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Undergraduate student attitudes about search data privacy in academic libraries: A qualitative research study

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I. Introduction and Background

Demonstrating impact, value, and evidence of continuous improvement has become increasingly important in the two decades,¹ especially in the age of learning analytics.² Learning analytics can be described as the use of student data to improve student learning, student success, or institutional effectiveness and efficiency. Many sectors of higher education have embraced the learning analytics model and use of student data.³

Libraries, however, have historically been committed to privacy of user data.⁴ The profession's commitment to privacy is rooted in strong beliefs in academic and intellectual freedom, as well as concerns about how third parties may use (or misuse) search data. For the purposes of this paper, "search data" is information about the academic library materials that students search for, borrow, download, or use. It has not been uncommon for libraries to proactively delete search data that library systems collect in order to protect user privacy. This approach, regardless of the impetus for the action, has impacted libraries' assessment and evaluation capacity, limiting ability to engage methods used by other sectors of higher education⁵. However, in the past two decades, libraries have increasingly begun to explore leveraging different forms of student data, including search data, to understand the impact of libraries on student success and institutional effectiveness, and to improve their own processes, services, and collections.⁶

Although the literature and many statements from professional organizations make clear the commitment to privacy within the profession, there is limited literature about what users think about privacy. Until recently, only a small number of survey-based studies examined this topic, but most lacked methodological rigor and raised more questions than they answered.⁷ Recently, the Data Doubles research study, which was being conducted simultaneously with the research presented in this paper, focused on understanding student perspectives about learning analytics and data privacy in higher education. A portion of the interviews conducted focused specifically on students' perspectives on libraries and data privacy. Findings from this qualitative study reveal that the undergraduate students interviewed expressed trust for libraries, and are generally comfortable with libraries collecting search data to be used in ways that benefit students. However, researchers also found that students were thinking about the topic for the first time, which might have impacted the types of perspectives students shared, as compared to a topic they had considered more fully in the course of their daily lives.⁸

II. Purpose of the study and research questions

The fact that there are so few studies about student perspectives on library search data privacy when librarians' perspectives on same have so significantly influenced the ways in which libraries collect data is incongruent. It has directly affected the type of assessment and evaluation libraries engage in. Accordingly, the purpose of this study, which was conducted as the author's dissertation research, was to contribute to the small body of research focused on user

perspectives on search data privacy in academic libraries. Specifically, the goal of this research was to understand undergraduate student attitudes about search data privacy in academic libraries and their preferences for how librarians should handle and use information about what students search for, borrow, and download.

The full study had four research questions, two of which will be addressed in this paper and are listed below:

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?

III. Research design and methods

The research design for this study was interpretive description, a qualitative approach that was born in the discipline of nursing. Interpretive description is designed to provide a rigorous framework for qualitative research in applied disciplines, and is a useful approach for answering practical questions.⁹ This works very well in the applied field of librarianship. Interpretive description allows researchers to avoid “methodological acrobatics,”¹⁰ in which qualitative researchers may seek to fit their research studies into one of the established qualitative traditions such as grounded theory or ethnography, in an effort to ensure rigor. Because most of those traditions were born out of disciplines deeply rooted in theory such as anthropology and sociology, they are often not a good fit for answering practical questions. Interpretive description provides a rigorous, epistemologically sound framework needed to answer applied questions that guide disciplines towards practical action.

The primary method of data collection for the study was semi-structured interviews with undergraduate students. Using a combination of convenience sampling and purposeful sampling,¹¹ as well as theoretical and maximal variation sampling,¹² undergraduate students at Virginia Commonwealth University were invited to participate in the study. Participants were recruited via the university's daily newsletter, social media, and through direct connections between the researcher and faculty members, who made their students aware of the opportunity to participate. Students were provided a \$15 Amazon gift card for completing an interview.

A total of 53 students expressed interest in participating. Each was asked to complete a brief screening survey to confirm that they had some experience using academic libraries in order to sufficiently contextualize their ability to share perspectives about search data privacy in that context, and provide demographic information. Interviews were scheduled between March and May 2019. The sampling method allowed the researcher to select participants reflective of the student population's diversity in terms of race, ethnicity, gender, major, and rank in class.

