INFORMATION SEEKING OF SCHOLARS IN THE FIELD OF HIGHER EDUCATION

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ABSTRACT

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This study examines the information seeking of scholars in the field of Higher Education. I interviewed Higher Education scholars about their use of the web, library resources, and interpersonal networking for their research. I also spoke with them about how the faculty reward system shapes their information seeking habits. I drew on information behavior concepts to describe their behaviors. Because Higher Education is an interdisciplinary field, there is a broad swath of literature Higher Education scholars might draw from. This study examined how these scholars seek information in an information rich environment with limited time.

The findings of this study describe how the career expectations for Higher Education scholars shapes their information seeking choices, how scholars change their information seeking over time, how emotional and interpersonal factors influence their choices, and how the tools available for information seeking influence their research. Many of the findings appear to apply to faculty engaged in research across disciplines, particularly other applied social sciences.

Scholars publish work that advances their careers, but this doesn't include all the work that could enhance the body of knowledge about Higher Education. Events in society and changes in educational policy which have a great impact on Higher Education do not necessarily get addressed by scholarship in the field. Keeping up with the scholarly literature in Higher Education will not keep one abreast of all the developments in Higher Education.

Scholars' professional confidence, passion, and relationships effect their ambition in searching for information, branching out to new topics, and sharing their expertise. Information

seeking and sharing is influenced by the supportiveness of the community of scholars they work in. This includes senior scholars in the field, scholars outside the field, and librarians. An individual's disposition may determine how willing they are to seek information and help, which can determine how successful they will be as a scholar.

The technologies for information seeking are constantly and rapidly changing. It's important to keep faculty up to date with new developments and changes to library resources so they do not develop a static view of tools that are constantly in flux. Scholars should be aware that tools change and they should be on alert for new developments.

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Chapter 1: Introduction

Before starting my doctoral study of Higher Education, I worked as an academic reference and instruction librarian. My experience working in an academic library fueled my interest in promoting information literacy in Higher Education institutions and helping faculty members grow. I am interested in the way faculty and students interact with information in the digital age. I am interested in information behavior in general, not just as contained in the library. My dissertation explores this interest.

This study explores the information seeking behavior and information needs related to research of faculty in Higher Education programs. Part of my goal was to identify productive information seeking behaviors for Higher Education scholars. I also wanted to identify how their information needs can be better supported. It is important to understand the information needs of faculty members in Higher Education programs to support their work. Academic libraries, university administrators, and publishers will be able to serve Higher Education scholars better if they are more aware of their habits and desires for information access. Understanding how productive Higher Education scholars find literature can help scholars of Higher Education find literature more effectively and encourage reading and citation of their publications, which could help their careers and improve the state of Higher Education. What faculty know about information seeking shapes what their students and research assistants learn about it. Studying productive information seeking for faculty members in Higher Education also informs our knowledge of it for graduate students.

Information seeking is the process of looking for information (Wilson, 1981), which is part of a larger domain of information interaction. Information seeking includes active and passive searching for information. Information interaction, or information behavior, also includes

information creation, use, storage, and distribution. This study will focus on information seeking in the context of scholarly communication, which consists of the creation, evaluation, dissemination, and preservation of scholarly knowledge (ARL, n.d.). An individual's ability to recognize an information need, and find, evaluate, and use information is referred to as their information literacy (ACRL, 2015b).

Derakhshan and Singh (2011) found that "[t]here is a lack of knowledge of information literacy concepts among academics" (p. 225). This may stem from a lack of training in graduate programs. Boote and Beile (2005) state that although a sophisticated literature review is essential to quality research, "most graduate students receive little or no formal training in how to analyze and synthesize the research literature in their field, and they are unlikely to find it elsewhere" (p. 5). Proficiency in locating, differentiating between, and using literature is essential to good research. To excel, scholars need to locate sources to read broadly and deeply within their field. Reading scholarly research comprises a significant amount of faculty work. A study that surveyed faculty across all disciplines found that faculty read an average of 132 hours and 240 articles per year (King, Choemprayong, Tenopir, & Wu, 2009). Reading scholarly research enables scholars to identify what new research is needed, what methods for research are most likely to yield useful results, and which of their colleagues could provide the best help. To avoid duplicating research, scholars must be familiar with existing research. Scholars report that reading inspires new ideas, helps improve research results, and changes the focus of their research (King, Choemprayong, Tenopir, & Wu, 2009). Understanding the publication landscape can also help scholars make the best choices for disseminating their own work. Reading published literature can help scholars produce the type of research prized by peer reviewers.

Frequently published or award winning scholars read more than their peers who publish less (King, Choemprayong, Tenopir, & Wu, 2009).

The study of scholarly information seeking is particularly important now because the information ecosystem has changed significantly with increased digitization. Wolff, Schonfeld, and Rob (2016) found that databases are the most common starting point for scholars searching for articles and books, reported by 42% of scholars, and library webpages account for 11%, but Google Scholar now accounts for 21% of initial searching and Google accounts for 20%. Access to information and the formats available for publication have changed rapidly in the last few decades and are continuing to change swiftly. The speed and quantity of communication has increased. As the cost and time barriers of publishing have diminished, the amount and speed of publishing has increased (Regazzi, 2015). The gatekeepers of information have become less visible and in some cases less accountable. Often, the most authoritative resources are the least accessible and the least reliable are the most accessible. The elimination of barriers to the publishing process has facilitated predatory publishing. Digital repositories and personal websites make scholarship accessible even if it has not been accepted by a peer-reviewed journal. Many conference presentations are available on the web. More than half of journal article access is of free articles (Gardner & Inger, 2016). Open access publication options mean that a growing amount of material is accessible to scholars that might previously have been locked behind paywalls. Interlibrary loans can often be quickly completed online. Many materials which once had to be accessed in the library are now available anywhere with internet access. Sites such as SciHub make material that legally belongs behind paywalls available for free. There is a growing role of social media in scholarly information seeking (Gardner & Inger, 2016). Scholars resort to requesting pdfs from one another on Twitter, sometimes in violation of

their publishing agreements, using #icanhaspdf. Scholarly blogs, Academia.edu, ResearchGate, and scholarly use of social network sites like Twitter and Facebook have created additional informal scholarly communication outlets. As scholarship becomes more widely accessible to the public, it becomes more vulnerable to criticism from the public. It is therefore important for institutions to protect the academic freedom of their scholars.

In the digital information environment, the number of sources to examine keeps growing. However, scholars are still only able to examine a limited amount of material. There is a danger of information overload. Scholars need to know how to make their searching efficient. Newman and Sack (2013a) found that many academics experience difficulty in keeping up to date with new developments in their fields because of the extent and accessibility of information in the digital age. Rupp-Serrano and Robbins (2013) studied the information habits of education faculty at U.S. universities through surveys. 42% of their respondents reported that lack of time was a barrier to their use of electronic library services. 37% reported that lack of awareness of electronic resources was a barrier. It's important for Higher Education scholars to be aware of the changing environment for scholarly communication so they can make informed choices about which resources are best, instead of allowing the environment to control them. Van Dalen and Henkens (2012) found that academics from the US, Australia, Canada, and the UK felt that pressure to publish is high and leads to excessive amounts of unread research. A growing number of publications increases the demand for peer review, which may mean tapping individuals who are less qualified to peer review articles, or loading scholars with so many review assignments that they don't have time to be thorough. This increases the pressure on scholars to discriminate between literature themselves rather than relying on peer review.

More than ever, in the modern digital world, faculty work does not end when they leave the campus at the end of the workday. Emails from students and colleagues come at night and on weekends. Physical access to the books and journals in the library or in a faculty member's office is not necessary because materials can often be accessed online. The possibility to work on any day, at any time creates pressure to work every day and all the time. It's important to limit the constant pressure to search, read, and communicate. Faculty need to be able to identify the most important literature because it is impossible to read all the literature on their topics.

Kezar (2000) found that Higher Education researchers and practitioners felt that Higher Education publications were not well disseminated. Housewright, Schonfeld, and Wulfson (2013) found that about half of the academics they surveyed often want articles their library does not offer. Nearly half the academics who answered the survey reported that they sometimes give up looking for a source if their institutional library does not have it. Academics also search for materials on the free web, purchase materials their library doesn't own for themselves, get items from friends at other institutions, or ask the author for copies. In the current environment, academics sometimes share materials in a way that violates their publisher agreements. This is not desirable.

The information needs of many groups have been studied. For instance, Harley, Acord, Earl-Novell, Lawrence, and King (2010) studied the information needs of archaeologists, astrophysicists, biologists, economists, historians, music scholars, and political scientists. The information seeking behaviors of Higher Education scholars have not yet been studied. David Ellis (1989) created a theory to describe the information seeking behavior of social science researchers. Ellis's theory and the more recent updates of it may be helpful in understanding the information seeking of Higher Education scholars, but information seeking in an applied,

interdisciplinary field like Higher Education is different from the information seeking in the social sciences in general. The number of disciplines and variety of sources Higher Education scholars draw from make the possibilities for information seeking in Higher Education especially broad. Higher Education scholars might be expected to have a particularly good grasp of information seeking strategies since the study of scholarly communication is part of the study of Higher Education.

I expected that Higher Education faculty information practices would differ based on their institution, their disciplinary background, their age, and their country of origin. Research institutions provide the most resources to their faculty because they generally have well-funded access to subscription databases. Scholars working at comprehensive universities have less access. Scholars at comprehensive universities are more likely to report not finding the information they're looking for through their institutional library than scholars at research institutions (Housewright, Schonfeld, & Wulfson, 2013). I chose to focus my study on scholars at research universities because they have the highest number of resources available to them. I expected scholars would tend to use strategies learned from the time and discipline they were educated in information seeking. Liao, Y., Finn, M., and Lu, J. (2007) found that international graduate students are less familiar with American library services than American graduate students and make greater use of those library services. These habits may stay with them as they progress into faculty positions. Higher Education scholars employ a variety of research strategies stemming from different fields including both qualitative and quantitative data collection methods. I was interested in the information seeking of scholars across methodological preferences.

Research Questions

How do scholars in the field of Higher Education seek information?

Which of their information needs are not being well met?

What is the Study of Higher Education?

George Keller (1985) wrote, "When scrutinizing the research on Higher Education, one is struck by two characteristics. It is profuse and it is picayune. Impressive scholarship is rare; pioneering thought is even rarer. There are hundreds of little pieces of research, but few of them tackle matters that are useful, important, or daring in scope." (p. 7). If we view the study of Higher Education as an enterprise, we might look to literature on organizational administration to explain it. Organizational scholars Cohen, March, and Olsen (1972) state in their article, "A Garbage Can Model Of Organizational Choice" that "an organization is a collection of choices looking for problems, issues and feelings looking for decision situations in which they might be aired, solutions looking for issues to which they might be the answer, and decision makers looking for work". Given this quote, George Keller might say that Higher Education scholarship is a collection of journals looking for articles, theories and data sets looking for publications in which they might be aired, conclusions looking for issues to which they might be the answer, and scholars looking for work. Rather than proceeding from problems of the field, higher education research sometimes proceeds from administrative issues or problems of career advancement. This is consistent with Kezar's (2000) finding that higher education practitioners and scholars differ in the topics they see as valuable research.

The study of Higher Education is an applied social science (Biglan, 1973). This makes the information environment for the field different from the pure disciplines because scholarly communication includes practitioners as well as scholars. Just as Wright (2010) argues that K12

researchers diverge in their purposes from K12 practitioners, Higher Education researchers diverge in their purposes from Higher Education practitioners. Scholars of Higher Education must communicate with Higher Education practitioners, despite their diverging goals to advance knowledge of Higher Education and execute high quality Higher Education. In applied fields like education, literature from outside the scholarly community can be a primary source of information. Mary Kennedy (2001) points out that scholarship in education struggles between its allegiance to practitioners and its obligation to conform to the expectations of the academy. Information seeking in Higher Education is representative of information seeking in other applied social sciences that also share this rift. While studies such as Housewright, Schonfeld, and Wulfson's (2013) focus on information seeking differences between the humanities, sciences, and social sciences, few focus on the information seeking differences between applied fields and pure disciplines. My study looks at information seeking in one applied field.

Higher Education defines itself by the object it aims to impact rather than the methods and theories it employs. In this, it differs from pure disciplines. Higher Education faculty members draw on expertise from a variety of disciplines. Budd and Magnuson (2010) identify the top 20 cited scholars in the top three journals of Higher Education. Many of these scholars hold PhDs in Education, but others hold PhDs in Communication and Psychology. They also hold varied master's degrees including Education, Labor and Industrial Relations, Communication, Psychology, Economics, Political Science, and English. Their bachelor's degrees stem from a variety of fields as well. The course catalogs of Higher Education doctoral programs reflect similar combinations of disciplines. Course offerings include policy, organizational theory, history, law, finance, and sociology of education. Students may also acquire their methodological training in departments outside of education, such as public policy,

anthropology, sociology, or communication. These varied educational backgrounds include training in different styles of citation, emphasis on different publication formats, and encouragement of different writing styles, which could all affect how a scholar seeks and differentiates between sources. While the field in aggregate is interdisciplinary, this does not imply that all or most of the scholars in the field do interdisciplinary work. A given Higher Education researcher may share the research tendencies of a positivist scientist or a constructivist humanist. This means that although interdisciplinary search tools would be needed to find information relevant to all Higher Education topics, databases intended for individual topics such as psychology, sociology, gender studies, may be of most use to an individual scholar.

Tight (2012) identified eight main themes in Higher Education research: teaching and learning, course design (including educational technologies), the student experience, quality assessment, policy, institutional management, academic work (including its changing nature and academic work in different countries), and knowledge and research (including disciplinarity). He also identified eight main methods for Higher Education research: document analysis, international comparisons, interviews, surveys and multivariate analysis, conceptual analysis, phenomenography, critical perspectives, and biography or observation. He identified eight levels of analysis: individual, course, department, institution, region, nation, system, and international. Tight also pointed out several disciplines from which theories of Higher Education arise. These include sociology, such as Bourdieu; psychology, such as Vygotsky; management; economics; linguistics; and biology.

Because Higher Education is an interdisciplinary field, which relies on the literature of many other fields, Higher Education scholars have a particularly large obligation to read. They must keep track not only of the developments in their own field, but also in the fields from which

they can draw theories and methods. The scholarship in many of these fields is expanding at an exponential rate. Scholars might be tempted to concentrate on Higher Education literature in order to limit the amount of information they need to examine, but this would limit the creativity and utility of their analyses.

Though the choices available for information seeking and dissemination are changing rapidly overall, the choices for Higher Education scholars have not changed at the same rate. The Social Science Research Network does not include a network for education research (Social Science Electronic Publishing, 2016). The Directory of Open Access Repositories lists many education repositories, but none for Higher Education (DOAJ, 2016). *Higher Education* and *Research in Higher Education*, as Springer journals, offer authors the opportunity to make their published articles open access for a fee of $3,000 (Springer, 2016). Taylor and Francis, publisher of *Studies in Higher Education,* charges $2,950 (Informa UK Limited, 2016). Neither *The Review of Higher Education* nor the *Journal of Higher Education* offers gold open access publishing options (Johns Hopkins University Press, 2016; The Ohio State University Press, 2016). This lack of options for open access in Higher Education is not ideal, because the majority of scholars in social science fields such as education rate societal impact as a key to measuring their research performance (Wolff, Rod, & Schonfeld, 2016). Open access to scholarship can increase the societal impact of research by making it available to more of society. Several studies have found that articles available free online are more frequently cited than those behind paywalls (Lawrence, 2001; Zhang, 2006). Without support or motivation, Higher Education faculty members are unlikely to take on the expense of making their publications open access. They rarely have grant funding to cover such expenses. Scholarship in the field is primarily published in subscription journals corresponding to the various factions among Higher Education

(Bray & Major, 2011). Higher Education's fragmented nature means scholarship in one area is not reviewed by a diverse audience from every school of thought, which could lead to greater rigor and therefore greater prestige for the field. This may be true in other applied social science fields as well. Because scholars are also editors and reviewers, they have power to shape the information topography in their field to meet its needs. It is important for Higher Education scholars to support good publication outlets, which will reach the audience they wish to communicate with. On the other hand, when searching, scholars need to follow the information relevant to their area of research, regardless of whether it is published in journals that reach important educational stakeholders.

Current publishing, tenure, and promotions norms in Higher Education are perpetuating a culture of scholarship that is not necessarily best for the field. Journal impact factor is often used in tenure and promotions decisions even though it measures the number of times an average article in a journal is cited, rather than statistics about an individual article in the journal (Brown, 2014). Journals with high impact factors are often more difficult to publish in, which means it can be an indicator of the confidence level the submitting author has of being accepted, not necessarily the quality of the work submitted. Number of citations is not a great indicator of an article's quality either, because citations are sometimes made out of convenience of access to an article, to increase one's citation count, or in order to describe an article's shortcomings (Brown, 2014). Tenure and promotion requirements discourage scholars from publishing in alternative outlets. Traditional outlets publish only certain types of publications and alternative viewpoints may be left out. Monitoring only high impact journals can lead scholars to overlook publications relevant to their research that are not published there. Monitoring the work of well-known scholars in the topic can also lead scholars to overlook important work by less known scholars.

Because Higher Education is an applied social science and has tensions between the dissemination of scholarship and faculty rewards that disciplines examined by previous studies of information seeking do not share, it is important to investigate the information seeking of Higher Education scholars.

Chapter 2: Review of Literature on the Information Seeking of Social Scientists

Beginnings of the Study of Social Scientists' Information Seeking

As stated in chapter one, Higher Education scholars are members of a social science field, which affects their information seeking behaviors. In this section, I frame the study of the information behavior of social scientists with a look at how it has been understood historically. Maurice Line (1971) studied social scientists by surveys, interviews, and observation in a project called INFROSS (Information Requirements of the Social Sciences). The findings for many of his survey questions were plagued by the doubt over whether his respondents understood the terms he used to describe various tools for information access. Line asked his respondents to list the abstracting services they used for their research. He decided not to provide his respondents with a list of abstracting services, to prevent them from checking off abstracting journals they had heard of but didn't use, though he knew this might allow them to forget some of the journals they used. The result of this tactic was that the respondents invented several abstracting journals. This occurrence highlights the advantages and disadvantages of providing participants with answers to choose from.

Line found that a quarter of his respondents never searched library shelves and almost half of them never consulted a librarian. He found that those who owned the most books were the heaviest library users and those who owned the fewest books were the least frequent library users. In other words, owning many books was not an alternative to library use. He found that 37% of his respondents owned fewer than 10 books related to their research and over a third owned more than 25. Of his respondents, 3% did not use libraries while 11% used more than six libraries. Line also found that the more books an individual owned, the more likely he or she was to use older books. When asked who should index books, 23 of his respondents felt that book

indices should be prepared by professional indexers while 24 said that indices should be prepared by authors.

Line observed that senior researchers were the least likely to value the advice of librarians. He hypothesized that the independence and high sense of self-worth which lead them to succeed as researchers also lead them to avoid seeking assistance with information seeking, but he also admitted that bad experiences might have convinced them that librarians were not helpful to them. Older researchers used fewer libraries, which Line attributed to difficultly with mobility associated with their age. Older researchers also tended to report being more satisfied with the available bookstock at their libraries. Perhaps this shows that seasoned researchers have decreased publication pressures and therefore decreased needs for accessing literature in libraries. Older and more senior researchers were more likely to delegate their literature research than younger or newer researchers were. Perhaps having someone else to do the legwork explains their satisfaction.

Line found that the major limitations of social science research were unawareness of available resources, underuse of available resources, and lack of time and motivation to use available resources. Line found that many social scientists did not use audio or video recordings for their research. He found that conferences were not of central value to research in the social sciences. He noted that social scientists from various fields differ in their information practices according to how closely they aligned themselves with the hard sciences or the humanities. He observed that education researchers fell close to the humanities on the continuum of hard to soft. Education researchers were one of the most willing sets of scholars to delegate their searching. Line found that researchers in education were among the least likely social scientists to use pre-1945 books.

Over a decade after Line's study was published, Hurych (1986) compared the search request forms of faculty members in the humanities, social sciences, medical professions, and administrative services at Northern Illinois University and found that social scientists are more likely than natural scientists to perform searches that included information that was more than 5 or 10 years old. She found that while most administrative and science faculty searches were driven by projects funded by grants or departmental funds and most humanities and medical searches were driven by personally supported projects, social science faculty performed searches for a fairly even combination of funded and personal projects. She also observed that social scientists have to keep up with more journals than natural scientists because their subject areas are less specialized. Social science searches tended to be broader in scope than natural science search requests. Social scientists searched a greater number of databases per query than any of the other fields. While faculty in the natural sciences and humanities requested materials in languages other than English, social science faculty primarily requested only English materials.

After researching the information behavior of social scientists, Slater (1988) noted that "keywords are not easy to use in this field, not simply because of terminological imprecision and instability, but because authors in the social sciences have an above average affection for evocative (teaser) titles rather than factually descriptive ones" (p. 227). Slater found that social science scholars tend to consult sources simultaneously rather than consecutively. This may be difficult to do on a typical computer screen where many documents cannot be laid out side by side without reducing them to an unreadable size. Slater found that since Line's study, translation services and English reviews of articles written in other languages had improved access to international literature, but interpersonal communication with scholars who spoke languages other than English was still a barrier.

Common Information Seeking Behaviors of Social Scientists

In the 1980s, David Ellis (1989) created a theory to describe the information seeking behavior of social science researchers. A discussion of Ellis's work is important in any study of scholarly information seeking because his work continues to be used and cited frequently today. Ellis studied the information behavior of social scientists at The University of Sheffield in the United Kingdom. He identified six most common information behaviors: starting, chaining, browsing, differentiating, monitoring, and extracting. Starting entails identifying a key item or items on the topic of interest (this might be found through previous knowledge, a recommendation, or search). Chaining means following the citations or connections to or from key papers to other sources of information. Browsing involves exploring an area through semi-directed searching. Differentiating means filtering materials by their content, scope, and quality. Monitoring consists of routinely checking for updates in a field through familiar sources. Extracting is the act of working through a source to use the information in your own way. These six behaviors do not necessarily flow in any particular order.

Ellis's theory was formed before scholars used the internet in their searching. The digital age has shaped information seeking behavior. It is difficult, if not impossible, to browse online the way scholars can in a physical library. However, many of the information behaviors Ellis identified are still common today. Platforms for information access still need to facilitate these behaviors. For example, chaining to articles which cite a relevant article is easy through Google Scholar, publishers provide emailed Tables of Contents of new issues so scholars can monitor new publications, and it's possible to monitor a particular topic through RSS feeds or Twitter. An understanding of scholars' information seeking practices from the 1970s and 1980s is helpful in understanding their practices today, but the technologies for information access have changed

dramatically in the intervening time, so it is important to examine how scholars function in the new information landscape.

Information Seeking of Scholars in the Digital Age

More recently, Meho and Tibbo (2003) built on the work of David Ellis (1989) by sending email questionnaires to social scientists studying stateless nations (peoples who do not have their own state, such as Australian Aborigines, Tibetans, Inuit, and Scots). They observed the six behaviors described by Ellis. They found that social scientists often start by doing a literature search through a library or among their personal collections or by contacting someone, such as a colleague or a librarian who is knowledgeable about their topic. Meho and Tibbo noted that when scholars engage in chaining they take into consideration the reputation of the authors and publishers in the citations and the frequency of citation to determine which citations they will follow up with. However, they found that scholars also consider novelty, which can lead them to explore less well-known authors and publishers. Social scientists engage in monitoring practices through list servs, by subscribing to journals, and by attending conferences. Meho and Tibbo add several behaviors to the list started by Ellis. In addition to starting, chaining, monitoring, browsing, extracting, and differentiating, they add accessing, verifying, networking, and information managing. Accessing entails tracking down sources they identify. This might involve considerable time and cost. These factors can play a part in the differentiating decisions scholars make. Verifying involves corroborating information, especially when it comes from a potentially biased source. Information managing is the storage, organization, and interpretation of sources for later use.

