacy in academic libraries and their preferences for how librarians should handle information about what students search for, borrow, and download. In addition, the study will explore students' descriptions of how or if their attitudes affect their searching behavior. You are being asked to be a part of this study because you are an undergraduate student with at least some experience in searching for information in academic libraries.

DESCRIPTION OF THE STUDY AND YOUR INVOLVEMENT

In this research study, you will be asked to attend a one-on-one interview with the primary researcher, in which you would answer questions about your attitudes of how/if academic libraries should collect and/or maintain search data and borrowing histories in academic libraries, and for what purposes. Questions might also cover related topics such as perceptions on information privacy, internet privacy, and nature of your searching experience when and if you have searched for information at an academic library. The interview should take approximately one hour, and will be held in the primary researcher's office on the campus of Virginia Commonwealth University in Cabell Library, or a place more convenient for you. The interview will be audio recorded, but your name, nor any other personally identifiable information, will not be included on the recording. Your identity will be kept confidential.

It is possible that you will be invited to participate in a second interview about the same topics in order to provide the researcher additional information about your attitudes and perspectives.

This study is being conducted as part of a doctoral dissertation. Your interactions will be with the student investigator, Laura Gariepy, but the study is overseen by a principal investigator, Dr. Lisa Abrams. Please see more information in the "Questions" section of this document.

PAYMENT FOR PARTICIPATION

You will receive a \$15.00 Amazon gift card at the end of your interview. If you are invited to participate in a second interview, you will receive a \$15.00 Amazon gift card at the conclusion of that interview, as well.

CONFIDENTIALITY

Potentially identifiable information about you will consist of the recording of your interview, and typed transcripts, which will both be stored electronically in a password protected folder. Although your name will not be included in the recording or transcript, some answers to

interview questions could reveal your identity. Data is being collected only for research purposes. All data will be deleted five years after the conclusion of the study.

VOLUNTARY PARTICIPATION AND WITHDRAWAL

Your participation is voluntary. If you choose to participate, you may stop at any time without any penalty. You may also choose not to answer particular questions that are asked in the study.

QUESTIONS

Should you have any questions about any aspect of this study, please don't hesitate to contact Lisa Abrams, Principal Investigator, at lmabrams@vcu.edu, or Laura Gariepy, Student Investigator, at lwgariepy@vcu.edu.

If you have any general questions about your rights as a participant in this or any other research, you may contact:

Office of Research
Virginia Commonwealth University
800 East Leigh Street, Suite 3000
Box 980568
Richmond, VA 23298
Telephone: (804) 8272157

Contact this number for general questions, concerns or complaints about research. You may reference IRB protocol number HM20015222, titled "Undergraduate students' attitudes about the collection, use, and privacy of search data in academic libraries: An interpretive description." You may also call this number if you cannot reach the research team or if you wish to talk with someone else. General information about participation in research studies can also be found at <http://www.research.vcu.edu/irb/volunteers.htm>.

APPENDIX E

Confirmation/Reminder of Scheduled Interview

Subject: Interview about privacy and libraries on [date/time]

Hello,

Thank you again for your willingness to participate in an interview about search data privacy in academic libraries. This email serves to confirm that your interview has been scheduled for:

[date/time/location]

There is nothing you need to do to prepare except review the attached document which includes additional information about the interview. This document will be printed and available for you when you arrive for your interview, which will last no more than one hour. At the conclusion of your interview you will receive a \$15 Amazon gift card.

We will send a reminder one day before your scheduled interview. Last but not least, please do let us know if you need any special accommodations to make you as comfortable as possible.

Thanks so much,

--

Laura W. Gariepy
Associate University Librarian for Research & Learning
Cabell Library | VCU Libraries
Doctoral Candidate, VCU School of Education
(804) 828-8562 | lwgariepy@vcu.edu

APPENDIX F

Initial Interview Guide

Since semi-structured interviews are intended to be flexible and evolving, the questions below are tentative. They exemplify the nature of questions that will be asked of study participants, but the questions themselves may change and evolve over the course of participant interviews. Although questions are loosely ordered by domain, both the interviewer and the participants will be free to be responsive to the discussions the interview facilitates, and questions may be asked in a different order.

Throughout the interview, probing questions will be used as appropriate in which participants are invited to further explain their answers. Frequently used follow-up questions will include:

- Could you tell me more about that?
- Why do you think you feel/think that way?

Introduction

- Introductions; small talk to establish rapport.
- Researcher seeks permission to record the interview.
- “This study is about understanding students’ perceptions about privacy when it comes to searching for data and checking things out in academic libraries. You’ll hear me refer to that throughout the interview as “search data privacy” – the things you search for, download, or borrow from academic libraries. Although the focus is on searching for information in an academic library environment, I might also ask some questions about your attitudes on searching for information in other environments, like on the internet, in order to contextualize the conversation.”
- “There are no right or wrong answers to any of the questions – your perspective is what I’m interested in! And there’s no such thing as talking too much – I’m interested to hear what you have to say.”
- “I’m interested in this research because I think it will be helpful for libraries to understand student perspectives on this issue when developing policies on search data privacy, and to help us use data to improve our services appropriately.”
- “Throughout the interview, I will make reference to ‘using academic libraries’ and being ‘in academic libraries.’ However, academic libraries are not limited to physical locations, so experiences you have related to searching academic libraries’ websites, for example, are equally relevant.”
- “I’ll also ask you to share some information about yourself with me, such as where you and your parents or family grew up. I’m interested in this because there’s some indication that people’s nationality or cultural background might help shape their views on privacy, and I’d like to better understand that.”

Questions about the participant

- Where did you grow up? Tell me a little bit about the place you lived.
- Where did your parents (or guardians) grow up?

- Did you visit there often? What was it like?

Domain 1: Experiences with searching for information

- Tell me a little bit about your experiences using academic libraries. How have you used them?
 - How do you use the library as a space?
 - How do you use the library to find and use information?
 - What kinds of information are you looking for when you search academic library resources?
- How would you describe your experiences searching for information at academic libraries?
- How do your experiences searching at an academic library differ from your experiences searching elsewhere, like on the internet?