Interviews were conducted and data were analyzed simultaneously, using the constant comparative method. Interviews were scheduled on a rolling basis, which afforded flexibility of selecting participants from the 53 individuals who completed the screening instrument based on themes emerging from the data. For example, several early themes suggested that students who were members of underrepresented or vulnerable groups had different search data privacy

perspectives than some of their peers, and the researcher was therefore able to schedule more interviews with members of underrepresented groups, allowing deeper exploration of that theme.

Ultimately, 27 interviews were completed, at which point 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. Some points of note about the students who participated in the study to provide context for the study include:

- Participants were mostly women, but there were several men as well as two transgender/nonbinary students.
- Students from all undergraduate ranks were represented, from first-year students to seniors, but the highest proportion were first-years. In addition, many participants were honors students. The high concentration of first-year students and honors students was largely a result of a few faculty members in the Honors College enthusiastically encouraging participation in the study.
- All participants were between the ages of 18 and 24.
- More than half of the participants were members of ethnic/racial minority groups.

The interviews, which were held in person and audio-recorded, then professionally transcribed, were rich and robust. The average length was 56 minutes per interview. The domain-organized semi-structured interview guide (Appendix A) was comprised not only of questions about search data privacy in academic libraries and other related topics, but also included vignettes.¹³ Vignettes are defined by Finch as “short stories about hypothetical characters in specified circumstances, to whose situation the interviewee is invited to respond.”¹⁴ When previously piloting interview questions for research in this area, I observed that most students had not considered search data privacy issues in academic libraries, and had limited understanding of library operations in general, including data management practices. They sometimes struggled to articulate their thoughts or respond when presented with questions about their attitudes due to their lack of background in the area. The use of vignettes enabled participants to respond to concrete situations in order to elicit more abstract ideas and attitudes.¹⁵ Although findings from the Data Doubles study had not yet been released when this study was conducted, the use of vignettes dovetailed well with the researchers’ findings that students were often thinking about search data privacy in academic libraries for the first time. Using vignettes allowed students to imagine themselves in situations they may not have had the context to imagine themselves. A segment of one of the five vignettes presented in the study is below:

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.

Data were analyzed through inductive, emergent coding in Atlas.ti, using First and Second Cycle coding techniques.¹⁶ Rigor was ensured through approaches encouraged by Thorne¹⁷ and Lincoln and Guba,¹⁸ and included analytic memos, reflexive journaling, and clarifying emerging themes

with additional participants over the course of the interview process. Pseudonyms were assigned to all participants in order to share quotes that support the themes in the findings.

IV. Selected findings

Findings presented in this paper address students' general attitudes about search data privacy in academic libraries, as well as their perspectives on acceptable and unacceptable uses of library search data. For clarity and readability, these themes are numbered, but the order does not reflect the significance of a theme in comparison to others.

Theme 1: Academic libraries are used mostly for academics

The undergraduate students who participated in the study mostly indicated that they use academic library resources exclusively or nearly exclusively for academic purposes. As a result, most students did not feel that their academic search data was personal or representative of them. As one student said:

...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 [at an academic library], I'd be weirdly into like whatever project I have rather than like who I am. (Yooft)

Most students did not view their library search data as especially sensitive, although some did acknowledge the importance of academic and intellectual freedom. This sense that library search data was not particularly personal proved to be an important foundation for other attitudes students have about how libraries should handle their search data.

Theme 2: Comfort with use of search data in order to benefit students

In general, participants were comfortable with the idea of library search data being used in ways that benefit students. Most expressed trust for libraries, which factored into their comfort level with libraries collecting and using search data. In addition, students saw libraries as a minimal threat compared to all the other entities collecting data about them, with one participant referring to libraries specifically as "the least of my concerns."

Although most students were comfortable in concept with libraries using their search data in ways that would benefit them, many of them also expressed their preference for libraries to be transparent about the extent to which they collect data if they do so, and how it will be used. They felt that students should have the right to control how their data is used, such as through "opt in" and "opt out" options. Most participants also preferred that data be de-identified, although few felt that this was absolutely necessary.