In a study of scholars in a variety of fields across five institutions, King, Choemprayong, Tenopir, and Wu (2009) found that faculty got access to the majority of readings through library

electronic collections, particularly older readings. Faculty tend to read personal subscriptions in print, while they access library materials electronically. Older faculty are more likely to read print and have more personal subscriptions than younger faculty. Most reading as a result of searching came from electronic abstracting and indexing services rather than web search engines. When asked what type of sources they used for their last piece of information, most of the faculty reported that they had read a journal article, about half had used a book, about a third used websites, about 24% used conference proceedings, 23% used personal contact, about 9% used magazine articles, and about 5% used another type of source. When asked to focus on the last important article they read, faculty reported most often finding articles by perusing journals, next by searching by author or subject, next by word of mouth, and next by chaining from a citation. A higher proportion of articles used for research purposes were found through searching rather than perusing journals, indicating that perusing journals is primarily for keeping up in the field. Almost half of faculty said they knew about the information in the article they last read before reading it. Their prior knowledge sometimes came from other articles, discussion with colleagues, conferences or workshops, or listservs. About 20% of readings were re-readings.

Other scholars in the digital age have also continued the examination of scholarly information seeking using David Ellis's theory. For instance, Tenopir, Volentine, and King (2012) found that academics located about a third of the articles they read through searching. They located 11% through browsing. They located 56% of their articles through citation chaining, colleague recommendations, or did not recall the method of discovery. In contrast, academics primarily located books through word of mouth. The researchers also found that older academics tend to read more books than younger academics. It is unclear whether this is due to changing preferences throughout life and career stages of individuals or variation in the habits of

different generations. The study also found that academics who spend most of their time on research read more articles and fewer books and book chapters than academics who spend the majority of their time teaching.

In another study of modern scholarly information seeking, Housewright, Schonfeld, and Wulfson (2013) found that academics increasingly use internet search engines to find scholarly literature, however, library resources offered by a scholar's institution are still the top source of scholarly research and 80% of academics indicated that their institutional libraries were an important source for finding scholarly research. About half felt that they often want articles their library did not offer, but most scholars felt they could usually get the works they needed elsewhere. Scholars at research universities were less likely to report wanting articles their library did not offer than scholars at institutions with less research activity. This indicates that the burden of information overload may be greatest for scholars at research universities. Scholars at research universities depended more on the libraries at their own institutions while scholars at other types of institutions tended to depend more on other libraries (including through interlibrary loan services). Aside from library resources, scholars also rely on their personal and departmental collections of resources. When a scholar needs a resource their library does not provide, most turn to freely available materials on the web. Nearly half the academics who answered the survey reported that they sometimes give up looking for a source if their institutional library does not have it. Academics also purchase materials their library doesn't own for themselves, get them from friends at other institutions, or ask the author for copies.

Newman and Sack (2013a) found that many academics experience difficulty in keeping up to date with new developments in their fields because of the extent and accessibility of information in the digital age. They don't regularly read particular journals. Instead, they search

for and read individual articles. It would be interesting to know whether monitoring is correlated with productivity. Monitoring could be beneficial in identifying sources, or it might be so time consuming that productivity is compromised. Baveye (2014) observes that relying on graduate students to perform literature reviews is a common practice to deal with information overload. One method for combatting information overload is to limit oneself to a timeframe. While Tenopir, et al. (2009) found that reading of older articles increased from the 1990s to 2005, Evans (2008) found that citation of recent articles has increased. It's possible that the age of materials cited is influenced by database design. Some databases default their order of articles to newest materials first. If scholars find what they're looking for or give up looking after the first few hits, they may not read the older articles returned by a search.

Information Behavior of Education Scholars

So far, this chapter has examined the information behaviors of social scientists in general. In this section, I discuss the information behaviors of education scholars in particular. Budd and Magnuson (2010) found that Higher Education articles from the top three journals (*Research in Higher Education*, *The Review of Higher Education*, and the *Journal of Higher Education)* cited about twice as many references in 2010 as they averaged in 1990. In both 1990 and 2010, they tended to cite about 45% articles and 40% books. In 2010, less than 1% of citations were to websites, despite the growing availability of information on the web. The average age of materials cited has increased since 1990. The top 2% of journals cited accounted for about 50% of the citations. In addition to Higher Education and education, disciplines represented by the top 25 journals cited include psychology, sociology, economics, management, and human resources. Book citations were primarily within the field of Higher Education. Understanding the citation patterns in Higher Education scholarship can give us clues to scholars' information seeking

habits, but citation patterns do not fully reflect scholars' information seeking behaviors or the reasoning behind them.

Another set of research which can provide clues about the information seeking behaviors of education scholars is research on the publication hierarchy of the field. Bray and Major (2011) found that the top tier of Higher Education journals consists of *The Journal of Higher Education, Review of Higher Education, Research in Higher Education, Journal of College Student Development, Higher Education: Handbook of Theory and Research*, and *Higher Education*. Google Scholar lists *Higher Education*, *Studies in Higher Education*, and *Research in Higher Education* as the top three journals in English on Higher Education by h-index for the last five years (Google Scholar, 2016). Budd and Magnuson (2010) note that the most frequently cited journals in *Research in Higher Education*, *The Review of Higher Education*, and the *Journal of Higher Education* are the same three journals. Though this is probably because many relevant articles can be found in these journals, it could also partially result from authors adding citations to the journal they are submitting to in order to increase the probability of acceptance for their articles. Authors may also want to cite particularly well regarded journals to increase their likelihood for publication. Part of the popularity of *The Review of Higher Education* may stem from the free subscriptions to the journal that are provided by the Association for the Study of Higher Education to its members (ASHE, 2016). The Association for Institutional Research provides a discount on *Research in Higher Education*, and both associations provide a discount on the *Journal of Higher Education* (ASHE, 2016; AIR, 2016). This may facilitate monitoring of these journals as compared to others. Tight (2014) found that the most cited book publisher in six leading Higher Education journals is Jossey-Bass, followed by Sage, Routledge, The Open University Press, Cambridge University Press, and Oxford University Press. It is unclear whether

these publishers are the most cited because they are considered the most reliable in the field or for some other reason, such as publishing Higher Education content most frequently, or being the most appealing to Higher Education scholars looking for publication outlets. Investigation into how Higher Education scholars determine which literature to include in their publications would be helpful. Tight (2014) also points out that while the three top American journals publish mostly American authors and their articles cite mostly American authors, the three top non-American journals include articles and citations from more diverse nationalities.

Goodyear, et al. (2009) found that while *Educational Researcher* and *American Educational Research Journal* are the top two journals valued by educational researchers, the field is so varied that there is very little consensus about which journals are the most valuable. Both journals are affiliated with the American Educational Research Association. It is telling that both of these journals have Journal Impact Factors above 2, while the Higher Education specific journals all have lower Journal Impact Factors closer to 1. This higher citation rate suggests more people are reading general education journals than specific Higher Education journals.

Rupp-Serrano and Robbins (2013) studied the information habits of education faculty at U.S. universities through surveys. This included faculty members in teacher education, educational psychology, special education, Higher Education, and kinesiology. Scholarly journals were shown to be the most important resource to these scholars, followed by internet resources, books, and conversations with colleagues. The authors worried that scholars were conflating online journal access with internet resources and they pointed out the importance of making clear to participants what is meant by "internet resources." Print subscriptions to journals were much less highly valued than electronic subscriptions to journals. Monitoring journals and attending conferences were the most popular ways to stay up to date with the field. The most

popular methods for finding older articles were citations from other articles and books, and searching indexing/abstracting tools. The most important factors in source selection were authoritativeness and convenient availability. A majority of the faculty members said space to study or conduct research was not an important library service for them. Lack of time was a barrier to the use of electronic library services for 42% of respondents, and 37% reported that lack of awareness of electronic resources was a barrier. The authors regretted not including survey questions regarding the ERIC (Education Resources Information Center) database. This study is helpful in understanding the information seeking habits of education scholars from a quantitative perspective, however it does not take into account the differences between the various branches of the field of education and it did not allow scholars to express their views on information seeking from their own perspectives.

Educational researchers show a preference for Google Scholar over Google (Gardner & Inger, 2016). They share this tendency with other social science fields such as psychology and political science, and differ from the humanities and hard, pure science disciplines such as physics and math that favor Google over Google Scholar. This could be due to differences in the amounts of information available on the web in these different fields or differences in the uniqueness of keyword combinations that might be used to search for information on topics in these fields.

This chapter has outlined some information seeking characteristics of social science scholars with a particular focus on Higher Education scholars. Both old and recent research shows social scientists differ from scholars in other disciplines. Note that several studies found scholars at different stages in their careers show different information seeking tendencies. Also note that according to this previous research, education scholars are often pressed for time and

may delegate the responsibility of information seeking to combat information overload. These themes reappear in the findings of my study

Chapter 3: Theories of Information Seeking

In the following section, I discuss some theories of information seeking which help to explain the information seeking practices of Higher Education scholars. Though these theories arose from the study of a variety of populations, I see implications in them for the way scholars may interact with information. I divide the theoretical perspectives into three categories: those having to do with personal and career needs, those having to do with interpersonal factors and affect, and those having to do with the technological environment for information seeking. Organizational theorists such as Scott and Davis (2007) might name these three categories rational, natural, and open perspectives. Following this discussion of information seeking theories, I synthesize these theories for the context of my study.

Personal, Career, and Environmental Needs

Information Needs and Intervening Variables

T. D. Wilson's (1981) model of information behavior begins with an information user's need. The user seeks information from formal systems designed for information seeking and informal systems not designed for information seeking, and meets with either success or failure at fulfilling their information need. If they succeed, they put the information to use. If they fail fully or partially, then they must return to the search process. Wilson's model includes barriers to the information seeking process. It shows that information needs arise from physiological, cognitive, and affective needs. These may be personal needs, needs arising from an individual's social role, or needs arising from the environment.

The information needs of Higher Education faculty members arise from the need to improve Higher Education, personal inclinations, and the need to publish to sustain their careers. These needs may not always align. For example, the citations that might increase the likelihood

of acceptance by a publication (such as to authors on the editorial board) may not be the publications most necessary to the argument the paper advances. Some scholars consider citations from journals behind paywalls more reliable than citations of open access materials. Paper topics may also be driven less by need in the field than likelihood for publication, ease of data collection, or funding opportunities. Participant samples may be driven by convenience of access rather than appropriateness to a research question. The selection of data sets may be driven by what is already available rather than what is most useful. The applied nature of the field of Higher Education creates a gap between the conventions of scholarship and what is needed to improve Higher Education. The information needs of faculty members are also affected by their needs for personal time. Like all faculty members, they have interests and demands outside of academia that limit the amount of time they can spend searching for and reading literature. They also have duties other than research in their careers, including teaching and service.

Wilson's (1997) updated model replaced the idea of barriers with intervening variables, recognizing that sometimes factors encountered during a search serve to support information seeking, not just hinder it. Intervening variables in the model include psychological variables, demographic variables, interpersonal variables, environmental variables, and source characteristics. Some examples of specific intervening factors include budget constraints, time constraints, and cultural norms. For Higher Education scholars, intervening factors might include the approach of deadlines (such as conference submission deadlines or the approach of tenure review), getting to know a new colleague who has ideas on your line of research, changes to educational policy, pursuing a particular grant, or the introduction of a new professional organization or publication in your area. Wilson's model shows that users may be involved in

passive attention (such as listening to news radio), passive search (encountering relevant information in the course of another search), active searching, or ongoing searching. In today's information environment, passive attention to scholarship can take place on social media sites. Scholars can follow one another's updates or follow a particular topic on sites like Twitter, Facebook, Academia.edu, Research Gate, or through RSS feeds. Wilson's model also includes the ideas of risk and reward (searching decreases when the gains from more searching decrease). Risks and benefits of information seeking include economic, physical, social, and emotional risks and rewards.

It is important to remember that information needs are not static throughout a search. Marcia Bates (1989) introduced the theory that information users' needs evolve throughout the search process. In her model of information seeking, called "berry-picking", users start with a broad topic and search in different sources. The information they encounter brings up new ideas. Their topic shifts. Their search is not answered by a single set of information, but by a changing series of sets of information. Their final search results are the culmination of all the information they have picked up along the way. The techniques used in berry-picking may include footnote or citation chasing, examining runs of journals, browsing subject areas, or following particular authors.

Principle of Least Effort

One intervening variable in Wilson's model is time and effort. George Zipf's Principle of Least Effort is the idea that people will minimize the effort they expend to find information (Case, 2002). People will ask the person they are closest to or consult the source they are familiar with, rather than seek out the best source of information. They try to optimize the cost-benefit ratio of searching for literature. Zipf said that use of a source will be inversely proportional to its

use rank. For example, the most frequently used source in a library will be used about twice as often as the second most frequently used source and three times as often as the third most frequently used source. This is related to the Pareto principle or 80/20 rule that says 80 percent of library use comes from 20 percent of the collection and the remaining 20 percent of library use comes from the remaining 80 percent of the collection.

A similar phenomenon exists for the work of specific authors. This phenomenon is described by Lotka's Law, which states that the number of authors making X number of publications is about $1/X^a$. This means the number of authors publishing few works is exponentially greater than the number of authors publishing a great number of works. This is related to the Matthew Effect described by Robert Merton (1968) in which the works of well-known authors gain more use and citations through their notoriety and authors who are not well known continue to be overlooked. Well known authors also attract better funding and better credentialed assistants to help with their research. The Matthew Effect is named after the biblical passage from Matthew 25:29 which says "Unto every one that hath shall be given, and he shall have abundance, but from him that hath not shall be taken away even that which he hath."

The Matthew Effect applies to journals as well as authors. Samuel Bradford (1976) observed that the distribution of relevant articles among journals in a field can be described by the formula 1: n: n^2. For example, if 5 core journals contain about 200 articles relevant to a given topic, then to find another 200 relevant articles, one needs to look through 25 less relevant journals. Examining additional journals provides diminishing returns. In the digital information environment, the number of sources to examine keeps growing. However, scholars are still only able to examine a limited amount of material. This means that work in core outlets is read most and work in peripheral outlets is read only rarely. This can be problematic because peripheral

work has the potential to bring new perspectives to the field. According to Bates (2002), well-defined research domains with many topically relevant materials are best searched by browsing, domains with a medium amount of topically relevant materials are best searched by directed subject searches, and domains with very sparse and scattered topically relevant materials are best searched by chaining. Interdisciplinary fields like education are more scattered than pure disciplines, so one might expect browsing to be less important in the field of education.

While a wealth of resources can result in concentration on only a few, it can also result in superficial attention to a greater number of resources. Peter Pirolli (2007) introduced Information Foraging Theory. This theory says that information users attempt to optimize the amount of knowledge gained through their interactions with information. It draws a comparison between the way animals hunt for food and the way humans search for information. The theory views humans as "informavores," a term introduced by George A. Miller. In the information foraging model, users rely on clues about how much information a source can give them. Pirolli names these clues the "information scent." When users are drawn in many directions by the scent of information (they know that many websites have useful information), they have less incentive to stay on one site.

The goal of scholarly information seeking is to advance knowledge. This results in particularly complex information seeking tasks. Katriina Bystrom and Kalervo Jarvelin (1995) argue that as the complexity of a task increases, the complexity of the information needed for the task increases. They employed a combination of questionnaires about general habits and participant diaries about specific tasks to collect data for their study. They found that tasks that are more complex require several levels of information seeking. For more complex tasks, users first identify channels to help them find out how to find information for their tasks, and then they

access those sources. For simpler tasks, users can simply access known sources for information. Tasks that are more complex also require more sources than simpler tasks. Simpler tasks more often result in successful searching. If scholars are to produce innovative knowledge, then they must seek innovative resources, which may entail using complex search techniques requiring considerable effort.

Interpersonal Sources and Affect

Intrapersonal, Interpersonal, and Impersonal Sources

James Krikelas (1983) wrote that users' first source of information is their own mind. Users bring their past experiences and creativity to problems. When this proves insufficient to solve a problem, users look for answers externally. First, they look to people near at hand, next they look to experts on the topic, and then they look to literature on the topic. Krikelas sees information seeking as inseparable from information giving. Helping colleagues can be an investment to foster helpful relationships for future research needs or develop a scholar's critical eye for examining their own work. Krikelas hypothesized that the reason people tend to bypass librarians when visiting the library, despite a general preference for interpersonal sources over impersonal sources, is that people associate the library with impersonal sources, not interpersonal sources. Antonijevic and Cahoy (2014) found that most faculty did not see a role for the library in providing instructional support for researchers. I wondered whether scholars have the same preference for seeking information from people before literature that Krikelas describes, since they are accustomed to spending a lot of time with literature.

Prior to the digital revolution, scholars spent more time in libraries and had more opportunity to make connections in libraries. Now libraries are less often the sites of academic community at the faculty level, and academic community has changed with the change in venue.

Scholars meet yearly at disciplinary association meetings. They communicate or monitor one another online. The chance of a serendipitous encounter with a scholar from outside your discipline or outside academia has decreased. This might help explain the recent increasing push for interdisciplinarity.

Affective aspects of information seeking

Cognitive processes such as information seeking happen in concert with emotional processes. Carol Kuhlthau (2004) originated a theory of information behavior called the Information Search Process (ISP). She argued that previous theories of information behavior were focused on the "bibliographic paradigm," collecting and organizing information, not the user's problems and processes. She sought to incorporate thought processes and emotions into her theory of information behavior. She noticed that searching leads to continuous change in a user's thinking about a topic. She was influenced by John Dewey's arguments that learners begin with a state of doubt and learn by acting and reflecting on the consequences. Her work was primarily focused on high school and undergraduate students. She did not test her theory among academics.

Kuhlthau's Information Search Process consists of six phases: initiation, selection, exploration, formulation, collection, and presentation. Initiation is the recognition of an information need. With it comes uncertainty. Once users select a topic, their uncertainty diminishes. When users begin to explore information, they sometimes encounter information that conflicts with their prior knowledge or with other sources, which may increase their anxiety. The formulation stage involves evaluation of information encountered. At this stage, users make meaning of what they have found. Conflicting information is resolved through a personal construction of the topic and uncertainty decreases. Once the user has a focused topic, they feel

confident to collect a set of resources on it. Finally, the user documents and reports the information they have gathered. This stage is accompanied by satisfaction or disappointment with the project.

Kuhlthau divides the search process into three sections: actions, thoughts, and feelings. Kuhlthau argues that a feeling of uncertainty is necessary to start the process of information seeking. As users move through the search process, their thoughts become more focused, their interest increases, and their actions move from exploration to more focused searching. They begin by feeling confused or frustrated and find clarity and confidence as they identify a sense of direction. Users build confidence when they encounter information that corroborates what they already know. Although Kuhlthau's studies were done primarily among high school and undergraduate students, thoughts and feelings are important factors in shaping the information seeking behaviors of all information users. Though scholars have more familiarity with information seeking than young students, their work can also involve anxiety. The pressure to publish could affect their attitudes during information seeking.

Information avoidance

Like Kuhlthau, Elfreda Chatman studied the emotional components of information seeking. Chatman (1996) originated the idea of secrecy in information behavior. She argued that users sometimes make information decisions based on wanting to keep personal information private. Maintaining privacy is a way of preventing others from intruding on one's personal autonomy. This can lead information users to deceive others and sometimes prevents them from receiving useful information. A negative experience with help seeking can lead users to avoid it. Privacy can be important in scholarly work because authors may fear that another scholar will publish on a topic before they do. Scholars value their autonomy because scholarly publications

are expected to be unique and original. Some independence and self-confidence is necessary to succeed in academia.

Chatman puts forward the idea of insiders and outsiders to explain why individuals tend to trust others like themselves to understand them best. She advances the idea that social groups prefer to remain exclusive and thereby bar themselves from useful information that could be gained from other groups. Avoiding sharing needs is a way of not becoming burdensome, indebted, or responsible for reciprocating any help a colleague might provide. Sometimes avoidance of help seeking stems from the idea that those with the power to help do not care to help. Although avoiding help seeking is intended as an act of self-protection, it can have negative consequences. The information avoider may still appear weak in the eyes of their peers because they were not able to accomplish a task successfully and did not ask for help. Chatman also discusses the idea that help seeking may be avoided if it is not seen as a social norm. An individual may not ask for help from someone who can provide it because they do not see it as an appropriate request based on their social relationship with the other person. In the scholarly environment, academic silos may create insiders and outsiders. Well-established scholars may feel embarrassed to ask for help from a scholar with less experience and vice versa. As a result, scholars may ask someone to do work for them rather than ask to be taught new skills.

Chatman (1990) applied alienation theory to information seeking. She argued that competition and mistrust can prevent people from talking about their information needs. She focused her research on impoverished populations, not scholars. However, Chatman points out that information poverty is not necessarily correlated with economic poverty. Scholars may also sometimes avoid asking for help. They may feel that as highly educated individuals they ought not to need help. They may ask for help indirectly so as not to appear ignorant. They might also

feel that no one could help them because their topic is extremely specialized. They may avoid asking for help to protect their ideas before they have published them. In some fields, scholars have addressed this problem by posting their ideas online before they are formally published, in order to lay claim to ideas in writing before others do.

Chatman (1991) argues that impoverished populations have limited social circles and therefore lack access to some information channels that would help them. She argues that impoverished populations seek immediate gratification, which limits the kind of help they seek. Scholars also have a limited social circle and incentives to seek certain types of information over others. For example, there are more incentives to study prestigious settings and populations such as research universities and productive scholars than to study community colleges and adjunct instructors. Scholars have better access to these subjects and they can benefit from making connections with other researchers. It is easier to get participants for studies of successes than for studies of failures. Studying one's own institutional type or field can have career benefits. Other scholars in the same field are also the most likely interpersonal contacts for scholars to seek help from because they are easily accessible and highly informed about the field. These incentives to stay within the field are hurdles to accessing scholars outside the field who might be able to offer a different perspective.

Potential benefits from help-seeking from a fellow researcher on a research project include: access to data analysis software, access to a colleague's knowledge of a data analysis technique, access to funding sources, access to participants or data sets, or access to policy makers or practitioners who might implement a study's findings. Seeking help from a practitioner or policy maker can provide insight into problems, access to funding, access to participants, or a greater impact for the research. There are also potential benefits from seeking

help from a librarian. Researchers who have been working for a long time since their training may not be aware of all options they have for information seeking. Researchers who were educated at a different institution or in a different country might also be unaware of some resources available to them. It's also possible to learn about these resources from a fellow scholar.

Dispositions toward Problem Solving

Another information behavior theorist, Reijo Savolainen (1995) designed a model of everyday life information seeking to describe the social and cultural factors that shape information seeking behavior in non-work contexts. Savolainen adapted Bourdieu's idea of "habitus" into the idea of "way of life" in which people have consistent dispositions toward making choices between information sources. He named the dispositions people have toward making order of things "mastery of life". He outlined four attitudes towards mastery of life: 1) Optimistic-cognitive – Problems are seen as cognitive issues and individuals anticipate positive outcomes from information seeking, so they are systematic about it, 2) Pessimistic-cognitive – Problems are viewed as cognitive issues, but individuals are less optimistic about success and therefore less ambitious, 3) Defensive-affective – Individuals are optimistic about being able to solve problems, but sometimes avoid risky situations or situations in which they will be required to seek information. They are sometimes unrealistically hopeful, and 4) Pessimistic-affective – Individuals are not confident in problem solving because they feel failure is unavoidable and don't want to waste effort. An individual's values and attitudes, social capital, cultural capital, and material capital help shape their "way of life". Situational factors such as time and health also help shape their "way of life" at any one time. A scholar's impression of their own capabilities and the capabilities of their field can influence how ambitious their work is and

therefore shape the information they need for their work. Scholars may have different dispositions toward different research projects based on past successes or failures with each project.