Domain 2: Perceptions of and expectations for privacy when searching for information

- Have you ever thought about whether your search habits were being monitored either in an academic library or in another search environment like the internet? If so, please describe how that made you feel.
- When you think about searching for information in general, what feelings do you have about the privacy of your search data (in other words, whether or not someone other than you should have access to the data)? Why?
- What are your feelings about the ways and extent to which internet companies and libraries should collect data about what people search for? Are your feelings different for internet companies as opposed to libraries? Why or why not?
- What circumstances, if any, can you imagine in which it would be appropriate for a library to collect and use data about someone's search habits?
- Please describe feelings of trust or distrust you have for academic libraries, if any, and why you feel that way.
- Does the level of trust you have for libraries differ from the degree to which you trust Google or other internet search engines?
- Would you have concerns if libraries collected and maintained data about your search habits and what you check out? If so, what are they?
- Have you had experiences when searching the internet in which you noticed that search results seemed to be related to things you had previously searched for? How did that make you feel?
- For this question, I'm going to present a scenario, and then I would like you to share your reaction with me about how it makes you feel about privacy in that particular context. "An academic library wishes to improve its search features. To do so, they decide to collect and maintain data about what individuals search for, so that when that person logs into the library system, their results will be tailored based on their previous searches. An undergraduate student who uses the library regularly notices that when she searches for books and articles on the library website, that some of the results seem related to things she's downloaded in the past."
 - How do you think this student would feel?

- Can you think of positives or negatives to having search results tailored for this student when she searches the library?
- Do you think this student, or others, would be considered about her privacy in this scenario?
- Have you had any experiences that affect the way you think about this scenario?
- For this question, I'm going to present a scenario, and then I would like you to share your reaction with me about how it makes you feel about privacy in that particular context. "An academic library elects to routinely purge any data about what library users search for, and what they check out, as soon as items are returned. The decision to do so was made because many librarians believe that people can only search freely for information if there is no possibility of someone else (be it the library or a third party) investigating what they search for. In routinely purging records, libraries forego data that could be useful in helping them design search tools and purchase collections that would serve library users' needs."
 - How do you feel about this situation?
 - What do you think the right balance is between libraries collecting data about students' search habits in order to improve services and respecting user privacy?
 - Have you had any experiences that affect the way you think about this scenario?
- Do you think any of your life experiences or influences to date have shaped your views about how your search data should be handled when searching online or at the library?

Domain 4: Concerns about access to search data/borrowing histories from third parties

- In your mind, what responsibility do internet search engines and academic libraries have to keep data about what people search for protected from other parties? Why?
- What circumstances can you imagine in which it would be appropriate for third parties to access data about what people have searched for or checked out from academic libraries, or what they have searched for on the internet?
- For this question, I'm going to present a scenario, and then I would like you to share your reaction with me about how it makes you feel about privacy in that particular context. "Google maintains data about what people search for in order to better understand user search habits in order to improve the search experience and provide targeted advertisements. In the process of investigating an individual suspected of terrorism, government authorities seize the Google search data of three people who were researching combustible chemical reactions."
 - What do you think about this situation?
 - Do you think it's fair for government to have access to Google search data?
- For this question, I'm going to present a scenario, and then I would like you to share your reaction with me about how it makes you feel about privacy in that particular context. "An academic library maintains data about what students search for with hopes to better understand student search habits in order to shape how they can best

help students find the information they need. In the process of investigating an individual suspected of terrorism, government authorities seize the libraries' search data of three students who were researching combustible chemical reactions.”

- What do you think about this situation?
 - Do you think it's fair for government to have access to library search data?
- Do you think any of your life experiences or influences to date have shaped your views about the potential for third parties to access information about what you search for?

Closing questions

- Have you had other experiences in academic libraries outside of what we have already discussed that brought up concerns or feelings about your privacy?
- Did this interview raise any questions for you about how your data is handled in academic libraries, or on the internet?
- Is there anything else you would like to share with me that you think would be important to this study?

APPENDIX G

Final Interview Guide

Since semi-structured interviews are intended to be flexible and evolving, the questions below are tentative. They exemplify the nature of questions that will be asked of study participants, but the questions themselves may change and evolve over the course of participant interviews. Although questions are loosely ordered by domain, both the interviewer and the participants will be free to be responsive to the discussions the interview facilitates, and questions may be asked in a different order.

Throughout the interview, probing questions will be used as appropriate in which participants are invited to further explain their answers. Frequently used follow-up questions will include:

- Could you tell me more about that?
- Why do you think you feel/think that way?

Introduction

- Introductions; small talk to establish rapport.
- Researcher seeks permission to record the interview.
- “This study is about understanding students’ perceptions about privacy when it comes to searching for data and checking things out in academic libraries. You’ll hear me refer to that throughout the interview as “search data privacy” – the things you search for, download, or borrow from academic libraries. Although the focus is on searching for information in an academic library environment, I might also ask some questions about your attitudes on searching for information in other environments, like on the internet, in order to contextualize the conversation.”
- “There are no right or wrong answers to any of the questions – your perspective is what I’m interested in! And there’s no such thing as talking too much – I’m interested to hear what you have to say.”
- “I’m interested in this research because I think it will be helpful for libraries to understand student perspectives on this issue when developing policies on search data privacy, and to help us use data to improve our services appropriately.”
- “Throughout the interview, I will make reference to ‘using academic libraries’ and being ‘in academic libraries.’ However, academic libraries are not limited to physical locations, so experiences you have related to searching academic libraries’ websites, for example, are equally relevant.”
- “I’ll also ask you to share some information about yourself with me, such as where you and your parents or family grew up. I’m interested in this because there’s some indication that people’s nationality or cultural background might help shape their views on privacy, and I’d like to better understand that.”
- Offer a brief overview of privacy and libraries, acknowledging that many students haven’t had a chance to think about this.

Questions about the participant

- What year are you at VCU?
- What's your major?
- Where did you grow up? Tell me a little bit about the place you lived.
 - Diversity
 - Political climate
 - Overall experience
- Where did your parents/family grow up?
 - What brought you to [where they grew up]?
 - Did you visit there often?