While most students expressed a general level of comfort with libraries collecting and using their search data, this was not a universally held view. Although there were relatively few students who preferred their data *not* be collected or used for these purposes, those who felt that way held their convictions strongly, and their experiences were often related to concerns about bias and oppression. All of the students who expressed notable concern about privacy as it pertains to library search data were members of vulnerable groups (although several students who were members of vulnerable groups were unconcerned about privacy, as well), and had experienced bias or oppression firsthand. They expressed awareness that data about students, including what

they search for, or how often, could potentially be misused or misinterpreted. Along the same lines, even students who indicated a fairly high level of comfort with their library search data being used in ways that would benefit students acknowledged that not all students were likely to share their perspective, and that particularly sensitive searches or members of vulnerable groups may require additional privacy. Many students who were in majority groups were also keenly attuned to how systems can and do use data to oppress people, and were concerned about that risk, even if they felt it was unlikely to affect them directly.

Theme: Using search data to improve collections and services is acceptable

Most students were comfortable with the idea of search data being used to improve services and collections. In fact, some were perplexed as to why libraries sometimes went out of their way to delete data that could be helpful. As one student said:

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

In general, participants thought it sensible to use search data to make sure university resources were being used as effectively as possible to benefit students.

Theme: Views on tailored search results are varied

Participants held more varied views about whether or not search data should be used to provide tailored search results. Several indicated that they did not think tailored search results based on past searches would be useful for them or other undergraduate students since their research needs tended to change from class to class. This theme may have been especially prominent given the relatively high number of first year students who were in the process of fulfilling general education requirements that span a number of subjects areas.

In addition, some participants expressed a concern about tailored search results returning a narrow scope of research materials, either in terms of only providing results that confirm their current perspectives, or just removing the possibility of identifying important related information. Some felt that it was an important part of their learning process to sift through available information and determine what suits their particular research needs, and that tailored search results would limit their ability to do that.

Theme: Library learning analytics are controversial

Students expressed a variety of perspectives regarding learning analytics, both in the broad context of higher education, and in the specific context of academic libraries. When considering higher education broadly, students had mixed opinions about learning analytics overall. Some appreciated the notion that their institutions would try to make good use of individual-level student data to determine how to best support and advise students. Others thought it was too invasive and reminiscent of approaches that K-12 schools use, and felt that such approaches do not give college students enough space to figure things out on their own.

Students also had varied perspectives on the idea of using library search data in the context of learning analytics, wherein low library use could be used as a predictor of academic underperformance. Some students expressed that they would be uncomfortable or embarrassed if, for example, their advisor reached out and indicated that their low library use was concerning. Some students who felt this way suggested that more subtle ways to increase library use may be more appropriate. Examples might include sending emails to remind students of services and collections, as well as how libraries and librarians can help students succeed academically.

Other participants did not see low library use as something that was necessarily indicative of a problem. They explained that students can get information about their research and schoolwork from all sorts of different places, including other libraries, the internet, and their instructors. Therefore, someone could be quite successful academically without using library resources.

Finally, some expressed that while they didn't have an issue with using aggregate data about library use as possible predictors of academic success, such as GPA, they didn't see the point. As one student said:

...I don't know, the relationship between use of library materials and GPA... I just don't think that's enough to... draw any sort of conclusions generally about either students or about the source. (Kavya)

Theme: Varied and ambivalent views on search data for preventing bad behavior

Participants were asked to share their thoughts on library search data potentially being used to prevent a variety of “bad behaviors” such as crime and terrorism. Opinions varied significantly. Some students felt that if there is potential to save lives, then privacy of what people search for should absolutely be sacrificed. Others felt that privacy should be preserved, even if there is potential to use it to prevent undesirable behaviors and outcomes.

Regardless of students' perspectives on whether privacy or safety should be prioritized, a common theme emerged: students questioned the relevance of library search data in such endeavors. Harkening back to previous themes in which many participants indicated that their library search data is not something that they considered especially personal or representative of themselves, students felt that library search data was unlikely to be the type of information that would be useful in investigations about crime or terrorism.