Like Savolainen, Brenda Dervin also emphasizes that users information seeking is affected by the situation they are in at the time of the search. Dervin's (1998) theory of sense-making states that information seeking behavior is internal as well as external. Users' information needs depend on their prior knowledge and current situation. When they encounter a gap in their knowledge, they attempt to bridge it through information gathering and interpretation. The sense they make out of a topic depends on the way they approach the topic. Dervin's theory emphasizes the importance of the context of time and space in information seeking. An individual may approach a topic differently in a variety of situations or at different points in their lives. The personal and career needs of users change over time and the events going on in their lives and in their field focus their attention differently throughout their careers.

Tools for Information Seeking

The Influence of Tools

I now move to a discussion of information seeking theory related to the technological environment. Lev Vygotsky, a Russian psychologist, wrote in the 1920s about the "activity theory" of learning. He argued that the tools users use to access information alter their relationship to that information (Nardi, 1996). He said that their plans and ideas as well as the artifacts and devices they use affect their learning. The language and symbols used for learning affect learning. Conventions and norms surrounding the systems they use also affect their information behavior. Vygotsky's theory is important to consider in the digital age, when many of the tools for information seeking have changed and continue to change. Vygotsky also

introduced the idea of the zone of proximal development. This zone is the difference between a learner's capacity to learn independently and their capacity to learn with guidance. This can be an important concept when it comes to whether scholars learn a new concept from a colleague, or at a conference, or by reading independently.

The way a scholar searches impacts the results they get. A survey of researchers' e-journal use found that the ability to search by keywords expands the breadth of journals used by researchers by retrieving hits from titles they wouldn't otherwise use (Nicholas, Williams, Rowlands, & Jamali, 2010). Using keywords can limit the literature a scholar retrieves from a search by excluding synonyms, unless the scholar repeats the search using alternate terminology or makes use of controlled vocabulary systems that tie synonyms together. Controlled vocabulary can also be a good way to limit search results to exclude similarly named topics that are irrelevant. One issue with using Google Scholar is that it does not offer the subject headings provided by library databases.

The search engine a scholar uses affects the search results they receive. Some search engines personalize search results based on past browsing history and others do not. Google Scholar partially bases the order of hits on the publication, number of citations, and the author of articles (Nentwich & Konig, 2012). This is problematic because journal prestige and author prestige are not necessarily indicators of a quality article. Though it leads to prestigious citations that may sway reviewers and readers, it also perpetuates the Matthew affect at the expense of lesser-known articles. The language scholars use also affects the literature they find. Using a generic search tool such as Google Scholar rather than a database targeting a specific field could lead to an increased use of citations to outside disciplines. Scholars may be making an intentional choice to search using tools and terms from their field so they will find citations that will be

familiar to their reviewers and readers, or they may be unintentionally overlooking the advantages they might gain from citing authors outside their own field.

Library databases have limitations for access to scholarship as well. Many of them index only peer reviewed publications. While peer review is important to a scholar's tenure and promotion evaluations, it is not necessarily a good indicator of where the most relevant articles for a topic are to be found. Peer reviewed journals may publish only articles which adhere closely to established conventions while other sources may include more innovative work. Each database includes some publications and excludes others. Scholars should be aware of the choices they are making when they choose certain databases and not others. While the limiters in databases decrease the amount of information scholars must sift through by allowing them to select the age, disciplinary focus, or publication type of the literature they search for, they can also eliminate the serendipity of discovering literature from alternative disciplines and publication types. Serendipity can be useful in uncovering new connections and seeing from new perspectives.

Diffusion Theory

The tools scholars use for information seeking are influenced by how well information seeking tools have permeated their field. Rogers (2003) states that the rate at which innovations become popular over time among members of a given social system is dependent on: 1) the relative advantage of the innovation (prestige, convenience, cost, satisfaction), 2) its compatibility with the needs, values, and experiences of the users, 3) its complexity, 4) its trialability, and 5) its observability and how visible its results are. Sometimes convenience outweighs thoroughness and sometimes additional needs require scholars to inconvenience themselves. Zoellner, K., Hines, S., Keenan, T. and Samson, S. (2015) found that faculty

members tend to pass over physical books in favor of journal articles because of the convenience of accessing articles online through library databases. There is a danger that more relevant content is being passed over for the sake of convenience. Higher Education scholars may learn about search tools through one another, their students, the library's website, or librarians. How well acquainted a scholar is with an online tool may depend on how much exposure they have had to online environments.

Synthesis of Theories of Information Seeking

The theories I have outlined in this chapter lead to the conclusion that as scholars search for information, they face a multiplicity of cognitive and affective needs that evolve. These needs arise from previous knowledge, the values of the profession, the desire for career advancement, and the possibilities to advance the field. Some scholars may find time to monitor the field for information that may be useful later, but the growing problem of information overload means that many scholars may be relying on searching and asking for help at the time when their needs arise. Although an exhaustive investigation of the literature on a topic is the ideal, often the diminishing returns of more searching means that scholars must draw the line somewhere more manageable. Searching may also be limited by the search tools available, a scholar's knowledge of the search tools available, and their willingness to seek out help. Willingness to seek out help is influenced by a scholar's level of self-confidence and their social network. A scholar's self-confidence regarding an information seeking task may stem from their knowledge of search tools, knowledge of the field, and past successes or failures. Confidence can determine how ambitious a scholar is and whether they seek out help. It could also determine whether they seek help in the form of asking to be taught a new skill or help in the form of asking someone to

perform a task on their behalf. Figure 1 depicts the factors from information behavior theory that may influence the information seeking strategies of Higher Education scholars.

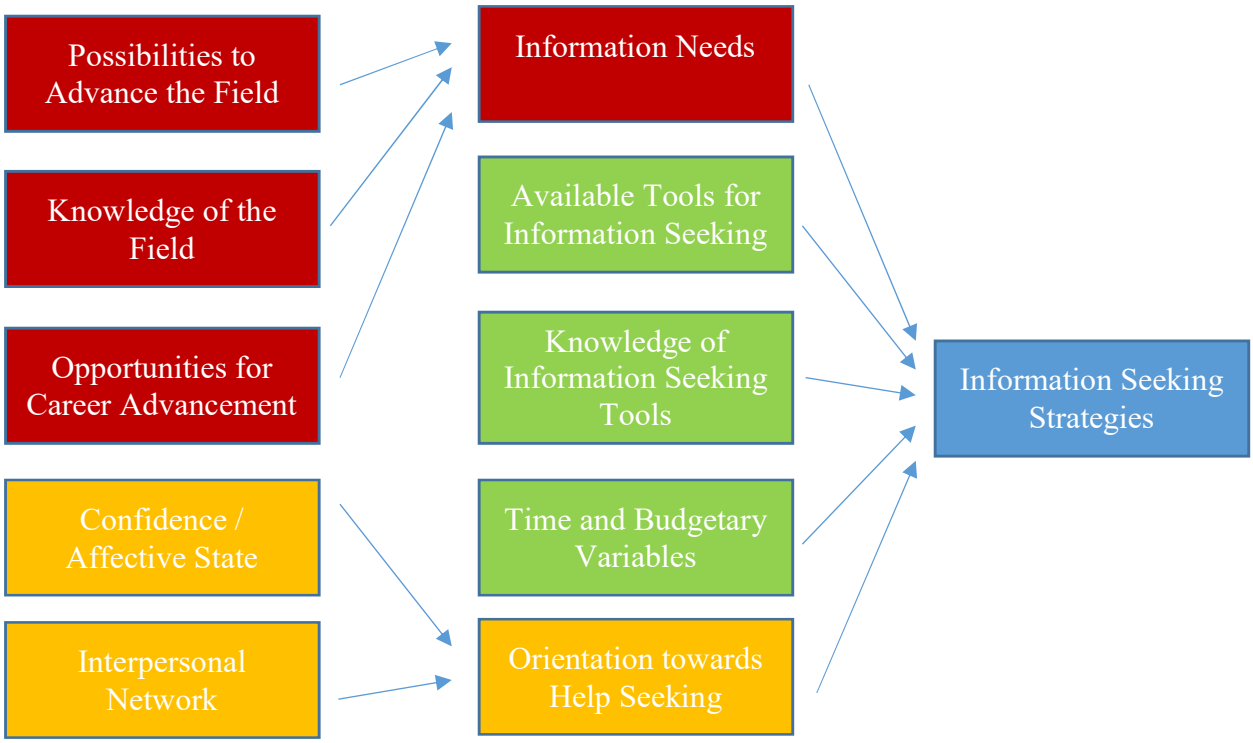

Figure 1. Factors that may contribute to the information seeking strategies of Higher Education scholars.

The figure above shows three sets factors that contribute to information seeking strategies, the tools available for information seeking, the scholar's emotional orientation toward seeking help from others, and the influence of the field of Higher Education in terms of what work will be rewarded. I will explore the role of these three sets of factors in my findings.

Chapter 4: Methods

For this study, I hoped to draw on the unique and creative ideas of my participants for improving information seeking through interviews. Interviews can allow participants to lead the conversation in a direction the researcher was not expecting. Interviews offer a chance for the researcher to ask follow up questions and delve into interesting trains of thought. They allow the researcher to ask the reasons for an individual's actions rather than merely observing them. Another advantage of interviews as a data collection method is that they require less effort on the part of the participants than diary entries. Less effort might mean increased participation. Interviews are not as intrusive as observation. Individuals might feel self-conscious about being observed during information seeking, but they will feel more in control of what they say during an interview.

One disadvantage of interviews is that they are much more time consuming for the researcher and the participants than surveys. The greater time commitment means that fewer participants can be included in a study involving interviews than in one relies on surveys. Perhaps the next study after identifying various methods for improving information seeking will be a survey to discover which methods are most popular among scholars. Another disadvantage of interviews is that they rely on participants' memories of their information practices. One way this can be countered is through asking participants to focus on their most recent information seeking activity rather than generalizing. Tenopir, et al. (2009) used this approach in their surveys about changes in scholarly article seeking and reading patterns due to the rise of electronic journals. This technique focuses discussion on a random instance of information seeking and can help participants recall specific activities rather than providing an idealized image of their information seeking. Flanagan (1954) suggests using a "critical incident

technique" in interviews to help participants recall their experiences accurately. Researchers using this technique ask participants to recall especially effective incidents and especially ineffective incidents with a phenomenon to stimulate memories of specific experiences rather than allow participants to generalize.

Data Collection

I planned to interview each of my participants for an hour to an hour and a half. The interviews gave me a chance to hear about their information seeking from their own perspectives. It allowed me to ask them about activities they don't immediately associate with information seeking. I recorded the interviews and took notes on my thoughts about what I heard, and the body language I observed. I took notes immediately after the interviews to record my thoughts about what I learned. After the interviews, I asked my participants to contact me if they had any additional thoughts to share. I asked each of my participants to think about a recent scholarly information seeking project, such as a scholarly article or conference presentation and walk me through the information seeking involved. I hoped this would help scholars have a frame of reference for discussing their information seeking behaviors.

I tried to interview people in their offices to be able to observe the presence and organization of books, journals, and papers in their workspaces. I thought doing the interviews in the space they performed their work would help them recall their research habits. Interviewing my participants in their offices was not always possible, so in some cases I had to interview people through video or audio conferencing. I found that the interviews I conducted with people in person, or at least with people I had previously met in person, flowed more easily and garnered richer stories than interviews I conducted over the phone or through Skype with people I had never met in person.

Some scholars might have felt self-conscious about reporting their information seeking behavior. Because I sought advice and feelings about information seeking from productive scholars, I don't think that my questions were particularly sensitive. I think faculty members are accustomed to thinking about how they do research and did not feel protective of their strategies. I asked my participants to give their consent to be interviewed regarding their information seeking, and promised them that their responses would not be connected to any identifying information in any publications that I produce from the study. I gave them permission to withdraw whenever they wished. All my participants are highly educated researchers and understand the process of giving consent to be interviewed for research.

Sample Selection

Although there is no definitive measure of success for Higher Education scholars, I was looking for productive scholars to include in my sample. I drew my sample from Higher Education faculty at doctoral degree granting institutions. The Association for the Study of Higher Education (ASHE) identifies 104 programs of Higher Education that grant PhD degrees. To identify scholars from programs with high research expectations, I focused on Carnegie level one institutions that are part of the Association of American Universities (AAU). Of the Carnegie level one institutions, 44 offer PhD degrees in Higher Education. Of the AAU institutions, 27 offer PhD degrees in Higher Education. Most of the scholars who study Higher Education at institutions with high research expectations hold doctoral degrees from other institutions with high research expectations. I limited my sample to scholars from Big Ten Academic Alliance institutions in the Midwest, which were most convenient for me to travel to. The institutions represented in my sample are those within convenient driving distances for me, namely, Michigan State University, University of Michigan, Indiana University, University of

Illinois, Ohio State University, and University of Wisconsin – Madison. These institutions hire individuals they believe have the capacity to be productive researchers.

I contacted 35 active Higher Education scholars from the six institutions I identified through email to request their participation in my study. I identified scholars from across the tenure track to explore differences based on career stage. Of the 35 scholars I contacted, 14 agreed to be interviewed. I interviewed these 14 scholars to hear about their effective information practices.

My participants included six women and eight men. My sample includes two scholars who identified themselves as having been raised outside the United States. One scholar was a clinical professor, two were assistant professors, two were associate professors, one had just received associate status, and the rest were full professors. My participants include Asians, an African American, a Latina, and Caucasians.

My sample included scholars whose H-indices as calculated by Scopus ranged between 3 for younger scholars up to 14 for prolific full professors. To place this in perspective, Ernest Pascarella, the most highly cited scholar in the field (Budd & Marginson, 2010) has a Scopus H-index of 31 and Arthur Chickering, who is also in the top 20 (Budd & Marginson, 2010) has a Scopus H-index of 4. Many of my participants have been cited hundreds of times. They have published in journals such as *Teacher's College Record*, *Educational Researcher, American Educational Research Journal, Harvard Educational Review, Journal of Higher Education*, *Research in Higher Education*, *Review of Higher Education*, and *Journal of College Student Development.* Several of the scholars also served on the editorial boards of several of these journals. Several of my participants have authored or edited books that are used in the instruction of graduate students in the field of Higher Education.

Interview Questions

I developed a set of interview questions I hoped would allow me to answer my research questions. Some of these questions were adapted from Newman and Sack's (2013b) "Researcher workflow interview study questionnaire". In addition to using these questions as a guide, I followed up on answers my participants gave me. The interview questions were meant to prompt conversation. I did not expect all my participants to answer every question.

General:

How do you begin a new research project? Why do you do it that way?

How do you find the articles and books you read for research? Why do you do it that way?

What factors do you consider when evaluating whether to use an article/book for your research?

What challenges do you face in finding information?

How do you decide which journals to read or skim?

How do you decide which databases or search engines to use?

Who do you go to for advice about research? Why these people?

What kind of advice do you ask for?

How do you choose where to publish?

How do you decide which literature to cite?

Specific to a piece of writing:

How did you begin this project? Why?

How did you find the works you cited? Why?

What helped or hindered the information seeking process?

Who was involved in your thinking about this project? Why?

How did you choose where to publish this work?

I wanted to include questions about database and search engine technologies, interpersonal information sources, and the influence of the publication landscape in Higher Education based on the themes I identified in my conceptual framework. I also made sure to ask about hindrances and helps, to identify "intervening variables" as described by Wilson's (1997) model of information seeking in the context of Higher Education research. The questions specific to one piece of writing helped me achieve the Critical Incident Technique approach.

Data Analysis

While collecting my interviews, I transcribed my interviews and then I reviewed the information I gathered for themes related to my theoretical framework. Once I finished data collection, I reexamined my data for themes. Like my discussion of the theoretical perspectives on information seeking, my findings are organized thematically into career, interpersonal, and environmental influences on information seeking. This set of three influences mirrors the personal, social, and environmental needs identified by Wilson (1981) as influencing information behavior. It also resembles the triad of intrapersonal, interpersonal, and impersonal resources identified by Krikelas (1983) as types of sources for information seeking. In my discussion of the findings, I looked for ways that Higher Education scholars can improve their information seeking behavior, and ways that administrators can encourage good information seeking practices. I also looked for ways academic libraries can support the information needs of Higher Education scholars. In addition to listening to the scholars about what would help them, I generated some ideas of my own regarding what they need based on the information seeking practices they described.

Limitations

My personal perspective shaped the questions I asked, the way I analyzed the data, and the conclusions I drew. I tend to be reserved. This may have made some of my interviewees less forthcoming than they might be for another researcher. If scholars were aware of my identity as a librarian, it might make them reluctant to share information habits they're not proud of. My tendency to try to find information for myself rather than seek help may have skewed my perspective on the help seeking habits of others.

My sample selection process naturally yielded participants most willing to aid a dissertating graduate student with her research. This may have created a sample of scholars who are especially dutiful toward graduate students and rising scholars. My request for participants may have been easiest to respond to by scholars who feel secure enough in their careers to make time for something they are not obligated to do. It may also have been most appealing to scholars who enjoy talking and social interaction. Scholars who felt very self-conscious about their information seeking habits may have chosen not to participate.

Introduction to Findings

The findings of this study address information seeking for career advancement as well as information seeking for Higher Education content. The findings are divided into three sections: the career influences faculty face when finding information, the interpersonal and emotional influences on faculty information seeking, and the technological environment they search for resources in. The discussion of each of these themes includes its implications for practice. Rather than leave the discussion of implications to a separate section at the end, I chose to incorporate the practical implications of the findings as I introduced them. According to Ranganathan's (1931) first law of library science, information is for use, so I wanted to focus attention on the utility of my findings. Like Higher Education, information science is a field in which scholarship is intended to be applied by practitioners.

This study is a snapshot in time, reflecting the current state of information seeking technology available to Higher Education scholars. Institutional access to resources and expectations for scholarship are also variable, so scholars' experiences may vary by institution. Though founded on the experiences of Higher Education scholars, this study's implications may extend to scholars across disciplines. Many of the behaviors common to Higher Education scholars are likely to hold true for other scholars.

The importance of career advancement opportunities in driving publication and co-authorship choices is clear. There are tradeoffs between fitting well into the existing publication landscape in a way that will advance your career, and advancing the field by extending your research to understudied areas. The role of one's level of experience in the field also shined through in the interviews I conducted. With increased time spent researching Higher Education, a scholar's subject expertise increases, as does their confidence and interpersonal network. One's

network exponentially expands one's expertise because one's colleagues' knowledge becomes part of one's own toolbox for research. At the beginning of a scholar's career, the tenure clock pushes scholars to prioritize work that will further their careers and later, the tenure clock of their students and colleagues perpetuates that pressure. However, tenure is not the enemy. Rather, it is an entrance fee of time a scholar must pay to claim mastery of their field before embarking on less restrictive scholarship topics. The competing demands of research, teaching, and personal responsibilities leave little time for exploration of search strategies.

Scholars of Higher Education may be acquainted with my findings through experience. The value of this study may come from considering what these findings imply about the needs of graduate students as they learn about the nature of faculty work, and for information professionals as they support faculty work. Current scholars may also learn something from the analysis of their peers.

Chapter 5: Field and Evaluation Influences on Information Needs

As noted in Wilson's (1997) model of information behavior, information seeking behavior varies with personal, social, and environmental needs. The research scholars conduct is not merely driven by the research needs of the field of Higher Education. It's also driven by the scholars' needs for career advancement. The sources considered most reliable by your tenure committee or your peers become sources you rely on to appeal to those audiences. As the Framework for Information Literacy for Higher Education argues, "Information in any format is produced to convey a message and is shared via a selected delivery method. The iterative processes of researching, creating, revising, and disseminating information vary, and the resulting product reflects these differences" (ACRL, 2015a). In other words, scholarly research changes with the delivery outlet it is produced for, which in turn depends on the delivery outlets most prized by evaluation processes. This chapter is divided into three sections: (1) the information seeking effects of the fragmented nature of Higher Education, (2) how the publication landscape affects information seeking tendencies, and (3) how the progression of faculty careers affects their information seeking.

Fragmentation of the Field

Krishnan (2009) lays out some common identifiers of disciplines such as having a shared object of study, having a unique body of specialist knowledge, having theories that organize the field's knowledge, using unique terminology, having unique research methods, being taught as a subject at universities, and having their own professional associations. Higher Education displays some signs of being a unified discipline, such as being offered as a program of study at many universities and having its own professional associations. However, in many ways Higher Education is fragmented. Higher Education scholars differ in their values. As Tight (2012) points

out, Higher Education is divided into a variety of subfields, such as student affairs, policy, administration, and instruction. It draws on a variety of methods. It borrows theories and terminology from other fields. As in other social sciences, knowledge of Higher Education does not build on itself serially, but accumulates additional parallel tracks.

The resources for finding literature in a discipline reflect the outlets for publication in the discipline. Because higher education faculty borrow methods and theories from a variety of disciplines, their publication habits may vary based on the disciplines they draw mostly heavily from. As Fry (2006) points out, intellectually pluralistic fields like education have difficulty designing appropriate digital scholarly communication outlets and therefore rely on the outlets established by other disciplines. In the humanities, monographs are a highly valued form of publication (Housewright, Schonfeld, & Wulfson, 2013). In the sciences, publishing in digital repositories such as arXiv or Public Library of Science is common (Housewright, Schonfeld, & Wulfson, 2013). A particular scholar of Higher Education may fall closer to either the humanities model or the sciences model based on their epistemology. Because departments of Higher Education must include a diverse set of faculty interests in order to educate students in a diverse set of topics and methods, individual departments must accommodate scholars with very different orientations toward searching and publication.

What is acceptable in one Higher Education journal may be unacceptable in another, and will probably not be read by scholars who do not follow the paradigms of that journal. One scholar whose work focuses on minority students told me he had been told, "This is the *Journal of American Indian Education*, so you don't have to make excuses for small ns [sample sizes] or implications for native people." This experience demonstrates that pieces that might not make it into a journal with wider circulation because of their small sample size or the limited breadth of

their appeal get placed in journals where they may not be read by those who aren't already aware of the importance of the topic. This means that education does not progress upward in a central trunk so much as it expands into many separate branches. Thomas Kuhn (1962) wrote, "Competition between segments of the scientific community is the only historical process that ever actually results in the rejection of one previously accepted theory or in the adoption of another" (p. 8). In Higher Education, there is little competition between segments of the community because the social sciences are open to a multiplicity of conceptual frameworks, methods, and truths. Journals with disparate perspectives are in active publication simultaneously. Scholars in fields that overlap with Education may never read journals that are important to Higher Education scholars. For example, one participant whose specialty is minority students told me he met a scholar in social psychology who studied college student friendships, but she had never heard of the *Journal of College Student Development,* which is a highly cited and respected journal in Higher Education. Though critiques from scholars like her might be very beneficial to Higher Education, they are unlikely to read the scholarly publications of the field. The lack of transference of information from education to other fields explains why education journals rank in the lowest third for average impact factor among the social sciences (Goodyear, et al., 2009).

The reading a scholar in Higher Education does must reflect the diversity of the field to advance it. One of my participants worried that the tendency to read and cite the top tier journals in Higher Education perpetuates repetitive scholarship. Rather than branch out to new ideas coming from a breadth of disciplines and emerging from people who may not be recognized by traditional metrics as contributing to knowledge, scholars sometimes remain stagnant in their perspective by referencing Higher Education literature without adding new ideas. The

terminology particular to the field can also limit the ability of education scholars to include other disciplines in their thinking unless they are persistent about discovering parallel terms for similar topics in other disciplines. As Slater (1988) found, terminology in education tends to be imprecise and inconsistent.