Domain 1: Experiences with searching for information

- Tell me a little bit about your experiences using academic libraries. How have you used them?
 - What kinds of information are you looking for when you search academic library resources?
 - Describe academic and/or personal uses of academic libraries
- How do your experiences searching at an academic library differ from your experiences searching elsewhere, like on the internet?
 - Do you search for different types of information?

Domain 2: Perceptions of and expectations for privacy when searching for information

- Have you ever thought about whether your search habits were being monitored either in an academic library or in another search environment like the internet? If so, please describe how that made you feel.
 - If you assume that your search habits are being monitored, does it affect the way you search? In what ways?
 - Do you use any other strategies to further protect privacy of your search activities?
- Who do you feel should or should not have access to data about what you search for, both on the internet and in academic libraries?
- Scenario A: For this question, I'm going to present a scenario, and then I would like you to share your reaction with me about how it makes you feel about privacy in that particular context. "An academic library wishes to improve its search features. To do so, they decide to collect and maintain data about what individuals search for, so that when that person logs into the library system, their results will be tailored based on their previous searches. An undergraduate student who uses the library regularly notices that when she searches for books and articles on the library website, that some of the results seem related to things she's downloaded in the past."
 - How do you feel about this scenario?
 - Can you think of benefits or risks of this scenario?
 - Have you had any experiences that affect the way you think about this scenario?

- If you were to consider privacy and convenience on a spectrum of importance, with each at opposite ends, please talk about where you would fall on the spectrum. Do you value privacy, convenience, or both?
- Scenario B: For this question, I'm going to present a scenario, and then I would like you to share your reaction with me about how it makes you feel about privacy in that particular context. "An academic library wishes to use data about what students search for, check out, and borrow to assess use of the collection and ways we might improve it. The library maintains a record of each student's search data so that librarians can do data analysis by individual and group (for example, biology majors) about library use. This allows the library to make adjustments to the collection and to the services offered like teaching and outreach to serve students as effectively as possible."
 - How do you feel about this scenario?
 - Can you think of benefits or risks of this scenario?
 - Have you had any experiences that affect the way you think about this scenario?
 - How would you feel if your search data were de-identified from your name and other identifying information?
- Scenario C: An academic library maintains a record of each student's search data. The library uses the data to explore the relationship between use of library materials and academic success (like GPA and grades). When students have not used the library at all but are enrolled in courses that usually necessitate library use, librarians notify those students' academic advisors as an early warning that the student could have academic issues.
 - How do you feel about this scenario?
 - Can you think of benefits or risks of this scenario?
 - Have you had any experiences that affect the way you think about this scenario?
- Please describe feelings of trust or distrust you have for academic libraries, if any, and why you feel that way.
- Does the level of trust you have for libraries differ from the degree to which you trust Google or other internet search engines? Why?
- Scenario D: For this question, I'm going to present a scenario, and then I would like you to share your reaction with me about how it makes you feel about privacy in that particular context. "An academic library elects to routinely purge any data about what library users search for, and what they check out, as soon as items are returned. The decision to do so was made because many librarians believe that people can only search freely for information if there is no possibility of someone else (be it the library or a third party) having access to what they search for. In routinely purging records, libraries forego data that could be useful in helping them design search tools and purchase collections that would serve library users' needs."
 - How do you feel about this scenario?
 - Can you think of benefits or risks of this scenario?
 - Have you had any experiences that affect the way you think about this scenario?

- What do you think the right balance is between libraries collecting data about students' search habits in order to improve services and protecting user privacy?

Domain 4: Concerns about access to search data/borrowing histories from third parties

- Scenario E: For this question, I'm going to present a scenario, and then I would like you to share your reaction with me about how it makes you feel about privacy in that particular context. "Google maintains data about what people search for in order to better understand user search habits in order to improve the search experience and provide targeted advertisements. In an effort to prevent terrorism, the federal government begins routinely monitoring Google search data to look for suspicious searching behavior."
 - How do you feel about this scenario?
 - Can you think of benefits or risks of this scenario?
 - Are there particular circumstances you can imagine in which it would be appropriate for third parties to access data about what people have searched for?
 - Have you had any experiences that affect the way you think about this scenario?
 - Would your perspective be different about this scenario if we replaced Google search data with library search data/records?

Closing questions

- We've talked about a lot of things today. Can you offer me a quick summary of your views on privacy of search data in academic libraries as they are right now?
- Do you think any of your life experiences or influences to date have shaped your views about how your search data should be handled when searching online or at the library?
 - Ask for expansion of previously mentioned influences
 - Are you a social media? Do you feel that your use/non-use of social media has affected your views on privacy in general?
- Is there anything else you would like to share with me that you think would be important to this study?

APPENDIX H

List of Codes at the end of Coding Cycle B

Total of 109 codes

Academic library use blend of academic and personal use
Academic library use blend of academic, professional, and personal use
Academic library use focused on academic work
Academic variables more important than demographics
Academic/Intellectual freedom and privacy: ambivalence
Academic/Intellectual freedom: important
Accustomed to being tracked, monitored
Acknowledges other perspectives
Alternate methods for learning about users
Anonymization is imperfect
Anxiety/paranoia
Assumes monitoring: general
Assumes that institution/units/libs collects data
Aware of privacy issues/surveillance
Balance between privacy and convenience
Cautious about what one posts
Close or invasive community/culture meant minimal privacy
Companies collecting data indistinguishable from government collecting data
Controlling data/privacy
Convenience trumps privacy
Coping mechanisms
Danger of not counting results if there are too few people in a cohort
Data collection can lead to bias/bad assumptions
Data collection for safety/public good: ambivalence/context/nuance
Data collection for safety/public good: context/nuance/ambivalence
Data collection for safety/public good: could limit intellectual freedom
Data collection for safety/public good: negative feelings
Data collection for safety/public good: positive/okay
Distrust for Google, internet, et al
Distrust of government
Doesn't mind foregoing curiosity
Family emphasized/discussed privacy and related issues
Felt uncomfortable checking certain things out with librarian
First time/evolving thoughts
GPA correlation studies
Growing up in 9/11 era influential
Has gotten more tolerant of practices that would have made her uncomfortable
Immigrant family/participant
Imperfect data
Innovation and effectiveness require risk