V. Discussion

Some of this study's findings are consistent with previous literature. For example, most students expressed trust in libraries, which influences their comfort levels about how/if libraries collect and use their search data. Along the same lines, most participants indicated that they were comfortable with libraries using search data for certain purposes, and especially those that would benefit students or improve collections and services.¹⁹

A significant and unique finding is that most students do not feel that their library search data is personal or reflective of their true selves, which influenced the extent to which students were concerned about whether or not data is collected, and how it might be used. However, it is important to remember that not all participants felt this way. Although many students were less

concerned about privacy of search data than librarians or library professional organizations are, this was not true of all participants. Students who expressed concerns about how library search data might be collected and used (or misused) often mentioned their own experiences related to bias, oppression, or stereotyping. All students who expressed a more conservative stance on privacy were members of vulnerable groups, ranging from racial/ethnic minority groups, members of the LGBTQIA+ community, and students with disabilities. Some students who were not personally concerned with their own search data being used and collected still expressed awareness of different perspectives, and even concern about how other peers' data could be used against them. Students' varied perspectives on these matters, combined with the fact that students' trust in libraries influences their comfort level with search data collection, is a good reminder that such trust could be lost.

These findings suggest that while many students are comfortable with library search data collection and use, they are also concerned about equity, fairness, and bias. The fact that some members of vulnerable groups from the participant pool felt more threatened about the notion of their data being collected should compel librarians to be very thoughtful about who libraries' data privacy measures are intended to protect, especially as the profession continues to consider new forms of data collection and assessment that rely on individual-level student data. In addition, nearly all participants expressed a want for transparency about how search data is collected and used, and a desire for users to opt in or opt out. Many also expressed a preference for de-identification of library search data, so that it could not be tied to a particular individual.

Findings about students' varied opinions on the utility of tailored search results and learning analytics in the context of libraries – both of which are also unique contributions to the literature -- suggest that libraries should spend more time and energy to fully understand the most appropriate courses of action in these areas.

Finally, students' perspectives that academic library search data is unlikely to be useful in efforts to prevent criminal or illegal activity is something that no previous study has reported. Again, this stems largely from the fact that undergraduate students interviewed see academic library research as just that: academic, and therefore unlikely to be useful in any sort of criminal investigation or effort to prevent illegal activity. This does not suggest that libraries should be unconcerned about potential misuse of search data by third parties, but it may be prudent to consider whether or not deleting library search data in order to prevent its misuse by other entities is the only way to protect students' privacy. Other approaches suggested by students, such as data deidentification, are worthy of consideration in order to balance libraries' needs for data and users' rights to confidentiality and privacy.

IV. Implications for research and practice

This study makes an important contribution to a small body of literature about user perspectives on search data privacy in academic libraries. As is the case with most qualitative studies, it is not intended to be generalized beyond the population of students in the sample, but the findings of this study can serve as a useful springboard for future research. Areas of particular importance may include an exclusive focus on perspectives from members of minority groups and other vulnerable or underrepresented populations. In addition, the perspectives of other user groups beyond undergraduate students, such as graduate students and faculty, are likely different and

important to understand. The findings of this study could also play a role in developing a quantitative instrument that could capture more generalizable findings about search data privacy perspectives, the findings of which could be used to inform libraries' practices related to data privacy and assessment.

Author Biographies

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Laura Gariepy directs James Branch Cabell Library's teaching, research and outreach initiatives for Virginia Commonwealth University's Monroe Park Campus. She oversees undergraduate and graduate education; access to spaces, equipment, and expertise for media and makerspace technologies; circulation, information, and research assistance; special collections and archives; and the physical spaces of the nationally renowned library.

Her research interests focus on assessment in academic libraries, including data privacy issues. She completed her Ph.D. in Education with a concentration in Research, Assessment, and Evaluation in 2019. She also holds an M.S. in Library Science from the University of North Carolina at Chapel Hill, and a B.S. in Sociology from Appalachian State University.

Endnotes

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Appendix A

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?