The more off the beaten path a research topic is, the more a scholar must stretch for information from other contexts to fields outside of Higher Education and literature. It's difficult to write about contexts that haven't been written about previously because there are no established conceptual frameworks. Credibility is established if others have cited a framework and critiques have been positive. If a topic is not long established, then there has not been time for these things to happen. It is to be expected that understudied topics will not have large literature bases to draw upon. Areas that are historically marginalized (like the study of community colleges) require more rigorous documentation than areas that are well established in the literature, to prove their legitimacy. Participant research is a type of information seeking, but to be published in a respectable journal, it must be backed up with secondary research. Although innovation is important to advance knowledge, novel topics are harder to publish than more established ones. One of my participants whose current research interests are in South African Higher Education highlighted this issue, saying, "The decision that you make is if you turn your research agenda around to study one of the sexy topics." He pointed out that conferences in the field accept papers based on their average scores, not on the qualitative feedback or the originality of the topic. Peer review depends on the approval of a handful of experts, so the disapproval of one individual makes an enormous difference. New topics get short shrift because they don't have a basis in the literature or the field of experts to build upon. Topics that don't have wide appeal may not be accepted even if they are important. Niche journals may continue

to proliferate and persist in Higher Education because scholars within Higher Education disagree about the standards for excellent research.

There is no crosscutting standard of peer review in a field that is divided into multiple paradigms. Even at journals that publish multiple subtopics within Higher Education, reviewers from the subtopic of the article are tapped to review it, rather than reviewers who may subscribe to a different paradigm. As mentioned above, the social sciences have many conceptual frameworks, methods, and perspectives and the field progresses by expanding into many separate branches. One of my participants who is a prolific full professor told me, "I try very hard not to shove square pegs into round holes because you'll generally lose those battles and even when you win them. It took so much time and effort to fight the battle that you just end up demoralized in victory." As my participant who specializes in South African Higher Education told me, certain topics are ranked lower by reviewers because of their generalizability, which makes the same topics get acceptance to journals and conferences repeatedly. Then again, some topics that are of low generalizability are accepted because they are novel. An article or proposal's likelihood for acceptance depends on how well the topic fits into the journal or conference landscape.

The tendency of scholars to become experts for a particular piece of the field, such as for a particular research method, can be both a strength and a weakness. On one hand, becoming the person to go to for a method reinforces your expertise in that method, but it can also lead you to spend less time developing other aspects of your scholarship. For instance, you may end up leaving your literature reviews primarily up to your research assistants and coauthors. Scholars should consider to what extent it's best to develop a particular strength in great depth or develop the scholarship skills they are weaker in. This might play into tenure evaluation. For instance, if

your body of scholarship consists mostly of contributing a particular section of articles, your department may view that as either an advantage for them or a disadvantage. It is certainly not possible for every scholar to be an expert at every method, but there is an advantage in being proficient with a variety of methods. Depending on whether your colleagues ask you to perform data analysis in their stead or to teach them your expertise, they may or may not develop their own knowledge of the method you are an expert in. Developing a specialty can be advantageous to a career by making one indispensable, but it might be useful to the field for the skills to be mastered by multiple scholars.

Examining Higher Education from an international perspective makes the issue of fragmentation in the field clear. The infrastructure for publication and information seeking in the developed world are considerably different from the typical process in the developing world. While some disciplines have long histories as international topics of scholarship, Higher Education is a fairly new subject of inquiry in many nations. As a result, finding Higher Education literature in those countries is a particular challenge. Even developed countries have differing perspectives on Higher Education literature. Wellington & Torgerson (2005) found that there were no shared titles among the top ranked publications in education by U.S. scholars and U.K. scholars.

Nicholas et al. (2014) found that scholars in the U.S. and the U.K. felt that some scholarship from developing countries is unreliable because their education systems are less developed. Several participants in my study also expressed this feeling. They worried that in developing countries scholars have limited access to paywalled scholarship. They also have only limited access to statistical software and training on it for research analysis. Despite worries such as these, Wolff, Schonfeld, and Rod (2016) found that when choosing publication outlets,

scholars ranked whether their work would be accessible to developing nations and be available for free lowest among the factors given for outlet choice (beneath topic area, circulation, reputation, lack of author fees, quick turnaround, selectivity, and continued accessibility over time).

Only limited scholarship from developing countries is digitized and accessible in the developed world. The South African expert in my sample told me,

> The infrastructure in South Africa for some of this is nonexistent, or it's just developing. So even getting access to that digitally is years behind where we are in the United States. And the other part of it is that for scholars in South Africa to be able to get access to databases and so forth in the U.S. is really difficult too.

Access for scholars and practitioners in developing countries can vary with the size of the institution they are affiliated with and with how urban or rural their location is. In addition to the lack of digitization of scholarship from developing countries, there are language barriers. One scholar of international Higher Education told me,

> From time to time, there is something that I know exists, but I don't go out and search Indonesian literature and ask for translation. That's just too cumbersome. It's hard to sort of figure out what's relevant and what's important and where the effort of translating it would be valuable and when not.

Higher Education scholars, like those in many other disciplines, don't know whether they're missing scholarship in other languages because often they can't speak those languages and lack the ability to check whether relevant scholarship in those languages exists. They can only search in English. Word of mouth becomes more important when items are not searchable online or being published in U.S. journals. Chaining from citations becomes important in countries where

scholarship is not indexed online. This can perpetuate the Matthew effect by increasing citations to well cited works and perpetuating the neglect of seldom cited works (Merton, 1968).

The study of Higher Education is not a standalone field in many developing countries. Rather, it is a subset of other fields. This means the obligation to read across disciplines is even higher when investigating international contexts than in the United States. This intensifies the barriers of language and access.

Publication Hierarchy

There are some journals nearly all scholars in Higher Education will recognize. There are certain journals most recognize as highly selective and others which most know to be less selective. Bray and Major (2011) surveyed U.S. Higher Education faculty to sort 113 Higher Education journals into four tiers. They identified six top tier journals, 14 second tier journals, and 30 third tier journals. Notably, five of six the top tier journals were general, while only one (*Journal of College Student Development*) focused on a specialty area. The second tier contained a few general journals, such as *Studies in Higher Education* and *Higher Education Quarterly*, but was primarily comprised of specialty journals such as *Community College Review* and *Journal of College Student Retention*. The third tier contained such journals as *NASPA Journal*, *Community College Journal of Research and Practice*, *NACADA Journal*, and *Journal of the Professoriate*. While most of the faculty members surveyed knew enough about the top tier journals to rank them, fewer were aware of the second and third tier journals. According to the authors, "The average journal was known enough to tier by only 65% of higher education program faculty" (Bray & Major, 2011, p. 492). Those who fall into a specialty associated with a particular journal may be more likely to rate that journal as prestigious than those who do not.

Nicholas et al. (2014) heard from U.S. participants that education journals are run by cliques. I think this feeling may stem from the issue that education journals outside the highest tier tend to exist in separate camps, not always communicating with one another. Even at the highest tier, journal editors have perspectives and preferences. My participants expressed that the specificity of scholarly journals inversely correlates to their prestige. The smaller the niche topic, the lower the prestige. Goodyear et al. (2009) found that education faculty tend to nominate journals related to their area of specialization as the most influential. Because Higher Education scholars do not agree on the most important sub-topic in the field, the more general a journal is, the higher evaluation committees esteem it. The more topics a journal covers, the more selective it needs to be about which articles on those topics it accepts. However, these journals may not be the most widely read by the audience a scholar hopes to target. An article may have a lesser impact on practice because it is placed in a publication with high prestige rather than in a publication read by people who care most about the topic read. Conversely, an excellent article in a journal specific to a subtopic may have less impact because evaluation committees more easily recognize journals with wider appeal. Though scholars in my study felt that all the work in top ranked journals is of high quality, they pointed out that not all high quality work is published in top ranked journals. This creates a wide set of journals Higher Education scholars may feel obligated to monitor, a practice which may be unmanageable. This may hold true for other applied social science fields as well.

Education researchers, as applied social scientists, feel a greater obligation to reach professionals outside of academia than scientists or humanists (Housewright, Schonfeld, & Wulfson, 2013). However, more social scientists value journal selectivity when it comes to publishing than humanists or scientists (Housewright, Schonfeld, & Wulfson, 2013). Higher

Education scholars sometimes have to choose between reaching the readers interested in their topic and publishing in the most advantageous outlet for career advancement. When Goodyear et al. (2009) surveyed U.S. education faculty at research institutions to identify which education journals had the greatest impact on scholarship and which had the greatest impact on practice, 40 journals appeared in both rankings, but 40 were unique to impact on practice and 46 were unique to impact on scholarship.

Although there is skepticism of the top tier journals because they aren't always accommodating of innovation, many scholars still have a strong appreciation for these journals. Several scholars in my study extolled the virtues of the reviews from top tier journals. One associate professor who has published in many top tier journals said,

> I love to get feedback. And that's really also why I like to submit my papers to top journals, because top journals, even if you get rejected, they provide really good feedback and then getting the feedback always makes your work better.

Several scholars agreed that the review feedback from less selective journals was less helpful than the review feedback from highly selective journals. Submitting an article to a top tier journal is a method of seeking high quality feedback. I wonder whether the reviewers are better for highly selective journals or if reviewers make an extra effort to provide quality feedback for highly selective journals.

Social scientists are generally suspicious of using citation counts as a measure of quality (Nicholas, 2014). Perhaps this is because social science relies on a variety of resource types (books as well as articles) which are not easily comparable. It may also be due to the difference in metrics common to qualitative and quantitative research, which are both of value to education scholars. The utility of citation counts for judging the reliability of literature varies with the type

of resource. Items like book chapters that need to be loaned between libraries may get fewer citations because people just don't bother to take the time and energy required to obtain them. One associate professor described an experience looking for a book chapter, saying,

> My difficulty was not necessarily securing the book, but judging whether or not this was just some random article that just is not cited very often because it's crummy, or if it's an article that's not cited very often because people just don't know about it. And I found out it's probably the latter. I think it's probably a good article.

In this example, the chapter appears to be of low value because it is difficult to obtain and so it continues to be difficult to obtain because there is so little demand for it. The scholar's reference to the chapter as an "article" reflects the way scholars expect chapters in edited volumes to be accessible in the same manner as journal articles.

The type or amount of literature a scholar needs for a piece changes with its guidelines. Information seeking for scholarly writing is not all equally limited by publication expectations. For example, one of my participants told me that for a book, a scholar can include as many references as they need, but for an article, there is a word limit, which may mean a scholar needs to cite summarizing articles. This may mean citing meta-analyses rather than analyzing individual studies themselves. Books also require more reliance on existing literature because they tend to be topical syntheses and are less likely to be a place to report on empirical evidence. Several of my participants told me that there is more room to include unconventional literature in a syllabus than in a scholarly article. A faculty member can assign as many optional readings as they like in a course, and they can assign mediocre papers on interesting topics because they have time to explain that the works are not of the highest quality, but address an issue of importance.

Scholars sometimes make decisions about what to trust or where to publish based on whether an outlet is open access. Scholars in my study, like those in that of Nicholas, et al. (2014), had varying levels of knowledge of open access formats. This is indicative of the fragmented nature of the field. Although faculty work and scholarly communication are part of the study of higher education, important knowledge of open access publishing is not widespread among accomplished scholars in the field. Regardless of what they knew about open access, most scholars in my study expressed that increased exposure for their work would improve it and serve the field better. One expressed that peer reviewed publications in Higher Education that require authors to pay to make their work open access have so few submissions because of the expense, that they are forced to accept poorer quality work. Another worried that although open access could give policy makers and practitioners access to their work, the complex nature of academic writing would prohibit them from reading or making use of that work. Scholarly work can be too long and complicated for non-experts to bother with, even if they can easily obtain it.

When asked whether she saw value in making her work open access, one of my participants who plans to retire soon told me,

> I understand about open access and why that looks more and more attractive, but it's just not something that I have practiced. Our librarian is a national leader in the open access movement and I think it's a good thing. It's just much harder to get published now than it was when I first got started, so I just tended to use the contacts that I had, and that usually means that they hold the copyright. So I just haven't put anything in to the open access arena.

Despite being aware of some of the benefits to open access publication, she follows her long-established habits, working with the publisher she has established a relationship with over the years of her career.

Career Advancement

Factoring in to the information needs of scholars of Higher Education are the norms of the field established by departmental, institutional, and publisher expectations. Research topics may be chosen for the likelihood of their being published rather than their utility to the field. Wolff, Rod, and Schonfeld (2016) found that 52% of the scholars they surveyed agree with the statement "I shape my research outputs and publication choices to match the criteria I perceive for success in tenure and promotion processes" (p.30). Social scientists agreed more than other disciplines, and women agreed more than men. Women may feel this pressure more than men may because there are more barriers to their career advancement. One of my most prolific and highly cited participants told me she only takes on educational evaluation projects where she can see the potential to answer research questions from the project that will lead to scholarly publications. She said,

> You can do lots of evaluation work where you're paid for hire, but you're not going to be able to publish anything from that, and that's a strategy, but it's not one that I've particularly found helpful in my career.

Though evaluating educational programs may have utility to the practice of Higher Education, it is not a route to scholarly prestige.

Publishing in well-regarded journals is a part of building a favorable reputation for tenure and promotion. However, there is disagreement between education faculty about which journals have the highest scholarly impact. One participant told me,

> I've tended to publish a lot in AERA journals because here, tenure and promotion is really driven by the entire school, not by the unit. So the things that are top Higher Education journals definitely get respect around the school, but it's in kind of an abstract respect, whereas they know and understand the AERA journals, so that when you publish in them, you don't have to explain to them that this is a selective journal.

Curiously, when speaking with two scholars who both worked at one university, they conveyed different ideas of how they would be evaluated. One scholar thought publishing in general education journals was better for evaluation purposes, while another thought publishing in journals specific to Higher Education was better. However, both agreed that publishing in journals more specific than that was less desirable for evaluation. This knowledge of the differential prestige of journals is a type of information literacy that students of Higher Education may not be aware of until they become faculty members.

The publication landscape can slow the career progress of scholars whose work does not fit neatly into it. Because scholarly work often moves progressively from conference presentations to journal publications, scholars whose work fits better in the conference landscape than the journal landscape have to reposition papers from the conference presentation stage for the focus of a journal. This is perhaps only if a scholar is not aiming for the top tier, where a wide variety of topics with broad appeal are accepted. For example, one scholar of South African Higher Education stated, "CIES [Comparative and International Education Society] doesn't really have a journal, so you can go there and present, but you can't turn it around for a journal, like you turn it around for the ASHE journal." This may mean that comparative and international education scholars have extra obstacles to overcome.

In addition to content, writing styles may also reflect what appeals most to reviewers and editors of academic journals, rather than practitioners. One of my participants who is also a journal editor pointed out that good conceptual work may be rejected from high profile journals because the writing style requires too much of an investment of work to conform to the journal. Writing style preferences are reflective of disciplinary and genre norms and therefore may be widely varied in a field in which there are multiple paradigms. As a result, Higher Education scholars may seek resources to learn the writing norms of a particular outlet in addition to content conveyed by those resources.

According to my participants, tenure frees scholars somewhat from the pressure to bend to the topical and methodological trends of the field, because scholars are less worried about the prestige of the journals they publish in after they have achieved tenure, and less worried about the speed at which their publication record grows. Housewright, Schonfeld, and Wulfson (2013) found that the percentage of faculty who consider the academic reward system in choosing their research topic decreases from the assistant stage to the associate stage and again from the associate stage to the full professor stage. Faculty career stage is a factor influencing information seeking behavior likely to be held in common across disciplines. At the beginning of a career, scholars are new to the field and have not yet accumulated the deep knowledge of the field and professional connections they will develop later in their careers. They do not yet have the confidence in their work that comes with years of experience and the protection of tenure. They are still outsiders to the field.

While graduate students are highly dependent on their mentors, once scholars become faculty members they enter an isolated period of their careers. Explanations for this include the expectation for single authored pieces, publishing off one's dissertation, and the lack of an

established network. Scholars in my study nearer to the beginning of their careers had close relationships with the literature on their topics rather than relying on prior experience in the field or on their colleagues. They spoke about literature by particular scholars as if those scholars were their mentors. My findings bear out Line's (1971) observation that senior researchers are more likely to delegate their literature research than newer researchers are.

At the beginning of their careers, faculty need a lot of new information to familiarize themselves with their new responsibilities. One associate professor described his experience being welcomed to the university by a librarian as a new assistant professor,

> When I was doing my PhD work, in my training, I don't know how well socialized I was into what it would be like to become a faculty member. Actually, I do know how socialized I was. I wasn't socialized. So, I had no clue what it was going to be like to become a faculty member. And so, not surprisingly, I never had taught a course before, never had created a syllabus or anything like that. I didn't really know much about how to be a scholar. And then I found myself as an assistant professor. I applied for a couple positions, became an assistant professor, and I found a resource on campus. Well, I guess they found me. The university library had a person there.

He was pleased with his experience with this librarian, who helped him with his research as well as his teaching and familiarized him with the ways in which librarians can support scholars.

Once scholars settle into their careers and accumulate knowledge about their fields, they still need to keep abreast of new developments in the field. According to the scholars in my study, knowledge about new topics comes from conference sessions, review assignments, and dissertation committees. Faculty member teaching and service duties lead to new knowledge. As the amount of material to keep up with expands and they have less time for monitoring the

journals in their field, scholars may need to rely more on learning from their other duties. The other aspects of their jobs have to serve double duty. They rely more on what Wilson (1997) referred to as "passive search". For example, the journals they monitor may be the journals they serve on the editorial boards for. Several of my participants mentioned becoming familiar with work they used later, through being asked to review it.

Scholars in my study reported that tenure expectations drove many of their decisions about what to study and whether to work with coauthors. Several participants painted a picture of the process of earning tenure as an extended educational gauntlet that had to be completed before they were truly experts free to explore their own intellectual callings. The earning of a doctorate degree is not sufficient proof of expertise, and scholars do not view themselves as fully matured until they have achieved tenure or even later. One assistant professor described one of her goals once she has achieved tenure,

> It's hard to feel like you can read deeply and broadly and with the kind of love I would like to be able to give it, when you have this timeline, right? So everything becomes very instrumental. You're like, 'I need to check this book out because I need to see how they talk about this framework, see if I think it's going to work'. I don't want to do that. I want to read something to read it. I'm hoping that I have maybe more of that.

The same scholar mentioned feeling limited in her freedom to choose readings for classes because she was a new faculty member and did not want to alienate her colleagues by altering their syllabi. She also felt anxiety about her syllabi because she had objections from students about her reading assignments when she taught in a conservative region of the country. This was in contrast to several more advanced faculty members who said they felt freer in assigning

unconventional literature to students than they would in referencing unconventional pieces in their published scholarship.

Tenure gives scholars the time to pursue new interests and projects that are not a quick route to publication and career advancement. The ticking of the tenure clock can prevent scholars from slow, deep thinking until they have achieved tenure. One full professor said he felt that tenure norms discourage creativity until later in careers, but said that is because it's necessary to learn during the beginning of your career to be able to generate innovative concepts later. He felt that tenure evaluation privileges empirical work rather than the conceptual advancements needed to propel the field forward. He said, "Maybe you need to have gone through the rigors of writing in a traditional vein for many years before you really know enough, have enough background, understanding, to provide something new and base it on experience". Post tenure is a time when scholars feel they can focus on making an impact on the field rather than establishing themselves in the field. For example, one full professor said of his current research topic,

> I think some of my colleagues might have thought: is this a good thing to focus your attention on? It's like many non-mainstream issues. I think probably people in gendered research, research focused on minority populations, and things of that sort at some point have probably encountered similar questions or skepticism about whether this is a good thing to invest your time in. So it's much safer, I think, to do it in my stage in life, but I think it's important.

Later in a career, scholars can explore issues that are important, regardless of their prestige. For example, one scholar who tries to publish where his work will best reach audiences it will impact told me,

> I'm not in a point in my career where I need another journal article or another citation in order to get tenure and promotion. I've got full professor, so I think one of the privileges I enjoy is that I get to write and submit where I want and I'm not worried about how it's going to count on my annual evaluation. I probably would not have made, I did make these decisions pre-tenure, but I did not make many of them. Because I knew what the standards were.

The freedom of tenure may also lead scholars to publish in outlets and present at conferences that target practitioners rather than other scholars, to reach people who can create an impact. A focus on practitioner publications such as *Change* magazine can mean less focus on theoretical frameworks and resources in favor of more discussion of practical implications. The long wait before the freedom of tenure comes can shape a scholar and their reputation so they become known for work that does not match their eventual goals.

Several scholars in my study worried about stagnation in the field of Higher Education. One said that although there are mountains of information being published, "If you look at the depth of information, there is actually very little information overload when it comes to paradigmatic diversity. Much of what I read is the same." However, he believes that "Foundational progress and foundational thinking is slow. We need to kind of really explore one framework before we sort of agree that something else is needed." He noted that scholars need to perform a lot of study before they can advance the field's paradigms.

When asked how he chooses his writing topics, one scholar told me it changes with the role he's in and the institution he's at, for example, the strength of the law, business, health, and other programs at an institution may determine the resources most conveniently at one's disposal for studying a particular education problem. This is backed up by Falciani-White (2016) who

found that geographical location can impact the research scholars can do and the networks they can form over their careers. An appointment to a center at one's institution can also steer the direction of one's research. The experiences graduate students and new faculty bring with them can drive the topic choices a faculty member makes. Over the years, you develop expertise, a reputation, and a library of literature, which makes it easier for you to continue to study similar or related topics to those you have examined in the past. Several of my participants described starting grant funded projects with literature they had been directed to by the funding body that was supporting their work. Working on a project with guidelines from someone else such as a grantor or a collaborator can provide a new perspective a scholar may not have considered on their own. The resources you are most aware of influence the research questions you choose to pursue.

Transitioning from one institution to another can complicate a scholar's growth. The individuals one meets will be different. It will be more difficult to chat with people who were once easily accessible. However, there will be new scholars who become additions to your network. One's literature base may also be interrupted by a move. Libraries at different institutions have different access to resources. One young scholar I spoke to was dismayed to find that when she made the transition from one university to another, her reference library was lost because it was tied to her institutional email address. This might have been prevented if she had used a personal email account rather than her institutional email account for the service. Other changes that come with a move from one institution to another are not easily dealt with. New relationships must be cultivated. Scholars must adjust to a new online library system. Scholars must learn the dynamics of a new department.

Several scholars in my study expressed a goal of writing a book once they had achieved tenure. They seemed to reach a point in their careers at which they wanted to write about a bigger picture than was possible in a journal article. One associate professor described the tradeoffs she faced in thinking of writing a book,

> I think this kind of book may cost 10 articles or 12 articles. I think that much in terms of time. So if you compare one book with 12 articles at the top journals, even if you publish the book from the top publisher, you have to compare, top publisher for books to top publisher for 10 articles in the top journals. From the evaluation standpoint, I think articles may be counted more, 10 articles and one book. But personally, as a scholar, I think I may feel I accomplished something more than in just writing 10 articles. So it's not really about department recognition actually in this sense, I think it's time for me to work on this kind of project.

She tied her desire to write a more comprehensive piece of scholarship to her maturation as a scholar, saying,

> Because before I was a junior scholar and I did not have a big picture of the project, I just did [articles] one by one, so I did not know how the project would go, but for this project, I can see this project organized in a big frame so this can be a really good project for a book.

One assistant professor expressed a wish to begin a blog for a popular audience once she has tenure. Perhaps this reflects a generational difference in goals for faculty members from different age groups, though like many of her more senior colleagues, she also hopes to write a book once she has achieved tenure. Both goals are less advantageous in the evaluation process than writing

scholarly articles. Rather than writing to advance their careers, these scholars portray a career as an academic as an information seeking endeavor which enables this kind of intellectual project.