Integration of data points is creepy
Intent/purpose/use is important
internet data collection: ambivalence/nuance/context
internet data collection: cynical/resigned
internet data collection: fine/good
internet data collection: fine/positive
internet data collection: negative
internet data sharing: fine
internet data sharing: negative
internet security: concerned
internet: tailoring ambivalence/context/nuance
internet: tailoring fine good
internet: tailoring negative
internet: wary of filter bubbles
Learning analytics: ambivalence/context/nuance
Learning analytics: negative
Learning analytics: neutral/good
Libraries are good/trusted
Libraries data collection for safety/public good: ambivalence/context/nuance
Libraries search data for safety/public good: context/nuance/ambivalent
Libraries search data for safety/public good: infringes on academic freedom
Libraries search data for safety/public good: negative
Libraries search data for safety/public good: positive/acceptable
Libraries: anonymization not necessary
Libraries: data access, sharing, third parties
Libraries: search data for improvement ambivalence/context/nuance
Libraries: search data for improvement invades privacy
Libraries: search data for improvement is fine/good
Libraries: search data for improvement negative
Libraries: should anonymize data
Libraries: tailoring ambivalent/context/nuance
Libraries: tailoring control options
Libraries: tailoring could decrease convenience
Libraries: tailoring could increase convenience
Libraries: tailoring fine/good
Libraries: tailoring negative
Libraries: wary of filter bubbles
Library data collection: ambivalence/context/nuance
Library data collection: could oversimplify or disadvantage some groups/perspectives
Library data collection: fine/positive
Library data collection: should benefit students
Library data collection: wary/prefers privacy
Monitoring changes behavior
Monitoring changes thought
Monitoring doesn't change behavior
Negative privacy-related experience

Neutral about trust in libraries
Never experienced negative privacy ramifications
Not surveilled in rural area growing up
Nothing to hide
People and fines affect trust in libraries
Political inclination
Privacy and activism
Privacy expectations have changed
Privacy may be more important to vulnerable populations
Privacy more important for sensitive/controversial topics
Privacy trumps convenience
Privacy versus convenience: ambivalence/context/nuance
Relationship/use of entity changes privacy expectations
Religion/ethnicity
Shame
Social media corporate accounts: manipulative
Transparency
Trust Google, internet, et al
Trust in institution (VCU)
Trust libraries more than Google et al
Unable to articulate rationale behind searching behavior
Universities: data access, sharing, third parties
Use of social media and internet affects privacy perspectives

APPENDIX I

Final List of Codes at Conclusion of Coding Cycle C

Total number of codes: 95

Academic library use blend of academic and personal use
Academic library use blend of academic, professional, and personal use
Academic library use focused on academic work
Academic variables more important than demographics
Academic/intellectual freedom and privacy: ambivalence/context/nuance
Academic/Intellectual freedom and privacy: important
Academic/Intellectual freedom and privacy: unconcerned
Accustomed to being tracked, monitored
Accustomed to privacy
Acknowledges other perspectives
Alternate methods for learning about users
Anonymization is imperfect
Anxiety/paranoia
Assumes monitoring: general
Assumes monitoring: institutions/units/libs collect data
Aware of privacy issues/surveillance
Close or invasive community/culture meant minimal privacy
Controlling data/privacy
Coping mechanisms
Data collection can lead to bias/bad assumptions
Data collection for safety/public good: ambivalence/context/nuance
Data collection for safety/public good: context/nuance/ambivalence
Data collection for safety/public good: limits intellectual/academic freedom
Data collection for safety/public good: negative feelings
Data collection for safety/public good: positive/okay
Disabled/Chronically Ill
Distrust for Google, internet, etc.
Distrust for government
Family emphasized/discussed privacy and related issues
First time/evolving thoughts
GPA correlation studies
Growing up in 9/11 era
Immigrant family/participant
Imperfect data
Intent/purpose/use is important
internet data collection: acceptable/positive
internet data collection: ambivalence/context/nuance
internet data collection: cynical/resigned
internet data collection: negative
internet data sharing/integration: acceptable

internet data sharing/integration: negative
internet tailoring: ambivalence/context/nuance
internet tailoring: fine/good
internet tailoring: negative
internet: wary of filter bubbles
Learning analytics: ambivalence/context/nuance
Learning analytics: negative
Learning analytics: neutral/positive
Libraries search data for improvement: acceptable/positive
Libraries search data for improvement: ambivalence/context/nuance
Libraries search data for improvement: negative
Libraries search data for safety/public good: acceptable/positive
Libraries search data for safety/public good: ambivalence/context/nuance
Libraries search data for safety/public good: limits intellectual/academic freedom
Libraries search data for safety/public good: negative
Libraries tailoring: acceptable/positive
Libraries tailoring: ambivalence/context/nuance
Libraries tailoring: control options
Libraries tailoring: negative
Libraries: anonymization necessary
Libraries: anonymization not necessary
Libraries: data access, sharing, third parties
Libraries: wary of filter bubbles
Library data collection: acceptable/positive
Library data collection: ambivalence/context/nuance
Library data collection: negative
Library data collection: oversimplifies/disadvantages some groups/perspectives
Library data collection: should benefit students
Monitoring changes behavior
Monitoring changes thought
Monitoring doesn't change behavior
Negative privacy-related experience
Neutral about trust in libraries
No negative privacy-related experiences
Not counting findings for small cohorts
Nothing to hide
People and fines affect trust in libraries
Political inclination
Privacy and activism
Privacy expectations have changed
Privacy more important for sensitive/controversial topics
Privacy more important to vulnerable populations
Privacy/convenience: ambivalence/context/nuance
Privacy/convenience: balance
Privacy/convenience: emphasis on convenience
Privacy/convenience: emphasis on privacy

Rationale behind searching behavior: ambivalence/context/nuance
Relationship/use of entity changes expectations/behavior
Religion/ethnicity
Shame
Tolerance for privacy invasions increased
Transparency
Trust for Google, internet, et al
Trust for institution
Trust libraries more than Google, etc.
Trust/good feelings for libraries
Uncomfortable checking things out in person
Universities: data access, sharing, third parties
Use of social media and internet affects privacy perspectives

APPENDIX J

Codes Organized by Code Families/Pattern Codes

Code Family/Pattern Code	Individual Codes
Academic and Intellectual Freedom	Academic/intellectual freedom and privacy: ambivalence/context/nuance Academic/Intellectual freedom and privacy: important Academic/Intellectual freedom and privacy: unconcerned Data collection for safety/public good: limits intellectual/academic freedom internet: wary of filter bubbles Libraries search data for safety/public good: limits intellectual/academic freedom Monitoring changes behavior Monitoring changes thought Monitoring doesn't change behavior Privacy more important for sensitive/controversial topics
Academic Library Use	Academic library use blend of academic and personal use Academic library use blend of academic, professional, and personal use Academic library use focused on academic work
Context/Nuance/Ambivalence	Academic/intellectual freedom and privacy: ambivalence/context/nuance Data collection for safety/public good: ambivalence/context/nuance Data collection for safety/public good: context/nuance/ambivalence First time/evolving thoughts internet data collection: ambivalence/context/nuance internet tailoring: ambivalence/context/nuance Learning analytics: ambivalence/context/nuance Libraries search data for improvement: ambivalence/context/nuance Libraries search data for safety/public good: ambivalence/context/nuance Libraries tailoring: ambivalence/context/nuance Library data collection: ambivalence/context/nuance Privacy/convenience: ambivalence/context/nuance Rationale behind searching behavior: ambivalence/context/nuance
Anonymization/De-identification	Anonymization is imperfect Libraries: anonymization necessary Libraries: anonymization not necessary
Awareness/Assumptions	Acknowledges other perspectives Assumes monitoring: general Assumes monitoring: institutions/units/libraries collect data Aware of privacy issues/surveillance First time/evolving thoughts
Challenges with Quantitative Data	Academic variables more important than demographics Alternate methods for learning about users Anonymization is imperfect Data collection can lead to bias/bad assumptions GPA correlation studies Imperfect data

	<p>Library data collection: oversimplifies/disadvantages some groups/perspectives</p> <p>Not counting findings for small cohorts</p>
Data Collection to Prevent Behavior	<p>Data collection for safety/public good: ambivalence/context/nuance</p> <p>Data collection for safety/public good: context/nuance/ambivalence</p> <p>Data collection for safety/public good: limits intellectual/academic freedom</p> <p>Data collection for safety/public good: negative feelings</p> <p>Data collection for safety/public good: positive/okay</p> <p>Growing up in 9/11 era</p> <p>Libraries search data for safety/public good: acceptable/positive</p> <p>Libraries search data for safety/public good: ambivalence/context/nuance</p> <p>Libraries search data for safety/public good: limits intellectual/academic freedom</p> <p>Libraries search data for safety/public good: negative</p>
Fairness, Bias, Vulnerable Populations	<p>Data collection can lead to bias/bad assumptions</p> <p>Library data collection: oversimplifies/disadvantages some groups/perspectives</p> <p>Privacy and activism</p> <p>Privacy more important for sensitive/controversial topics</p> <p>Privacy more important to vulnerable populations</p>
General Preferences/Attitudes for Library Privacy	<p>Controlling data/privacy</p> <p>Intent/purpose/use is important</p> <p>Library data collection: acceptable/positive</p> <p>Library data collection: ambivalence/context/nuance</p> <p>Library data collection: negative</p> <p>Library data collection: oversimplifies/disadvantages some groups/perspectives</p> <p>Library data collection: should benefit students</p> <p>Nothing to hide</p> <p>Relationship/use of entity changes expectations/behavior</p> <p>Transparency</p> <p>Uncomfortable checking things out in person</p>
General Preferences/Attitudes for Privacy	<p>Controlling data/privacy</p> <p>Intent/purpose/use is important</p> <p>internet data collection: acceptable/positive</p> <p>internet data collection: ambivalence/context/nuance</p> <p>internet data collection: cynical/resigned</p> <p>internet data collection: negative</p> <p>internet data sharing/integration: acceptable</p> <p>internet data sharing/integration: negative</p> <p>Nothing to hide</p> <p>Privacy expectations have changed</p> <p>Relationship/use of entity changes expectations/behavior</p> <p>Transparency</p>
Impact on Behavior	<p>Coping mechanisms</p> <p>Monitoring changes behavior</p> <p>Monitoring changes thought</p> <p>Monitoring doesn't change behavior</p> <p>Rationale behind searching behavior: ambivalence/context/nuance</p> <p>Relationship/use of entity changes expectations/behavior</p>
Influences	<p>Accustomed to being tracked, monitored</p> <p>Accustomed to privacy</p>

	Anxiety/paranoia Assumes monitoring: institutions/units/libs collect data Aware of privacy issues/surveillance Close or invasive community/culture meant minimal privacy Disabled/Chronically Ill Family emphasized/discussed privacy and related issues Growing up in 9/11 era Immigrant family/participant Negative privacy-related experience No negative privacy-related experiences Nothing to hide Political inclination Privacy more important to vulnerable populations Relationship/use of entity changes expectations/behavior Religion/ethnicity Sham Use of social media and internet affects privacy perspectives
Learning Analytics	GPA correlation studies Learning analytics: ambivalence/context/nuance Learning analytics: negative Learning analytics: neutral/positive
Privacy-Convenience Continuum	Privacy/convenience: ambivalence/context/nuance Privacy/convenience: balance Privacy/convenience: emphasis on convenience Privacy/convenience: emphasis on privacy
Resignation/Cynicism/Acceptance	Accustomed to being tracked, monitored internet data collection: cynical/resigned Tolerance for privacy invasions increased
Search Data for Library Improvement	Libraries search data for improvement: acceptable/positive Libraries search data for improvement: ambivalence/context/nuance Libraries search data for improvement: negative
Tailoring	Controlling data/privacy internet tailoring: ambivalence/context/nuance internet tailoring: fine/good internet tailoring: negative internet: wary of filter bubbles Libraries tailoring: acceptable/positive Libraries tailoring: ambivalence/context/nuance Libraries tailoring: control options Libraries tailoring: negative Libraries: wary of filter bubbles
Third Party Access/Data Sharing	Accustomed to being tracked, monitored Data collection for safety/public good: ambivalence/context/nuance Data collection for safety/public good: context/nuance/ambivalence Data collection for safety/public good: limits intellectual/academic freedom Data collection for safety/public good: negative feeling Data collection for safety/public good: positive/okay Distrust for government Growing up in 9/11 era internet data sharing/integration: acceptable internet data sharing/integration: negative Libraries search data for safety/public good: acceptable/positive