Though tenure is important to scholars, thinking of the tenure process as the guiding force for their career decisions is too simplistic. One full professor said of the transition in his research focus,

> It was from the freedom of being tenured, but it's more complex than that. I think some of it was about hitting a certain point in my career and wanting to do something different. It was having the year sabbatical that you get, that I got, I should say, after I got tenure, which gave me the opportunity to study something in depth that I hadn't really studied before. Without that year to work on it, I don't know if I could have accomplished what I needed to do to make the shift.

Several scholars told me that although tenure was the symbolic representation of their maturity in the field, that maturity had really come from years of immersion in the work.

Tenopir, King, Spencer, and Wu (2009) found that older faculty members do more browsing tables of contents of journals and less searching for scholarly articles than younger faculty members. This suggests that older faculty members are relying more on their knowledge of the literature or help from colleagues for specific information, and are reading mostly to stay up to date with new developments in the field. The scholars in my study who had tenure for a number of years did more collaborative projects than new scholars. They had graduate students who could help with their work. Scholars with the longest careers relied on prior knowledge of the field and literature. They relied on literature they had compiled throughout their careers. They were willing to take on topics on which little had yet been written. This was also true of

scholars who were not on the tenure track, but held a clinical appointment or position involving assessment and decision-making. One such scholar told me

> I do think that is part of what goes on later in one's career. You stop consulting literatures. It's just the literatures aren't addressing some of the more pressing problems that need a response, and if we wait for somebody to sort out the whole Flint lead government failure, racism, lack of communication kind of thing, in a scholarly journal, it will be three years from now.

Once scholars establish themselves as masters of their areas of research, they can alter their field by adding new tributaries to the research stream rather than moving with the established flow. This is the ultimate goal of scholarly research.

In contrast to the freedom anticipated by some of the younger scholars in my study, several of the accomplished tenured scholars still felt constrained by commitments to junior colleagues. For instance, one highly accomplished scholar said,

> I still feel pressure. I always feel pressure. And I don't know that my work looks different. And in part, it doesn't look different because it has to serve graduate students who need to publish certain kinds of work. So there's what I can do with my work and then there's the level of commitment that I need to do to support students.

Although tenure means the pressure to be single author or first author decreases, the pressure to publish frequently and in prestigious journals continues.

In pure academic disciplines, the focus of scholarship is on discovering the way the world works and describing it. In applied fields like Higher Education, there is an additional call to propose solutions for issues as well as identifying them. One scholar who has written and reviewed grants on Higher Education topics told me,

> There's a lot of information in Higher Ed. and scholarly fields that elaborate problems. There's very little information, or relatively little, about how to construct an intervention, that will be effective, and so, there's this terrible mismatch in most grant proposals that the 'need statement', if you will, is this long [holding his arms wide] and the intervention is this wide [pinching his fingers close together].

Evidence of a problem in Higher Education is relatively easy to find compared with proposed solutions to problems, which require more original thinking.

Discussion of Field and Evaluation Influences

The publication requirements of journals, conferences, and tenure are not reflective of all the needs for research and improvements in higher education. Scholars publish work that advances their careers, but this doesn't include all the work that could enhance the body of knowledge about Higher Education. Events in society and changes in educational policy which have a great impact on Higher Education do not necessarily get addressed by scholarship in the field. Keeping up with the scholarly literature in Higher Education will not keep one abreast of all the developments in Higher Education. As T.D. Wilson (1997) observes, individuals' information needs arise from their personal dispositions interacting with their social role and their environment. As Wilson writes, needs arise from a variety of motivations including personal curiosity, personal values, social utility, and cultural preferences for individualism or collectivism. In Higher Education scholarship, while an individual's personal feelings of inquisitiveness or duty may compel them to go beyond the requirements of their professional commitments, my participants indicated that institutions that employ these faculty and outlets that publish them are not rewarding them for addressing the needs of Higher Education, but for increasing their scholarly impact. Going beyond the requirements of their employment

introduces risk that their career progress may be diminished. In keeping with the Principle of Least Effort, less effort at inquiry occurs when there are fewer rewards and more risks to that inquiry.

While reading within the field of Higher Education is necessary to stay abreast of the field, original ideas for research come from thinking beyond the limits of the existing literature on Higher Education. As Bradford (1976) pointed out, the core journals in a topic contain many more relevant articles to that topic than journals that are more peripheral to the topic. However, examining the more peripheral sources can provide more novelty than examining core journals. In light of the segmented nature of scholarship, it's important for Higher Education scholars to assign descriptive keywords and titles to their publications to facilitate access to their work by scholars outside their area of research who are not monitoring Higher Education journals. Since may be impossible to monitor all the proliferating sub-topics, it's important for librarians, authors, and publishers to title and assign keywords to publications in a way that will allow scholars from disparate sub-fields to find one another's work. Librarians may have a role to play in educating scholars about how to assign keywords to their work to encourage access to it. Clear keywords are also an important factor in facilitating communication across disciplines to and from fields that education draws on. Another strategy to improve access to relevant publications is implementing a tagging feature in the library's catalog to allow scholars to add their own subject headings to records. The work of Higher Education scholars will be improved upon by dialog with scholars who identify with diverse disciplinary perspectives. If scholars assume that an indexing database such as Web of Science indexes all the work that may be relevant to them, they may miss journals it does not cover. Journals in Higher Education affiliate themselves with particular methodological and conceptual perspectives. It is useful for scholars to be aware of

which journals align with which paradigms, both to keep up to date with journals that match one's proclivities and to ensure that one is exposing oneself to perspectives beyond those proclivities.

Because of the fragmentation of Higher Education, it would make sense for some scholars to work with subject librarians whose specialties are in other fields, such as sociology, psychology, or economics. In addition, database recommendations for education scholars may need to be drawn from these fields. Individual scholars may also need to move from one subject librarian to another based on individual research projects. As Bates (1989) points out, information needs shift and evolve over time. Each research project brings up new ideas and creates new information needs as it answers old ones.

To advance scholarship and reap the benefits of global diversity we need to support education and digitization abroad. U.S. scholars need to be able to access scholarship written in developing countries. Scholars abroad need to be able to access our literature to cite it in their work. The field of Higher Education in developing countries needs to be more developed. Their scholarship needs support. If we think of the advancement of scholarship as a collective enterprise based on collaborative work, we should recognize and strive to minimize imbalances in access with our colleagues abroad. It is particularly important that the work of scholars who study international contexts be accessible in those countries because that is likely where it will have the greatest impact. We may have the most to learn from cultures different from our own. Open access to scholarship or more sliding cost scales based on reasonable costs for the purchasing country rather than the selling country could be beneficial. International copyright agreements with flexibility for developing countries could also be helpful. Though open access is

important, it raises questions about how to finance publishing. Article processing fees can be prohibitively expensive for some scholars in developing countries.

Journal guidelines can be limiting. Sometimes scholars need more or less space to express what they need to say in the best way possible. Online publishing could enable journals to allow more flexibility in the requirements for article length. However, the limits of space for articles in journals also reflect the needs of the field. Scholars do not often have the time to devote to reading an entire book on a topic. Word limits force scholars to say what they need to say in a space that is short enough to be consumed by other scholars readily.

Open access publication outlets would allow for increased accessibility of scholarly work, which could decrease the disadvantages of publishing in the highest prestige journals, but it would not eliminate them because the writing style would still not lend itself to wide consumption. Policies from departments and universities requiring open access publication may be necessary to convince scholars to make their publications accessible to readers in countries or institutions with fewer resources, because scholars will not trust open access publications while there are few submissions to them in their field. Scholars are not always aware that open access can incorporate peer review. It is useful for librarians to help faculty navigate the complicated questions of whether to publish in open access outlets. Librarians have knowledge about copyright issues and citation impact implications related to open access publishing that can be helpful to scholars as they make publishing decisions. Available open access options in Higher Education are currently either of dubious legality, not prestigious enough to contribute to a scholars' evaluation package, or prohibitively expensive for a scholar to pay for without support. Education research does not always have the same kind of grant support that research in some other disciplines, such as the hard sciences, has. Even writing financial support into a grant may

be implausible because grant amounts in education tend to be smaller and grantors in education may not be familiar with the practice of asking for financial support to make a publication open access. The costs of legally making publications open access may be particularly burdensome at institutions that are not research one institutions or for scholars who are near the beginning of their careers. This creates limits on the work that is freely accessible. While encouraging open access publication through tenure seems like a good idea, departments endanger their prestige and rankings when they fall out of line with the norms of similar departments at other institutions. Any adjustments must be made with these practical considerations in mind.

This study highlights the importance of tenure in allowing scholars to pursue important topics whether they are prestigious or not. Because of the disjointed nature of education scholarship, it may be advisable for evaluation to occur in the department rather than at the college level, so evaluators have more familiarity with the journals scholars are publishing in. That level of change may be implausible, so scholars may need to continue to consider how their publication choices will be viewed at the college and university levels. It's also important for departments and colleges to make it clear to all their scholars what their expectations are. While it is not ideal for scholars to make all their research decisions based on their tenure expectations, it is important for them to be aware of how their research decisions make affect their prospects for tenure and promotion. Tenure expectations shape the value scholars will perceive in different types of work.

Aspiring scholars should understand the process that is ahead of them. Patience and compromise may be needed to get to the stage of academia they may aspire to. Research topics that attract grant funding and competitive students will be of greatest benefit to one's career. In order to succeed, one must either excel according to the established norms of the field or make a

change to the field, which can be a challenging prospect for a new scholar. Long-term career goals may be best accomplished by earning the protection of tenure first. Scholars must strike a balance between keeping themselves motivated by preparing themselves with the expertise they want to build and engaging in work that will further their careers. Programs that educate scholars to become Higher Education faculty should help students understand the nature of the work they are preparing for.

Scholars at different points in their careers have different information needs. Newer scholars are likely to be focused on publishing for tenure and orienting themselves in the field. More experienced scholars are more free to experiment and are more likely to need information about newer search tools. Tenure is a valuable protection for established faculty members to stretch the boundaries of research, but it does not entirely free scholars to pursue research they are interested in. Information seeking for faculty is heavily influenced by their attitudes toward the involvement of rising scholars. When librarians and search interface designers are thinking about serving scholars of education, they should be thinking about collaborative projects and facilitating the needs of new scholars in the field who may be the most reliant on search rather than prior knowledge of literature or their scholarly network. These scholars may be assigned the task of gathering information for their more advanced colleagues.

It is important for subject librarians to understand the pressures scholars face for tenure and evaluation, because these pressures shape their information needs and information seeking behaviors. For example, when trying to build relationships with faculty, librarians should reach out to scholars who are new to the job or new to the institution, because these scholars may feel the most like outsiders, and be most in need of relationships to make them feel like a part of their institution. Established scholars also have the opportunity to make newcomers feel included.

Though helping to build the careers of newcomers takes time that a scholar might devote to other pursuits, it can also be a means of hearing fresh perspectives and gaining excellent colleagues. Librarians can focus their outreach projects for veteran faculty on new services which faculty may not have kept up with, to minimize demands on their time.

Clearly, the pressures for frequent and prestigious publication will be different at research-focused universities than it would be for faculty members at other institutional types that may place a greater emphasis on teaching and less emphasis on research. Collaborations with individuals at more teaching focused institutions may result in some sacrifices of credit by the faculty member at the institution where publication credit is emphasized less. Similarly, the pressures for publication are different for non-tenure track faculty members at research institutions. Faculty whose primary responsibilities lie in instruction will have different needs than those whose primary responsibilities lie in research. Faculty whose focus is research may be more interested in questions of data storage, data visualization, grant writing, digital publishing, and scholarly impact. Faculty whose focus is teaching may be more interested in questions of instructional design and curriculum development.

Chapter 6: Interpersonal Sources and Affect

The Framework for Information Literacy for Higher Education argues, "Information searching is a contextualized, complex experience that affects, and is affected by, the cognitive, affective, and social dimensions of the searcher." (ACRL, 2015a). Wilson (1981) and Kuhlthau (2004) both highlight the importance of affect in information seeking. Kuhlthau, in particular, highlights the role that successful and unsuccessful experiences can play in a user's subsequent confidence and perseverance in searching. Interpersonal information seeking experiences are particularly affective ones. Krikelas (1983) highlights the importance of interpersonal sources of information. He argues that people prefer to use interpersonal sources of information before impersonal sources. However, even published scholarship is not an impersonal source of information. Every article and book has authors behind it with particular perspectives and interpretations of the world.

Interpersonal Sources of Information

Although Wolff, Rod and Schonfeld (2016) found that only 2% of scholars begin their search for articles by asking a colleague, this is not an accurate portrayal of the importance of interpersonal communication in scholarly information gathering, because there is more to finding resources than searching. Many of the resources that ultimately contribute to scholarly work are items that the writer knew about before writing the piece and did not need to search for. Watkinson, et al. (2016) found that well-established scholars with large well-connected networks often know about research before it is published. My study indicates that as scholars progress in their careers, it is not just their knowledge of the literature that increases. It is also their knowledge of the interpersonal landscape of the field. There is no need for them to search for books on their subjects, because the word of mouth network moves faster than the book

publication process, so they are aware of pending publications before they happen. Sharing literature becomes a means of relationship building and socializing helps to motivate a scholar to keep up with the literature.

Though information seeking skills are vital to faculty work, only a few of the faculty members I spoke to reported teaching their doctoral students these skills. Most assumed their students already knew how to find information effectively without instruction. Most reported having learned information seeking skills on their own, without instruction from their professors in graduate school. Since information seeking tools have changed a great deal in the last couple of decades, such instruction would be out of date, but would at least highlight the importance of critical thinking about how and where to look for information.

While Line (1971) observed that conferences were not of central importance in social science research, my participants placed a high value on conferences. Housewright, Schonfeld, & Wulfson (2013) found that conferences were reported to be of importance for information seeking to more social scientists than humanists or scientists. Although Higher Education scholars might not cite conference proceedings in their publications, my participants told me that conferences help them stay current in the field and maintain professional connections. The thoughts of a colleague may play a role in one's conceptualization of a project even if they are never cited. My participants reported that networking and information gathering takes place at meetings that consist mostly of non-academics as well. There is a lot academics can learn at meetings of policy makers or practitioners. Weller (2011) found in a survey that scholars reported that participating in a conference virtually was between 25 and 50% as effective as participating in person with regard to networking, 75% as effective with regard to accessing content, and 0 to 25% as effective with regard to socializing. He is in favor of virtual attendance,

but his survey shows that although the additional option of online attendance can be beneficial, virtual conferences are not an effective substitute for in person conferences, even for those who are willing to attend either type of conference. In a field where names mean more than metrics, conferences and interpersonal relationships become more important and pressure to fit in at a conference or with a group of scholars can be a force for homogenization of scholarship.

One of my participants described the value of communicating with her colleagues regarding her scholarly work, saying,

> I love to collaborate with other people because no matter how much you think about the topic or read about the topic, your thinking can tend to be limited, but by talking to other people you tend to get really fresh ideas about different aspects.

This pursuit of alternate perspectives is also the goal of the peer review process. Although working with a collaborator or responding to reviews can prolong the process of scholarly work, the extra time is worthwhile if it results in more careful consideration and a deeper understanding of the topic from more than one perspective. One full professor scholar extolled the benefits of working with someone different from himself, saying

> I like cross-generational work because I think I have a huge amount to learn from people like [that] and hopefully I have something to share with them as well. Besides that, I think it kind of keeps your juices flowing or something if you're working with people who are a little bit different from yourself, but you know there are senior colleagues that I enjoy working with too.

Just as working with students can sometimes help bring a fresh perspective to a topic, for advanced scholars, working with beginning faculty members can also help illuminate new angles of a project.

The scholars in my study closely associate publications with the authors who wrote them, so there was almost no concept of using "impersonal sources" (except perhaps that search tools were viewed as impersonal sources). For instance, when asked if there was anyone he went to for advice while writing the article we discussed, one scholar of minority student engagement responded by saying, "I ended up, you know, not directly in person, but consulting the literature, so the works of people like Stephanie Waterman and other indigenous scholars. I would turn to their work and say 'how do they discuss this'?" This is reflective of a disciplinary culture in which truth encompasses the varied experiences of individuals and groups rather than a unified or objective truth. Higher Education scholars tend to cite individuals rather than think of their work as impersonal sources. This can lead them to skip rereading an article from an author they are acquainted with and forego a close examination of writing they have cited before. This may lead to reductive portrayals of these works.

Because literature is not seen as an impersonal source of information, writing a book is a form of networking. It provides recognition you wouldn't get from articles, despite counting for less itself on evaluations. One scholar who was telling me his plans to author a book for a popular audience said

> I think there's an impact that books have that you just can't get around. I mean, I notice that people who write books, they get invited to all kinds of stuff. They get invited to give keynotes and do all kinds of cool things, just because people saw it as a book and they don't read journals. So I do think that there's just a lot of impact that goes along with doing a book that you can't get in other ways.

As mentioned in this quotation, there seem to be different audiences targeted with a book versus an article. An article is a comparatively quick way to communicate with other scholars, while a book is a way to communicate with people who may not be reading many academic journals.

One scholar in my study described her process for determining the credibility of a work saying,

> I look at who has been cited and if I know the work of the people who have been cited, I'm more comfortable with it. If there are a lot of authors that I haven't heard of then I would question it.

She bases her assessment of credibility on the people who are cited rather than the metrics of the journal or the number of times the article has been cited. Another scholar articulated this mistrust of metrics, saying, "I'm highly skeptical, Sarah, of Google Scholar's or Web of Science's ability to really judge value. And I think part of that is my critical feminist or critical race theory lenses." The conflation of individuals with credibility and reliability was a refrain I heard repeated many times. Despite the skeptism of metrics expressed by my participants, they placed a lot of trust in the algorithms of Google Scholar to connect them with the information relevant to their work.

As Sword (2012) points out, the citation style preferred by a field reflects and perpetuates their disciplinary values. In Higher Education, the widespread use of APA style citations, which insert authors surnames into the text rather than reserving them for footnotes, reflects the field's reverence for reputable names and reinforces it. Scholars use familiar names as shortcuts to determining the quality of a written work. Unfortunately, new scholars cannot count on their work being read because it is rigorous. They must establish themselves as a recognized name.

In discerning quality research from poor research, my participants spoke about individual contributors as monoliths. Each scholar seems to be perceived as universally reliable or unreliable, rather than variable. This is at odds with the way the scholars in my study view themselves as developing throughout their careers, starting out less experienced and becoming experts over time. Watkinson, et al. (2016) found that faculty across disciplines share this trust in individuals. Their study discovered,

> The top five reasons for choosing/trusting a citation were: (1) the author was known to the researcher; (2) the journal or conference proceedings were known to the researcher; (3) the reference was a classic/seminal work in the field; (4) the reference supported their methodology; (5) the research group/institution was known to the researcher. (p. 451)

Scholars prefer to rely on trust in individuals and organizations rather than numerical measurements such as citation counts and impact factors. My participants told me they typically only resort to metrics in the absence of knowledge of the individuals (such as when they are new scholars with little knowledge of the field). Watkinson, et al. also found that scholars look for familiar names and journals in reference lists to determine whether an article is reliable or not. Several of my participants told me that citation is a task of naming the right names as well as citing findings relevant to your work. Because impact factors are flawed in their eyes, Higher Education scholars use their esteem for the individuals who edit the journal or approve of the journal to judge its value. This tendency runs contrary to the purpose of blind review. If scholars always produced the same quality of work, we could admit any article from a respected scholar without subjecting it to blind review.

Nicholas, et al. (2014) found that scholars revere peer review as essential, and social science scholars mistrust metrics as stifling creativity. Nicholas, et al. also found that scholars

view editors as the definitive arbiters of quality, and believe that editors should override peer reviewers if they are not critical enough or try to reject something that is innovative. This trust in the authority of peer reviewers and editors fits in with the way my participants associated individuals rather than metrics with reliability. However, my participants did point out several issues with trusting peer review. Just because a piece is peer reviewed, does not ensure that it is reliable. One scholar who is a journal editor and has served on several conference committees in the field said,

> Most people who are reviewing aren't strong methodologists either qualitative or quantitatively. You get what you get in your program as doc students, or whichever you're introduced to, and very rarely do you go beyond that, so, I'm not quite sure that all these people are able to accurately give the feedback about the type of methods that are being used.

This participant also told me that the similarity or difference between the peer review comments on a proposal for a given conference is not a factor in whether it is accepted. Only the average score matters to acceptance or rejection, regardless of whether all the reviewers had the same or different criticisms. His objection to this method of review highlights the mistrust of quantitative analysis as the sole measure of quality in the field.

My participants reported that the Higher Education community is small enough that when using someone's work one can ask the author directly about it. One told me that knowing the authors you write about helps in understanding their work and its relation to the work of other authors you write about. According to the scholars in my study, your work as a scholar leads to new relationships and relationships lead to new work. One participant told me that part of creating good relationships is being well prepared for presentations and writing admirable work.

When switching topics, a scholar needs to start over with their interpersonal network as well as with their knowledge of literature and body of published work. One scholar told me she felt too shy at the beginning of her career to ask for help, so she turned to the written work of scholars she admired for advice. She reported that now that she has established herself in the field she has become good friends with these scholars. One's efforts at collegiality in person extend only to those individuals one encounters in person, but one's research efforts can spark interest from colleagues one has not even met yet. This is important because in academia, one's community is the field rather than the institutional location. One needs to build a reputation, to have one's work read and to get outside review letters supporting an application for tenure.

As scholars advance in their careers, they develop relationships with people who can help them with disciplinary or methodological expertise. Several of the scholars in my study told me they assemble the collaborators for a project based on what expertise it requires. For example, one prolific full professor said, "Often the team is put together because it has particular strengths, you know these are the people who know qual. methods, these are the people who know quant. methods, these are the people who know organizational theory." Because the study of education spans all the disciplines people are educated in, collaborators could come from any of these disciplines, making the field of possible collaborators very broad. Because Higher Education is divided into subspecialties, the only way to investigate all of them without overburdening a single scholar is for them to contribute expertise in different subspecialties. One scholar told me that developing a specialty is a strategy to become a recognizable name, synonymous with a particular research area, but it can feel limiting to a scholar with diverse interests, and it may prevent them from developing their knowledge of areas outside of the topic in which they have

strongest publication record. As scholars become in depth experts in particular specialties, they depend on their colleagues for information that falls into other specialty areas.

One associate professor whose research is primarily quantitative said he typically contributes the same pieces of an article while leaving the other sections up to his coauthors,

> I tend to contribute to the data and analysis section, and framing up the paper sort of in a policy relevant way, and then discussing the findings, and then coauthors come in and either, you know, help build up the literature review, or the conceptual framework, or they help write some of that policy context as well.

Several of the scholars I spoke to whose strengths lay in quantitative methods reported this tendency.

Despite the remarkable capacity for long distance communication in the digital age, proximity still matters to scholarly networks. Several of my participants described becoming involved in new topics or finding new coauthors through interpersonal contact with other scholars. My participants sometimes did not find out about a similar research interest with a colleague until they were thrown together in a department seminar or event about the topic. Watkinson, et al. (2016) found that despite the recent introduction of digital means of socializing, most networks of scholars were formed in person at professional conferences, though they were often maintained through digital communication. Several of my participants also indicated that conferences are a good way to observe the norms of a field (Higher Education, engineering education, etc.). One productive and highly cited scholar told me the best way to familiarize yourself with a new topic is

> By going to conferences and talking to people. And hearing their comments about what we were saying. How to present that work and how to think about that work and what we

might be missing in that work. I think the conferences were really important in that sense. Even just going to hear and just watching people present in another field is interesting. I mean it's all about just more people doing that and how much literature do you talk about and focus on?

When you're familiar with the social network of a field, reading the work of scholars in that field is like having a conversation with them, but reading the work of scholars in a new field requires more context that can be gleaned through listening to the way they present themselves at conferences. This finding is consistent with Vygotsky's (1986) zone of proximal development, in which learners are better able to learn through contact with an expert than on their own.