	Libraries search data for safety/public good: ambivalence/context/nuance Libraries search data for safety/public good: limits intellectual/academic freedom Libraries search data for safety/public good: negative Libraries: data access, sharing, third parties Universities: data access, sharing, third parties
Trust	Distrust for Google, internet, etc. Distrust for government Neutral about trust in libraries People and fines affect trust in libraries Trust for Google, internet, et al Trust for institution Trust libraries more than Google, etc. Trust/good feelings for libraries

APPENDIX K

Vita

Laura W. Gariepy

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Education

Virginia Commonwealth University, Richmond, VA **2012-Present**
Doctoral Candidate for Doctor of Philosophy in
Educational Research, Assessment, and Evaluation

Dissertation proposal title: Undergraduate Student Attitudes About the Collection, Use, and Privacy of Search Data in Academic Libraries: An Interpretive Description

University of North Carolina at Chapel Hill, Chapel Hill, NC **2009**
MS in Library Science

Appalachian State University, Boone, NC **2006**
BS in Sociology; Concentration: Legal Studies

Professional Experience

Associate University Librarian for Research and Learning **2018-Present**
James Branch Cabell Library
Virginia Commonwealth University, Richmond, VA

Lead library teaching, research, and outreach initiatives for VCU's Monroe Park Campus. Oversee undergraduate and graduate library education; access to spaces, equipment, and expertise for media and makerspace technologies; circulation, information, and research assistance; special collections and archives; and learning spaces and facilities. Participate in the overall administration and leadership of VCU Libraries.

Head, Teaching, Learning, & Information **2015-2018**
James Branch Cabell Library
Virginia Commonwealth University, Richmond, VA

Oversee operations for the majority of point of need services in Cabell Library, including the 24-hour Information Desk, on-call librarian services, chat/text service, and email services via LibAnswers. Oversee circulation of materials and equipment. Lead the design, delivery, and assessment of instructional services for undergraduate information literacy education and oversee library liaison roles to the University College, Global Education Office, Honors College, and

other units. Oversee general library outreach and online learning initiatives. Act as day-to-day liaison for building security issues. Lead a department of six librarians, 12 full-time paraprofessionals, and numerous hourly employees. Manage wage budget (~\$55,000).

Selected initiatives, activities, and accomplishments: Participated in design and implementation of 90,000 square foot addition at James Branch Cabell Library, designing flexible library classrooms to facilitate active and collaborative learning. Oversaw development of Designated Librarian program for proactive management of librarian-faculty relationships in core undergraduate classes. Oversaw the acquisition and implementation of numerous online learning platforms and software solutions for point of need services, including EdVenture Builder and LibWizard. Led process of establishing online consultations as a consistently offered service at VCU Libraries. Collaborated with Head of Resource Sharing and Delivery to improve retrieval and delivery of materials. Developed a comprehensive and ongoing research assistance training program for Information Desk staff. Designed the award-winning #VetYourSources social media campaign to improve students' ability to evaluate sources. Developed onboarding and training practices for librarians, staff, and hourly employees with a particular emphasis on service excellence. Led acquisition and implementation of LibInsight for reporting patron interactions and instruction, outreach, and events across VCU Libraries.

Head, Teaching & Learning

2013-2015

Assistant Head for Instructional Services

2012-2013

Virginia Commonwealth University, Richmond, VA

Led and participated in the design, delivery, and assessment of instructional services for undergraduate education initiatives. Managed classroom spaces and supported the overall teaching activities of the Research and Learning Division. Supervised a team of five librarians and one graduate assistant. Oversaw librarian liaison roles to the University College, Honors College, and Global Education Office.

Selected initiatives, activities, and accomplishments: Designed, implemented, and evaluated a consolidated service point offering research assistance, circulation, and media and equipment lending. Implemented chat and text services at Cabell Library in collaboration with colleagues in Academic Outreach. Implemented numerous assessment practices for course-integrated library instruction. Implemented Ref Analytics module of LibAnswers to manage public services statistics in the Research and Learning Division. Contributed to award-winning "Find Your Way" and "Your Compass" public relations campaigns for Cabell Library.

Undergraduate Research Librarian

2009-2012

Virginia Commonwealth University, Richmond, VA

Served as one of two library liaisons to VCU's University College, focusing on first and second year research and writing students and faculty. Served as library liaison to the Honors College and supported campus-wide undergraduate research initiatives. Taught library instruction sessions and course-integrated library workshops, particularly sophomore level courses focused on academic research and writing. Created and revised online learning tools, led and participated

in outreach events, and provided research assistance. Oversaw and facilitated the Cabell Library Undergraduate Advisory Committee (CLUAC) with co-advisor.

Selected initiatives, activities, and accomplishments: Developed project plan and implemented LibGuides as a member of the LibGuides Implementation Team; trained and provided support for LibGuides authors. Participated in the curricular redesign of a sophomore-level research and writing course, ensuring prominence of information fluency as a course component.

Graduate Assistant, R.B. House Undergraduate Library **2008-2009**
University of North Carolina at Chapel Hill

Designed and taught information literacy instruction sessions to undergraduate students. Revised web-based instructional tutorials. Provided research assistance.

Reference Assistant, Walter Royal Davis Library **2007-2009**
University of North Carolina at Chapel Hill

Provided reference services to a diverse population of students, faculty, and community members via face-to-face, telephone, and virtual (chat and e-mail) interaction.

Library Intern **2007-2009**
Environmental Protection Agency Library, Research Triangle Park, NC

Provided information in response to advanced reference questions in disciplines such as medicine, chemistry, environmental sciences, and environmental engineering. Designed marketing materials, displays, and exhibits promoting library services and events. Designed and taught classes on various subjects pertinent to EPA researchers.

Publications

Book Chapters

- Robinson, S.R., and Gariepy, L.W. (2019). Using social media to enhance information literacy: The VCU Libraries #VetYourSources campaign. In Joe, J., and Knight, E. (Eds.), *Social Media for Communication and Instruction in Academic Libraries*. Hershey, PA: IGI Global.
- Gariepy, L.W., Mazure, E.S., McDaniel, J.A., and White, E.R. (2013). Staff training. In D. Cook, A. Dobbs, and R. Sittler (Eds.), *Using LibGuides to Enhance Library Services* (85-100). Chicago: American Library Association.

Peer-reviewed Publications

- Gariepy, L.W., Peacemaker, B.P., & Colon, V. (2017). Stop chasing unicorns: Setting reasonable expectations for the impact of library instruction programs (and other library services) on student success. *Performance Measurement and Metrics*, 18(2): 103-109.

Special issue for featured papers presented at the Northumbria International Conference on Performance Measurement in Libraries and Information Services, Edinburgh, Scotland, 2015.

- Gariepy, L.W., Stout, J.A., and Hodge, M.H. (2016). Using rubrics to assess learning in course-integrated library instruction. *portal: Libraries and the Academy*, 16(3): 491-509.
- Gariepy, L.W. (2012). The Environmental Protection Agency/National Institute of Environmental Health Sciences Libraries Internship Program: an analysis of former interns' careers. *Journal of Education for Library and Information Science* 53(1), 20-31.

Conference Proceedings

- Gariepy, L.W., Hodge, M.L., Doherty, T.D., and Clark, D.T. (2015). *A close look in the mirror: Evaluating the implementation fidelity of a consolidated service point at a research library*. ACRL 2015 Conference Proceedings. Available at <http://bit.ly/1EGhDKv>
- Gariepy, L.W. and Stout, J.A. (2014). *Using rubrics for programmatic assessment of learning outcomes in course-integrated library instruction*. ARL Library Assessment Conference Proceedings. Available at <https://bit.ly/2HM3Jjs>
- Gariepy, L.W. (2013). *Classroom assessment techniques in one-shot instruction sessions: balancing teaching, learning, and time*. LOEX Conference Proceedings 2011. Available at <http://commons.emich.edu/loexconf2011/4/>

Other Publications

- Stout, J.A., and Gariepy, L.W. (2017). A closer connection: Reflections on the Designated Librarian program. *LOEX Quarterly*, 44. Available at: <https://bit.ly/2Fwha4h>
- Gariepy, L.W., and Robinson, S.R. (2017) VCU Libraries runs campaign encouraging students to #VetYourSources. *Marketing Library Services*, 31(5): 1-3.
- Hodge, M.L. and Gariepy, L.W. (2017). The missing piece: Assessing implementation fidelity. In A. Dobbs (Ed.), *The Library Assessment Cookbook*. Chicago, IL: Association of College and Research Libraries.
- Hodge, M.L., Gariepy, L.W., & Stout, J.A. (2017). Rubrics as a method for assessing and improving library instruction. In A. Dobbs (Ed.), *The Library Assessment Cookbook*. Chicago, IL: Association of College and Research Libraries.
- Ghaphery, J.G., Owens, E.A., Coghill, D.E., Gariepy, L.W., Hodge, M.H., McNulty, T.O., and White, E.R. (2016). Building bridges with logs: Collaborative conversations about discovery across library departments. *code4lib Journal* 32, n.p. Available at <http://journal.code4lib.org/articles/11355>
- Westmoreland (Gariepy), L. (2010). Choose your references with care. *Footnotes* 39(3). Available at <http://bit.ly/9A8Duy>

Presentations

Invited

- Gariepy, L.W. (2019). *Undergraduate student attitudes about search data privacy in academic libraries: What we know, what we don't, what I'm learning*. Presented at the VLACRL spring program, May 2019.
- Gariepy, L.W., and Robinson, S.R. (2018). *VCU Libraries runs campaign to encourage students to #VetYourSources*. Presented at the Maryland Library Association/Delaware Library Association Conference in Cambridge, MD.
- Gariepy, L.W. (2015). *Strange bedfellows? Libraries, Google, and using the open web to teach lifelong information literacy*. Presented at Longwood University's Institute on Teaching & Learning in Farmville, VA.
- Clark, D.T., Gariepy, L.W., and Doherty, M.T. (2013). *Reimagining library services, or, what do we call this thing?* Presentation to SCHEV Library Advisory Committee in Richmond, VA.
- Westmoreland (Gariepy), L., and Lopez, T. (2009). *Job searching: the student perspective*. Presented at the North Carolina Special Libraries Associations' Leveraging Your Career Workshop in Chapel Hill, North Carolina.

International

- Gariepy, L.W., and Robinson, S.R. (2017). *Improving students' skills in evaluating sources through the VCU Libraries (and beyond!) #VetYourSources campaign*. Presentation at Library 2.017 Worldwide Virtual Conference: Digital Literacy & Fake News in June 2017.
- Gariepy, L.W., Hodge, M.H., Doherty, M.T., and Clark, D.T. (2015). *The devil's in the details: Evaluating the implementation fidelity of library services and programs for quality enhancement*. Northumbria Conference, Edinburgh, Scotland, 2015.
- Gariepy, L.W., Peacemaker, B.P., and Colon, V. (2015). *Stop chasing unicorns: Setting reasonable expectations for the impact of library instruction programs (and other library services) on student success*. Northumbria Conference, Edinburgh, Scotland, 2015.
- Stout, J.A. and Gariepy, L.W. (2014). *Using rubrics to assess authentic learning products from one-shot, course-integrated library instruction*. Presented at the Georgia International Conference on Information Literacy in Savannah, GA.