Several scholars in my study described choosing which institutions to apply to because of the scholars who worked there already. One associate professor said, "I usually prefer to work with somebody in the same institution, because it's a lot easier to work with." This is in keeping with the Principle of Least Effort (Zipf, as cited in Case, 2002). Scholars' institutional choice is not just about the resources and benefits provided, but also about the individuals they will be working with there. Scholars get inspiration from their colleagues in their departments and institutions. Their choice of university shaped their prospects for co-authorship and interpersonal information seeking.

Despite the many benefits of working with a co-author, the process can also be frustrating. Faculty work requires people who can work with a certain amount of independence, which sometimes comes with a bit of stubbornness that may make working with others difficult. For example, one highly cited scholar told me he likes to work with one co-author repeatedly because

> He's really open to doing things. He takes criticism well. He gets his work done. These sound like basics, but when you're talking about working with another faculty member, it actually isn't that way. Faculty can be difficult. They don't get their work done. They constantly just try to reinvent the wheel all the time. There's lots of ways in which faculty can be kind of self-defeating and/or bad collaborators.

Though seeking new perspectives might benefit one's work, it's often helpful to continue to work with someone you can work well with on a personal level. Although collaboration leads to new perspectives, being able to rely on colleagues you know well and who know you well is also important, because it takes time to explain how much you know and what you still need to know to someone who is not already acquainted with you. Part of the difficulty in collaborating with students may be having to develop this acquaintance, not just developing the research skills of the student.

The scholars in my study reported seeking content related to their work, but they also reported seeking information about the norms of the profession (what are the expectations of my department? What are the expectations of different outlets I might publish in? How do I write well for scholarly outlets?). They sometimes seek this advice from formal relationships, such as their doctoral advisor or their department chair, and sometimes seek it from more informal relationships, such as friends from graduate school or colleagues they have an affinity for. More experienced scholars become mentors for how to achieve tenure or what writing style to adopt. For example, one highly cited full professor told me,

> Early in my career, I would look carefully at articles in our field and outside of higher ed. and isolate the pieces that I thought were really beautiful, like Bill Tierney writes a

gorgeous implications section in a very particular style, Susan Jones writes spectacular lit. reviews. And so I've got this kind of set of archetypes in my head that I aim for.

This scholar's comment demonstrates a goal related to improving her writing style rather than learning content. It also illustrates the way in which scholars equate reading literature in the field with the identity of its author rather than viewing each article by the same author as independent from one another, or attributing its quality to the journal it was published in. While it's easy to access scholarly articles to get a sense of how to write for a particular journal, it's more difficult to find grant proposals to learn how to write for particular funding agencies. This necessitates asking for help rather than learning from a scholar solely through their published works.

As scholars spend more time in academia, they accumulate knowledge of the publication infrastructure as well as their own research topics, methods, and theoretical frameworks. Several of my participants reported making decisions about where to submit articles based on their knowledge of editorial changes in journals. As scholars serve on editorial boards, they become acquainted with the personal predilections of editors and are aware of changes in journals that may affect the likelihood for acceptance of pieces involving certain topics or methodologies. They no longer have to rely on the impersonal information available on a publication's website or in databases like Cabell's to know how to position their submissions.

Interpersonal sources of information affect the time one has for information seeking in a variety of ways. One of my productive participants said he uses his knowledge of the scholars in the field to save himself from spending more time than is reasonable on peer review. He directs editors to good reviewers instead of burdening himself with too many review obligations. Several other scholars echoed this theme of saving time through academic relationships by reporting that their co-authors forced them to be productive by creating accountability to

someone other than themselves for deadlines. Although interpersonal relationships can aid in the information seeking of scholars, they can also become a burden of time. One associate professor complained that it was difficult to work with co-authors because they often missed deadlines or because it was difficult to reconcile differing opinions on the research topic. Blind review is a way of managing time by not accumulating too many interpersonal obligations. One well-cited full professor vehemently rejected the idea of open review based on the time it would take to be in ongoing conversations about scholarly work if authors could communicate directly with their reviewers.

As I have shown, scholars see familiarity with another scholar's work as the beginning of an acquaintance with that scholar. However, there is usually no such shortcut to becoming acquainted with librarians on campus. One of my participants told me at her previous institution she frequently contacted a librarian because she had a friendly relationship with her, but at her new institution, she had never contacted a librarian, because "I need to know the librarian first. So inviting the librarian into my class is a really good excuse to meet, but if not, it's hard to make friends." Unlike the other scholars at your institution who are part of your department, librarians are viewed by Higher Education scholars as what Chatman (1996) would term "outsiders" and therefore have more work to do to earn the trust of scholars. My participants reported rarely visiting the library. Because many scholars now visit the physical library rarely (Housewright, Schonfeld, & Wulfson, 2013; RIN &CURL, 2007), the opportunity for making connections with a librarian in person serendipitously has decreased. One of my participants told me that the size of the institution she works for is overwhelming to her because the institutions where she received her education were much smaller. For scholars who are educated at small universities, the extensive number of people and departments in a library at a very large

university can be daunting, and discourage interpersonal networking. It's not obvious who the right person to make contact with is. At one of the institutions where I conducted interviews, the education librarian is a graduate of the doctoral program in Higher Education. Participants at this institution spoke much more about collaboration with librarians than participants at the other institutions represented in my study. One of my participants from this institution told me, "Because she's a grad of the program, she's a fabulous resource because students know that when they talk to her she knows the drill." Having a common background with the librarian increased their trust in her.

Affect and Confidence

As I heard from my participants, faculty work can involve many emotional ups and downs. Academic writing is difficult work and it nearly always results in criticism from peer reviewers. One associate professor described the disheartening feeling of being rejected after revising two articles for journals, saying

> There was so much effort and so much agony, everything, and then you get rejected. So I was really devastated. And then I stopped working after that rejection, two rejections, I kind of stopped working for I think a few months.

While peer review is useful information that can improve your work, it also comes with emotional consequences that can affect that work. It's important to have people who will not make you feel inadequate if you ask them questions. An accepted article, praise from a colleague, or recognition from an association can have an emotional impact on a scholar. It is important for scholars to create supportive environments for one another to encourage persistence, build confidence, and bolster the quality of research produced in the field.

In Kuhlthau's (2004) model of information searching, the cognitive state of a researcher in any stage of a research project is accompanied by a corresponding emotional state. Kuhlthau argues that uncertainty always accompanies the information need that begins any research project, and this can cause anxiety. This early stage of the research project is when searchers are most in need of mentorship to guide their habits and build their confidence. An academic career is like the beginning of a very long research project. Just as the beginning of a research project is characterized by doubt, the beginning of a research career entails uncertainty in oneself due to a lack of an established scholarly identity. For example, one early career scholar recounted an experience with a bad review, saying, "when I … got the reviewer's comments, it rocked me to the core, because I was like, 'Am I in the wrong field? Am I doing the right thing? Maybe I shouldn't even be here'." Affect can be most important at the beginning of your career, when you have fewer experiences to base your self-confidence on, and tenacity can make the most difference. At the beginning of their careers, scholars are still learning how to perceive themselves from others in the field, rather than relying on previously formed internal opinions of themselves. Scholars may be most open to help when they're new and do not have a lot of experience. A bad experience, especially early in a relationship, can stick with a rising scholar and discourage them from seeking help in the future. Just as a blow to the confidence is most impactful early in one's career, a boost to the confidence from scholarly success is most impactful early on as well. One scholar with a long successful career told me "after a number of years, it's like anything if you do it repeatedly. The highs aren't quite as high. Because you have demonstrated to yourself that you can do this." In line with this theme of building confidence over a career was an associate professor's view of herself, "Not now, but maybe ten years later, I feel like I really can talk to the general public about my expertise. Then maybe, but right now, I

think I need to do more work on this subject". Your level of confidence also influences who wants to work with you. One well-cited scholar told me that her ideal co-authorship relationship is one in which,

> We can sort of begin to communicate in shorthand without having to worry about hurting people's feelings. Which is important to me. I need to be able to like just give exceptionally blunt feedback or really direct email comments without feeling like oh my gosh, this person's oversensitive.

A rising scholar might also be able to simulate this confidence without feeling it in order to gain the respect of a co-author.

Krikelas (1983) pointed out that people prefer to rely on their own knowledge before approaching other people for information. Several of my participants worried about becoming burdensome to senior scholars or to librarians. One assistant professor described her meticulous efforts to make as little work as possible for the people she went to for advice,

> I feel like they're so busy and I feel always really badly taking up their time, so what I usually do, Sarah, is I usually spend a ridiculous amount of time summarizing the paper, summarizing my struggle, asking really pointed questions.

Scholars may engage in "information avoidance" (Chatman, 1996) if they cannot overcome the feeling that asking for help is onerous to those who have the expertise to help them.

Sometimes scholars do as much information seeking as they can through impersonal sources in order to avoid appearing ignorant in front of their colleagues who they might ask for help. Since scholars think of the works they consult as personally connected to their authors, they are able to engage in interaction with those authors through their work without the fear of appearing ignorant in front of a respected colleague. One highly cited scholar told me she

Googles journal titles outside her field to check whether they're well-known in order to avoid embarrassing herself by asking a colleague in that field. There was a pattern among my participants of not wanting to bother people, which may run parallel to the pervasive feeling of having too much to do. Your choices about who to ask for advice depend on your hierarchical relationship to them. The more prestige they have over you, the less you feel you can approach them.

Reviews can be difficult to deal with and it helps to have a co-author or colleague to get you through your frustration. Information seeking requires motivation. The needs of a colleague who is motivated by tenure pressure may motivate a colleague who is already a full professor. Editors can also help smooth feelings in the review process. One well-cited scholar told me,

> We feel like we had a reviewer that is unconvinced by anything and seems determined to make our life as difficult as possible. So we're trying to respond to things and be open minded, but we feel like we're now in this abusive relationship with this reviewer. And the editors are trying to just, I think the editors are sympathetic and they want it to get published, but they also have to listen to the reviewer and to us, so you know we're trying to be diplomatic.

It was interesting to hear this characterization of editors as interpersonal arbitrators rather than quality filters. Having editors and co-authors who are supportive is important to keeping one's confidence and motivation up for information seeking and sharing.

Lack of confidence or mistrust of media can keep good work from getting done or publicized. A scholar's identity and affect are interrelated, and influence their work. Minority scholars or those who study minority populations may be less confident in their work's likelihood to be published, and may choose to submit to less prestigious journals. This

perpetuates the problem of diminished visibility for these scholars and topics. Indignation over negative reviews is a necessary reaction for continued scholarship. One needs confidence and resiliency to continue to work. Tenure committees reward the number of publications you produce. They don't punish you for the number of rejections you received. For example, one of my participants who reported having a very supportive mentor told me a satisfying story,

> There was one rejection that made me pretty mad, and I didn't do anything, and I sent it to an even higher tiered journal and it got 'minor revisions' right away because that particular review rejection, was basically discrediting the importance of community college related research. And the notes were pretty much about: 'this is not an important study, look at something else, rather than two year colleges'. And so that was probably the only case where I felt there was nothing valuable in that kind of feedback. And so I did not change a thing and I sent it, almost as revenge, I sent it to … a higher tier and at that one it got 'minor revision' right away, so that was like sweet revenge.

Confidence and persistence such as this are needed to be able to go on seeking information and writing, instead of getting discouraged. However, you also need to, as one of my highly productive participants said,

> Get over the indignation, take a few deep breaths, and then take it as data, right? Do a content analysis, thematically figure out where, even if it makes you indignant, maybe they're right, and then for me, I treat the critique as always, even if I don't agree with it, the critique means I haven't communicated myself in a way that everybody could hear what I'm trying to say.

This scholar's advice is an endorsement of Savolainen's (1995) "Optimistic-Cognitive" information seeking disposition. She recommends looking at criticisms as challenges that can be

overcome with effort rather than reasons to lose confidence in one's work. There are certain dispositions that lend themselves to the profession of academia. Overconfidence might lead a scholar to dismiss a valid critique. Scholars must be open to feedback or conflicting information if they're going to appeal to reviewers and create thorough analyses. Otherwise, they can waste time resubmitting an article without changes it needs.

One's predisposition towards particular types of work drives how much one is willing to invest in learning to do that work. The most needed and most funded topics aren't always the most interesting to an individual. This drives one's choice of collaborators. For instance, one qualitative research expert told me of quantitative research,

> Frankly, I don't have a ton of interest in it. I don't get a ton of joy out of trying to get a program to compile or something. And so I work a lot of times with people who are perfectly happy to work on those kind of questions, but don't want to deal with the theory side or just want to talk through research assignments. And then, you know, we have a ton of expertise here in terms of quantitative methods …all of them at various times I've talked with about quantitative methods because …it's moving so fast that it's very easy to get caught behind or be missing technical details.

His point of view is that the individual who enjoys a particular kind of work will do the best job of performing it. The added variety brought to a project by a new perspective can make it more enjoyable as well.

An emotional process determines the amount of literature searching one does. Curiosity and excitement can drive a search. As you begin to grow bored with the repetition of the literature you find, and grow frustrated, you end your search. One participant told me

> You've got to just be willing to ask, ask again, search, search again. That's a big part of the battle. You've got to be willing to just do it over and over and over again. You know, with slightly different angles and techniques and words every time.

When the fun of discovery dissipates, you stop looking for more. Your persistence determines your success. Enjoying your work can give you the persistence you need to do it well. Fear of not making tenure can be a good motivator for continued effort.

The literature review is about building confidence in yourself and your audience that you have an important topic. One participant described his motivation for doing deep literature reviews,

> I like to find the timeless elements of the research that I do and so one of the things I often times do is try to find the oldest article that I can find, on a particular topic and read that one really carefully and look really carefully at their bibliography to see how far back I can go. And more often than not, I can track stuff back pretty far. And so that gives me some extra confidence when I go and I write about this, to be able to say, hey this is not a new topic, this is not a new idea, it's been around for a long time. And I think that there's a good framing element to communication that can occur by giving that kind of historical context.

This quote illustrates why it can be difficult to stretch the field into new areas of research. It's more difficult to build a case for its importance based on the existing literature. It's difficult to build confidence in yourself or an audience without a historical record to point to. In lieu of a history of literature examining a topic, well-established scholars can rely on their personal history of producing strong work to build confidence in themselves and their readers that a new topic has value to the field.

Scholarship with Students

Higher Education scholars have varying numbers of students assigned as graduate assistants or advisees. My participants reported that as scholars advance in their careers, they build reputations and attract students to aid them in their research. They have more opportunities to delegate responsibilities to these collaborators. As noted previously, Higher Education scholars vary, and may fall closer to the disciplinary tendencies of either scientists or humanists. Becher (1989) noted that applied fields tend to collaborate more than pure disciplines such as the humanities. Housewright, Schonfeld, & Wulfson (2013) also found that social science scholars such as those in education tend to collaborate less than scientists and more than humanists. Higher Education scholars who share disciplinary tendencies with scientists may be especially predisposed to develop research teams and lead students in conducting research. Scholars who share tendencies with humanists may be less likely to collaborate. Education scholars may have several areas of interest across their careers, some of which lend themselves to collaboration and some of which do not. Grant funding can play a role in which projects faculty members include graduate students in. Just as humanities and science faculty differ in their likelihood to work with grant funding, faculty within the social sciences, including education, differ in their likelihood to work with grant funding (Hyurch, 1986).

Good information seekers seek collaborators who have knowledge or perspectives that can contribute to their research projects. Good information seekers are open to new concepts that might expand their points of view. My participants reported that graduate research assistants are often assigned to faculty members based on general research interest areas rather than with specific projects in mind. Many projects a faculty member works on end up being good fits for students who share research interests with that faculty member. However, not all projects are

good fits for the graduate students who work on them, and not all graduate students are good fits for a project they are working on. Once a faculty member commands more students, they have more choices about which graduate student to assign to which project. My participants mentioned that new faculty members who do not direct many graduate students may not yet have graduate students who are good fits for their projects. While this means that sometimes graduate students lack the skills or knowledge required to complete a project, it offers a chance for them to develop new skills and knowledge. In fact, one of my participants has spent years studying a topic that she happened to be assigned in graduate school and developed an ongoing interest in. Projects may also benefit from the fresh perspectives of someone without a strong background in the topic of study. Like students, faculty members may grow through exposure to new aspects of their areas of research.

Though working with students may combat information overload by distributing the workload as observed by Baveye (2014), preparing students to be reliable collaborators also increases the workload of a faculty member. Some scholars in my study see coauthoring with students as part of their job or as aiding them in the execution of their job, while others see it as compromising their career. Some see it as a combination of the two. Some scholars felt an obligation to publish only with their research assistants while others felt their obligations extended to all their advisees. Whether a scholar felt that tenure expectations were a barrier to collaborative scholarship with their mentees, or that part of their job was to help their mentees publish and learn how to publish may be dependent on the tenure criteria at a given institution. For example, two scholars from one university at similar points in their careers disagreed about whether their tenure criteria encourage co-authorship with students or not. One of them said,

> That's something my department encourages because it is a process that counts toward your teaching and mentoring, advising, and also, pre-tenure years, it wouldn't count against you because you have a collaborative piece with your students because they view that as valuable advising and teaching.

In contrast, the other one told me,

> Some of the students I'm working with right now, it just is such a steep learning curve to get them to the place where they can do all the stuff that I would want them to do that I just haven't had time to invest in it.

Though both of these scholars realize that developing their students' skills would be a benefit to them in the future, one has made that time investment while the other finds the investment too costly for his career.

Several of the scholars in my study reported contributing their previous knowledge of literature on their research topics to their writing while relying on their students to track down additional literature through searching. The literature review seemed to be the part of scholarship faculty could most trust students to handle. If their students left out pieces the faculty member thought should have been referenced, they would address that with the student. Because quantitative research requires a lot of training, quantitative researchers often become the methodological leaders of a piece while their graduate students take the lead on the literature review. This may limit opportunities for their students to learn research methods techniques. Scholars are balancing multiple goals in this situation: their own career advancement, producing the highest quality research, and teaching responsibilities to their students.

Not including students in publication may also be an opportunity for teaching. One scholar pointed out that students may learn false ideas about the authorship process if they are included as coauthors on work that they had only a minor role in. Another said

> Sometimes, I feel like I'm doing it just to expose them to the publishing process as opposed to having them take ownership in the work. And those are two very different things. I think both are educational, both are important, but I sometimes worry about this, because I hate to have a student come up as a coauthor and then go on and become a faculty member not having learned how to actually do the research.

Students learn about both the production and the publication sides of research from being involved in collaborations with faculty in a way that has more impact than hearing about the process second hand. Students who understand the effort involved in publishing will make better future collaborators than students who are conditioned to expect to be included as an author for minor contributions.

More advanced students may have more to contribute while newer students may have less, although being involved in the process earlier may have greater benefits for the students and their future work. One scholar who was very committed to including her students in research projects described the difference between working with her beginning students and advanced students,

> For my ABD level students, and the kind of strategies we talk about, we already talked about that for years and so they can just take it on independently and do those searches. But then if it happens to be a project where my students hadn't even finished their first research methods course, I would be sitting down with them to say these are the

> processes, but in those cases I would probably have to do my own round [of literature searching]… so it's more of an experience for my newer students.

Unfortunately, a new faculty member will tend to get new students who have more to learn, just when the faculty member has the least time to spend on teaching them. One scholar told me at the beginning of his career, "Most of the students I was taking on were just people who had been abandoned by other people, lost souls. So my job was just to help them. You know, not to rely on them as a resource." After one has been a faculty member for a few years, one is assigned more advanced students who need less assistance. For example, one scholar who makes a point of coauthoring with her advisees said,

> Now I finally have students who are approaching ABD level and they are awesome emerging scholars in their own right already. But earlier, in my pre-tenure years, they were new students and it was taking a lot of time, but it was very gratifying, you know, you are really recognizing this amazing talent, but it's pretty raw, and then we develop that talent together with them.

The advantage of fostering student scholars is not just to the student, it is also to the mentor who is able to benefit from the students' increasing capability with literature searching.

Scholars who felt a duty to help their mentees publish did not feel that even tenure had given them sufficient freedom to pursue their own research interests, because they were bound by the expectations of the top tier journals in the field, and their mentees needed to place work in those publications. One scholar described helping a rising scholar, saying,

> One of the collaborators actually is a junior scholar and she needed an article right away at that time. I told her that I'm going to write a book with these findings, and then my collaborator says: 'oh, I don't have time to wait and we just need to publish'. So, because

of that, and I cannot disrespect her, because she needs to get tenure, right? So ok then, let's just publish an article.

For those who view co-authorship with mentees as a duty, it guides decisions and timelines regarding where a piece is submitted and how much revision is done, regardless of whether they have already achieved tenure. Students are only at an institution for the time it takes them to complete their degree requirements. Willingness to produce scholarship with students before they enter the job market constrains a faculty member's research timeline.

Discussion of Interpersonal Sources and Affect

Scholars' professional confidence, passion, and relationships effect their ambition in searching for information, branching out to new topics, and sharing their expertise. Information seeking and sharing is influenced by the supportiveness of the community of scholars they work in. This includes senior scholars in the field, scholars outside the field, and librarians. An individual's disposition may determine how willing they are to seek information and help, which can determine how successful they will be as a scholar. Successful publication on understudied topics gives confidence to scholars for continued research on these topics.

It's important for universities to give faculty the chance to network with one another. Opportunities to connect with scholars in other disciplines can lead to fruitful collaborations. It's also important for departments to provide opportunities for faculty members to talk to one other about their field. Rising scholars such as junior faculty, doctoral students, and scholars with a new research trajectory should develop their interpersonal networks as well as their knowledge of their field. As one learns the content of the field, one needs to learn the individuals of the field as well. Interpersonal networks can play a role in your ability to advance the field and your

ability to advance your career. Senior scholars can help younger scholars in developing this knowledge by introducing them at conferences.

Scholars trust sources they see as familiar individuals. University libraries need to become an interpersonal source, not an impersonal one, if they are to be trusted and wish to motivate scholars to make use of their services. This might be accomplished by participating in department activities. Higher Education departments can facilitate this by inviting librarians to participate in their activities, such as departmental meetings, lectures, and social gatherings. This is particularly important at very large universities where beginning to make contacts can be overwhelming.

Scholars should be careful about treating one another as immutable. Since they view themselves as growing and improving, they should not treat the work of their colleagues as homogeneous in quality. They should recognize the value of new perspectives to the field. It's tempting to read and trust the work of those you already know, either through conferences or through their work, so it takes effort to broaden your survey of the literature.

Scholars of Higher Education should ally themselves intentionally with writing and citation styles that reflect their personal dispositions toward research rather than following the habits of the majority of the field. Since Higher Education draws its strength from diverse influences, it should reflect diverse perspectives. Scholars should read the types of work they aspire to write and write the types of work they hope to read. Scholars who employ styles they admire and enjoy will be happier and stronger than scholars who attempt to fit into styles that are alien to them. If scholarship is driven by journal guidelines rather than the larger needs of the field, it will make little impact beyond academia.

When scholars choose work they feel confident in carrying out and interested in doing, they may end up with better results than when they try to push themselves outside of their comfort zones. Seeking help for work they do not feel comfortable with can strengthen the quality of their work and develop their interpersonal network. A department of supportive colleagues can lead to greater confidence and better work. Scholars should be aware when writing reviews and evaluating their peers that they are affecting their emotional state as well as the cognitive state of their work. The purpose of such feedback is to challenge them to improve their work and reward good work, not to punish.