National

- Gariepy, L.W. (2019). *Consolidated service points: Comparisons across institutions*. Roundtable discussion facilitated at ACRL 2019. Cleveland, OH.
- Gariepy, L.W., Coghill, D.E, Hodge, M.L., and Stout, J.A. (2017). *Post-instruction reporting for librarians: Aligning the Framework, local curricula, and the classroom*. Poster presented at the ALA Annual Conference, Chicago, IL.
- Gariepy, L.W., Hodge, M.L, Doherty, M.T., and Clark, D.T. (2017). *Better every year: four years of evolving services, architecture, and evaluation at a combined service point*. Poster presented at the ALA Annual Conference, Chicago, IL.
- Duckett, K., Miller, K., Shannon, M., and Gariepy, L.W. (2017). *Assessing library space: A framework for getting started*. Facilitator and moderator for online presentation sponsored by the ACRL Professional Development Committee.

- Gariepy, L.W., Hodge, M.L., Doherty, T.D., and Clark, D.T. (2015). *A close look in the mirror: Evaluating the implementation fidelity of a consolidated service point at a research library*. Contributed paper presented at ACRL 2015. Portland, Oregon.
- Gariepy, L.W. and Stout, J.A. (2014). *Using rubrics for programmatic assessment of learning outcomes in course-integrated library instruction*. Lightning talk presented at the Library Assessment Conference in Seattle, WA.
- Gariepy, L.W. (2011). *Classroom assessment techniques in one-shot instruction sessions: Balancing teaching, learning, and time*. Presented online as part of the LOEX Encore series (selected out of 48 presentations).
- Gariepy, L.W. (2011). *Classroom assessment techniques in one-shot instruction sessions: Balancing teaching, learning, and time*. Presented at the LOEX Annual Conference in Fort Worth, TX.
- Westmoreland (Gariepy), L., Coghill, D., Orzolek, B., and Prichard, F. (2010). *Research writing: the whole in the middle*. Presented at the Writing Across the Curriculum Conference in Bloomington, IL.

State/Local

- Gariepy, L.W., Hodge, M., Sears, C., and Stovall, B. (2012). *Got leadership?* Panelist at the Virginia Library Association Annual Conference in Williamsburg, VA.
- Gariepy, L.W. (2011). *Using quick classroom assessment techniques to Generate reportable data from one-shot instruction sessions*. Presented at the Virginia Library Association Annual Conference in Portsmouth, VA.

Institutional

- Westmoreland (Gariepy), L. (2009). *Wikipedia: What's it good for?* Presented as part of the Berglund Seminar Series at Virginia Commonwealth University.

Professional Service

- Association of College and Research Libraries
 - University Libraries Section Executive Committee
 - Member, 2018 – 2020
 - Member, 2011 – 2012
 - University Libraries Section Professional Development Committee
 - Chair, 2018 – 2020
 - Member, 2016 – 2018
 - University Libraries Section Conference Program Planning Committee
 - Member, 2016 – 2018
 - Instruction Section Management and Leadership Committee
 - Member, 2012 – 2014
 - University Libraries Section Technology in University Libraries Committee
 - Co-Chair, 2011 – 2012

- Member, 2010 – 2011
- LOEX Advisory Council
 - Member, 2015 – 2018
- American Library Association New Members Round Table
 - Mentoring Committee
 - Member, 2009 – 2010
 - Resume Review Service
 - Member, 2009 – 2010
- Virginia Library Association New Members Round Table Forum
 - Programming Coordinator, 2011 – 2012

Virginia Commonwealth University Service

- VCU Accessibility Policy Revision Committee, 2019 – Present
- Physical Accessibility Work Group, 2019 – Present
- GenEd30 Assessment Plan Work Group, 2018 – 2019
- Quality Enhancement Plan Evaluation Team, 2015 – 2019
- Be The Match On Campus, Faculty Advisor, 2014 – 2019
- Fulbright Scholarship Panelist, 2009 – 2016
- Undergraduate Research Symposium Poster Judge, 2012 – 2016
- Instructional Technologies Advisory Group, 2012 – 2015
- Honor Council, 2009 – 2015
- Department of Focused Inquiry Information Fluency Committee, 2009 – 2012
- Boren Scholarship Panelist, 2009 – 2012

Virginia Commonwealth University Libraries Service

- Emergency Planning Committee, Member, 2016 – 2018; Chair 2019 – Present
- Screening Committee: Behavioral and Social Sciences Research Librarian, Chair, 2018
- Interfaith Spaces Ad Hoc Work Group, Chair, 2016
- Strategic Planning Work Group, Member, 2015
- Screening Committee: Teaching & Learning Librarian, Chair, 2015
- Screening Committee: Learning Technologies Librarian, Chair, 2015
- Faculty Organization
 - Nominating Committee Chair, 2013 – 2014
 - Chair, 2012 – 2013
 - Vice-Chair/Chair-Elect, 2011 – 2012
 - Secretary 2010 – 2011
- Screening Committee: Undergraduate Research Librarian, Chair, 2012
- Screening Committee: Systems Librarian, Member, 2012
- Online Volunteers Task Force, Member, 2011
- Screening Committee: Associate University Librarian for Public Services, Member, 2010
- VCU Libraries Ad Hoc Mentoring Committee Member, 2009 – 2010

Continuing Education Activities

- VCU Faculty Learning Community: E-texts and E-readers. 2012 – 2013
- ACRL Immersion Assessment Track participant. Nashville, TN. November 2012
- ACRL Immersion Teacher Track participant. Burlington, VT. July 2010

Awards and Honors

- Commencement Speaker, University of North Texas Virginias Cohort MLIS Program. January, 2019.
- Capital Award of Excellence for Social Media-Organic, Virginia Chapter of the Public Relations Society of America, for the #VetYourSources campaign, 2018
- Capital Award of Excellence for Brochures, Virginia Chapter of the Public Relations Society of America, for the "Find Your Way" brochure, 2016
- Best Collection Materials, VCU Libraries *Your Compass*. The Academic Library Advancement and Development Network Annual Conference, 2014
- Beta Phi Mu Information and Library Science Honor Society Inductee, Epsilon Chapter, 2010
- Dean's Achievement Award. In recognition of the best Master's Paper of the year at the University of North Carolina's School of Information and Library Science, 2009
- Student Commencement Speaker. Selected by the students of the University of North Carolina's School of Information and Library Science, 2009