Kuhlthau (2004) identified a "zone of intervention" in the "information search process" at which researchers were most receptive to aid from an instructor. Likewise, there are particular points in scholarly careers at which scholars will be most receptive to aid from librarians or other scholars. Librarians can be of significant help to beginning scholars who are getting used to a new institution or used to teaching for the first time. These circumstances make asking for help less embarrassing and less disruptive. They are also times when people need more help. Help at this stage of a career can establish trust with a scholar to create an ongoing relationship. As Kuhlthau discovered in her studies, attempts to intervene during times when a researcher has a strong level of confidence may be intrusive, distracting, confusing, or disheartening. At particularly frustrating times in a scholar's career, such as close to an approaching deadline, attempts to help may also be overwhelming. If we view a research career as an extended "information search process", then we might also divide careers into stages with associated affective states as she does. At the beginning of a career, a researcher may be exploring their scholarly ambitions and formulating their network and literature base. This stage corresponds with uncertainty, just as the initial stages in Kuhthau's model do. Gradually through their

careers, researchers establish firmer objectives and confidence, just as searchers in the late stages of Kuhlthau's "Information Search Process" do. These cognitive and emotional changes lead to changes in information seeking behaviors. A career may also consist of a series of these arcs as scholars take up new subspecialties.

Senior scholars have an opportunity to reach out to younger scholars who may feel nervous or burdensome when approaching successful senior counterparts just as Chatman (1996) described in the behavior of those who felt themselves to be outsiders in a social context. One way to combat the feeling of being a burden to those you ask for help is to offer help rather than ask for it. By investing in helping someone else, you pave the way to make yourself more comfortable in asking them for help in the future.

Maher, Timmerman, Feldon, and Strickland (2013) found in a study of STEM co-authorship between faculty and doctoral students that faculty were highly attuned to how co-authorship with students affected their career prospects in terms of the time it took to co-author with students and the credit they would be given in tenure and promotion evaluation for such work. Higher Education faculty are also attuned to this issue. Faculty can consider how their collaboration choices with students affect their education and their future career prospects. Well-educated students become better future colleagues. To encourage teaching, it's important that scholars be rewarded for co-authorship with students if they choose to do it. Encouraging faculty to co-author with students by counting it towards teaching requirements would be helpful. In some fields, like biology, being the director of a project is given greater prestige than doing the data collection on the project because the laboratory director is seen as the mentor to the rest of the investigators. Higher Education faculty members should consider the importance of fostering new scholars when considering hiring, tenure, and promotion criteria. If we view collaborative

work as a form of teaching and an investment in the quality of future scholarship, then it should be highly valued in our evaluation of faculty members. The research process is the production of scholars as well as scholarship. Even faculty members who do not favor collaborative work can benefit from having excellent colleagues who are prepared to publish good work and provide excellent peer review.

Pre-tenure scholars have their own interests to look after, but more established scholars have some freedom to think of the career interests and scholarly development of their students. On the other hand, pre-tenure scholars can be influenced in their habits by the need for tenure while tenured scholars do not have the same pressures. It's useful to assign students with an interest in topics that lend themselves to collaborative publication to faculty members who have a tendency towards collaborative publishing. In this way, faculty members who have a tendency towards interpersonal information seeking will have assistants who share this tendency, and faculty who do not have this tendency will not feel pressured to create work that is outside their area of interest.

Because literature reviews tend to be a part of scholarly research which is delegated to students and students are the scholars of the future, it is important to incorporate information literacy instruction into doctoral student education. Several scholars in my study noted that students in their courses had difficulty in differentiating between peer reviewed articles and other types of work. Even if students have had information literacy instruction in their previous degrees, further instruction can help them acclimate to the resources of new institution and a new academic role. Since doctoral students in Higher Education can come from a variety of disciplines, they may have things to learn about research in a new discipline. Faculty who devote time to teaching their students information literacy concepts may also be more attentive to those

concepts themselves. Encouraging conversation around information literacy increases its visibility.

Chapter 7: Environment for Information Seeking

As Wilson's (1997) model of information behavior points out, the depth of one's information seeking is shaped by the other demands on one's time. In a landscape of competing demands on their time, scholars must differentiate between sources that are worthwhile and those that aren't worth the time it would take to examine them. One of my participants identified this problem, saying, "I think that there can never be too much information out there. I think the challenge is deciphering the quality and the range of quality within that information." There are several types of what Ellis (1989) termed "differentiating." Scholars differentiate between sources, but first, they differentiate between search tools to find those sources (databases, search engines) sometimes without a lot of consideration. One search tool is often insufficient to locate all the needed information for one research question. As the Framework for Information Literacy for Higher Education states, "Searching for information is often nonlinear and iterative, requiring the evaluation of a range of information sources and the mental flexibility to pursue alternate avenues as new understanding develops" (ACRL, 2015a). Although information users tend to view information seeking tools as impersonal or objective sources, these sources are designed by individuals who have perspectives influenced by their affiliations and societal backgrounds. As Noble (2013) points out, search engines that base the order of their results on the popularity of sites among their users reflect and reinforce the societal and cultural prejudices of those users, such as sexism, racism, or homophobia. A scholar's choice of search tools helps determine their choice of resources to cite.

In some disciplines, such as humanities, libraries are visibly indispensable sources of archival material (Housewright, Schonfeld, & Wulfson, 2013). In Higher Education, libraries are less visible tools because scholars can get by using library resources through Google Scholar as a

mediator. Google Scholar is a more useful tool to a Higher Education scholar who incorporates literature across a variety of disciplines than it is to a scholar who is focused on a single discipline. Because Higher Education is an applied field, the conversations of educational policy makers, university administrators, and consumers of Higher Education matter to the academic study of the field more than they do to scholars in pure disciplines. This type of literature is more accessible through Google than through some library databases that index only scholarly literature.

Time and Differentiation

Higher Education scholars have a particularly extensive amount of literature to draw from because of the interdisciplinary nature of the field and the conversations of stakeholders in the field. This can be time consuming. The time a scholar can spend on information seeking is determined by the other demands of their job including other facets of the research process, teaching responsibilities, and service duties. Scholars with administrative appointments may have particular trouble carving out time for information seeking. Scholars also need to balance time spent on work with time spent with their families. Scholars who have dependents at home may have more demands on their time than scholars with fewer personal responsibilities. As Rupp-Serrano and Robbins (2013) reported, a great many education scholars feel they lack the time to use electronic library resources. Lack of time also prevents scholars from taking the time to learn about electronic library resources.

Time is especially critical in the beginning of a career. A tenure dossier must be built in the first six years a scholar is a faculty member and research, writing, and publication take time. It generally takes months for a scholarly article to move through the publication stage, particularly for qualitative research articles. Some disciplines have shortened this timeline by

establishing preprint repositories as mainstream publishing outlets, but Higher Education has not adopted this strategy. Scholars in Higher Education do not typically have the luxury of taking on time consuming or risky projects before they achieve tenure.

The limits of time mean that scholars must make a choice between reading broadly and reading deeply. One accomplished scholar articulated the problem,

> It's just making some difficult decisions. And accepting there's going to have to be some level of ignorance about other things going on in the field of Higher Education that I just can't keep on top of. And you know, it can be embarrassing. I was just in a meeting, and someone's like: oh, this is drawn from George Kuh's ideas of intensive learning, blah blah blah, and I'm looking at him like: [shrug] and he's looking like: I'm sure you know this better than I do, and I'm like: nope, no I do not. And maybe I should, but I don't work on learning and I don't have time, you know, so I feel bad. In some ways, I want to be someone who can say I'm an expert on Higher Education as an enterprise, but it's just becoming increasingly difficult to stay on top of everything.

Even within the field of Higher Education, it is impossible for accomplished scholars to be an expert on everything, and the addition of all the disciplines Higher Education draws upon exacerbates the problem further.

Time limitations also mean that researchers tend to rely more on searching for specific information needs and less on monitoring the field, which has become an overwhelming task. One highly productive scholar said,

> I think instead of just trying to keep up, doing that, more likely what happens is that I search or have the students search when a particular need arises so it's much more on an as needed basis. I wish I could keep up with the journals.

She said she gets too much email to look at all the tables of contents that are delivered to her, so she only reads things she receives in print and even that is often too much to read.

Reading *Chronicle of Higher Education* and *Inside Higher Education* are time savers. One can read the digest of scholarly developments instead of the full version of education news that may not be directly pertinent to one's scholarship. As one scholar said, "if you publish your article in a top tier journal, still only a few people read it, but if you write some article in *Chronicle of Higher Ed*, tons of people read it". On the other hand, some scholars in my study felt that news outlets like this that aim for briefer, more accessible writing do not allow for all of the discussion necessary to accurately convey complex research findings. Just as some scholars were skeptical of Twitter for the limitations of the format, a few felt a news article does not provide enough room for a full report of scholarly inquiry. They felt that producing rigorous research was as much as they could handle and that digesting scholarly results for popular audiences was a job for someone else better suited to the task.

When asked about the difficulties of finding information for research, one scholar told me "it's not about being able to get something, because if I'm persistent enough I can get it. It's about how much time I have to invest to get the things that I need. And so it could be more efficient". His frustration was that Google Scholar does not always link to things his institutional library owns. In an information rich landscape with comparatively easy access to an ocean of scholarship, finding information is not as important an issue as differentiating information so as not to waste time with less important sources that could be spent on sources that are more important. One scholar spoke of this as the role of established researchers,

> One temptation is keep knowing and keep learning and keep adding to what you know. The only strategy that makes it cogent is: how do you make meaning out of so much

> information? And that's a different place in the professional world. It's a part of the professional life cycle. It's … the role that people in my point in my career, are supposed to be helping graduate students to recognize. Not only what's good research versus bad research, we do that early enough in the graduate education, like to spot a design flaw, or a poor sample, but also to say, what matters?

This was an interesting perspective, because it highlighted the importance of keeping abreast with current events and social trends as well as with academic literature.

Another scholar spoke about his personal trick for limiting the amount of reading he does, saying

> A little trick of mine is, I have a sort of insatiable appetite for reading, so my brain wants to keep reading, but once I realized the problem I have, I give myself the number six as the limit. So from this reading list, I went through and selected which six things would I want to read to get started? And I started reading those, also looking at those reference lists, and you know found, oh wow, all of these six pieces cite these same four additional pieces. And so before you know it I was into my secondary reading of those four pieces for a total of about ten things I read, plus a book

He forces himself to prioritize the literature he has on a topic. One method for doing this is to identify which pieces have been most cited by other articles on the topic. He also has another means of managing his information seeking time,

> Any piece that relates to my work or is of interest or by one of my scholar friends that I try to stay fresh on their work, I will tag it and ask my assistant to make a copy of it and to put it into my schedule as office time. So she'll reserve, usually about thirty minutes, if I can see it's a long piece that I'm going to want to reflect on I might ask for an hour.

> And she'll schedule some time off in the future where I'll have thirty minutes or an hour to get through that piece and take notes and then log it somewhere.

This strategy builds up a repertoire of literature that he can rely on in the future.

Scholars differentiate between information by perceived importance. I heard from my participants that a bestselling book in sociology or psychology can shape the perspectives a scholar uses to approach works with narrower academic audiences. Ideas that gain traction with popular audiences are likely to have traction with scholarly audiences as well.

Tools for Information Seeking

The changing tools for information seeking shape what information scholars access. One prolific scholar described the reason she still subscribes to journals in print despite the availability of articles online through library databases,

> What we've lost, in reading everything online… There's so much gained by search, right? Like so much access, but what's lost is serendipity. What you don't get is the article next to the article that you thought was interesting.

Those who have an affinity for a certain tool over another will get different results from those who choose differently. Different tools appeal to users with different goals. Some tools, like Google, yield different results for users, based on their past search history. The level of experience users have with a particular tool also influences their likelihood to use it, and their effectiveness in using it. Unlike some disciplines which need very specific search tools for finding information, because education crosses a broad span of topics, broader databases may be more useful. More persistence may be needed to find analogous terms for similar topics in different disciplines.

The information seeking tools scholars employ in their work include Google, Google Scholar, library databases, and social media sites. Scholars use search engines for initial searches and they use familiar websites for monitoring the field to keep up with new developments. They also use key texts as resources to lead them to other work on their topics. One productive scholar described an example of the way he begins his investigation of a new topic,

> Sometimes I've read more book length manuscripts in order to get a more synthetic understanding of what's happening. And often to just get a more general audience view of it, because that way I'm not doing so much of the work by myself of trying to synthesize it and interpret it. I find it easier sometimes, if they have something like that, I'll start with that and then work my way to more technical tougher information. So, for example, Dan Kahneman has this book, called *Thinking Fast And Slow*, which is kind of a synthesis of his work over time and it's a great resource. It's not often the thing I would most look at now that I do work in this area, but in the beginning, when I read it, it was great because it gave me a ton of ideas and it pointed me to lots of other literature

This example is interesting because it demonstrates the interconnectedness of education with other disciplines such as psychology. Other scholars in my study also mentioned using background literature to become familiar with a topic that never appeared in their citations. For example, encyclopedia articles and Wikipedia articles can provide a quick way to familiarize oneself with the broad strokes of an idea, though they would not generally appear in the reference list of a scholarly article. Although monographs are intended to provide overviews of topics, they are long and require a lot of time to read, so a quicker alternative is useful.

While librarians depend on book reviews and scholar requests to sort out which books are worth purchasing and which aren't, scholars who hear about these books before they are

available for purchase must depend on other indicators of quality. One scholar described her process for differentiating between the qualities of books,

> There are a lot of vanity presses these days and you don't want to put a whole lot of faith in something that somebody paid to have published, and you don't know what kind of review it had. I also review a lot of books for Jossey Bass and for Stylus. They will send me an outline for a book and ask if I think it's a good one. So I know that they do reviews. I'm not so sure about some of the others.

Faculty most interested in new scholarly books are likely to know about them and form an opinion of them before they are available for checkout in the library. My participants were more likely to judge a book reliable if it was published by a university press, which was seen as less motivated by profit than if it was published by a commercial publisher. One told me he feels suspicious of publishers who produce large quantities of publications frequently because he wonders if they are emphasizing quantity over quality. This highlights the preference for reputation over profit in academia.

Education requires attention to a variety of stakeholders. For example, one highly published tenured participant mentioned that she reads the *New York Times* and the *Washington Post* for context for her scholarly research. Several reported subscribing to organization based publications that were not peer reviewed but provided news about their area of interest. One well-published scholar told me, "I feel like I'm constantly working in a million spaces. And it's just tearing at my sanity." Nicholas et al. (2014) found that in education, scholarly communication occurs in so many different places with so many different audiences that blogs and websites are more necessary to read and produce than in other disciplines. Housewright, Schonfeld, and Wulfson (2013) found that government and NGO reports and trade magazine

publications have much more value in the social sciences than they do in the humanities or sciences. My participants echoed this sentiment, asserting that government websites and news sources are often important, especially for topics where scholarly information isn't available yet. One scholar worried that the easy access to resources provided by digitization and online search-ability leads to reference list padding. He felt that more than in the past, scholars are including citations to articles they haven't fully read or understood.

Automated email alerts are one tool scholars use to keep up to date with scholarship on their research topics. They get the tables of contents from various journals sent to their email accounts. They receive the print journals in the mail as well, but often they have already seen the titles listed in tables of contents before they receive the journals. Sometimes an article that wasn't of interest from its title in a table of contents looks more interesting in a journal with images and subtitles to give it context.

Several participants in my study said they did not have time to refresh themselves with the latest searching techniques. Knowledge of new search tools comes to them serendipitously rather than in a systematized or intentional way. Teaching became an opportunity to review best practices in compiling literature reviews, and to make connections with university librarians, actions that scholars would not otherwise engage in. One well cited scholar told me,

> I'm not the person who's as computer literate or search literate as people who are growing up today. And that's why I'm glad there are grad students who are doing this stuff for me who may be more savvy about how to get it, how to find this stuff. I feel like I grew up in a time where we researched in the library and we had some tools there and I learned to do it by trial and error rather than having been taught any good ways of searching. That's why I send my students to the library. I don't remember what happened

> and I don't have time to go and hear her [the librarian's] talk again. It would probably be really smart because I could probably learn some stuff, but I don't have time.

Doubt in one's level of information literacy seems to be a sign that someone has recognized the complexity of the topic. Though this scholar had doubts about her level of information literacy, she expressed a viewpoint regarding Google Scholar similar to the librarian's viewpoint, saying,

> You can't get refined enough. You know, I can tell it [Google Scholar]: find all these words, but that just gets me everything, the exact phrase, but the exact phrase may not be great if it's some concept that's not always used the same way. It's just kind of clunky. It gets me a lot of stuff and then I find myself sort of narrowing down and trying to filter it

I heard this complaint about Google Scholar's lack of limiting options from other scholars as well.

It is difficult to keep up with the developments in information seeking tools as well as the developments in one's own field. One scholar I interviewed lamented that she never knows when the library subscribes to a new journal in her areas of interest. She said,

> Once they subscribe additionally then they need to maybe advertise additional journals they are subscribing to, so that people are now aware of that, so that they can search the journal as well. So I wish that on the library website, for example, there was a list of the journals in higher ed. or by topic. For example, mobility. Under the mobility topic, what kind of journals they subscribe to, so that we can get online access. Maybe by topic would be better.

She was not alone in recommending that the library offer a website to pull together resources for research in Higher Education. Scholars form opinions of certain databases when they first use them (for instance, in graduate school), but databases change quickly. They can add or subtract

journals and change the search functions they offer. Experience may not be an accurate reflection of the current utility of a database.

Web Searches and Bibliographic Databases

Many scholars in my study place a lot of trust in Google Scholar's algorithms to place the results relevant to them in the top few pages. Scholars like the convenience of accessing information with only a few clicks. They appreciate being able to chain forward to articles which have cited their article, in addition to being able to chain backward to articles which have been cited by the works they're interested in. Scholars like to see the impact an article has had by comparing how many times it has been cited to the years it has been published. They delve deeper into search results to try to remedy the risk of seeing only items that Google tailors to them. They trust bibliographies to guide them to relevant material they may have missed. Some of them worry about the serendipity lost by online search.

Surprisingly to me, one scholar told me he thinks Google Scholar has facilitated serendipity rather than inhibited it. When asked how his search strategies had changed from his experiences as a doctoral student (about 15 years previously), he said

> We didn't have tables of contents. We didn't have Google Scholar at all. ISI did not exist in the format that it exists now. So if I wanted to find an article, I think I had to search for the actual journal and then pull up the journal itself and then look for things. I'm not sure there was any one portal through which you could just say: 'I need this article'. I think you had to know where it was and go and track it down. But you could get pdfs of articles and the library did have pdfs, but it was just that you had to go through the library portal, into the journal that you knew was there, so it was harder to sort of serendipitously

> happen on things, I think, if they weren't already in a bibliography you were working with or something like that.

Citation chaining can perpetuate the Matthew Effect, but trusting Google Scholar's indexing and private algorithms can do so as well.

Many of my participants have become accustomed to using Google Scholar for their searches. One of my productive participants praised Google Scholar, saying,

> The advantage of Google Scholar is that it pulls in a lot more stuff than some of the other services. So I might use several. Like I can get the conference proceedings for journals for engineering conferences through Google Scholar and they're not going to come up if I'm using some of the others, and I need that. So the breadth of it, although it's sometimes frustrating, makes it sort of a go-to.

While she articulated some advantages of Google Scholar in comparison to library databases, she is a shrewd searcher and also understands its weaknesses. It is important to understand the alternatives to Google Scholar and make an informed choice about which tools to use. An associate professor complained that the library webpage at his institution was too confusing in comparison to Google Scholar, saying,

> There's just too much stuff on the library's webpage, that populates. It seems like it's got too many options. It's just not as kind of clean and tidy as Google Scholar is. What I mean is, it pulls up articles and books, and sometimes it says peer reviewed, but they're not necessarily peer reviewed. I think Google Scholar does that too, but the library, I've noticed, just has way wider of a net, which just makes more work to kind of sift through for me.

This statement that limiters require too much work was surprising to me as a librarian. One of the goals of libraries is to save searchers time by giving them limiters to do the work of sorting resources for them instead of having to sort through for themselves to determine relevance. There are more options for limiting in most library databases than there are in Google Scholar, so databases can look busy, but these functions are supposed to help limit searches and save time. Despite my surprise, he was not the only scholar to express the sentiment that library webpages are confusing and have too many options. Library websites tend to be overwhelming to scholars accustomed to Google. They're too crowded with options to people accustomed to a mostly white screen. By default, the results include more than just scholarly articles, which is often the only thing scholars are looking for. Though Google Scholar indexes more conference proceedings and grey literature than many library databases, the extra steps of choosing a particular database or filtering out news and magazine articles from peer reviewed articles led several of my participants away from using library databases. One young scholar told me she thought her university's library website buried the databases page so that it was too burdensome to access, so she switched to primarily using Google Scholar. Even one extra click can make the difference in which tool a scholar prefers to use for searching. One scholar said she didn't need the library's tools to sort peer-reviewed articles out from other articles because she could tell the difference herself, unlike a beginning scholar. Librarians hope that their users can sort these types of sources out for themselves, but their goal is to save them the time of having to do so. The fourth of the five laws of library science is to "save the time of the reader" (Ranganathan, 1931). One scholar pointed out this advantage of database searching over web searching. She said she prefers to visit her preferred databases first because they index only peer reviewed

articles, which best lend themselves to citation in the type of publications most prized in tenure and promotion evaluation.

One well-published scholar described his frustrations with using an indexing database to discover literature, saying

> It actually takes in ISI more time to get exactly what you need. It's more, I know how to use ISI, but for students, it's very picky. You know, so it takes some time. I used to actually teach a workshop here about how to use ISI because it's very picky about certain things. How to put in authors, how to sort things, you know, whatever. I think it's better now than it was in the earlier days. And so honestly I just find, students find Google Scholar easier, it's also good now in terms of, a lot of people don't see this, but it's good for putting in citations too, I mean you can push the cite button and pull up a citation very quickly and cut and paste it into where you need it.

It was not surprising to me to hear that he taught this workshop himself rather than bringing in a librarian to teach it for him though this is precisely the sort of teaching librarians offer.

This scholar also felt that ERIC (Education Resources Information Center) is no longer a useful tool for his research. He told me,

> ISI as I said is only cited journals. It's only the journals that it pulls in. There's some good to that too. You don't have to sort through a ton of dreck, but you kind of have to do other things, you know. In some ways, Google Scholar is almost like ERIC was, with a better search function. I don't know if you remember Eric from back in the day, but ERIC, when did I stop using ERIC? But that was the goal, was to take all the information in education and stick it in ERIC and then you could search it, but you just ended up with a billion fugitive documents and stuff.

He spoke of ERIC as if it was an artefact of the past, completely irrelevant in modern searching.

The utility of Google Scholar, like the utility of bibliographic databases, also depends on one's tenacity and use of the features. One full professor described his use of Google Scholar saying,

> Every now and again, I end up with some really interesting hits. And I'm sure that there is a way to click a button, probably called 'more' and put filters on it in terms of the dates of publication, the kinds of sources that you might draw up. I have had times where I might put in 'black male experiences' or something and pull up three pages of stuff from the Center for Disease Control about medical treatments and trials and drug addiction and stuff, some things that have nothing to do with what I'm looking for. So when you generally look for things I think sometimes I can get a little frustrated for how far I have to dig before I find something that's relevant, but that's not a major gripe of mine.

The option to limit by subject, offered by many bibliographic databases to limit the amount of irrelevant hits, would be helpful here, or a few extra keywords in the search string.

One young scholar told me she relies on Google Scholar despite having reservations about it because she doesn't feel comfortable searching databases anymore.

> I rely heavily on Google Scholar, which I kind of hate. I feel like it pulls so much stuff that it becomes overwhelming. I feel like I'm also rusty in terms of using other databases because all of us have just sort of grown really reliant on Google Scholar. Once in a long while what I will do is: I have a list of journals that I always have in the back of my head and I'll go search them directly. So I'll go to *Gender and Education* or I'll go to the *American Sociological Journal* and I'll pull stuff from them directly, but of course, it's

> hard because you only have room in your head for so many journals. So I do rely pretty heavily on Google Scholar.

She tries to avoid the filter bubble caused by using only Google Scholar by browsing journals and tries to avoid the filter bubble caused by relying on her journal choices by complementing her journal reading habits with searching Google Scholar.

Although Google Scholar provides materials from a wide variety of qualities, some scholars in my study like this feature. These faculty seem to appreciate being able to sort the wheat from the chaff themselves rather than allowing a search tool to do the differentiation for them. One scholar of international higher education said, "I'm happy with getting as many hits with an online search as I get because it allows me to then go through and select." Perhaps the exercise of ruling some pieces of information out as unreliable is a way of reinforcing their self-confidence. However, scholars aren't able to examine all the results Google Scholar returns. He also told me, "I never peruse everything, all the hits that Google Scholar returns. I go through the first three, four, five pages perhaps and typically that gives me enough material, enough information, enough documents to get started." Google Scholar also leaves out resources that may be useful. As one associate professor told me, "it didn't capture stuff that I would have hoped to have captured, but it did have new stuff that I wouldn't have come across otherwise." Google Scholar is really a starting place to find a few articles to chain from, not a place to get a comprehensive view of a topic. Once scholars get started, they trust their memories and bibliographies to lead them to the full set of relevant literature.

Several scholars told me they wished Google Scholar indexed more of the available scholarship. One scholar of minority student engagement said,

> I wish that Google scholar had more, could provide greater access directly to the book chapters, the sources, and because of my own frustrations with that I have in the past six months done more uploading of my own work to academia.edu.

Book chapters present more of a challenge for access than articles. While most journals publish an online version of their articles, which allows indexing, standalone book chapters are not always available digitally for indexing. Authors can also be protective of their royalties for books, which they don't receive for articles. This participant's quote also demonstrates the value of open access publication, not just for dissemination outside academia, but to scholars as well.

While Google Scholar is convenient, I heard from many of my participants that multiple search tools are necessary for thoroughness. Google Scholar is not a sufficient source of information by itself. The library, Google, and journal websites are complementary tools. Peer review helps point out literature you might have missed. Though Google Scholar returns large quantities of things that may be irrelevant, established scholars are not using it to get a full picture of the literature on a topic; rather they are using it to catch up with literature that has been published since the last time they considered the topic.

Gardner and Inger (2016) found that publisher controlled tools to access scholarly information are growing in popularity even though no single publisher provides access to the full breadth of scholarship in a field. Several of my participants also reported using individual journal websites to search for articles in addition to a multi-publisher search like Google Scholar or a library search. This may be a way of triangulating one's search strategies. Though a lot of discovery is done online through keyword searching, and scholars often don't have time to read the journals they like to publish in, journals centered on a topic serve as a modern way of browsing instead of visiting a library in person. Journals collect articles on related topics similar

to the way libraries arrange books on related topics. This is a way to discover articles that are related to your interests but aren't returned by the search terms you choose. Monitoring a journal becomes a way of making some serendipitous finds, rather than relying on your own linguistic formulation of a topic.

Another means of broadening one's search is to use a popular search engine rather than an academic one. One of my participants whose work focuses on equity and social justice prefers Google to Google Scholar. She said,

> I use Google a lot. I actually, maybe other scholars use Google Scholar more often, but I don't actually use Google Scholar that often. I just go to just regular Google. I think Google instead of Google Scholar provides more like not just scholarly articles, but also newspaper articles, all kinds of information that can be used for the lay people, not necessarily the academia. And by having that kind of information I can tell if this topic has been discussed or has been a topic even for the general public. Because I do not want to study certain things that nobody cares, only academics care about. I don't want to do that, I'm a policy person and policy should be related to the real world. So I want to do real work.

She was not the only scholar to report feeling Google was a better place to start than Google Scholar was, but there were also scholars who preferred Google Scholar as a starting place to Google.

Social Media

Social scientists are more likely to share findings through blogs and social media than scientists are (Wolff, Rod, & Schonfeld, 2016). Social scientists are also more likely to value social media as a source of information than scientists or humanists (Housewright, Shonfeld, &

Wulfson, 2013). Twitter is not a place for beginning a literature search, but it is a place for monitoring for new works by colleagues or on particular topics. Though social media provide a new outlet for scholars to learn about and discuss their areas of expertise, most of the scholars I spoke with in this study either did not make use of social media professionally or only used it in a minor way. Several scholars described using social media to disseminate their work, but not to read about the work of others. Some viewed it as not being conducive to the nuance and complexity of scholarly thought. For example, one well published full professor said

> I find the whole Twitter enterprise to be unappealing. It's just an aesthetic violation. I can't find another way to explain it. It's just everybody talking in these tiny little chunks, in these horrible little acronyms and at signs and hashtags and trying to take complex academic material and synthesize it into nothing, into basically just camps. You know, like you're either with me in this camp, or you're not. And mostly people talking inside of an echo sphere, you know, just everybody who agrees on things, or are pretending that they agree on things, all talking to each other. I find it really annoying.

Costa (2014) observed that there is conflict between the norms of academia and those of the participatory web that has the potential to isolate an individual who participates heavily from their colleagues who adhere to traditional academic norms, even while expanding their online network. For instance, Twitter's short format does not lend itself to referencing authoritative sources for an opinion. Instead, it encourages sharing one's opinions and feelings without the backing of empirical evidence. Despite the clash between the norms of Twitter and academia, scholars in my study still feel a certain pressure to participate in the public conversation about their area of expertise and to promote their work in the emerging ways now possible through social media.

Some scholars in my study viewed the self-promoting aspect of social media as unseemly, though they admitted that self-promotion could be a useful tool for increasing their own reputation and the reputation of colleagues in their areas of research. There is an alternative to creating a profile for one's self on Twitter or opting out of the Twitterverse. One assistant professor told me that although she has not joined Twitter, she does check the public Twitter accounts of her colleagues and she hears about interesting developments on Twitter through email from her colleagues.

For many of the scholars I spoke to, Twitter is something they just don't have the time for. For example, one accomplished scholar told me,

> I wish I had the time to think about social media, but I don't. And I am not the kind of person who feels comfortable touting my work. I didn't grow up in that milieu. That's not what we did. I am humble. Which is stupid. But actually, sometimes I feel like I have a set of values that are out of sync. I'm out of sync with that because I think social media and talking about your work over it is what people in my field do now and I don't do it. And it feels different to me. And that's just age showing. That's age and different norms, changing culture of the university. Now I sound like a dinosaur. There's a reality around that. If I was young and energetic, and I didn't have all the responsibilities that I have right now, maybe I would do it. And you know I don't have to. I've got promotion and tenure and I don't need to do it. But I guess if I were trying to keep up with the Joneses as a new scholar then I might feel that it was necessary.

Although she is uninterested in Twitter and Facebook, she does appreciate Academia.edu and ResearchGate because they make identifying reviewers for journal articles simple by collecting the works of particular scholars together.

In contrast to those scholars who thought social media was an inefficient use of time, for one well-published full professor, using Twitter is a way to manage feelings of information overload. She follows trusted organizations to sort out what is most important and keep track of new developments. One young scholar told me she uses social media to find information that is discounted by other information seeking systems. She said,

> I also follow a lot of different blogs. So sometimes, I'll spend a good hour or something on Facebook or Twitter or even sometimes Pinterest, you can find stuff. And you'll also find people writing in spaces and for audiences that you would never capture through a library catalog or through Google Scholar.

One way to differentiate your work from the work of others is to explore resources that others dismiss.

Some scholars I spoke to felt social media was an avenue to hear voices from beyond academia, while others felt the social media network they had was limited to those already involved in their area of study. One associate professor spoke about Twitter as a way to sort out what topics have audiences beyond academia. He said,

> That's actually been extremely helpful for me in not only identifying topical areas that people have seemed to express interest in, and maybe sometimes even talk about without even having much evidence base behind it. And so it gives me some confidence to know, hey, here's a talked about area that I can research and maybe contribute to that discussion later down the road. So it kind of gives me some confidence there, in thinking about the audience. Who are those people? Talking about not necessarily academics, it's more like policy folks, who sometimes engage with academic research.

This difference in outlooks may stem from differences in intended audiences. Policy makers may be more likely to follow scholars on social media than to read scholarly articles, while academics may be more likely to read scholarly articles than to follow their colleagues closely on social media. Popular audiences may be unlikely to read either scholarly articles or scholarly Twitter postings.

Although most scholars in my study thought of Twitter as the social media platform for academic communication, one scholar mentioned using Facebook in a professional, not just a personal way. Watkinson, et al. (2016) found that some scholars strengthen and maintain their professional connections through social media. While scholars in my study generally spoke about Facebook as something they used for personal, not professional purposes, it's likely that their personal contacts include some colleagues in their field. For example, one accomplished full professor told me he segregates his Higher Education commentary on Twitter from his Facebook persona, saying,

> I don't use Facebook for that, generally. I do have Facebook connections to colleagues and to students, but I use it as a more personal thing. It's more like, cat videos, you know, my cat. But every once in a while I'll comment on something, I'll say something about work, but it's not like communicating to the world about my thoughts about work.

Social media is a supplement to interpersonal scholarly communication and a way to disseminate scholarship published elsewhere, but it is not the primary method of dissemination or consumption. Peer reviewed outlets still reign for the purposes of dissemination and consumption of scholarly writing.

Discussion of the Environment for Information Seeking

As Rogers (2003) points out, the adoption of technologies in groups depends on the convenience and complexity of the technologies as well as the visibility of its results. Some valuable search tools are more complicated to use and less inconvenient to access than Google Scholar. These tools could be better advertised by librarians and in Higher Education departments.

It's unreasonable to expect that the advancement of knowledge will happen simply or with great convenience. However, scholars have limited amounts of time at their disposal, so they are bound to be attracted to convenience. Anything that saves time is useful, but individuals have idiosyncratic priorities and methods for searching and saving time. These idiosyncrasies may be precisely what lead to variety in research and a breadth of knowledge, so it's important to enable and encourage them. Thoroughness in exploring literature and using different search strategies is ideal, but not necessarily realistic within in time constraints in an age of exploding literature.

Google Scholar provides one slice of literature for consideration, but not the only possible slice. Part of what is important in research is the positionality of the researcher, so it's a good idea for researchers to individualize their search habits to reflect their personal perspective. Because Higher Education is interdisciplinary, but each Higher Education scholar gets inspiration from different disciplines, it's worth thinking about which disciplines feed into one's personal work. It's a good idea to use databases that reflect one's personal viewpoint and methodological perspective. For example, a particular Higher Education scholar might make use of databases in Gender Studies, psychology, or sociology depending on his or her area of interest. The search functions of different providers like Ebscohost or Proquest can highlight

different literature. Journal publishers like Sage and Taylor and Francis have different search interfaces as well. Accessing some of the journals you admire most is also a good way to search for literature through a lens that matches your research perspective. Being eclectic is a way to expand thinking in Higher Education.

Given that some scholars prefer Google Scholar to library databases, increasing the availability of Higher Education scholarship on the free web would be helpful. This requires negotiation with existing publishers who profit from journal subscriptions. It would also be useful to index chapters in edited books, so the independent chapters can be distinguished from the volume as a whole. Though natural language searching is useful in making literature discoverable, additional keywords in terminology other than the authors' can be helpful to scholars who might phrase a topic differently.

One method of time saving is to spread the burden of reading across different scholars where possible. It makes sense for a library to buy or for a scholar to read books that are very popular, because it's useful to keep up to date with popular knowledge, but it also makes sense to buy or read books that are less well known, because these are the books that will set a library or a scholar apart from others. If many people have read a book, there may be little benefit to the field in one more person reading it, but if no one in a field has read a book yet, there could be a great benefit in introducing its ideas to the field.

The technologies for information seeking are constantly and rapidly changing. Institutional library websites are continually updated. Databases provide changing coverage of journals. The relentlessly changing technological environment can discourage thorough and persistent information seeking. The difficulty of keeping up with new developments in information seeking options creates a temptation to stop trying to keep up. It's important to keep

library patrons up to date with new developments and changes to library resources so they do not develop a static view of tools that are constantly in flux. Faculty should be aware that tools change and they should be on alert for new developments. Although they have many demands on their time, it's important for them to make time for thoughtful searching. Departments can also make an effort to keep their faculty and students up to date with developments.

It's important for librarians to take advantage of the opportunity to teach a faculty members' class in order to reach out to the faculty member, to offer support, and form a relationship. Faculty members should actively participate in information literacy instruction with their classes to keep up date. Their understanding of information seeking tools will be even stronger through teaching them than through hearing about them.

Scholars should not neglect their information literacy skills. These skills are an important facet of faculty development. One is never finished learning information literacy. The skills of information literacy change as the technologies available for finding information change. Faculty development programs should give attention to keeping these skills fresh.

Because of the broad nature of education scholarship, programs that bring well-known scholars from a wide variety of fields to speak may be of use to scholars in education. Guest speakers invited by a variety of departments may be relevant to scholars and students in Higher Education. Guest speakers can alert scholars to ideas they wouldn't otherwise come into contact with.

Libraries should not compete with Google or Google Scholar. They should strive to complement to these search engines, providing services that make up for the weakest aspects of search engines rather than replicating their strengths. They should select and construct services knowing that the library is often a place to conduct (usually virtually) a tailored search after an

initial broad web search has yielded unsatisfactory results. Research guides and instruction sessions should include strategies for improving Google and Google Scholar searches as well as how to use library databases to find information for scholarly work.

The frustration scholars had with the crowded nature of library websites and the many options they needed to click through suggests that perhaps creating separate landing pages for scholars' needs versus the needs of undergraduate library users might be a good idea. Interestingly, at least one of the institutions I studied previously provided separate landing pages for undergraduates, graduate students, and faculty members, but they moved away from this web layout to a generic layout for all users. Though faculty may be the heaviest users of library search tools per capita, they are the smallest group of users on campus and arguably some of the savviest information users, so sometimes their needs are dismissed in favor of the needs of the majority of users, or the users with the least understanding of library research. Libraries should continue to serve the needs of the faculty even though they constitute the minority of our patrons. Faculty members advance knowledge and disseminate information literacy to their students, so their information needs are of great importance.

University libraries could have field specific research guides that list journals in Higher Education by topic so that scholars can track which journals have been added. University libraries could provide a customized search page for faculty members that defaults to scholarly articles, and other options faculty members may prefer. It is important to initiate scholars who are new to an institution or to faculty work into the practices and services of the institution they join. Libraries can help with this.

It's important for scholars to make an informed choice about the advantages and disadvantages of social media for their work. Because they have limited time to explore these

pros and cons the library and faculty workshops should provide them with information about their utility in a concise manner. Librarians may consider how they can help scholars who do not have the time for social media identify ways to publicize their work now that this is becoming increasingly important.

Conclusion

The findings of this study suggest implications for scholars of Higher Education and other applied social science fields as well. When scholars make decisions about the search tools they use they should take into account what they might be missing or where they could be saving themselves time. Scholars should also consider how they are developing their interpersonal networks and what impact they have on their students and colleagues through the division of research labor they create. Beginning scholars should be clear about the norms and influences they will face as they advance in their careers. Advanced scholars should be cautious of forming a static opinion of scholars in their field or search tools for information searching.

To advance Higher Education, scholars should seek to address problems from beyond academic literature alone. They should think of their audience as extending beyond the attendees of the ASHE conference. Policy changes inside and outside Higher Education affect the practice of Higher Education. Although they may not be the focus of the academic reward system, these climatic changes should be a part of the scholarly conversation. An ideal reward system would reward scholars, not just for their outputs, but for their impacts. Scholars can encourage a culture of addressing important Higher Education topics by pushing themselves and one another to think beyond what will fit best into existing conference and journal themes.

Departments of Higher Education can encourage thoughtful information seeking by encouraging collaboration between faculty members from different generations and encouraging interaction across disciplinary and institutional boundaries. Inviting guest lecturers and librarians to share their expertise and participate in department events can provide an opportunity for new perspectives to enter the department and new relationships to form. Encouraging faculty to

incorporate library instruction in their classes encourages good information seeking habits in both students and faculty.

In the same way that literature searching is characterized by the common behaviors identified by Ellis (1989), interpersonal searching and tool selection are characterized by these behaviors as well. Scholars sometimes "chain" from one interpersonal source to another, as they might chain between articles that reference one another. They also need to "monitor" the field of information seeking to keep up with the emergence of new tools and "differentiate" between those tools just as they monitor the field of education for new developments and trends and differentiate between the relative importance of those trends.

Because of the fragmentation of the field of Higher Education, the high reliance on interpersonal interaction, and the varied epistemological approaches to knowledge, it's unlikely that Higher Education will develop a unified method of information seeking which would allow for field specific information seeking tools to be developed. Scholarship in pure disciplines whose audience is primarily academics rather than practitioners may have more limited sources of information to monitor. Unlike physics or mathematics where scholars post their ideas to ArXiv to lay claim to them, there is little fear of being "scooped" in Higher Education. There will always be a multitude of places to search for information relevant to Higher Education, because it doesn't come from a single discipline or from academia alone.

It makes sense that scholars in Higher Education have not widely adopted an open access journal created in the digital age, because name recognition is highly valued in the field. Although open access publication is correlated with higher citation numbers (Harley, Acord, Earl-Novell, Lawrence, & King, 2010), scholars of Higher Education tend not to value citation numbers as much as prestigious journal titles. Unlike scientists who can publish in an outlet

without an established reputation and have a good chance to make up for it with a great number of citations, social scientists cannot depend on citation counts to establish their reputations. The time investment necessary for research makes gambling with unknown publication outlets riskier for social scientists than scientists. If a well-known Higher Education journal were to receive a subsidy from a foundation or association to become open access, Higher Education scholars would be likely to continue publishing there. If publishers considered university library payments author fees rather than reader subscriptions, a great many more readers would have access, but fewer institutions might agree to make payments. Libraries might be less willing to pay if they would have access to scholarship even if they didn't pay author fees.

Although open access options are not appealing to Higher Education scholars now, if they self-archived their work in digital repositories, access to it might be improved. The common use of Google Scholar and Google among Higher Education faculty suggests that if open access were widely adopted, Higher Education scholarship would easily be located by Higher Education scholars using their current methods of search.

The distrust of preprint repositories among Higher Education scholars makes sense because they value peer review highly. An article might change significantly due to peer review, making it undesirable to have a conflicting preprint version of the article available online. Higher Education scholars are not in need of access to greater volumes of information. They are in need of high quality information. Postprint green open access is a better fit for the field of Higher Education than preprint green open access or gold open access. However, it raises the question of how publication should be financed.

It's unlikely the field of Higher Education will readily adopt altmetrics as a means of evaluation. While altmetrics, such as the number of media mentions or tweets an article gets, or

the number of times it has been viewed or downloaded, may be the best indicators of whether practitioners are making use of a scholar's work, the resistance in the field to quantitative assessment of work makes altmetrics as questionable as traditional quantitative measures. Like citation counts, altmetrics are a problematic way to evaluate scholarship because they are still a measure of popularity, not of quality. Scholars of Higher Education distrust journal impact factors or altmetrics as the measure of the quality of articles with reason. Instead, the flexibility of tenure evaluations is very important in Higher Education. It allows for a variety of arguments for merit rather than strict adherence to any particular metric. It asks evaluating scholars to rely on their judgement rather than a limited proxy.

Because Higher Education is an applied field, scholars in the field have pressures not faced by scholars in pure disciplines. They have the additional burden of creating an impact on the field as well as describing the phenomena of the field. Instead of being able to concentrate on their research, they also feel pressure to be public figures, translating their work to audiences beyond academia rather than leaving that task to professional journalists. Because their work is value laden and has implications on the world outside academia, they risk emotional repercussions from dissemination of their work outside of the academy. Rigorous scholarship demands nuance and careful review while communication with the public demands brevity and timeliness. These competing demands create conflict for the dissemination of scholarship in Higher Education. Rather than expect Higher Education scholars to be responsible for both the advancement of knowledge and the dissemination of it, which may require different temperaments, it is in the best interest of universities to publicize and market the work of their faculty to increase recognition of their work.

Social media implies a kind of equality between participants that denies the difference in quality between informed, evidence based information and emotionally driven opinions. Demanding that academics disseminate and publicize their work to the public encroaches on the time they can devote to research. While in theory the interaction made possible by the web could improve scholarship, in practice little constructive feedback happens online. This is evident in the public sphere from the fact that news outlets including Reuters and National Public Radio have eliminated the opportunity for comments on their websites (Jensen, 2016; Leetaru, 2015). The slow pace of change in scholarly communication practices among Higher Education scholars has protected them from fully adopting methods of communication that was implemented elsewhere and has proved to have drawbacks. It is the duty of scholars of Higher Education and librarians to stay current with changes in scholarly communication, but also to assess them with a critical eye to judge their advantages and disadvantages compared to existing patterns of communication.

This study highlights the importance of having librarians in universities to consider faculty needs and create tools and instruction to best serve those needs. Librarians who serve Higher Education programs can benefit from thinking of the information seeking practices of faculty as dependent on their publication pressures, interpersonal research networks, and knowledge of search tools. While information anxiety is a phenomenon usually recognized in children, a doctorate does not preclude information users from this phenomenon. Affect plays an important role in the work of scholars. In a time when Higher Education scholars face increased opportunity and therefore increased pressure to make their work publicly accessible, librarians should strive to take up some of their burden by helping them manage the dissemination of their work.

If I were to revise my conceptual framework figure from chapter three in light of my findings, I would add another factor named "disposition toward scholarship with students" contributing to "orientation toward help seeking." While the information behavior theories I read to construct my conceptual framework did not prepare me to look for this disposition, it was a strong theme throughout my interviews and deserves consideration in a conceptualization of faculty information seeking. I would place this factor in the interpersonal set of boxes influencing information seeking. I would also leave the borders of the boxes on my variables dashed rather than solid to indicate that these factors are not static, but influenced by one another and changing over time. One example of this is that scholars in my study began to develop their research habits from their faculty mentors as graduate students. Their interpersonal networks, knowledge of the field, and scholarly interests were influenced by the faculty members who served as their advisors, professors, and supervisors when they were graduate students.

It would be useful to investigate faculty information seeking at other institutional types. It would be a good idea to investigate the information seeking behaviors of non-tenure track faculty members. While writing findings for this study, I began to wonder about the role of non-academic information sources in shaping academic writing. I think there is value in investigating whether scholars who read a lot of fiction or popular nonfiction write in a more engaging style that is more appealing to reviewers and editors. I would like to determine how well co-authorship with a faculty member as a student is correlates to employment in a tenure track position. It would also be useful to explore the process of tenure evaluation in Higher Education programs to discover how much flexibility there is in publication outlets and what the role of quantity and quality is within the field. I think this would be helpful to aspiring graduate students and new faculty members.

APPENDIX

Glossary

Altmetrics-

Alternative metrics for measuring scholarly publication records. In place of citation counts, one might measure .html views, .pdf downloads, or Twitter mentions.

Green open access-

Scholars self-archive their work in a repository or on their personal website to make it openly available without charge. This can be done in addition to publishing in a conventional journal

Gold open access-

Online open access journals that sometimes charge publishing fees in lieu of charging users for access to scholarship. This can include peer review

H-index –

When a scholar or journal's articles are listed in reverse order of number of citations, the number of the last article in which the number of citations is greater than or equal to the article's number in the list is the h-index

Information behavior –

How people seek, use, create, and share information

Journal Impact Factor –

The average number of times articles published in the past two years by a journal are cited in a year as reported in the Journal Citation Reports database

Paywall –

A subscription that must be paid to permit access to scholarship

Preprint repositories –

Open access websites that host versions of scholarship which have not been published in a journal before being posted

Search Limiters –

Mechanisms to filter search results such as by language, material type, or date of publication

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